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Titel der Diplomarbeit

**“TIME MATTERS!
GRAPHICAL SUPPORT AS WELL?
Data-Driven Phase Analysis of E-Negotiation
Processes using a Qualitative-Quantitative Research
Approach”**

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*To my family and friends.
For their endless love and support.*

*"Don't walk in front of me, I may not follow.
Don't walk behind me, I may not lead.
Just walk beside me and be my friend."
(Albert Camus)*

*“Tell me and I’ll forget.
Show me, and I may not remember.
Involve me, and I’ll understand.”
(Native American Proverb)*

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*“TIME MATTERS in negotiations;
a negotiation begins, unfolds, and concludes.”
(Holmes 1992, p. 83)*

1. Introduction

Negotiations can be defined as processes, in which modifications of elements like expectations, concerns, issues and strategies occur (Putnam, 1990). As time is a crucial aspect when processes are investigated (Zartman, 1977) it should be incorporated in studies of negotiation processes.

Whereas other methods, like the frequency and sequence approach (Weingart & Olekalns, 2004), used to analyse negotiation processes, disregard time in their analysis, phase analysis is an appropriate tool to detect behavioural changes over time. It allows researchers to integrate time in their analysis and, thus, to map the progression of the negotiation process (Holmes, 1992).

Until today, empirical studies in this research area are sparse and phase analysis can still be considered in its infancy (Weingart et al., 2004). Overall, empirical results are missing for electronic negotiations. To my knowledge, electronic negotiations were tested only twice for phases and solely negotiations conducted via passive Electronic Negotiation Systems have been investigated (see Pesendorfer et al., 2006; Koeszegi et al., 2007).

The presence of differences between face-to-face negotiations and electronic negotiations has been demonstrated by testing the influence of diverse dimensions on electronic negotiations in various fields (see e.g., Delaney et al., 1997; Friedman & Currall, 2003; Kersten et al. 2003; Foroughi et al., 2005; Nowak et al., 2005). Furthermore, distinctions between asynchronous and synchronous electronic negotiations have been investigated (see e.g., Pesendorfer & Koeszegi, 2006) as well as impacts of different support levels on the negotiation process and outcome (see e.g., Koeszegi et al., 2006; Weber et al., 2006). As there is no clarity how different levels of negotiation support and representation support tools influence the behaviour of negotiators during negotiations and subsequently the phase structure of the negotiation process,

researchers are invited to further study behavioural changes over time taking into consideration the just mentioned variables.

This diploma thesis and present study is used to provide further information about phase structures in diverse electronic negotiations. Negotiation protocols from four negotiation groups, provided with different levels of negotiation support, are analysed. The novelty of this study is its analysis of phase structures showing up in negotiation protocols of different active and passive Electronic Negotiation Systems. It becomes thus possible to detect differences in phase structure due to the negotiation support provided.

Two research questions are developed to investigate the issue. On the one hand, it is studied whether discrete phases are detectable in electronic negotiations in general and then the behaviour within different negotiation phases is compared to phase models identified in face-to-face negotiations. On the other hand, focus is put on phase length to investigate whether significant deviations from equal split points can be detected. This is of utmost interest to look whether interval-driven approaches are appropriate to analyse electronic negotiations. As, in this area, there are few studies available, the research focus can be considered exploratory in nature.

An innovative, data-driven approach (Koeszegi et al., 2007), combining elements of the interval-driven and event-driven approach, is used for the conduction of the phase analysis. This new approach overcomes heretofore existing, methodological weaknesses.

The diploma thesis is structured in the following way: In chapter one, the theoretical background will be elaborated. Therefore, in the first section, a brief overview on negotiation analysis will be given and then, in the second section, phase analysis will be covered in detail. In section three, focus will be put on Negotiation Support Systems and their importance for electronic negotiations and in succession different representation aids are discussed. Based on the theoretical background, two research questions will be developed in chapter three. The experiment, created to collect information, and the method, used to edit the data, are outlined in chapter four. Finally, in chapter five, results are presented and discussed and conclusions are drawn.

“Let us never negotiate out of fear. But let us never fear to negotiate.”
(John F. Kennedy cited in Weiss 2005, p. 26)

2. Theoretical Background

2.1 Brief Review of Negotiation Analysis

Many researchers have studied individual decision making in the field of decision science and behavioural decision making. Negotiations differ from individual decision making as negotiators can not take individual decisions without considering the counterpart, but negotiations still include individual decisions (Kersten, 2006). Therefore Kersten (2006) argues that decision scientists as well as behavioural researchers are both “[...] concerned with negotiation processes and propose various constructs to describe and model these processes” (chapter 5, p.1). The major differences and similarities between individual decision-making situations and negotiations are outlined in the following figure 1.

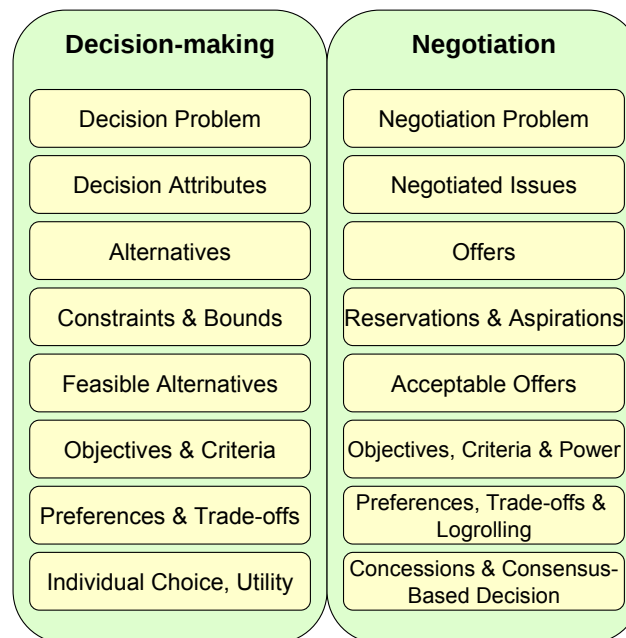


Figure 1: Key concepts in individual decision-making and negotiations
(adapted from Kersten 2006, chapter 5, p. 2)

Zartman (1977) describes a negotiation as “[...] a joint decision-making process in which both parties are necessary to the decision, or otherwise stated, in which each party has veto power” (p. 623). He further argues that both

negotiation partners have diverse incentives to come to an agreement or not and that the most important question researchers have to ask themselves is how negotiators make their decisions. As negotiations can be very complex and multifarious, there are many factors one has to take into account when investigating the phenomenon of negotiating. Therefore it becomes difficult to make predictions of the possible outcome of a negotiation as well as to decide which variables to consider in the analysis (Zartman, 1977; Yang & Tien, 2005).

Rangaswamy and Shell (1997) say that “In operational terms, negotiation analysis is used for developing methods to achieve integrative settlements by giving negotiators decision-analytic and other tools to help them articulate their own preferences clearly, and to help one or more parties match up their preferences with those of other parties during the negotiation process” (p. 1149).

Hitherto different approaches have been used in negotiation analysis to investigate negotiations and increase the researchers’ and negotiators’ understanding of their complexity. In the literature one can find a wide range of approaches named in distinct ways.

By all means, all approaches to negotiations are linked with each other in a certain way. To catch the whole complexity of negotiations, they have to be considered of equal importance and researchers have to properly decide what they want to analyse and in succession what approaches to use to get valid and reliable results.

The following outline gives a brief insight into some of them, but should not be considered overarching.

2.1.1 Decision Science

Negotiation analysis is rooted in game theory and decision analysis and its goal is to provide advice for negotiators and other involved parties by developing prescriptive theory (Sebenius, 1992; Teich et al., 1994).

The game-theoretical approach has been used as a guideline through well-structured settings and for the development of negotiations. It aims at providing frameworks for conflict situations and is based on the assumption of rational

behaviour and perfect mutual knowledge about preferences of the negotiators. Major emphasis has often been put on the outcome of negotiations, because researchers wanted to obtain explanations of the different factors affecting the result. Furthermore, their aim is to get to know how they can influence the outcome. Game theory intends to predict equilibrium outcomes assuming that negotiators are absolutely rational. Due to the lack of knowledge of the other's intentions and the limited rationality of human beings, game theoretic approaches often do not fit when analyzing negotiation problems (Zartman, 1977; Sebenius, 1992, Teich et al., 1994).

Economic approaches to negotiation analysis also have weaknesses as they often assume that counterparts have full information about preferences and further, that the only aim of each negotiator is to maximize their own utility. This can be explained as economic models have their roots in labour negotiations and price determinations. Whereas game theory models are principally static, economic models also take into account the process of negotiating. Both approaches, the economic as well as the game theoretic approach, are valid in terms of internal consistency, but criticised for their inability to increase the understanding of the real negotiation process (Zartman, 1977; Lim & Benbasat, 1992-1993; Cross, 1994).

In general, referring to Kersten (2006), decision sciences is thus “[...] concerned with the construction of prescriptive and normative models and algorithms that tell how a decision-making process should be approached and how to determine a decision that meets certain assumptions defined a priori” (chapter 5, p.1).

2.1.2 Behavioural/Communication Perspective

Another perspective when analysing negotiations is to focus on the interaction between negotiation partners and the whole negotiation process. Zartman (1977) argues that process analysis considers every negotiation as a learning process focusing on the mode how counterparts act and react to each others behaviour. In general, learning has always been of utmost importance in studies of psychologists and Rubin (2002) says that “Learning entails the incorporation

of new information or insights, new ways of seeing the world, and new ways of behaving, and this process necessarily involves change over time” (p. 264).

The behaviour of individuals is the result of the interplay between the individual itself, the situational conditions as well as the interaction between situation and person (Rubin, 2002). Behavioural researchers thus put emphasis on providing descriptive and prescriptive models dealing with the real operations of decision makers and negotiators, respectively, and their outcome (Kersten, 2006).

Olekalns (2002) argues that the behavioural approach brought along a change as researchers started to concentrate on the negotiators’ cognition. She further states that researchers put emphasis on “[...] more social aspects of the negotiation, including the development and influence of negotiating relationship, the role of trust and emotion, as well as on questions of ethical behaviour” (p. 40). This approach places value on the negotiation partners and their personality taking into account behavioural characteristics.

To study negotiations focusing on the process, behavioural and communicational approaches have often been used and applied in research and are therefore briefly discussed now.

The psychological approach plays an important role in the realm of behavioural research. Putnam and Poole say that “[...] the psychological approach conceptualizes negotiation disputes as semantic misunderstandings or as differences in how interaction is perceived by opponents” (Chatman et al. 1991, p. 141). It puts focus on the counterparts and emphasises characteristics of both counterparts taking into account their attitudes, cognitions and perceptions (Zartman, 1977; Chatman et al., 1991; Holmes, 1992).

In the course of behavioural and cognitive psychology decision research, both negotiation partners are thus regarded as decision makers who make their individual decisions due to their evaluation of the negotiation and its process (Foroughi, 1998).

Another pathway, as just mentioned, is integrating communication research and negotiation research. Communication plays a crucial role in negotiations as it is “at the heart of the negotiating process [and] is the central instrumental process” of negotiating (Lewicki and Litterer, cited in Chatman et al. 1991, p. 139). The

consideration of nonverbal and verbal cues exchanged between negotiators in form of messages is important. As individuals perceive messages in distinct ways, there can be deviations between people as they encode and decode messages. Another important factor influencing the communication of negotiators is the channel used to transmit messages (e.g., face-to-face, written, audio, etc). The whole process of message transmission and de- and encoding, including the creation, transformation and deciphering of verbal and nonverbal cues, helps negotiators understand the meaning of messages (Chatman et al., 1991). Olekalns (2002) argues that communication research among other things “[...] shifts the level of analysis from the individual negotiator to the dyad” (p. 40).

Weingart and Olekalns (2004) say that “[...] the process of negotiation, or the ways in which negotiators communicate in their search for an agreement, has received less research attention than have inputs (e.g., negotiator characteristics, styles, cognitions, motives, goals; contextual features, culture) and outcomes of negotiation (distribution of resources, integrativeness of agreements)” (p. 143). To get a deeper insight into negotiation it is therefore very important to investigate the communication during a negotiation and its process.

Weingart & Olekalns (2004) distinguish between a frequency approach, sequence approach and phase model approach. Measuring frequencies of negotiation behaviour sheds light on negotiators’ goals and how they want to achieve it. Sequences of negotiators’ behaviour can be described as action-response sets of behavioural actions. They can rather be reciprocal, when the behaviours of the counterparts match; complementary, when the sequences are balanced but strategies are not equal and structural when behaviours apparently do not match at all. The analysis of phases makes it possible to identify how negotiations progress over a specific period of time (Weingart & Olekalns, 2004; Adair & Brett, 2004).

The first and the second approach do not incorporate time, i.e. the progression of negotiation processes. However, time is considered crucial in negotiations (Holmes, 1992) and phase analysis can thus be regarded as an appropriate tool to investigate negotiations and to detect behavioural changes over time.

Furthermore, the frequency approach has more often been applied to analyse electronic negotiations (see e.g., Koeszegi et al., 2006; Pesendorfer & Koeszegi, 2006) compared to methods determining different negotiation phases. Therefore, in the present study, phase analysis has been applied to explore negotiation processes and provide further insights into behavioural changes over time.

2.2 Phase Analysis

The analysis of phases during the negotiation process is one stream of negotiation analysis putting focus on the successiveness of events during negotiations. The particularity of phase analysis lies in the consideration of time as a crucial factor (Holmes, 1992).

Holmes (1992) argues that phase models aim at shaping the negotiation process into “[...] sequentially ordered stages or phases that constitute a coherent story” (p. 93). He further states that “In phase modelling, the researcher aims to identify the dynamics that create change over time, that is, what causes the end of one phase and the beginning of the next” (p. 94).

Time is a crucial aspect in process analysis (Zartman, 1977) and in previous papers the impact of time and overall of time pressure in negotiations has been investigated (see e.g., Carnevale & Lawler, 1986; Stuhlmacher et al., 1998). Recently, phase analysis has become a popular tool to integrate time when analysing negotiations.

Putnam (1990) even states that following a process approach, the process “[...] is not simply a variable or a method of analysis, rather it represents a theory of a perspective for investigating negotiations” (p. 4).

Phase analysis falls, as already mentioned, in the field of communication and behavioural research, respectively, because of its definition of negotiations as processes composed of interchanged communicative acts (Holmes, 1992).

Putnam and Jones (1982) argue that “Communicative acts embody both content and relationship dimensions, both of which take on meaning in the context of patterned sets of behaviours” (p. 265). Phase analysis, as it aims at detecting regular changing behaviour during the negotiation process, is thus a

method to investigate communication and its changes during the negotiation process.

2.2.1 Categorization of Phase Models

There are different ways to differentiate between various phase models. They can be distinguished according to their prescriptive or descriptive character, in relation with their number of phases or on the basis of the determination of phases.

2.2.1.1 Prescriptive versus Descriptive Phase Models

Prescriptive negotiation models aim at providing advices for negotiators to act in a more efficient and effective manner dealing with ways how to influence their counterparts and manipulate the whole negotiation process. Kersten (2006) argues that “They prescribe the best ways in a particular negotiation situation by showing what and why a particular action should be taken” (chapter 2, p. 31).

Many prescriptive phase models do not take into consideration the communication between the negotiation partners. Their weakness is that they are based on the personal experience of the researchers rather than on transactions between negotiators. These models put focus on the decision-making of one individual during the negotiation process and researchers regarded negotiations as joint-decision making processes. Therefore they were acting in the field of decision analysis implying that each negotiator is able to control phases and that, if negotiators follow the path of certain phases, it is impossible that they fail (Holmes, 1992).

Descriptive negotiation models, on the other hand, are behavioural models focusing on the behaviour of people and changes in their activities aiming at providing insights in their causes. Their intention thus is “[...] to understand rather than judge or inflict change” (Kersten 2006, chapter 2, p. 30).

When descriptive models possess broad empirical accuracy it becomes possible, apart from better understanding the whole process of negotiation, to make “[...] highly accurate predictions about results of the similar phenomena or processes” (Kersten 2006, chapter 2, p. 30). Therefore, the higher the empirical accuracy of a descriptive model, the higher its predictive power.

Furthermore, in the case that descriptive models also comprise explanations for observed behaviour and detected changes and provide implications how to influence them, descriptive models can gain prescriptive power (Kersten, 2006).

In the range of phase analysis, former researches, emphasising the interaction between negotiators, did provide descriptive phase models but unfortunately there was no possibility to generalize their results due to methodological weaknesses resulting in a lack of portability to other negotiations (Holmes, 1992).

One of the most important descriptive phase models is Douglas's work providing a three-phase model out of her observation of a collective bargaining process (Jones, 1988; Holmes, 1992; Lewicki et al., 1992). Her model has served as a cornerstone for further analysis and researchers have often based their work on her findings when testing their own observations of negotiation processes. Douglas differentiates between three different phases. When negotiators start their conversation the level of disagreement and demands is high. Within the second phase, the counterparts start looking for areas of possible agreement and negotiators are interacting in an extensive way. The last negotiation phase proposed by Douglas leads to the end of a negotiation and a possible agreement (Jones, 1988; Holmes, 1992; Lewicki et al., 1992). Although her model has been criticised due to its simplicity and her way of setting the phases, it has been one of the first steps to phase analysis in negotiation research.

Another important descriptive phase model, which has been fundamental in the development of phase analysis in negotiation processes, is the eight phase model proposed by Gulliver (Jones, 1988; Holmes, 1992; Lewicki et al., 1992). He investigated a mix of different cross-cultural negotiations at a more sophisticated level than Douglas and was able to detect eight phases. He, furthermore, was the first to combine two processes and he defined negotiations as being composed of a cyclical process lasting during the whole negotiation in which information is exchanged and the development of a negotiation in stages over time (Weiss-Wik, 1983; Holmes, 1992; Lewicki et al., 1992).

Gulliver's model has been tested by Holmes (1997) who analyzed authentic and simulated hostage negotiations using interaction analysis and phase mapping techniques. Empirical affirmation of the validity of Gulliver's model in simulated hostage negotiations could be provided (Holmes, 1997).

2.2.1.2 Number of Phases

Phase models can vary according to their number of phases. The majority of negotiation models consists of either two, three or four phases.

2.2.1.2.1 Two Phase Model

Former negotiation and bargaining theory implies that negotiations start with more competitive behaviour of the counterparts (high demands, posturing) in the first phase of the negotiation and then continue with more cooperative performance (quicker concessions, lower demands) (Jones, 1988; Lewicki et al. 1992; Adair & Brett, 2005).

Walton's two phase model distinguishing between a differentiation and integration phase (Jones, 1988) and Steven's model, focusing on a shift from conflicting interaction to concentration on problem solving (Jones, 1988; Adair & Brett, 2005), are two out of several popular models.

Within the differentiation phase, negotiators state their position, offend the counterpart's option and aim at provoking emotions and gathering important, detailed information. In this phase there is a high risk that the negotiation fails and the conflict escalates. Therefore it is crucial that negotiators, after the definition of their negotiation range, pass to an integration phase (Jones, 1988). An integration phase is characterised by a problem-solving orientation of both negotiation partners focusing mutual acceptable alternatives. Jones (1988) argues that "Integration behaviours include analysis of the potential negotiation range, discussion of potential solutions, establishment of tentative areas of agreement, and the formulation of a final agreement" (p. 471).

The distinction between a differentiation and an integration phase is illustrated in the following figure 2.

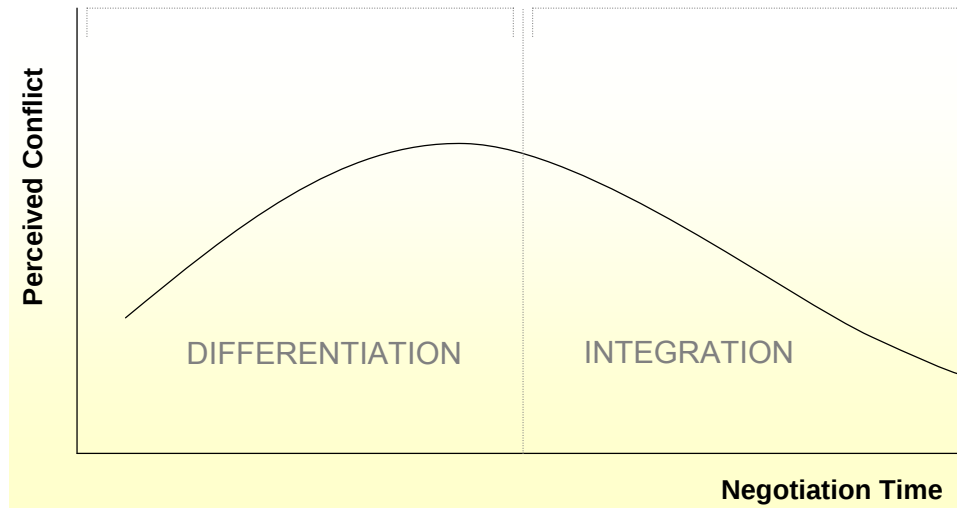


Figure 2: Negotiation Behaviour over Time in a Face-to-Face Setting
(adapted from Pesendorfer et al. 2006, p.109)

In recent years, theory about two phases in negotiations has been tested in various areas.

O'Connor and Adams (1999) conducted a content analysis of negotiation scripts and say that novices "[...] hold a socially shared negotiation script" (p. 142) and that they assume that the first phase of a negotiation is used to introduce the position whereas in the further stages focus is set on deal making (O'Connor & Adams, 1999).

A time pressure study carried out by Stuhlmacher et al. (1998) also demonstrates that with increasing time pressure during a negotiation cooperative behaviour increases.

Recently, Olekalns et al. (2003) conducted a study focusing on strategic orientation as well as on strategic function (action and information) clustering these two dimensions (see table 1).

During their study, they put focus on the examination of transitions of stages. They considered that negotiators implicitly shift from one stage to another after having finished a certain series of duties. On the other hand, they wanted to test whether negotiators intervene explicitly to redirect the negotiation process naming such shifts 'interruptions'. As episodic models are more likely to make a clear observation of such shifts, they used this type of methodological approach (which will be outlined in the next section) to conduct their research (Olekalns et al., 2003).

Olekalns et al. (2003) used a phase mapping procedure to map the negotiation process of multi-party negotiations on the basis of strategy activity. The same method was employed by Donohue and Roberto (1996) in their study about three models of integrative and distributive bargaining proposed by Putnam (1990). This means that phases were supposed to change when strategies, detected through their speaking turns, changed (Olekalns et al., 2003).

They found out that double transitions occurred less frequently than single transitions. That implies that negotiators prefer only to change function or orientation, but avoid changing both aspects at the same time (Olekalns et al., 2003).

The second research outcome deals with the consistency of starting the negotiation with distributive phases rather than with integration. After a phase of positioning, integrative behavioural moves could be examined (Olekalns et al., 2003).

Olekalns et al. (2003) say that “[...] negotiators blended integrative and distributive phases, as well as information and action phases, as required for settlement” (p. 206). They consider that it would be helpful for negotiators to realize when and how transitions should be made. They assume that this would lead to more unproblematic negotiation processes and people would not need to interrupt the process to reroute it (Oleklans et al., 2003). Druckman (1986) already defined a steady negotiation process as a process “[...] that moves through the stages with few impasses and no crises” (p. 334).

Olekalns et al. (2003) thus highlight the importance for all negotiators not only to focus on their duty, but also to consider the negotiation process and consequently to their findings and in regard of achieving such a process, they recommend that “[...] if groups initiate negotiations with an integrative strategy, they should pay considerable attention to sustaining that strategy” (p. 206) as it is not easy to come back to integration if, by the first distributive move from another member, strategy is changed.

Olekalns et al. (2003) state that in negotiations “[...] action before information and distribution before integration are normative” (p. 207).

STRATEGIC FUNCTION	STRATEGIC ORIENTATION	
	Distributive	Integrative
Information	<i>Distributive Information</i> Positions Facts	<i>Integrative Information</i> Priorities Needs Interests
Action	<i>Claiming Value</i> Substantiation Threats Power Use Bottom-Line Single-Issue Offers	<i>Creating Value</i> Packaging Tradeoffs Creative Solutions Multi-Issue Offers

Table 1: Strategic Orientation & Function (Olekalns et al. 2003, p. 193)

2.2.1.2.2 Three Phase Model

Douglas was one of the first authors to distinguish between three negotiation phases, but, as already mentioned, it was difficult to generalise her results. However, her model and its three stages have provided future authors with a solid foundation.

Holmes (1992) summarises various prescriptive and descriptive phase models (entire tables available in the Appendix) and develops his own phase model based on a comparative survey of the existing ones. He uses an event-driven approach to define three predictable stages of negotiations as it is possible to detect consistency in the development of negotiations over time although different phase models vary in their number of phases.

Holmes (1992) states that all phase models, consisting of more than just two phases, are composed of three types of stages: a problem initiation phase, a problem-solving phase and a problem resolution phase. This order of events and progress of negotiations corresponds to Douglas' model.

In the first stage negotiators try to highlight their position, point out their own preferences, focus on differences between both of them and find out where their goals mismatch. After the initiation, the counterparts try to start solving the problem by exchanging information and looking for mutually acceptable solutions. In the last negotiation stage, possible agreements are stated, details are taken into consideration and the final agreement is worked out (Holmes, 1992).

Other researchers, supporting phase models consisting of three phases, also divide negotiations in sections of spirited conflict, tactical manoeuvres, and reducing alternatives to final agreement (Adair & Brett, 2005).

Adair and Brett (2005) argue that empirical results testing three phase models tend to indicate “[...] a gradual progression from a more competitive to a more cooperative focus” (p. 34) and therefore resemble two phase models in this general regard.

2.2.1.2.3 Four Phase Model

Some researchers found out that people do not just become more cooperative as time passes during mixed motive negotiations, but that they alternate between competitive and cooperative behaviour (see e.g., Olekalns et al., 1996; Lytle et al., 1999; Olekalns et al., 2003) which led to a further expansion of the two and three stage model.

Adair and Brett (2005) present a sequential four stage model allowing “[...] a finely grained analysis of the evolution of negotiations [...] at different time periods” (p. 34).

Their sequential model consists of the following phases: relational positioning, identifying the problem, generating solutions, and reaching the agreement (Adair & Brett 2005).

The first stage is used to emphasise the negotiators’ power and status using for example statements of affective persuasion or priority information. As negotiators realise that relational positioning does not lead to progress in perpetuity, they pass on to a stage where issues are discussed and priority information exchange further increases. Within the third stage, negotiators start to exchange offers and behave in a more competitive manner again as they try to achieve a good agreement. The third stage can be described as “[...] a distinct, energetic, even passionate stage, with parties shifting between a focus on integrating information and influencing the outcome” (Adair & Brett 2005, p. 36). Negotiators use rational arguments to persuade the counterpart and influence the outcome. When parties begin to look for mutually acceptable agreements and their number of alternatives shrinks, they have proceeded to the final, fourth stage. Both counterparts possess sufficient information and

therefore offers (single as well as multi-issue offers) are made to find an agreement, but also to accomplish own objectives.

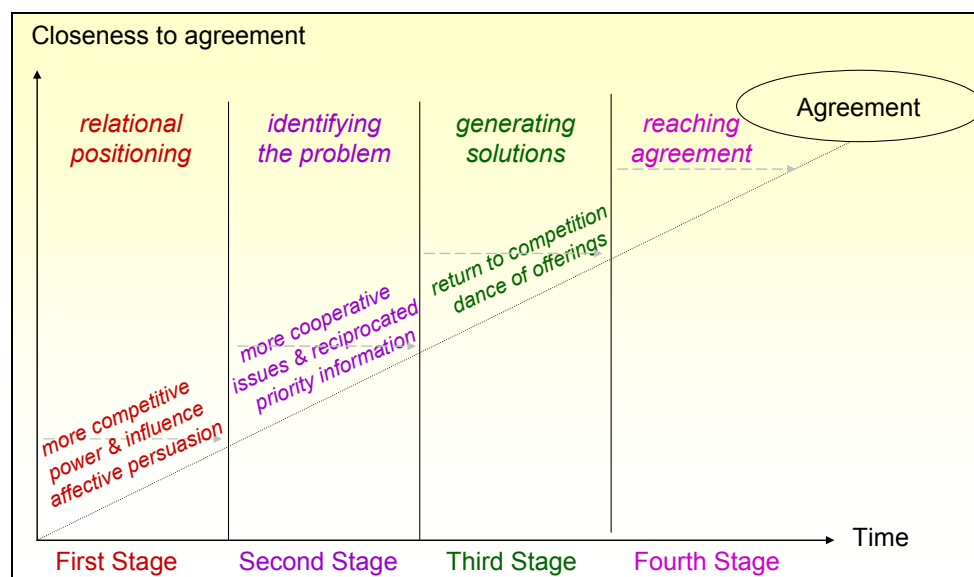


Figure 3: Four Stage Model (Adair & Brett, 2005)

To test their model, the authors used an interval-driven approach and empirical evidence for the existence of all four stages could be provided. Their results supported their sequential four-stage negotiation model as negotiators did proceed from stage to stage no matter of the time they spend negotiating (Adair & Brett, 2005).

For the identification of the phases mentioned above, i.e. the splitting of negotiation processes into phases of coherent behaviour, several approaches can be applied. Various methods, used to determine different phases during negotiation processes, are presented in the following section.

2.2.1.3 Determination of Phases

In phase analysis, the definition of a phase has to be considered very important as researchers, using different phase models, determine it in distinct ways. Apart from this, the definition is tipping the scales for the method used to identify phases and the detection of transitions between them (Holmes, 1992).

To illustrate the complexity of negotiations, hypothetical negotiation processes in its chronological sequence are presented in figure 4. The illustration is used to demonstrate the variety of complex negotiation histories and the difficulty to detect generalisable phases in negotiation processes.

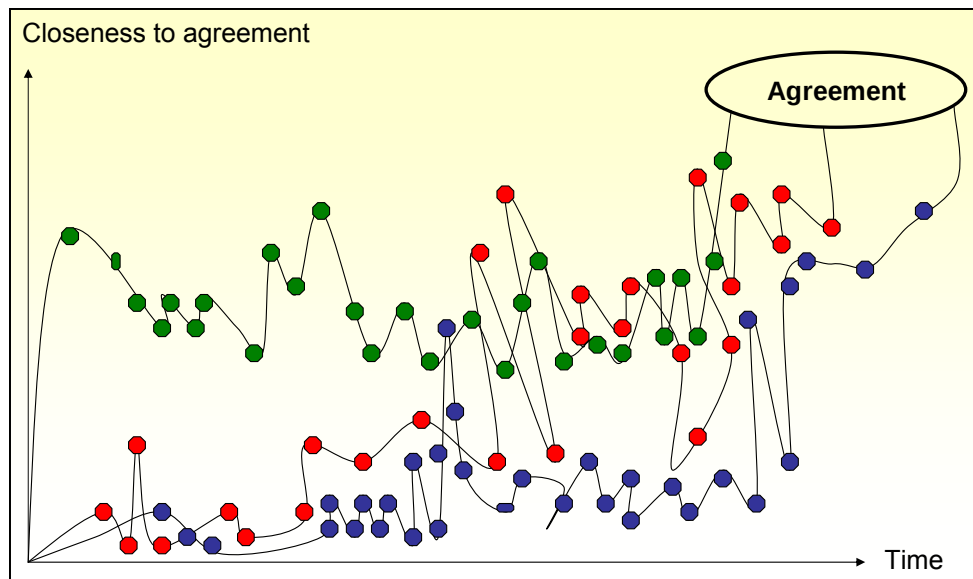


Figure 4: Chronological History of Hypothetical Negotiation Processes

To help negotiators understand the negotiation process in a broader sense and to get away from the micro perspective when analyzing negotiations, scholars started to conduct phase analysis using the event-driven approach or interval-driven approach and to differentiate between episodes and stages. A distinction has to be made as stages are identified by time and episodes by sequential utterances (Adair & Brett, 2005).

In general and referring to Zaheer et al. (1999) a “time scale” can be defined as “[...] the size of the temporal intervals, whether subjective or objective, used to build or test theory about processes, pattern, phenomenon or event” (p. 725). In relation to the author’s definition, stages are time scales which divide a temporal continuity into units of different size, whereas episodes are time scales identified in relation with the aim of the study and the content. Furthermore, the authors differentiate between explicit and implicit choice of time scales. This differentiation can be affiliated with the interval and episodic approach to negotiation processes.

2.2.1.3.1 Episodes versus Stages

Whereas episodes are identified out of the content of negotiators’ communication and can be seen as longer periods of uniform behaviour, stages are phases identified by time with freely chosen barriers between them and the possibility that different phases interlock (Holmes, 1992; Adair & Brett, 2004).

Baxter defines episodes as “sequential utterances with a perceived beginning point and end point” (Baxter, cited in Holmes, 1992, p. 94). Regarding and analysing negotiations from a strategic point of view, an episode can be defined as “[...] an uninterrupted run of the same strategy, for example, the prolonged exchange of information about underlying priorities by both negotiators” (Olekalns & Weingart 2004, p. 6).

One of the major benefits of using episodes to illustrate the negotiation process is that the surfacing patterns during the negotiation can be specified. An episodic view defines phases as clearly identifiable interactions and sequences in which negotiators jointly arrange a specific act. Episodic models have thus been elaborated positively due to their accuracy of demonstrating the negotiation process, but have been criticised as generalizations of findings are still limited (Holmes, 1992; Adair & Brett, 2004; Weingart et al., 2004; Koeszegi et al., 2007).

Stage models, on the other hand, expect that negotiation processes develop in a linear progress. Therefore these models are advantageous as they can be used as guidelines making generalizations between different studies easier, but have been criticized due to their inability to satisfactorily reflect the real character of a negotiation. Stage models suffer from the weakness that they describe the negotiation process in a very global manner and therefore information and details about the process can get lost (Weingart et al., 2004; Adair & Brett, 2005).

Methodologically, there are two popular approaches which have been used so far to detect phases: the event-driven approach and the interval-driven approach. Furthermore, a new data-driven approach, combining the former approaches, has been introduced by Koeszegi et al. (2007).

2.2.1.3.2 Event-Driven versus Interval-Driven Approach

The event-driven approach focuses on either identifying clusters of similar behaviour, making a shift when one accumulation of equal behaviour ends and a new one starts or focusing on group decision routes and subsequent processes of groups (Adair & Brett, 2005).

When using the interval-driven approach, negotiations are divided into a fixed number of phases before the analysis. Changing points are determined by defining a fixed number of speaking turns or time sequences to decide when one stage ends and the next stage starts. It is therefore possible that different phases interlock. After dividing the negotiations, the content of each stage is compared to theory (Holmes, 1992; Adair & Brett, 2005).

The interval-driven approach is thus resistant to different lengths of negotiations. It does not matter how long diverse negotiations last, making them useful for comparing between-group differences between and within stages (Weingart et al., 2004; Adair & Brett, 2005). Furthermore, the use of the interval-driven approach and analysis of different stages of the negotiation process can help negotiators understand how negotiations advance and change in the course of time (Adair & Brett, 2004).

When using the event-driven approach it is still difficult to detect transition points from one cluster to the other as each negotiation's progression is considered. As a result of this as well as due to other methodological weaknesses it has been difficult to analyse the negotiation process using such an approach in the past (Holmes, 1992). In recent years researchers developed methods to analyse different negotiations using phase mapping techniques (e.g., Donohue & Roberto, 1993 to analyze actual hostage negotiations; Holmes, 1997 to analyze authentic and simulated hostage negotiations, Olekalns et al., 2003 to analyze multi-party, multi-issue negotiations). A study by Poole and Roth (1989) about decision development in small groups and their proposed method for mapping developmental sequences has provided a solid basis for negotiation research using similar methods.

Both approaches are now presented in form of figures to make a clear understanding possible. To demonstrate the problematic when conducting the event-driven approach, figure 5 outlines a proposed three stage model by Holmes (1992). The difficultness of identifying transition points between clusters of similar behaviour is highlighted with the dashed, red lines. The interval-driven approach is illustrated in figure 6. The terms integration and distribution refer to a phase model adaptation of Walton and McKersie's integrative and distributive bargaining model (Holmes, 1992). Apart from this it reflects the theoretical

model of the negotiation progress of Stevens (Adair & Brett, 2005). As the interval-driven approach is used, the negotiation is divided in the middle of the negotiation. Afterwards the content of both stages is compared to theory.

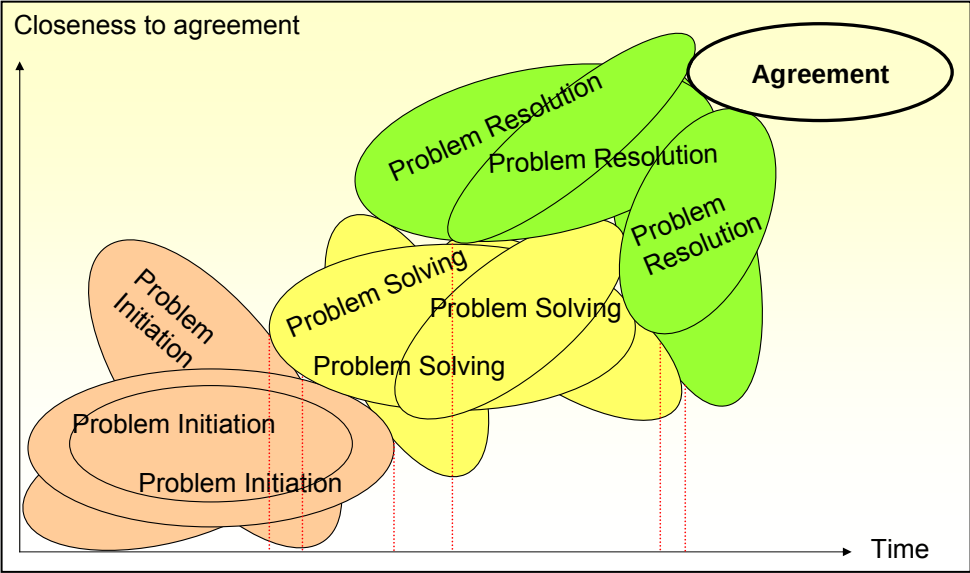


Figure 5: Event-Driven Approach

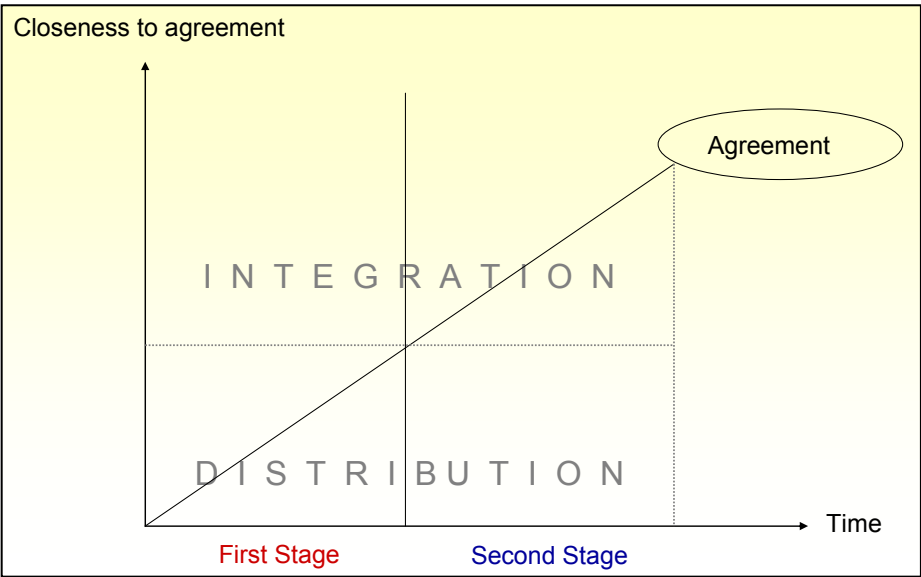


Figure 6: Interval-Driven Approach

2.2.1.3.3 Data-Driven Approach

A brand new approach, introduced by Koeszegi et al. (2007), combines the interval-driven and event-driven approach and has been used for the present study.

This approach overcomes the methodological weaknesses of the previous approaches by combining the tools of stage as well as episodic models. Therefore it meets Holmes (1992) call for expanding the existing knowledge on phase models in negotiations using new and innovative approaches.

The main advantage of this data-driven method is that it splits all negotiations into a predefined amount of phases, but, contrary to previous approaches, detects changing points individually. This means that, when analyzing negotiations using a two-phase model for example, each negotiation is divided into two parts, but the point when the first phase ends and the second begins depends on the negotiation and its content. Thus, the length of the phases is not externally imposed by the researcher but considers the actual structure of the data (Koeszegi et al., 2007).

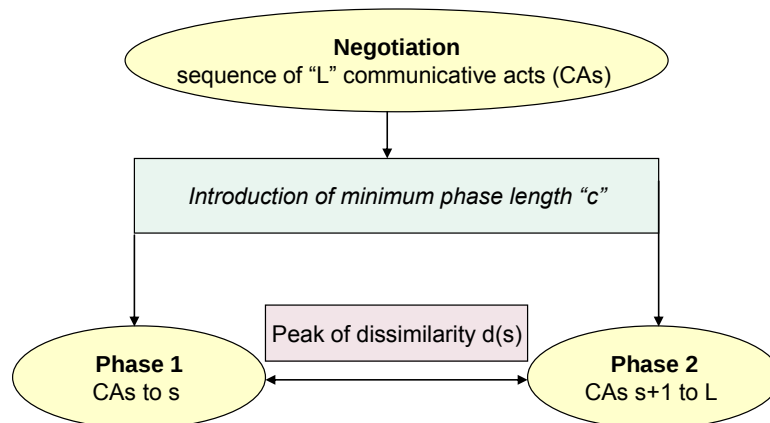


Figure 7: Data-driven Phase Analysis ~ 2 Phases

However, the approach is not limited to two phases. When more than two phases are studied, the method offers a holistic as well as a hierarchical approach. Whereas the hierarchical approach first splits the negotiation process into two phases and then further divides these two phases into sub-phases, the holistic approach sets as many splitting points as desired straight between subsequent phases (Koeszegi et al., 2007).

Thus, the data-driven approach might not only be more appropriate for characterising phases in negotiations, but enables the researcher to study the influence of different factors on the structure of phases during the negotiation process (Koeszegi et al., 2007).

To my knowledge, this approach has been empirically applied in only one study until today (see Koeszegi et al., 2007). Its benefits will thus be further demonstrated in the present analysis.

A more detailed description of the data-driven approach will be presented in section 4.6 of this diploma thesis.

It has been shown, that phase models have a longer tradition in classical negotiation research (face-to-face negotiations), but that its analysis is still in its infancy, overall in electronic negotiations.

Nowadays, however, the use of electronic media for the conduction of negotiations is increasing and therefore, in the following section, focus will be put on negotiation support systems highlighting their importance for electronic negotiations.

2.3 Negotiation Support Systems

As already mentioned in section 2.1, negotiators have to decode and encode messages during the negotiation process. Diverse processing of information of human beings can, thus, lead, among other things, to problems when negotiating. To overcome such hurdles and provide assistance and guidance throughout the whole process of negotiating, decision support system and negotiation support systems have been created (Lim & Benbasat, 1992-1993).

2.3.1 Brief History

Negotiation support has been used for almost five decades in an effort to improve negotiations. Recently, a whole field of research has been built around Negotiation Support Systems (NSS) (Foroughi, 1998).

Referring to Foroughi et al. (2005) “NSSs are a category of group support systems (GSSs) designed especially to support decision-makers in non-cooperative, mixed-motive tasks” (p. 2).

Lim and Benbasat (1992-1993) argue that each Negotiation Support System has to be composed of two features. On the one hand, every negotiator has to be provided with decision support through a Decision Support System (DSS) and on the other hand, both counterparts have to be connected through an electronic communication channel.

One important trend, which can be identified in the field of negotiation support, is the development of full-feature session-oriented Negotiation Support Systems offering support during the whole process of negotiating (Delaney et al., 1997). Such systems also provide “[...] group process structuring techniques, support for mediators, and documentation of the negotiation” (Foroughi 1998, p. 18).

In general, Negotiation Support Systems vary in their form of support depending on the researcher implementing such a system and its approach to the problem. And, as different forms of negotiation analysis focus on diverse aspects of negotiations, they support various levels.

2.3.2 Electronic Negotiations

During the last years and due to the increasing globalization of business, more and more negotiations are conducted online, moving on from traditional face-to-face negotiations to electronic negotiations (e-negotiations). Bichler et al. (2003) define electronic negotiations as the “[...] negotiation process in which the information is exchanged via electronic media” (p. 319). As this definition is very broad, it includes every negotiation conducted via an electronic medium.

Electronic negotiations can be divided into three different models of negotiation: electronic auctions, negotiation software agents (NSAs) and negotiation support tools. Whereas auctions as well as agents aim at automating the negotiation process and are following a quantitative approach, electronic negotiation support tries, like traditional negotiation support, to support the negotiators in relation with their decisions and communication throughout the negotiation process, but individuals remain free to make their own decisions (Bichler et al., 2003; Schoop et al., 2003).

For this purpose, software systems, Electronic Negotiation Systems (ENSs), have been created and have, until today, overall been used for teaching and negotiation training (Kersten, 2004). The effectiveness of such trainings and

learning effects achieved is indubitable. Most of the time members get in touch with this type of technology for the first time and experience its advantages and limitations which prepares them for a possible future usage in their professional lives (Koeszegi & Kersten, 2003).

In traditional face-to-face negotiations the use of negotiation support often turned out to be difficult. In electronic negotiations, when Electronic Negotiation Systems are used, this is not the case as negotiators can easily take advantage of support tools during the whole process. Bichler et al. (2003) argues that “The rationale for e-negotiations is, therefore, the promise of higher levels of process efficiency and effectiveness, including the exchange of quantitatively and qualitatively improved information during the negotiation process” (p. 321).

Kersten (2004) argues that Electronic Negotiation Systems, among other things, deviate from other information systems as “[...] they are network-centric and rely on ever-present Internet connectivity” (p. 3). Web browsers are used to offer easily comprehensible interfaces.

Thanks to the development of information and communication technologies (ICTs) and the elaboration of Electronic Negotiation Systems, the use of Negotiation Support System has been enlarged and previous weaknesses have been combated (Kersten, 2004; Chen et al., 2005).

Apart from this, Electronic Negotiation Systems are part of every electronic negotiation between different individuals. Kersten (2004) differentiates, in relation with the support provided by the system, between passive systems, which do not offer any decision support (e.g., simple email/messenger) and active systems (active facilitative-mediation systems and proactive intervention-mediation systems) which actively intervene in the negotiation process. He argues that active systems are examples of socio-technical systems and says that such a system “[...] comprises people and technological solutions – both actively involved in the processes [...]” (p. 4).

A number of classifications of negotiation and group support systems have been provided (see e.g., Rangaswamy & Shell, 1997; Starke & Rangaswamy, 1999; Schoop et al., 2003; Weigand et al., 2003; De Moor & Weigand, 2004). These overviews allow for differentiations and comparisons to be made between systems.

The following figure 8 summarises the classification introduced by Kersten (2004, p. 4-5).

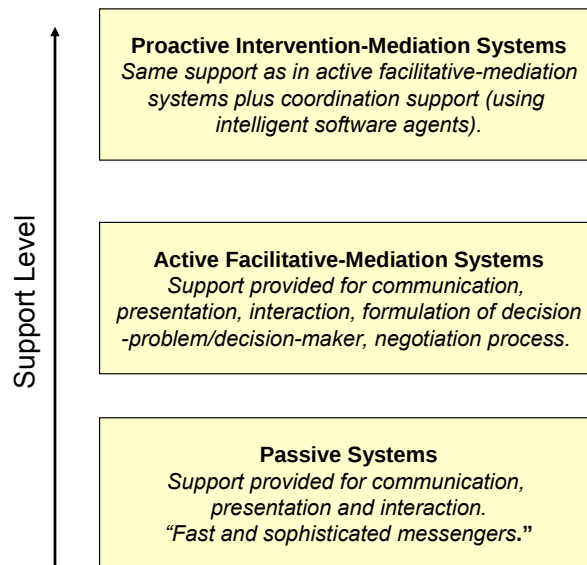


Figure 8: Different Support Levels

Electronic Negotiation Systems do, as just mentioned, vary in the support they offer and features they provide to help negotiators make their decisions during the negotiation process. The next part of this diploma thesis emphasises the importance of representational aids in electronic negotiations and some tools are briefly discussed and presented.

2.4 Representation Aids

Human beings struggle to effectively solve problems due to mental resource limitations. Furthermore, when problems are transmitted to other people while communicating, obscurities may arise (Weber, 2006).

Weber et al. (2006) put it the way that "When interacting, miscommunication frequently occurs resulting in reduced, incorrect, or misinterpreted knowledge" (p. 3).

The interpretation of the meaning of a certain message depends on how the negotiator handles it as "Senders and receivers not only transmit messages, but they also encode and decode messages by creating, transforming, and deciphering verbal and nonverbal cues" (Chatman 1991, p. 140).

As human beings suffer from such restricted processing abilities, representation aids aim at coping with mental limitations by presenting and communicating information in an accurate manner (Vessey, 1991; Massey & Wallace, 1996; Weber et al., 2006). Representation aids can be divided into three different groups (Weber, 2006) and are summarized and presented in the following figure 9.

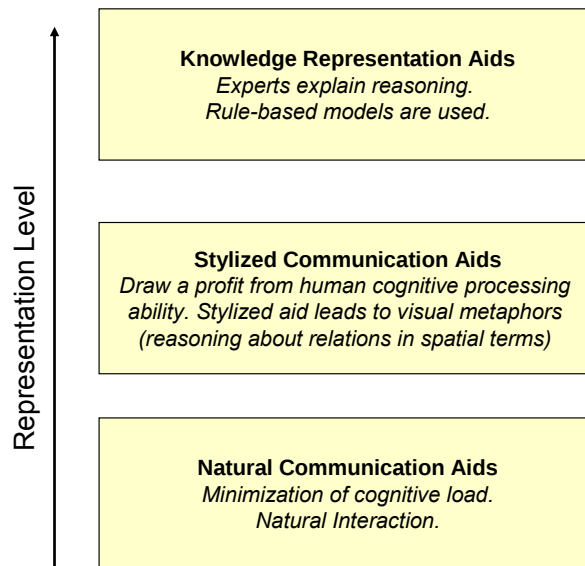


Figure 9: Different Levels of Representation Aids

2.4.1 Representation Aids in Electronic Negotiation Systems

As well as in Group Support Systems (De Vreede & Vogel, 2000) a distinction between simple textual communication support (natural communication aids) and graphical communication support (stylized communication aids) can be made.

When comparing the diverse representation aids presented in figure 9 with the different support levels provided by Electronic Negotiation Systems (see figure 8) it becomes obvious that each support level corresponds more or less to a certain representation aid. The support offered by passive systems can be categorized as natural communication aids whereas active systems can either provide stylized communication aids or at highest level also knowledge representation aids.

To illustrate how textual, numerical and graphical support tools can look, some examples are now presented.

2.4.1.1 Textual support

When textual messages are interchanged asynchronously, they embody e-mail communication referring to the determination of Friedman and Currall (2003) who define simple e-mail communication as “[...] almost unique in that it is asynchronous, textual, and electronic” (p. 1326).

Passive Electronic Negotiation Systems offer a platform for negotiators to exchange messages and offers without providing any other tools. A good example of such an electronic system would be “SimpleNS” (<http://invite.concordia.ca/simplens/>) not offering any analytical tools.

To illustrate simple textual communication using an electronic medium, an invented example of a possible message is presented.

Message by Mrs. Lee – 10.01.2008	Offer by Mrs. Lee – 10.1.2008
Dear Mr. Sang, my name is Monica Lee and I am working for a the very famous KKA Crop Company in Seoul, Korea. I am interested in buying Australian corn and as your company has a very good reputation I would be pleased if you could send me an offer for 1 ton of corn. Thank you in advance. Yours sincerely, Monica Lee.	
Message by Mr. Sang – 11.01.2008	Offer by Mr. Sang – 10.1.2008
Dear Mrs. Lee, I am pleased to receive your enquiry and send you our offer. Regards, Ju-Hu Sang	<i>Our offer:</i> 1 ton of high quality corn = US\$ 50

Table 2: Textual Communication

2.4.1.2 Numerical support – Tables

Another tool used to represent information are simple tables numerically outlining informational data. Tables do not graphically present data.

To facilitate the decision making of negotiators, the own utility of every offer sent and received, due to predefined preferences and ratings of issues treated during the negotiation, can be presented in a table.

Negotiated Issue	
Price	€ 30.0000.-
Delivery	Free buyer's store
Own Rating/Utility of Offer : 80%	

Table 3: Numerical Information Representation ~ Table

2.4.1.3 Graphical Support Tools

To present information, there is a wide variety of graphical formats available and it is therefore not easy to choose between different methods when constructing a new decision support tool or selecting one for the solution of a problem (Jarvenpaa, 1989).

Most interactive systems offering graphical support either provide tabular or graphical representation to support the decision maker (Remus, 1987). Whereas graphs focus on relationships in the information presented, tables do highlight discrete data values (Umanath & Vessey, 1994).

One theory about the effectiveness of tabular and graphical representation of information is provided by Vessey (1991) who bases her “Cognitive Fit Theory” on a variety of published results dealing with differences between both forms of representation. The theory implies that there are important differences between tabular and graphical representations of information as graphs focus on spatial information while tabular representations put emphasis on symbolic information. Therefore problems have to be divided as either spatial or symbolic to receive the information needed to solve the task. If cognitive fit between the problem and the representation exists, the decision maker will perform in a more effective manner than if the two do not match. All things considered, Vessey (1991) states that “[...] so long as there is a complete fit of representation, processes and task type, each representation will lead to both quicker and more accurate problem solving” (p. 219).

Furthermore, empirical evidence that graphical representation tools do also positively influence group decision making processes as visual representations “[...] become the focus of attention” and are “[...] successfully used as both information resources and vehicles of communication” (Massey & Wallace 1996, p. 20) has been provided.

An invented example of a data record of game scores will now be presented using both tabular and graphical tools.

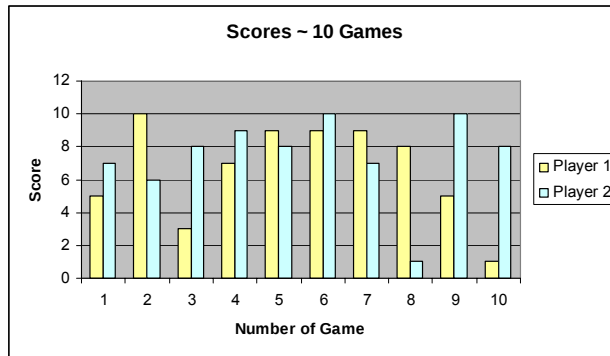


Figure 10: Tabular Representation

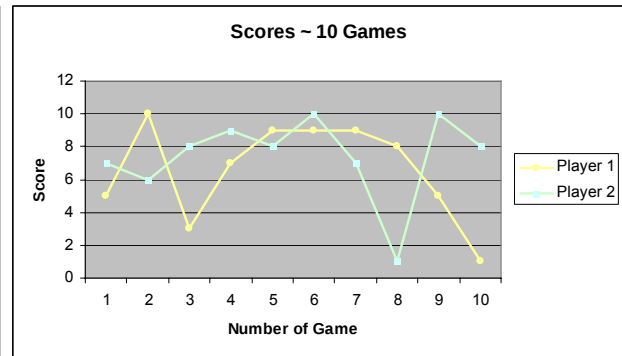


Figure 11: Graphical Representation

Graphical support tools can help negotiators during the process by representing the own utility and negotiation history (e.g., the history graph presented by the “Inspire” system, <http://invite.concordia.ca/inspire/demo.html>, see Kersten & Noronha 1999, p. 151) or even the ratings of both counterparts (normally called “Negotiation Dance” provided for example by “Inspire” after the negotiation if both partners agree).

Referring to Weber et al. (2006), graphical aids lead to increased conformity as they “[...] have the potential to reduce the scope for divergent interpretation compared to textual and verbal information that is subject to miscommunication” (p. 4). He further argues that relational information, like the negotiation history (utilities of actual and past offers), is most effectively illustrated in graphical forms.

In the previous sections it has been exhibited that different Electronic Negotiation Systems provide diverse features and that they might influence the negotiation progress. Based on findings of Pesendorfer et al. (2006), who investigated the behavioural differences during negotiations in relation with active and passive negotiation support provided, and Weber et al. (2006), who studied influences of graphical support on the negotiation process and outcome, the research questions are developed in the next section.

“Good science and good ‘speculation’ are not incompatible, but each should be clearly labelled so that the two are not confused.”
(Chruchill & Perreault cited in Summers 2001, p. 411)

3. Research Questions

Phase analysis is still in its early stages of development and empirical studies about electronic negotiations in this regard are particularly sparse. To my knowledge, there are, until now, only two studies available analysing phase structures in electronic negotiation processes.

Pesendorfer et al. (2006) tested the theory of strategic function and orientation in e-negotiations by using the interval-driven approach dividing the negotiation process into two stages (to test strategic orientation) and four quarters (to test strategic function). Whether a differentiation and an integration phase exist in electronic negotiations has been tested for synchronous online negotiations which had been conducted using the Electronic Support System “SimpleNS”.

Thanks to the analysis conducted by Pesendorfer et al. (2006), empirical evidence for the presence of a shift from information to action as well as from distributive to integrative behaviour could be provided. The authors support the theory that time leads to differences in behaviour throughout the negotiation process on a systematic basis and show that this is also true for electronic negotiations.

Furthermore, the sequential stage model proposed by Adair and Brett (2005) has been tested in the realm of the study conducted by Pesendorfer et al. (2006). By dividing the negotiations into four quarters and analysing the content of each stage, empirical evidence of the occurrence of the predicted behaviour could be provided.

Apart from this study, Koeszegi et al. (2007) further tested whether two, three and four phases can be detected in electronic negotiations applying a data-driven approach combining the traditional event-driven and interval-driven approach.

Asynchronous and synchronous negotiation protocols from negotiations conducted again via “SimpleNS” have been used for the analysis. For the

investigation of synchronous negotiations the same data base as in the study provided by Pesendorfer et al. (2006) has been used.

For synchronous, as well as for asynchronous negotiations it was possible to detect two phases almost equal in length and with a transition point not significantly deviating from 50%.

In all other models, although in general three and four phases could be detected in the negotiation processes, significant aberrances from equal split points were detected. Only for asynchronous negotiations, when testing the three phase model, the first phase did not deviate significantly from 1/3. This leads to the assumption that it makes absolutely sense to use a data-driven approach to investigate electronic negotiation processes as it seems that phases significantly deviate from intervals.

In relation with the content of the phases, a stronger difference between distribution and integration could be found in synchronous negotiations showing that in synchronous electronic negotiations phase structures are more precise than in asynchronous electronic negotiations and are more similar to phase models detected in face-to-face negotiations.

Empirical evidence proving the existence of the proposed models by Holmes (1992) and Adair and Brett (2005) could not well and truly be provided in the course of this analysis (Koeszegi et al., 2007).

The results from Koeszegi et al. (2007) show that it seems to be difficult to detect the same phase structures in electronic negotiations as in face-to-face negotiations using a data-driven approach. The revelation of only two clear phases in synchronous electronic negotiations and two vague phases in asynchronous electronic negotiations lead to the assumption of large differences between the phase structure of face-to-face negotiations and electronic negotiations. The considerably ambiguity arising out of their analysis is a motive for further investigating the issue.

Apart from this, Koeszegi et al. (2007) even invite researchers to apply their method to conduct further analysis using larger samples and therefore probably making predictions of transition points possible.

The following table 4 summarizes all empirical results of phases in electronic negotiations focusing on negotiation mode, theoretical fit, number of phases as well as the approach used to conduct the analysis.

Nr. of Phases	Approach Used	Negotiation Mode	Phases in face-to-face negotiation (Theory)	Fit
2	Interval-Driven	Synchronous	Distribution – Integration	yes
2	Data-Driven	Synchronous	Distribution – Integration	yes
2	Data-Driven	Asynchronous	Distribution – Integration	(yes)
3	Data-Driven	Synchronous	Initiation – Problem Solving – Resolution	no
3	Data-Driven	Asynchronous	Initiation – Problem Solving – Resolution	no
4	Interval-Driven	Synchronous	Relational Positioning – Identifying the Problem – Generating Solutions – Reaching Agreement	yes
4	Data-Driven	Synchronous	Relational Positioning – Identifying the Problem – Generating Solutions – Reaching Agreement	no
4	Data-Driven	Asynchronous	Relational Positioning – Identifying the Problem – Generating Solutions – Reaching Agreement	no

Table 4: Phases in E-Negotiations – Fit with Face-to-Face Theory

Until today, only negotiations conducted via the platform and system of “SimpleNS”, a passive Electronic Negotiation System, have been tested for phases. Whether different support tools lead to different phase structures during the negotiation process has thus not been investigated and research is needed to fill this gap.

Furthermore, different representation support tools, provided during the negotiation process, are supposed to influence the behaviour of negotiators and the outcome of negotiations (see e.g., Beroggi, 2000; Koeszegi et al., 2006; Weber et al. 2006). How different graphical representation tools influence the decision making process, has already been investigated by various researchers (for a review see Vessey, 1991).

As negotiations can be defined as a joint decision making process (Zartman, 1977) and as theory (Vessey, 1991) tells us that different graphical support tools lead to diverse decision making results depending on the cognitive fit between representation, processes and task type, one can assume that cognitive fit also influences negotiations.

The present study can therefore be considered valuable as negotiations provided with diverse levels of negotiation support and graphical support will be investigated and tested for phases.

One study focusing on differences between passive and active Negotiation Support System has been provided by Koeszegi et al. (2006) comparing two Electronic Negotiation Systems. On the one hand, participants in the experiment were negotiating via "SimpleNS" and therefore were neither provided with any analytical support tool nor with any graphical support tool. On the other hand, the second half of negotiators were using "Inspire" and thus provided with analytical support and the history graph during the negotiation process. They showed that active negotiation support (including graphical representation) led to a more effective behaviour of negotiators. People, who were actively supported, used less task-orientated communication, showed more positive feelings and used less tactics. Furthermore, the building of relationship turned out to be a pathway to a better agreement. The results indicate that active support during an electronic negotiation leads to different behaviour of the counterparts and influences the process as well as the outcome of a negotiation in a satisfying way. Whether graphical support or its representation plays a crucial role in this regard, however, has not been investigated by the authors.

To my knowledge, there is only one study, dealing with the influence of graphical support tools on electronic negotiations, their process and outcomes, available. The study has been provided by Weber et al. (2006). His results contradict theory insofar as he could not observe significant differences between dyads reaching agreements and graphical support provided. Furthermore, his results did not demonstrate that graphical support leads to a lesser extend of exchanged messages. All in all the authors conclude that "[...] graphical representation did not improve dyadic negotiation performance" (p. 15).

Weber et al. (2006) could thus not provide evidence that graphical support leads to more results or better performance of negotiators. The study conducted by Koeszegi et al. (2006) on the other hand came to the conclusion that active systems do influence the behaviour of negotiators leading to a more positive

negotiation process and better results. There is hence, until today, no coherence between different results in relation with electronic negotiations, investigations are rare and ambiguity exists which is an incentive to further investigate the influence of graphical support tools and different levels of analytical support on the negotiation process.

In addition, Koeszegi et al. (2006) as well as Weber et al. (2006) invite researchers to further study the impact of active and graphical support tools, respectively on the negotiation process as well as on the outcome and effectiveness of electronic negotiations. As phase analysis is used to study behavioural changes over time during the negotiation process it perfectly fits to conduct research in this regard.

The following research questions are therefore formulated to investigate electronic negotiations of negotiation groups with different levels of support available during the negotiation.

The targeted aim is the provision of further insight into different stages of negotiations and extending the already available research. As, until today, phase models have been tested relatively sparse in electronic negotiations and as the method used to detect phases in the present analysis is new, the research focus can be considered exploratory.

3.1 Detectable Behaviour in Identifiable Phases

The first research question arises out of the lack of knowledge whether phases are detectable, using a data-driven approach in asynchronous electronic negotiations, no matter what kind of support tool available, during the negotiation.

In a first step, it will be investigated whether discrete phases can be detected during electronic negotiations.

Focus lies on the possibility of splitting the negotiations, related to the detectable behaviour during the negotiation process, into two, three or four phases as the majority of theoretical phase models consists of this number of phases (see e.g., Holmes, 1992; Olekalns et al., 2003; Adair & Brett, 2005).

Koeszegi et al. (2007) could detect all models in their analysis, but whether this is also possible, when negotiators are supported in different ways, will be examined.

In a second step, it will be analysed how negotiators behave during the different phases of the negotiation process.

The interesting point here is to, first of all, analyse the behaviour of negotiators supported by different analytical tools and, in a next step, look whether it is possible to draw conclusions out of the results.

Koeszegi (2006) found out that active support leads to less task-orientated communication, more positive communication and less tactics. Whether such behavioural differences will show up and lead to differences in phase structures in distinct experimental groups will be investigated.

As there is no clarity how different graphical negotiation support tools influence the behaviour of negotiators and subsequently the phase structure during the negotiation process, this question can be considered of utmost interest.

In a third step, the outcome of the analysis will be used to compare the phase structure with theoretical models tested in face-to-face negotiations.

Koeszegi et al. (2007) could not find convincing similarities between phase structures in asynchronous electronic negotiations in their study and this research question thus aims at providing more information.

In relation with the contingency theory provided by Vessey (1991) one can assume that dyads negotiating with graphical support will probably come to quicker conclusions and will therefore pass through a smaller amount of phases during the negotiation process. It can thus be assumed that they do not need as many stages as people without graphical support to come to an end and a possible agreement. Furthermore, it can therefore be supposed that in electronic negotiations phase structures differ from structures identifiable in face-to-face negotiations.

To compare the findings with face-to-face models, the two stage model proposed by Olekalns et al. (2003), the three stage model presented by Holmes (1992) and the sequential four stage model elaborated by Adair and Brett (2005) will function as comparative figures.

Furthermore, electronic negotiations with active support systems have not been tested for phases so far and that even strengthens the intention to investigate the issue.

RQ 1 a: Which behaviour, if any, discriminates between different phases in electronic negotiations in groups negotiating with different support tools?

RQ 1 b: What differences, if any, appear between the phase structure of electronic negotiations in groups negotiating with different support tools and phase models identified in face-to-face negotiations?

3.2 Phase Length

Stage models have often been tested using the interval-driven approach. Therefore negotiation processes were just split into equal parts and the content of the different phases was compared to theory (e.g., Adair & Brett 2005; Pesendorfer et al., 2006).

In a first step, to test whether a split of electronic negotiation process into intervals is appropriate, it will thus be tested whether the phases which show up in electronic negotiations are equal in length.

If negotiation phases significantly deviate from being of identical length, it will be clear that phase structures do have a fine grained figure and that the conduction of a data-driven phase analysis is necessary to mirror the real negotiation process.

In a second step, the influence of different negotiation support levels and features on phase length will be analysed.

A further, very interesting aspect arising out of the investigation of phase length in different experimental groups is thus that possible differences, due to analytical support provided during the negotiation, will be identifiable.

In this regard, it could be assumed that dyads, provided with graphical support, spend less time in the first phase compared to the second phase (when thinking about the two phase model for example) as people tend to be quicker in finding

solutions when provided with graphical support (Vessey, 1991) and show more integrative behaviour (Koeszegi et al., 2006).

RQ 2: What differences from equal split points (intervals), if any, appear in groups negotiating with different support tools?

*“Success depends upon previous preparation,
and without such preparation there is sure to be failure.”
(Confucius cited in Weiss 2005, p. 19)*

4. Method

4.1 Experiment

A simulation experiment has been designed in collaboration of the University of Vienna (Austria), the University of Hohenheim (Germany) and the University of Tel Aviv (Israel). In total 160 students from all three universities participated. More than half of them was German. Some of the participating students had the incentive of getting credit points for one of their courses and others took part because the negotiation experiment was part of their schedule. The students were randomly paired with the intention to create as many dyads from different countries as possible.

Participants had to fill in a questionnaire before they started to negotiate and after the experiment. The intention of the pre-negotiation survey was to get to know the participant's experience in negotiations as well as to obtain demographic information (gender, age, etc.). Furthermore, it figured out the expectations of the participants in relation with the negotiation. The post-negotiation questionnaire was created to find out how the participants perceived the negotiation situation concerning topics like satisfaction, collaborative climate, understanding, etc. The questionnaires could be used to connect users and their behaviour during the negotiation with their personal information as well as their feelings and perceptions. The questionnaires will not be of further interest for this study but are used by distinct authors to analyse other issues (e.g., Gettinger and Lentsch for their diploma theses).

The Negotiation Support System “Negoisst” (Schoop et al., 2003) was used for the accomplishment of the experiment. To acquaint the students with the system, they took part in a preparation training which lasted two hours and took place in each of the three universities. The asynchronous negotiations lasted two weeks. Participants could freely decide when to start and end the negotiation within this period.

4.2 Negoisst

The Negoisst system has been created as a prototype by the e-negotiation group at the University of Hohenheim and the e-business group at the University of Aachen due to the growing need of negotiation support during electronic negotiations and the elaboration of new Electronic Negotiation Systems.

Negoisst tries to facilitate the negotiation process for extensive electronic negotiations between two human beings. One of the system's major aims is thus to provide a basis for negotiators to exchange unambiguous messages and is therefore based on communication and information theories combining document and communication management. Negoisst provides the user with the possibility to choose between seven message types and therefore enables the participant to clearly define the aim of the message sent (Schoop et al., 2003; www.negoisst.de/tutorial.php).

The seven message types are based on the speech act theory of J. R. Searle. Referring to Schoop et al. (2003), each speech act thus “[...] consists of a propositional content describing what an utterance is about, an illocutionary force describing the way the speech act is uttered, e.g., as an order or a report” (p. 379). Based on this assumption and to make it easier for the negotiators to understand the exact purpose behind a message, negotiators can choose between one of the following message types for each message they send.

- A request in either the formal or informal area.
- An offer in either the formal or informal area.
- A counter-offer in either the formal or informal area.
- An acceptance ('accept') in the formal area to agree to a binding contract.
- A rejection ('reject') in the formal area to end a negotiation without coming to an agreement.
- A question in the informal area to get more detailed information for example.

- A clarification in the informal area to answer a question or just clarify a misunderstanding (Schoop et al., 2003).

Apart from this, the system offers two different negotiation areas. The intention to build up diverse areas is also mainly based on the theories of J. R. Searle and Habermas's notion of validity claims. The Negoisst feature on the one hand enables negotiators to use the "green" area for informal communication during the negotiation. Messages in this area have thus no continuative consequences for the negotiator sending the message. On the other hand, the "red" and formal area is used to develop the contract and get to binding contract arrangements. Therefore the final contract can only be established in this area. Negotiators using Negoisst thus have for example the possibility to start their discussion using the "green" area and later switch to the "red" area. In general they can switch between both areas whenever they want. Messages sent in the informal area can only be answered by messages belonging to the same area (Schoop et al., 2003; www.negoisst.de/tutorial.php).

Negoisst therefore enables negotiators to state if they want to negotiate in the formal or informal area and to specify the category of their message with the intention to reduce misunderstandings.

As mentioned above, the system does not only offer features for written message exchange. As the goal of a negotiation normally is coming to a conciliation and agreeing to a business contract, the system is equipped with another feature. During the whole negotiation there are not only messages exchanged but also documents reflecting the status of the current contract. Negoisst links the content of the messages with the contract and with each message sent a new contract version is transmitted as well. The negotiator can choose words in the written messages which are matched with the different issues composing the contract (Schoop et al., 2003; www.negoisst.de/tutorial.php).

In this regard a distinction between the formal and informal area has to be made again. Contracts which are sent in the "green" area are not binding and the counterpart can not accept such a proposal. Negotiators therefore have to turn to the "red" area when they want to make a final deal. It is also possible to put emphasis on parts of the message and written text by linking them with a

selected category proposed by the system. Negoisst offers a list of three categories which are “contract-specific”, “branch-specific” and “negotiation-specific”. It is possible to enlarge this list with other categories if wanted (Schoop et al., 2003; www.negoisst.de/tutorial.php).

Another feature offered by Negoisst is the decision support during the negotiation. Users of the system are free to choose whether to use any support independent of the second negotiator. To make decision support possible, negotiators have to enter their preferences for the different issues which will be part of the future contract. Apart from this, the attractiveness of every option for each attribute has to be admitted as well. Thanks to this information, the system is able to create individualized utility functions for each user and to evaluate each offer. This can be helpful for the negotiator as it enables her/him to detect differences concerning the preference of diverse offers. During a complex negotiation this tool makes it easier for the user to follow the negotiation and to never lose the general idea of the situation. Apart from this, to make really clear that the system got the preferences of the user right, Negoisst illustrates possible outcomes with percentage ratings and the user can change them if necessary (www.negoisst.de/tutorial.php).

Furthermore, the negotiator can change preferences during the whole negotiation process and duties can be split up between the negotiation parties by marking them with a “red light”, when it is of own responsibility after finishing the contract or by a “green light” when it will be the duty of the other person. The “red light” can only be activated by each individual for her/his own duty (www.negoisst.de/tutorial.php).

4.3 Manipulation of the Negotiation System

The major focus of the whole research project lies on the identification of effects of different levels of analytical support provided by an Electronic Negotiation System (textual and graphical representation of the negotiation history) on the negotiation process and negotiation outcomes. In this study, negotiation phases are investigated in particular.

To make such a study possible, the dyads had to be split into four different groups. The four groups were all negotiating via Negoisst, but had different

levels of decision support available. Therefore it was necessary to create four individual systems on the Negoisst platform. Students were randomly assigned to the four experimental groups.

The first group (level A0), called “Control Group”, was not provided with any graphical or numerical representation of the negotiation process and utilities of contracts exchanged and was therefore negotiating without any decision support. Negotiators were using the platform to send and receive messages and offers and could only review the written correspondence. The level of support provided thus corresponds to a passive support system (see section 2.2.2; Kersten, 2004).

Participants, negotiating in the second group (level A1), named “Tree Group”, were not provided with any graphical support neither and negotiators could only see the messages and offers exchanged during the negotiation as negotiators in the “Control Group”. But, apart from this, negotiators in the “Tree Group” were, furthermore, provided with a tabular, numerical representation of their utility of every contract sent and received. They could therefore see how their own utility changed throughout the negotiation process.

The third group (level A2), registered as “History Group”, had the possibility to view the negotiation history graph. The negotiators were able to see, as the “Tree Group” members, the exchanged messages and contracts with numerical utilities and were further supported with a history graph. This graph illustrates the own utility of the offers and counteroffers a negotiator receives. This form of graphical representation does not provide information about the counterpart’s preferences.

Students assigned to the fourth group (level A3) could see the negotiation dance graph during the whole negotiation and were therefore named “Dance Group”. Apart from this graphical representation, they were provided with the same tools as the “History Group”. This group was thus the one with the highest support and the only group where participants got information about the counterpart’s utilities as the negotiation dance graph presents not only the own preferences but also provides information about the other negotiator’s utilities.

The negotiation history graph, as well as the dance graph are now illustrated.

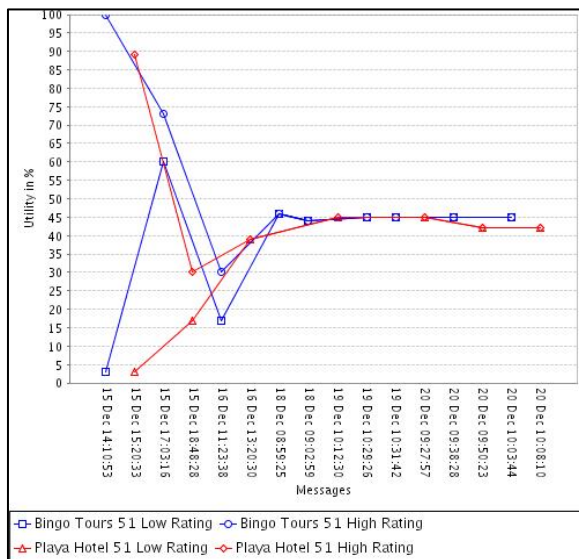


Figure 12: History Graph

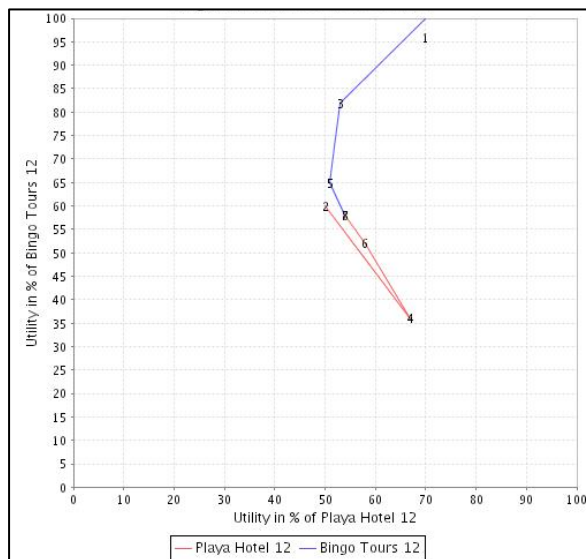


Figure 13: Dance Graph

4.4 Simulation Case

The created case for this simulated negotiation describes a situation of a European tour operator interested in a cooperation with a hotel in Croatia. The characters of the counterparts were the following: the European tour operator “Bingo Tours” represented by Mrs/Mr. Gobin on the one hand and Mrs/Mr. Alpay, the hotel manager of the new, big “Playa Hotel” in Croatia on the other hand.

The aim of the simulation used for this analysis thus was that two students negotiate about 14 issues with predefined importance and reservation levels. A reservation level can be, according to Teich et al. (1994), defined as “the minimum a negotiator would be willing to settle for on each issue” (p. 79). Students were not supposed to change their preferences and predefined utilities for any of the issues during or before the negotiation.

Participants got a detailed, private explanation of their specific role and general background facts of the simulation case. The whole role and case descriptions are available in the Appendix of this diploma thesis.

A particular strategy was not suggested for the negotiation, so that the students were free in their choice of how to negotiate and behave during the experiment. Furthermore, negotiators were not obligated to make a deal.

The whole simulation case was designed as a mixed-motive negotiation, which means that the negotiation included integrative and distributive constituents. A mixed-motive situation is characterized by the interdependence of both negotiation partners and the necessity of cooperation to reach a mutually solution accepted by both negotiators (Chatman et al., 1991).

To illustrate the differences in the preferred negotiation outcome of the counterparts, the importance of each issue for both parties is presented below.

Attribute	Importance	Worst Case	Best Case
Number of single rooms	7,5 %	150 rooms	200 rooms
Single room price	11,5 %	17,50 € per room and night	30 € per room and night
Number of double rooms	12,5 %	100 rooms	150 rooms
Double room price	13 %	30 € per room and night	50 € per room and night
Extra charge full board	5 %	5 € per person and day	10 € per person and day
Lock-out option for other operators	15 %	Lock-out option for any other operator 17 % Lock-out option only for youth travel operators 50 % No lock-out option 100 %	
Airport shuttle service	10 %	50 % by the hotel	0 % by the hotel
Cost-sharing for non-booked rooms	5 %	25 % by Bingo Tours	75 % by Bingo Tours
Number of evening events per week	13 %	4 evening events per week	5 evening events per week
Entrance fee for evening events	1 %	0 € per person and event	5 € per person and event
Price for sight-seeing tours	2,5 %	25 € per person and tour	40 € per person and tour
Meal option for low cholesterol diet	1 %	Yes 42 % No 100 %	
Meal option for low fat diet	1 %	Yes 42 % No 100 %	
Meal option for diabetic meals	2 %	Yes 42 % No 100 %	

Table 5: Information about Issue Importance (Playa Hotel)

Attribute	Importance	Worst Case	Best Case
Number of single rooms	12,5 %	150 rooms	250 rooms
Single room price	11 %	30 € per room and night	15 € per room and night
Number of double rooms	7,5 %	100 rooms	200 rooms
Double room price	16 %	50 € per room and night	30 € per room and night
Extra charge full board	5 %	10 € per person and day	2 € per person and day
Lock-out option for other operators	20 %	No lock-out option 0 % Lock-out option only for youth travel operators 66 % Lock-out option for any other operator 100 %	
Airport shuttle service	3 %	50 % by the hotel	100 % by the hotel
Cost-sharing for non-booked rooms	10 %	75 % by Bingo Tours	25 % by Bingo Tours
Number of evening events per week	4 %	3 evening events per week	5 evening events per week
Entrance fee for evening events	2,5 %	5 € per person and event	0 € per person and event
Price for sight-seeing tours	2,5 %	35 € per person and tour	20 € per person and tour
Meal option for low cholesterol diet	2 %	No 42% Yes 100%	
Meal option for low fat diet	2 %	No 42% Yes 100%	
Meal option for diabetic meals	2 %	No 42% Yes 100%	

Table 6: Information about Issue Importance (Bingo Tours)

When looking at both tables one can easily see that the importance of different issues varies and the mixed-motive character of the simulation case becomes obvious.

On one side, negotiators have quite similar intentions concerning the issues “Number of single rooms” and “Number of double rooms” for example. Both of them will obtain a higher utility as the number of rooms increases. This represents, among others, the integrative part of the negotiation situation.

But on the other side, considering the “Lock-out option for other operators”, the preferences of the counterparts are completely opposed. Sibenius (1992) defines such competitive issues of negotiations as crucial as one negotiator will always lose value if the other one attains value.

Apart from this, the “Lock-out option for other operators” is of utmost importance for both negotiators what makes the situation even more competitive. This issue is therefore a very good example for the distributive part of the case and negotiators have to cooperate to find a mutual acceptable solution.

4.5 Content Analysis

Content analysis is a combined research method aiming at transferring a negotiator's words into numbers to further analyze them in a statistical manner. This method enables the researcher to transform qualitative data into quantitative material (Srnska & Koeszegi, 2007).

Content analysis is rooted in communication research and was then integrated into negotiation research. Thanks to communication research, discrepancies and intricacies could also be detected by bargaining and negotiation researchers (Chatman et al., 1991).

The use of content analysis when studying behaviour of participants in face-to-face or electronic negotiations has become very popular (e.g., Koeszegi et al., 2007; Pesendorfer & Koeszegi, 2006; Koeszegi et al., 2006; Adair & Brett, 2005; Weingart et al., 2002; Olekalns & Smith, 2000; Olekalns et al., 1996) and guidelines how to conduct content analysis are available (e.g., Weingart et al., 2004; Srnska & Koeszegi, 2007).

Weingart et al. (2004) argue that content analysis is "[...] a labour-intensive and time-consuming process" (p. 454). But they further say that each researcher, who has the patience to conduct this kind of analysis, will get an adequate recompense by rich and satisfying data.

The present analysis is based on the suggested procedure to conduct content analysis and get reliable, valid and generalisable results by Srnska and Koeszegi (2007).

4.5.1 Unitizing the Data

The first step was to unitize the data. "Unitizing" stands for the division of the negotiation messages into individual units. As we put focus on content as well as on style of negotiation behaviour, we decided to divide the material into thought units to avoid losing too much information. That means that each idea, regardless of its length or expression (e.g., word, sentence, emoticon), got a unique code.

Sigrid Lentsch, Johannes Gettinger and I were working as coders independently unitizing the negotiation messages. We unitized 80 negotiations consisting in

total of 966 messages. Each of us had to unitize 2/3 of the text messages, which comes to an amount of approximately 644 messages per coder. The 160 negotiation protocols were finally divided into 12.699 thought units.

The whole unitizing process lasted approximately one month and Excel was used for its conduction. After the first round of unitizing we had to check unitizing reliability. We used the Guetzkow's U as proposed by Srnka and Koeszegi (2007) and Weingart et al. (2004) to measure if all coders did identify the units in the same way.

Guetzkow's U computes the difference of the number of units detected by one independent coder and the average number of units between both coders. The formula (Srnka & Koeszegi, 2007; Weingart et al., 2004) is quite simple: $U = (O_1 - O_2) / (O_1 + O_2)$ where O_1 stands for the number of units identified by one coder and O_2 for the number of units identified by the other coder. We had to calculate Guetzkow's U three times as we were three coders. The percentage of disagreement was very satisfying in each case. The biggest discrepancy was 0,17% ($U = 0,0017$) which is still a very good result.

Apart from the identification of the number of units, textual consistency had to be checked as well. Textual consistency proves if the units identified by each coder are equal to the units identified by the other coder. We conducted this comparison using Excel as proposed by Srnka and Koeszegi (2007). The textual consistency of all units, consolidating all three coders, was high as a conformability of 91,36% could be reached. This is, considering the scope of units, a very satisfying result. Before continuing our analysis, differences in textual consistency, as well as number of units, were discussed and one single file was prepared.

4.5.2 Elaboration of the Categorization Scheme

The second step in conducting content analysis was to design a categorization scheme. Coding schemes are normally either based on theory or developed by observing the negotiations. Weingart et al. (2004) argue that a differentiation between both approaches is not really possible as individuals behave in diverse ways. Researchers therefore have to be open to revise and clarify their schemes and not constantly stick to the theory- or data-driven approach.

Therefore both approaches were combined during the elaboration of the coding scheme.

The categorization scheme used during the further process of coding was based on the final scheme of Srnka and Koeszegi (2007). We stick to the number of nine main categories, but we step-by-step added, eliminated, and changed some of the sub categories. This process helped us develop our own coding scheme. Before we started coding, we carefully tested our scheme and discussed changing categories and compared them with other previous categorization schemes and theory. Furthermore, discussions among researchers led to adaptations. Our final categorization scheme consists of nine main categories and 64 sub-categories and is contained in the Appendix of this diploma thesis.

4.5.3 Coding the Data

Based on this category scheme, a single code was assigned to each of the 12.699 units by the same coders as before, my two colleagues and me. The material was split into three parts again and each of us independently coded 2/3 of the unitized data. The whole coding process lasted a bit more than five months and we used SPSS for its conduction as the programme disposes of the tools necessary for coding.

After finishing this process, we had to prove the consistency of coding and for this reason we used the Cohen's kappa as suggested by Srnka and Koeszegi (2007) and also used by Weingart et al. (2004) in their guidelines. Another possible consistency measure would have been Scott's coefficient used by Poole and Roth (1989).

The formula of Cohen's kappa ($\kappa = (\sum P_{ii} - \sum P_i \times P_i) / (1 - \sum P_i \times P_i)$) differentiates between the proportion of agreement among coders which can be observed ($\sum P_{ii}$) and which happens by chance ($\sum P_i \times P_i$).

Referring again to Srnka and Koeszegi (2007) and Weingart et al. (2004), a Cohen's kappa above 0,80 can be regarded a good result making further work with the data legitimate. We reached a Cohen's kappa of 0,95 and therefore our inter-coder reliability was very satisfying. We put this very high inter-coder

reliability down to our very intense preparation and good discussion of the categorization scheme, before we finally started coding independently.

To eliminate all doubt, we further applied the Inter-coder Consistency Matrix developed by Srnka and Koeszegi (2007). We wanted to see if, although there was little deviation, inconsistencies had been committed systematically. We first designed the matrix for the nine main categories (see table 7) and in succession for the sub-categories of category four “positional offer” and category five “give positional information”. Finally we could see that there were no serious irregularities.

Cod 1/Cod 2	1	2	3	4	5	6	7	8	9
Main Cat. 1	1594	11	2	13	1	0	0	0	1
Main Cat. 2	7	624	9	1	7	1	0	3	3
Main Cat. 3	0	3	1018	3	0	1	1	3	4
Main Cat. 4	6	2	11	3229	28	0	1	0	4
Main Cat. 5	0	8	7	25	1322	3	7	10	3
Main Cat. 6	0	2	3	0	4	630	5	0	1
Main Cat. 7	2	0	2	0	1	2	429	4	1
Main Cat. 8	0	2	6	0	6	0	11	783	6
Main Cat. 9	1	2	4	2	2	2	3	10	2750

Table 7: Inter-Coder Consistency Matrix – Main Categories

On balance, it was a very satisfying result of inter-coder reliability overall considering the fact that, with an increasing number of categories, normally inter-coder reliability is supposed to decrease (Weingart et al., 2004).

It has to be mentioned that during the whole process of unitizing, categorizing and coding, rules were established and each coder had to stick to them to eliminate differences and to achieve reliable and valid results. This accuracy can also be considered one of the reasons for the pleasant results of unitizing reliability and inter-coder reliability.

After the process of coding 75 negotiations protocols of 150 participants, 12.631 communication units could finally be used for further analysis. Five negotiations had to be eliminated due to missing or invalid data.

4.6 Data-Driven Phase Analysis

To conduct phase analysis, the data-driven approach, combining the event-driven and interval-driven approach, as described in section 2.1.3.3, suggested by Koeszegi et al. (2007) was used.

As this analysis aims at getting to know whether different representation aids and different levels of negotiation support, respectively, during the negotiation process of electronic negotiations influence the structure of phases, the method is, thanks to its flexibility, an adequate option to investigate the issue.

The data-driven approach focuses on the negotiation consisting of “L” communicative acts (“CAs”) which are all, following a categorization scheme, classified. The method itself focuses on the dissimilarity “d” of the sum of squared differences of the relative shares of communication types (categories) between the different phases. Split points (“s”) are determined where the difference (sum of squared differences of the relative shares of communication types) is highest (Koeszegi et al., 2007).

To prevent separations at the turning points, a minimum length “c” for each phase has to be introduced. That means that there has to be at least a space of “c” between the beginning of the negotiation and a split point and the end of the negotiation and a split point. This is of utmost importance as maximizing the dissimilarity would lead to the point that phases could consist of only one type of communicative act and this would not truthfully reflect the negotiation process (Koeszegi et al., 2007).

For the present analysis, the main categories have been considered and introduced in the study, as they do provide a solid basis for the intended investigations. Therefore, the relative shares of communication acts and their sum of squared differences have been calculated for all main categories. Split points have then been fixed at the highest level of difference. This process was conducted for each experimental group.

The minimum phase length “c” has been fixed at a 10%, 15% and 20% level. Then the decision to use the data with the smallest “c” for further analysis was made. The results presented in succession are thus based on the outcome of the negotiation split with a minimum phase lengths of 10%.

Figure 14 presents a hypothetical splitting process of a negotiation process into two phases to illustrate the procedure.

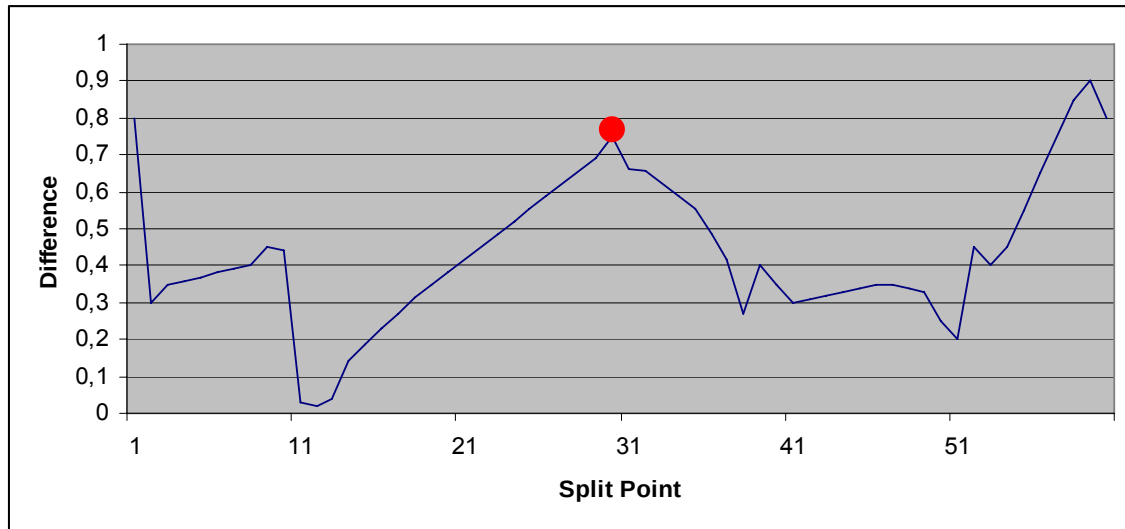


Figure 14: Splitting a Negotiation into Two Phases ~ an example

For the conduction of the present study, the holistic approach has been applied as this approach makes it possible that resembling phases appear when splitting negotiations into more than two phases.

For all experimental groups, the negotiation processes were split into two, three and four phases. The following section is organised accordingly.

5. Results

From the final 150 participants, 15 dyads were negotiating in the “Control Group”, 19 in the “Tree Group”, 22 in the “History Group” and 19 dyads were conducting the negotiations with highest support level in the “Dance Group”.

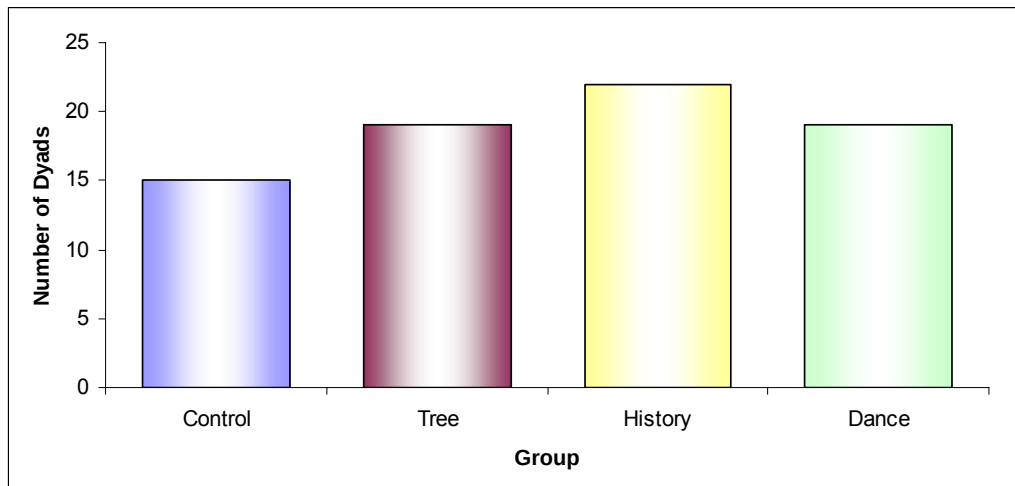


Figure 15: Number of Dyads in each Group

Before the conduction of phase analysis, the average number of communicative acts per group and negotiator, as well as the average number of messages per group and negotiation dyad, have been calculated and compared.

In the “Control Group” each negotiator used on average 82,33 communicative units, in the “Tree Group” 86,39, in the “History Group” 84,61, and in the “Dance Group” 83,02. Multiple comparisons to detect between group differences were conducted and no significant deviations could be observed.

The same has been done for the average number of messages sent per dyad in each experimental group. In the “Control Group” 10,73 messages were sent on average throughout one negotiation. In the other experimental groups between 12,63 and 12,91 messages were exchanged during the negotiation process of two negotiators. Again, no significant differences between the four groups could be detected.

The groups can therefore be considered comparable and further analysis is legitimate.

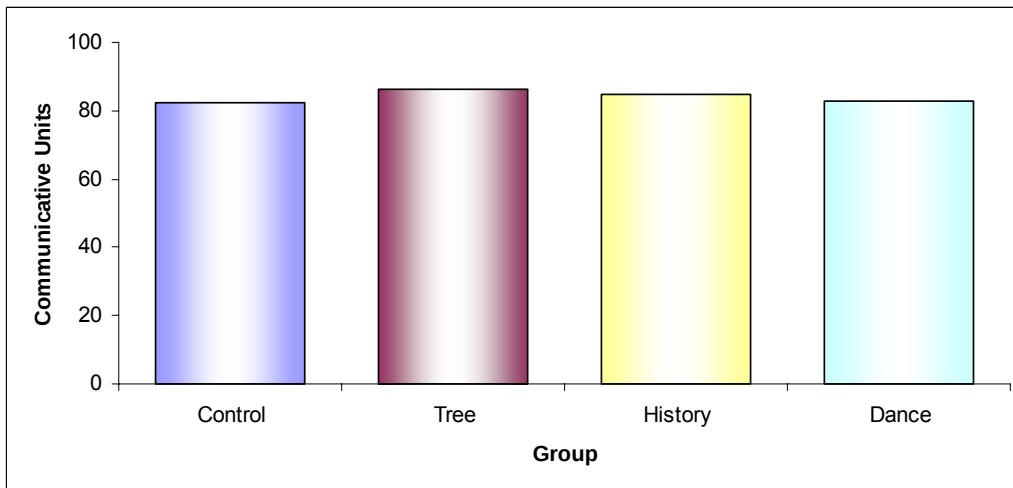


Figure 16: Average Number of Communicative Acts per Group and Negotiator

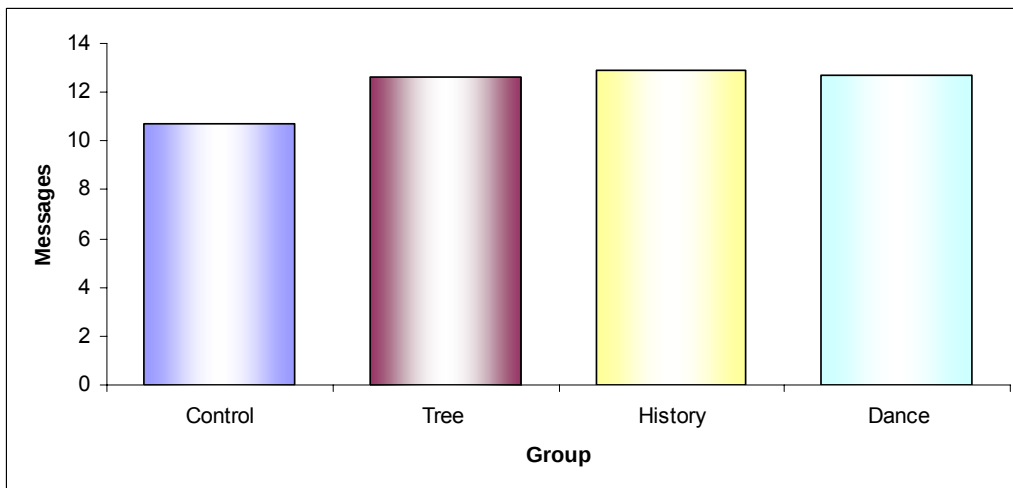


Figure 17: Average Number of Messages per Group and Dyad

The further investigation has been conducted as follows.

- *In a first step, it has investigated whether distinct phases are detectable.*

As already mentioned, the data-driven method discussed in section 2.2.1.3.3 and 4.6, was used to determine two, three and four negotiation phases for each negotiation in all experimental groups based on the nine main communication categories (see categorization scheme available in the Appendix).

- *In a second step, an analysis of the detectable behaviour within each negotiation phase has been conducted to look whether phases can be characterised in terms of consistent behaviour and whether the behaviour can be considered similar to detected behaviour in phase models identified in face-to-face negotiations.*

To analyse the content of different phases, t-tests have been applied, comparing the relative frequencies of communicative acts within each phase with the average use of the same type of communicative acts during the whole negotiations in the appropriate experimental group (as suggested by Koeszegi et al., 2007).

- *In a third step, after splitting the negotiation into two, three and four phases, absolute as well as relative average length of each phase considering communicative acts, was calculated for every experimental group and it was investigated whether significant deviations from equal splitting points were detectable.*

To test whether the different phases significantly deviate from $\frac{1}{2}$, $\frac{1}{3}$ or $\frac{1}{4}$ of the whole negotiation, t-tests comparing the relative phase length with the appropriate test variable (as supposed by Koeszegi et al., 2007) have been conducted.

A t-test for one sample proves whether the mean score of a sample of variables (in this case the average phase length of each group) deviates significantly from a fixed value. This means that, considering two phases for example, the null hypothesis is that the difference between the mean score of relative phase length and 50% of negotiation length in every group is zero. The alternative hypothesis, on the other hand, is that the difference is not zero. The conduction of the t-test, thus, let one conclude whether the phases do not significantly differ from 50% of the negotiations.

The results will be presented according to the number of phases. Therefore, both research questions will be answered and phase structures will in succession be analysed for each experimental groups for a two, three and four phase model.

It has to be mentioned that multiple comparisons have been calculated to compare phase lengths of corresponding phases of the different experimental groups. No significant deviations have been found leading to the assumption that, no matter whether negotiators were communicating with textual, numerical or graphical aids, phase lengths did not significantly differ between groups. Therefore, no additional investigations have been conducted in this regard and this aspect will not be further discussed in the following section.

5.1 Two Phases

In this analysis, focus will be put on strategic orientation and the question of what kind of behaviour discriminates between the first and the second stage of electronic negotiations in the experimental groups. As already discussed in section 2.2.1.2.1, negotiators are supposed to pass from a differentiation phase to an integration phase during the negotiation process.

Considering the typology provided by Olekalns et al. 2003 and the table presented by Koesegi et al. (2006, p. 13) the main categories of the coding scheme (bearing the subcategories in mind) can be classified as presented in table 8.

STRATEGIC FUNCTION	STRATEGIC ORIENTATION	
	Distributive	Integrative
Information	<i>Distributive Information</i> Give Positional Information (5)	<i>Integrative Information</i> Ask or Give Priority Information (2)
Action	<i>Claiming Value</i> Positional Offer (4) Show Negative Response (6) Use Tactics and Contention (7) Substantiate Position (8)	<i>Creating Value</i> Make Concession (1) Show Social Support (3)

Table 8: Categories ~ Classification

The process variable has to be regarded separately as it can not be classified in correspondence with the classification proposed by Olekalns et al. (2003).

5.1.1 Detectable Behaviour

In a first step, it will now be presented what kind of behaviour significantly discriminated the first and second phase, respectively. In a second step, the outcome will be compared to the two phase model identified in face-to-face research.

Significant results, i.e. communicative acts used significantly more in the first and second phase, respectively, are presented in table 9. The results will in succession be discussed and compared to theoretical negotiation phase models for all categories in ascending order.

2 Phases	Control		Tree		History		Dance	
1. Make Concession	<u>1 -</u>	<u>2 +</u>	<u>1 -</u>	<u>2 +</u>	<u>1 -</u>	<u>2 +</u>	<u>1 -</u>	<u>2 +</u>
2. Ask or Give Priority Information								
3. Show Social Support			<u>1 -</u>	<u>2 +</u>	<u>1 -</u>	<u>2 +</u>		
4. Positional Offer	<u>1 +</u>		<u>1 +</u>	<u>2 -</u>	<u>1 +</u>	<u>2 -</u>	<u>1 +</u>	
5. Give Positional Information	<u>1 +</u>	<u>2 -</u>	<u>1 +</u>	<u>2 -</u>		<u>2 -</u>		
6. Show Negative Response	<u>1 -</u>		<u>1 -</u>					
7. Use Tactics and Contention					<u>1 -</u>			
8. Substantiate Position	<u>1 -</u>		<u>1 -</u>		<u>1 -</u>	<u>2 +</u>		
9. Process Variables		<u>2 +</u>		<u>2 +</u>	<u>1 -</u>	<u>2 +</u>		

Numbers: phase number

+: Communicative acts used significantly more in phase than on average

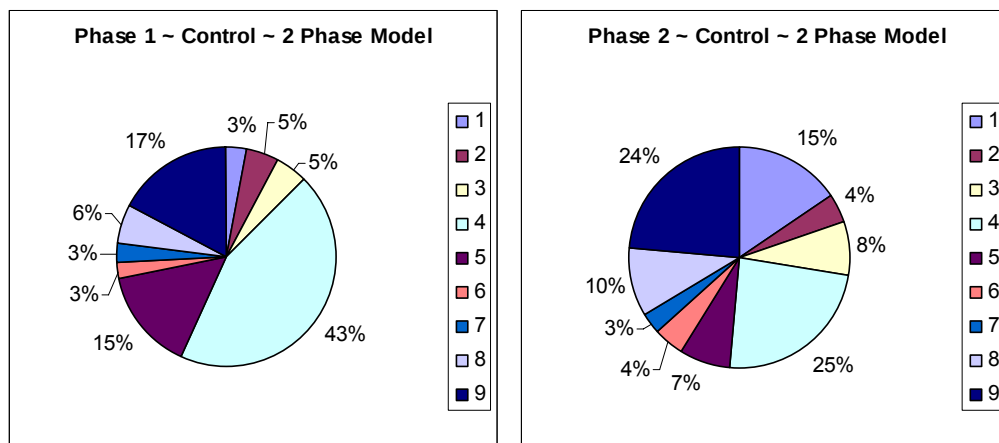
-: Communicative acts used significantly less in phase than on average

Plain text: effect significant at 5% confidence level ($\alpha=0,05$)

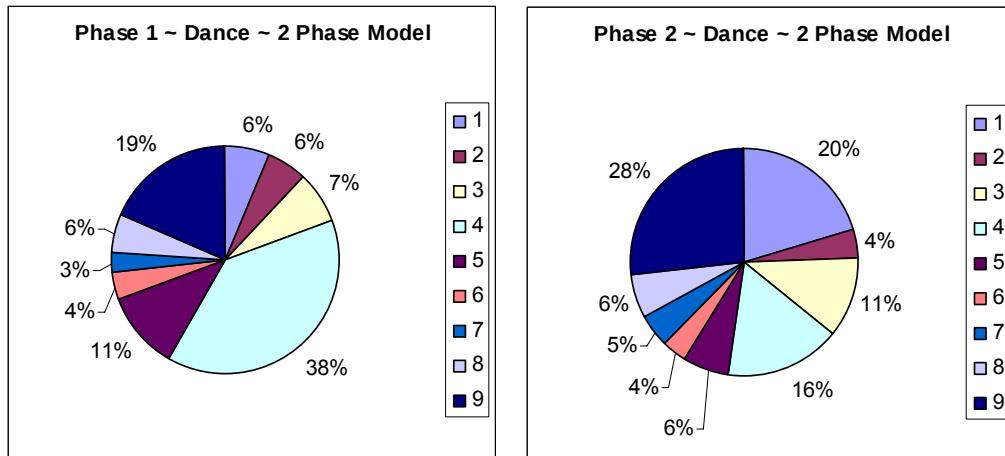
Underlined: effect significant at 1% confidence level ($\alpha=0,01$)

Table 9: Significant Differences in Phase Structures ~ 2 Phases

To take a closer look on what really happened in both phases, each phase has been regarded in an independent way and relative frequencies of communicative acts have been calculated. The outcomes for the “Control Group” and for the “Dance Group” are presented below and will, as well as the significant results, be used to compare the outcome with the two phase model identified in face-to-face negotiations. As the phase structures of the first three experimental groups resemble, the graphs from only one group are used to represent the three of them.



**Figure 18: Relative Shares of Communicative Acts in Phase 1 and 2
(independently from each other) ~ Control Group**



**Figure 19: Relative Shares of Communicative Acts in Phase 1 and 2
(independently from each other) ~ Dance Group**

Theory tells us that negotiators start with distributive moves and in succession they behave in an integrative way (Jones, 1988; Olekalns et al. 2003; Adair & Brett, 2004) making a detection of two negotiation phases possible.

In all four experimental groups negotiators made significantly less concessions in the first phase and significantly more in the second phase of the negotiation process. This indicates that, at the beginning, negotiators were not ready to come up to the counterpart and thus stuck to their position, whereas in the second stage negotiators did approach each other. As figure 18 and 19 show, in the “Control Group” only 3% of coded communication units in the first phase belong to the category “Make Concession”. In the second phase, five times as much concession making behaviour has been detected. In the “Dance Group”, 6% of the communicative acts were already used for concession making in the first phase and in the second phase the number even increased to 20%. The concession making behaviour (significantly discriminating between two negotiation phases in all experimental groups) thus affirms theory predicting that, within the second phase, negotiators start to solve the negotiation problem and behave in an integrative manner. In general, concession making is a very good example of cooperative behaviour. The fact that negotiators made significantly less concessions within the first phase underlines the distributive character of it.

The second main category “Ask or Give Priority Information” was not significantly more or less used in one of both negotiation phases.

Negotiators in the “Tree Group”, as well as the “History Group”, did provide significantly less social support in the first phase of the negotiation and significantly more in the second phase. Although neither in the “Control Group” nor in the “Dance Group” social support provided did provoke significantly different phases (in contrast to the “Tree Group” and “History Group”), one still can see that social support increases in relation to the other communication categories when comparing both phases (see figure 18, 19). This again indicates that negotiators move from distributive, competitive behaviour towards integrative, cooperative behaviour as theory tells us (Jones, 1988; Olekalns et al. 2003; Adair & Brett, 2004).

In all four experimental groups significantly more positional offers were exchanged during the first phase of the negotiation. Significantly less positional offers were made in the second phase of the negotiation in the “Tree Group” and the “History Group”. In the “Control Group” 43% and in the “Dance Group” 38% of the first phase are used to make positional offers. This is typical for a differentiation phase in a negotiation as positional offers are used to state the own position. Whereas in the “Control Group” still $\frac{1}{4}$ of the second phase is composed of exchanged positional offers, in the “Dance Group” only 16% of the communicational acts are positional offers.

Negotiators in the “Control Group” and the “Tree Group” did exchange significantly more positional information in the first phase of the negotiation and significantly less in the second phase. This is also true for the second phase in the “History Group”. Communicative acts, coded within the fifth category “Give Positional Information”, are, like positional offers, used to position oneself, probably to provoke emotions by persuasive arguments or stating facts (Jones, 1988). In all experimental groups, apart from the “Dance Group”, this category also leads to a differentiation of two phases of the whole negotiation process. In the “Control Group” for example, negotiators provided positional information (persuasive and self-supporting statements as well as product/service related facts) significantly more in the first phase and significantly less in the second phase.

Negative emotions have been shown significantly less within the first phase of the negotiation process in dyads negotiating in the “Control Group” and “Tree

Group”. Considering the fact that a differentiation phase is described as the phase where the risk that negotiations fail is highest (Jones, 1988), it is surprising that in the “Control Group” as well as in the “History Group” negative emotions have been shown significantly less within this phase. On the other hand, a very low level of negative emotions is typical for an orientation phase in a negotiation (Koeszegi et al., 2007) and apart from this, one could argue that negotiators do reject offers during the whole negotiation process but that, at the beginning of negotiations, negative emotions are not apparently shown.

Furthermore, negotiators did substantiate the own position significantly less in the first phase in all groups, apart from the “Dance Group” and even significantly more in the second phase in the “History Group”. This is another interesting and surprising result because substantiating the own position can be categorized as a typical kind of behaviour within a differentiation phase, but in all experimental groups, apart from the “Dance Group”, significantly less kind of this type of behaviour has been used within the first phase what thus contradicts theory. In the “Dance Group”, in both phases, 6% of the communicative acts have been coded in this category and no significant differences could be detected.

Apart from this, in all groups, except the “Dance group”, communication about process has been significantly more in the second phase of the negotiation process. The behaviour in both phases in the “Control Group” and the “Dance Group” is graphically presented in figure 20 and 21 to illustrate the differences.

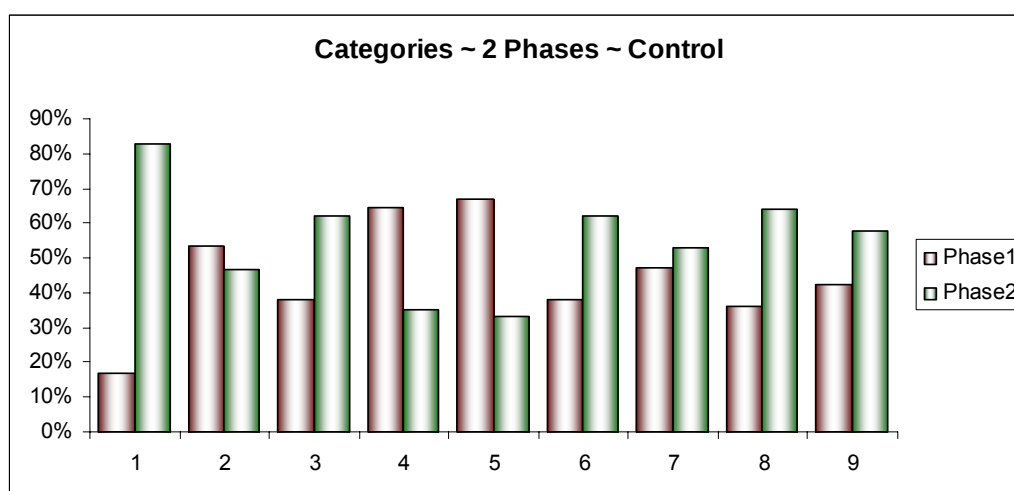


Figure 20: Phase Structure Control Group ~ Relative Use of Main Categories ~ Two Phases

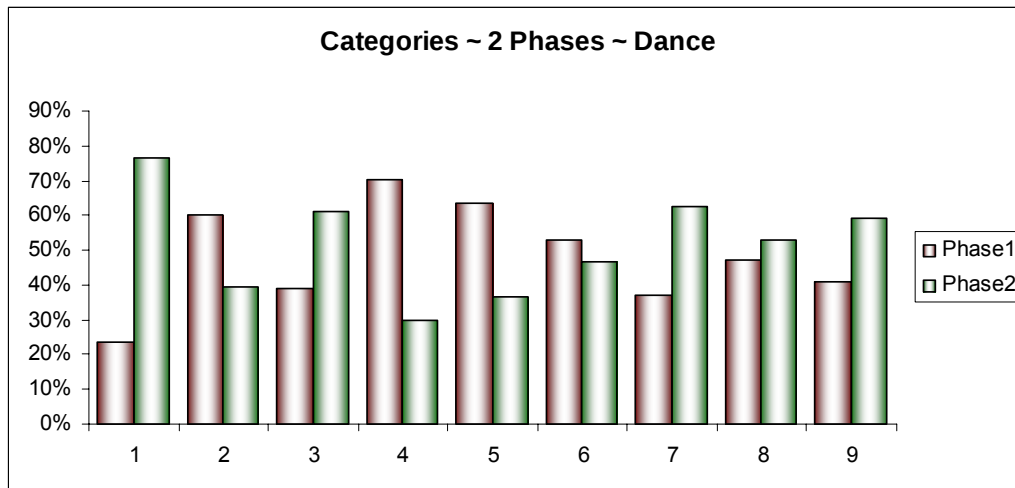


Figure 21: Phase Structure Dance Group ~ Relative Use of Main Categories ~ Two Phases

The results generally indicate that the phase structures in the “Control Group”, the “Tree Group” as well as the “History Group” do resemble the two phase model detected in face-to-face negotiations. The behaviour in the first phase can be described as a distribution phase as negotiators do put focus on their own position, make a lot of positional offers, provide positional information, make few concessions and provide less social support. The second phase shows characteristics of an integration phase as negotiators make more concessions, exchange less positional offers, give less positional information and care more about each other (social support).

In the “Dance Group” the phase structure is not that clear. Although in general the same trend can be detected when analysing what happens in the different phases independently of each other, in relation with significant discriminations, two clear phases did not show up. In this group only concession making, as well as positional offers, led to a differentiation. One can thus assume that the provision of the negotiation dance graph up from the beginning of the negotiation process leads to different negotiation strategies of negotiators insofar that various types of behaviour are not concentrated in two significantly different phases and that people are negotiating in a more integrative way up from the beginning.

5.1.2 Phase Length

The second research question deals with the phase length of different negotiation phases and whether it makes sense to split negotiations into intervals, applying an interval-driven approach, when conducting phase analysis. The absolute as well as relative lengths of both phases are now presented for each experimental group.

Group	Absolute Length		Relative Length	
	Phase 1	Phase 2	Phase 1	Phase 2
Control	65,70	98,96	39,90%	60,10%
Tree	79,63	93,15	46,09%	53,91%
History	82,80	86,42	48,93%	51,07%
Dance	88,35	77,69	53,21%	46,79%
All Groups (Average)	79,12	89,06	47,03%	52,97%

Table 10: Average Absolute and Relative Length of Two Phases per Group and Dyad

As presented in table 10, the first phase of all negotiations consists on average of approximately 79 communicative acts per dyad and group and the second phase of about 89 communicative acts per dyad and group.

In all experimental groups, apart from the “Dance Group”, the first phase consists in general of less communicative acts than the second one.

In relation with the results of the t-test, testing the phase length against the hypothesis that each phase is equal to one half, no group shows significant differences. This means that neither the first phase nor the second phase differs significantly from 50% of the whole negotiation in all experimental groups. The results are summarized and presented in succession and figure 22 is provided to represent the phase length for each experimental group.

Test Variable = 0,5			
Group	T	df	Significance (two-sided)
Control	+/- 1,636	14	0,124
Tree	+/- 0,662	18	0,517
History	+/- 0,221	21	0,828
Dance	+/- 0,591	18	0,562

Table 11: Length Deviations from a Half

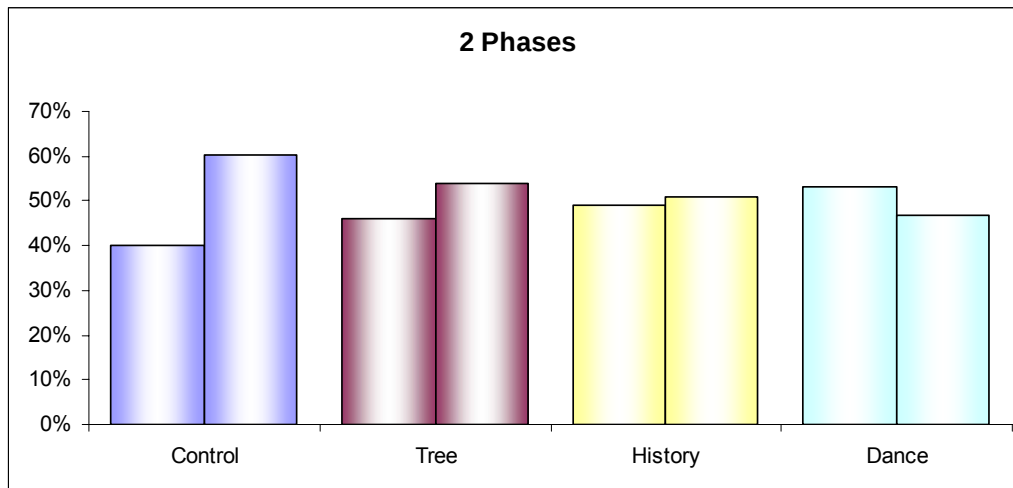


Figure 22: Average Relative Length of Phases in Experimental Groups, Two Phases

The results confirm the findings of Koeszegi et al. (2007) indicating that in asynchronous electronic negotiations two phases do not significantly differ from 50% of negotiation length.

The results show that this is true, no matter whether negotiators are supported with textual communication aids, numerical communication aids or graphical communication aids.

Negotiation theory, implying that negotiations can be split into two equal phases (Jones, 1988; Olekalns et al., 2003; Adair & Brett 2005) can thus be affirmed as well for asynchronous electronic negotiations conducted through passive and active support systems varying in the level of analytical support offered.

Although the speculation that people with graphical support will probably spend less time in the first phase appears true (less communicative acts in the first phase) for the “Dance Group”, in which negotiators were provided with the negotiation dance graph, the difference is not significant, neither in comparison with 50% of the whole negotiation nor compared to the other groups.

5.1.3 Brief Summary

Briefly summarising the results of the analysis of a two phase structure during negotiation processes, it can be said that for all experimental groups, apart from the “Dance Group”, it was possible to identify two negotiation phases, a differentiation and an integration phase. In negotiations provided with the negotiation dance graph, two clear phases did not show up, indicating that

negotiation processes do have a different structure. In all experimental groups, phases do not significantly differ from being equal in length. Therefore, an interval-driven approach can be considered appropriate when analysing two negotiation phases.

It is still not clear where the behavioural differences between the “Dance Group” and the other groups finally come from and further research is needed to investigate the issue.

It would be interesting to study, for example, whether the differences detected by analysing the data in an exploratory way, also lead to significant between group differences. The outcome of this study leads to the assumption that the behaviour of negotiators provided with a negotiation dance graph, and therefore with information about the own as well as the counterparts utilities, differs significantly from negotiators provided with less support.

Furthermore, an interesting question arising is whether more detailed differences can be detected. Therefore also the subcategories should be analysed to get an even deeper insight into the behavioural changes during the negotiation process.

In general, as three out of the four experimental groups were supported with active negotiation support and only one group appears to differ from the others, when testing the negotiations for two phases, it finally can be assumed that graphical representation leads to differences in phase structures. It appears that the negotiation dance graph leads to different behaviour during the negotiation process and thus to a different phase structure of the negotiation process compared to negotiations not supported with this tool.

5.2 Three Phases

As already mentioned, the holistic approach has been used to conduct data-driven phase analysis and split the negotiations into three phases.

5.2.1 Detectable Behaviour

It was possible to detect two splitting points for all experimental groups. Therefore, in a second step, it was investigated whether communicative acts

have been used significantly more or less, respectively, in the different phases than on average in the whole negotiation. The results are presented in table 12 and will be described in succession.

3 Phases	Control			Tree			History			Dance		
1. Make Concession	<u>1 -</u>			<u>1 -</u>		3 +	<u>1 -</u>	2 +		<u>1 -</u>		3 +
2. Ask or Give Priority Information												
3. Show Social Support								2 -	3 +			
4. Positional Offer	<u>1 +</u>			<u>1 +</u>		3 -	<u>1 +</u>		<u>3 -</u>	1 +		<u>3 -</u>
5. Give Positional Information	<u>1 +</u>		3 -			<u>3 -</u>			<u>3 -</u>			<u>3 -</u>
6. Show Negative Response	<u>1 -</u>									1 -		
7. Use Tactics and Contention							1 -					
8. Substantiate Position	<u>1 -</u>						<u>1 -</u>		3 +			
9. Process Variables	<u>1 -</u>					3 +		2 -	3 +		2 -	3 +

Numbers: phase number

+ : Communicative acts used significantly more in phase than on average

- : Communicative acts used significantly less in phase than on average

Plain text: effect significant at 5% confidence level ($\alpha=0,05$)

Underlined: effect significant at 1% confidence level ($\alpha=0,01$)

Table 12: Significant Differences in Phase Structures ~ 3 Phases

The behaviour in each phase independently has also been investigated and compared to the three phase model provided by Holmes (1992). Referring to Holmes (1992), negotiators are supposed to pass through three stages during the negotiation process: a problem initiation phase, a problem solving phase and a problem resolution phase (see section 2.2.1.2.2).

In the first phase, in all experimental groups, negotiators made significantly less concessions compared to the concession-making behaviour during the whole negotiation and significantly more positional offers. On the other hand, in the third phase, in the “Tree Group” and the “Dance Group” significantly more concessions and less positional offers were made. In the “History Group” the negotiators made already significantly more concessions in the second negotiation phase and, as in the former groups, also significantly less positional offers in the third negotiation phase.

Apart from this, positional information was significantly more used in the first phase and significantly less in the third phase in the “Control Group”. Furthermore, negative emotions as well as substantive behaviour and process oriented communication have been significantly less used within the first part of the negotiation. What attracts attention is that significant results were almost only detectable within the first negotiation phase in this experimental group.

Negotiators of the “Tree Group” gave significantly less positional information in the third phase and communication about process was significantly higher in the third phase of the negotiation.

In the “History Group” significantly less social support was provided in the second negotiation phase and significantly more in the third negotiation phase. Furthermore, tactics were used significantly less in the first phase and negotiators substantiated position significantly less in the first and significantly more in the third phase. Process oriented communication was significantly higher in the third and significantly lower in the second negotiation phase.

Positional information was also significantly less provided in the third phase in the “Dance Group”. Furthermore, negotiators did show significantly less negative emotions in the first phase and process oriented communication was, as in the “History Group”, significantly lower in the second and significantly higher in the third phase.

In all experimental groups most significant results could be detected in the first as well as the third phase, meaning that communicative acts of a certain category were used significantly more or less in the opening and closing phase of the negotiation than on average. In two out of four experimental groups, even no single significant results could be obtained in the second phase. This leads to the assumption that, in general, the behaviour in the second phase, does not significantly deviate from the average behaviour throughout the negotiation, but that significant behavioural changes are detectable between the first and the third negotiation phase in comparison with the average behaviour during the whole negotiation process.

The significant results indicate that the first phase in all experimental groups can be described as a kind of differentiation phase and resembles the behaviour detected in the first phase of the presented two phase model. The same is true for the third phase which is in a sense similar to the second phase of the two phase model.

To get to know what happens in the second phase, this phase has been analysed independently and the outcome is graphically presented below and will be discussed in succession.

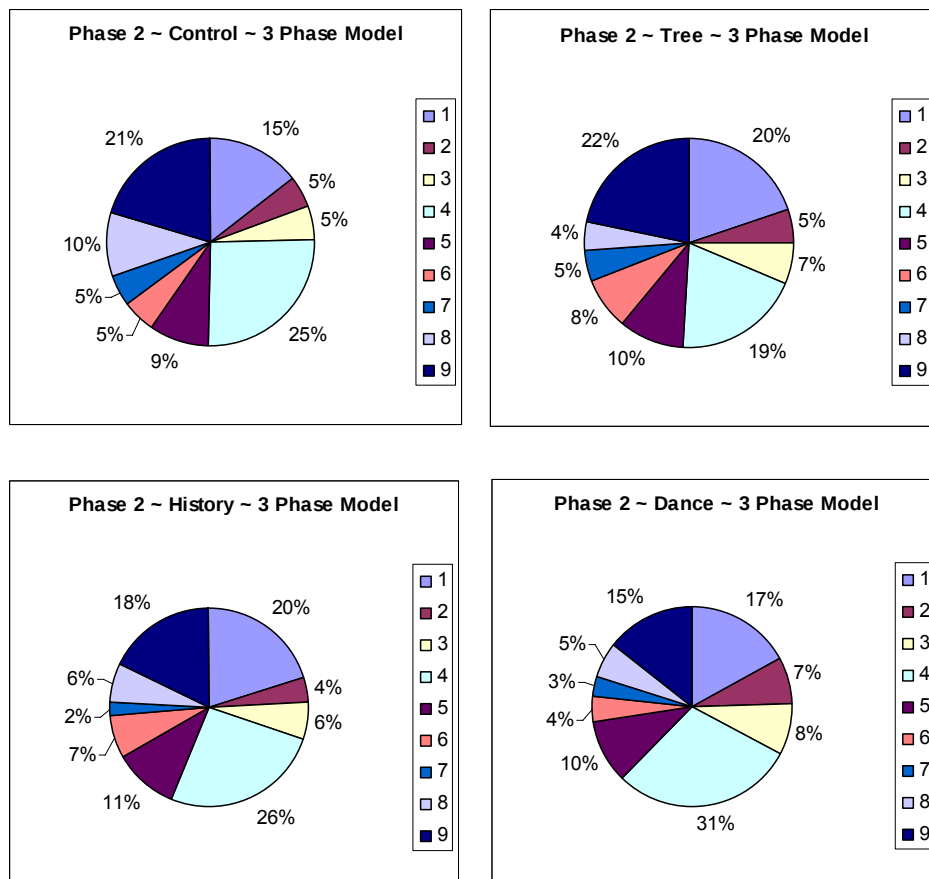


Figure 23: Relative Shares of Communicative Acts in Phase 2 ~ 3 Phase Model

In all experimental groups major emphasis in the second phase is still put on positional offers, but also already on concession making. Holmes (1992) defines the second phase as characterised by information exchange and the start to look for mutual acceptable information. The results of the present analysis do confirm his model insofar as negotiators do already make concessions and approach the counterpart, but a trend towards a high percentage of information exchange could not be detected. Koeszegi et al. (2007) describe the second negotiation phase detected in the three phase model as a contentious one, but, in this case, it can probably be better described as a “transitional period/phase”, a phase in which negotiators pass over from a distributive to an integrative strategy.

5.2.2 Phase Length

To concentrate again also on the second research question, the absolute and relative phase length per group and dyad have been calculated and the results are summarised in table 13.

Group	Absolute Length			Relative Length		
	Ph 1	Ph 2	Ph 3	Ph 1	Ph 2	Ph 3
 Control	55,67	38,65	70,35	33,81%	23,47%	42,72%
 Tree	74,53	36,64	61,61	43,14%	21,21%	35,66%
 History	75,50	37,53	56,20	44,62%	22,17%	33,21%
 Dance	60,40	27,92	77,73	36,38%	16,81%	46,81%
All Groups (Average)	66,41	35,18	66,60	39,49%	20,92%	39,60%

Table 13: Average Absolute and Relative Length of Three Phases per Group and Dyad

In all experimental groups the second phase consists of less communicative acts than the first and third negotiation phase. Whereas in the “Tree Group” and the “History Group” the first phase consists of most communicative acts, the highest amount of communicative acts can be found in the third phase in the “Control Group” and the “Dance Group”.

The results of the t-test presented in table 14 show that in every group the second phase differs significantly from $\frac{1}{3}$ ($\alpha = 5\%$ for the “Control Group” and 1% for the other experimental groups). The second phase is significantly shorter in every case.

Apart from this, significant differences were detectable for the first phase of the “Tree Group” ($\alpha = 5\%$) and the “History Group” ($\alpha = 1\%$). In both cases the first phase was significantly longer than $\frac{1}{3}$ of the whole negotiation. In the “Dance Group”, the group with highest analytical support provided, the third phase was significantly longer at a confidence level of 1% .

In the “Control Group”, apart from the second phase, no significant deviations show up.

Test Variable = 0,333			
Group	T	df	Significance (two-sided)
Control Phase 1	0,087	14	0,932
Control Phase 2	- 2,292	14	0,038
Control Phase 3	1,605	14	0,131
Tree Phase 1	2,156	18	0,045
Tree Phase 2	- 3,089	18	0,006
Tree Phase 3	0,542	18	0,595
History Phase 1	2,834	21	0,010
History Phase 2	- 3,515	21	0,002
History Phase 3	- 0,036	21	0,972
Dance Phase 1	0,740	18	0,469
Dance Phase 2	- 23,414	18	0,000
Dance Phase 3	3,223	18	0,005

Table 14: Length Deviations from one Third ~ Results

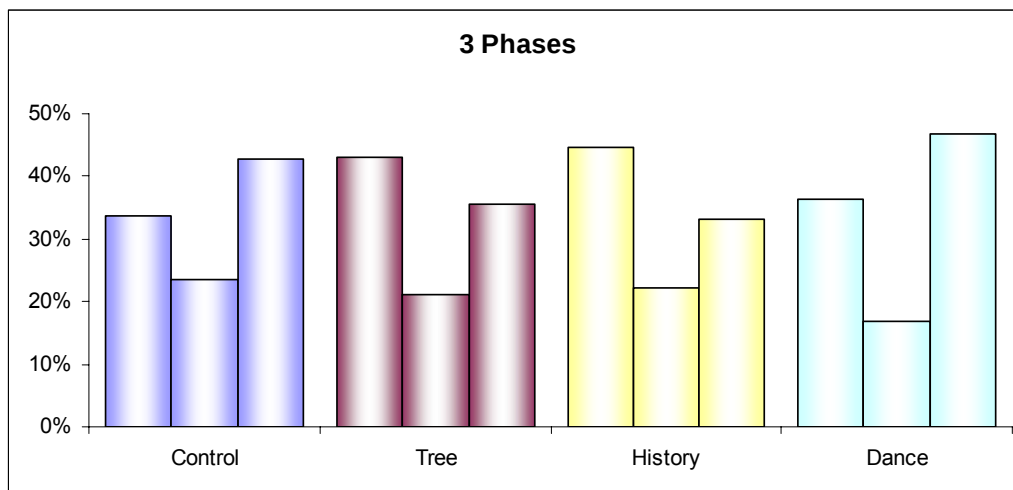


Figure 24: Average Relative Length of Phases in Experimental Groups, Three Phases

The results indicate that it is not possible to detect three negotiation phases equal in length. This confirms the results presented by Koeszegi et al. (2007) for asynchronous electronic negotiations. For all experimental groups, the second phase is significantly shorter leading to the assumption that, when considering three negotiation phases in electronic negotiations, they should not be considered of equal length/as intervals.

The only group, in which three phases were detectable and only one significantly differed from $\frac{1}{3}$ of the whole negotiation (at a α of 5%) was the "Control Group". In all other groups two phases do significantly differ.

5.2.3 Brief Summary

Summarising the results, it has to be remarked, that the second phase in the three phase model presented, was significantly shorter than the other phases in all experimental groups. Furthermore, it did not show many significant behavioural characteristics and could therefore be considered a “transitional period/phase” where negotiators change their strategy and pass from the differentiation phase to the integration phase, as the first and the third phase show significant results indicating such behaviour.

It can therefore be concluded that a three phase model can be detected in a more fine grained structure to detect when negotiators change their strategy, but finally, in relation with the behaviour, negotiators shift from more competitive to more cooperative moves during the negotiation process.

This outcome resembles other empirical investigations from researchers testing three phase models and concluding that, in general, they are kind of similar to two phase models as negotiators just become more cooperative over time (Adair & Brett, 2005).

Further researchers, however, could investigate whether the behaviour discriminates from the whole negotiation when taking into account subcategories and thus analyse the whole process in more detail. Furthermore, an interesting question would also be whether any significant between group differences are detectable.

5.3 Four Phases

To split the negotiations into four phases, a holistic approach has been used as well.

5.3.1 Detectable Behaviour

Whether communicative acts have been used significantly more or less in each phase out of the four detected phases, compared to the average use of this type of communicative act during the whole negotiation, has been investigated and the results are summarised in table 15 and 16.

4 Phases	Control				Tree			
1. Make Concession	<u>1 -</u>			4 +	<u>1 -</u>			
2. Ask or Give Priority Information		2 -						
3. Show Social Support			3 -		<u>1 -</u>			
4. Positional Offer	<u>1 +</u>				<u>1 +</u>			4 -
5. Give Positional Information	<u>1 +</u>			4 -	<u>1 +</u>			4 -
6. Show Negative Response	<u>1 -</u>				<u>1 -</u>			
7. Use Tactics and Contention					<u>1 -</u>			
8. Substantiate Position	<u>1 -</u>					2 -		
9. Process Variables	<u>1 -</u>			4 +				4 +

Numbers: phase number

+: Communicative acts used significantly more in phase than on average

-: Communicative acts used significantly less in phase than on average

Plain text: effect significant at 5% confidence level ($\alpha=0,05$)

Underlined: effect significant at 1% confidence level ($\alpha=0,01$)

Table 15: Significant Differences in Phase Structures~ Control & Tree Group ~ 4 Phases

	History				Dance			
1. Make Concession	<u>1 -</u>				<u>1 -</u>			4 +
2. Ask or Give Priority Information								
3. Show Social Support								
4. Positional Offer	<u>1 +</u>			4 -			3 +	4 -
5. Give Positional Information				4 -				4 -
6. Show Negative Response	<u>1 -</u>				<u>1 -</u>			
7. Use Tactics and Contention	<u>1 -</u>				<u>1 -</u>	2 -		
8. Substantiate Position		2 -		4 +			3 -	
9. Process Variables			3 -	4 +				4 +

Numbers: phase number

+: Communicative acts used significantly more in phase than on average

-: Communicative acts used significantly less in phase than on average

Plain text: effect significant at 5% confidence level ($\alpha=0,05$)

Underlined: effect significant at 1% confidence level ($\alpha=0,01$)

Table 16: Significant Differences in Phase Structures ~History & Dance Group ~ 4 Phases

For each experimental group, the outcome will now be described and compared to the sequential four stage model proposed by Adair and Brett (2005) who predict that negotiations can be divided into four sequential stages. In the first negotiation phase counterparts negotiate in a competitive way, using power and influencing the counterpart. In the second phase, more cooperative moves are used by negotiators and focus is led on the exchange of priority information. In the third negotiation phase counterparts return to behave in a more competitive way, before they finally pass to the fourth phase where mutual acceptable agreements are searched as negotiators possess enough information.

During the first phase, negotiators in the "Control Group" did make significantly less concessions and significantly more positional offers. Furthermore, significantly more positional information was exchanged and significantly less

negative emotions shown. Apart from that, negotiators substantiate significantly less their own position and talk significantly less about process. In the second and third phase only one significant result (at a α of 5%) shows up for each phase. Communicative acts of the second category “Ask or give Priority Information” were significantly less used in the second phase and social support significantly less shown in the third negotiation phase. In the fourth negotiation phase significantly more concessions were made than on average during the whole negotiation process, significantly less positional information was exchanged and communication about process was significantly higher.

The model of Adair and Brett (2005) describes the first phase as a period in which affective persuasion and relational positioning are focused. The first negotiation phase detected shows similar behavioural significances. The second phase does not reveal any significant behavioural pattern, apart from the significant lesser priority information exchanged which contradicts theory as, referring to Adair and Brett (2005) information exchange is emphasised in the second negotiation phase. The results for the third phase show that negotiators did show significantly less social support during the third negotiation phase, but apart from this, no outcomes are significant. Adair and Brett (2005), state that the third negotiation phase is characterised by a renewed dance of offerings and a return to competitive behaviour, but the results, if at all, just indicate that negotiators probably behave in a more distributive way as they show significantly less social support than on average during the whole negotiation. In the fourth negotiation phase, called “Reaching Agreement” in the four phase model identified in face-to-face negotiations, people in the “Control Group” made significantly more concessions and less positional offers which implies that negotiators finally approached each other and this kind of behaviour resembles in a way the “Reaching Agreement” phase described by Adair and Brett (2005).

The phase structure in the “Tree Group” does not show four significant different phases neither. In the second phase significantly more substantive behaviour is used but apart from this, in the second and third phase, communicative acts of any category were not used significantly more or less than during the whole negotiation process. The first phase, however, discriminates significantly from the rest of the negotiation and resembles the first phase in the two phase

model. In the fourth phase, significantly less positional offers were made and positional information provided. Furthermore, process oriented communication was significantly higher in the forth phase.

In general, the phase structure detected demonstrates again that negotiators start in a distributive manner and finish in a more integrative or at least less distributive way. Four separated phases make a more fine grained determination of splitting points possible, but the behaviour in the second as well as the third phase is not significant different than the behaviour during the whole negotiation. The same is pretty much true for the “History Group”.

The phase structure detected in the “Dance Group” however leads to very interesting insights. In this group significantly more positional offers were made in the third phase of the negotiation and therefore admit that negotiators returned to an exchange of positional offers in the third phase, before finally passing to a fourth phase in which this kind of behaviour appeared significantly less. Apart from this, negotiators made significantly less concessions in the first, and significantly more in the fourth phase of the negotiation process. Tactics were used significantly less in the first and second negotiation phase and negative responses were significantly less in the first phase. Positional information was significantly less exchanged in the fourth stage of negotiation and process oriented negotiation significantly more.

To investigate what happened in each phase independently, all four phases were analysed and the results are now presented.

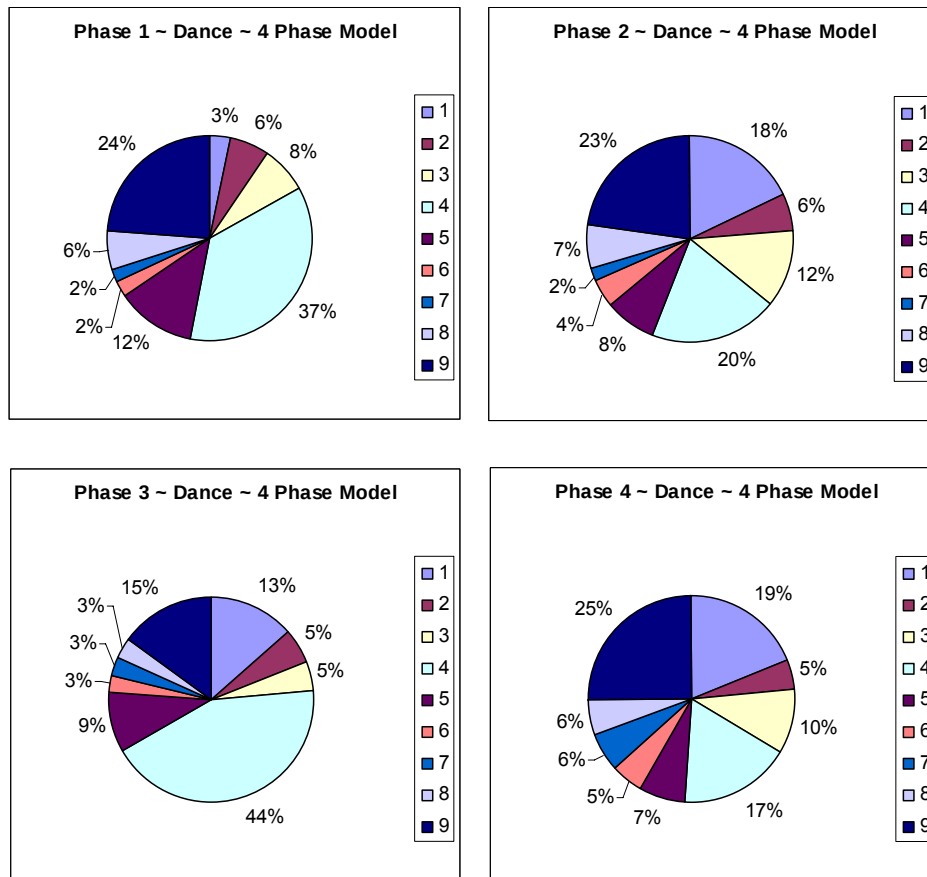


Figure 25: Relative Shares of Communicative Acts ~ 4 Phases ~Dance Group

Figure 25 illustrates in a clear way that, after a first phase, characterised by exchanged positional offers and positional information (together almost 50% of the communicative acts used), negotiators pass to a second phase and the percentage of communicative acts for concession making more than doubles in comparison with the first negotiation phase. The percentage of positional offers and positional information exchanged decreases, and social support increases. After the second phase, in the third negotiation phase, almost 44% of communicative acts are again used to send positional offers. Social support and concessions are reduced again. The fourth phase, then, is used for concession making and social support increases, whereas positional offers decrease. It can thus be seen that, within the four phases, people shift from competitive to cooperative behaviour twice. After a first phase of distribution, negotiators start to approach each other, but then again positional offers are exchanged before finally an agreement is reached as negotiators cooperate again. This phase structure in a way resembles the phase structure and phase model elaborated by Adair and Brett (2005).

For the other experimental groups, it was not possible to detect such a shift. Why this is the case and overall why negotiations supported with the negotiation dance graph show different phase structures than negotiations conducted in other experimental groups deserves further research.

5.3.2 Phase Length

For the four phase model the average lengths (absolute and relative) of each negotiation phase for all four experimental groups have been calculated as well, to answer the second research question.

Group	Absolute Length				Relative Length			
	Ph 1	Ph 2	Ph 3	Ph 4	Ph 1	Ph 2	Ph 3	Ph 4
 Control	50,55	32,10	20,12	61,91	30,70%	19,49%	12,22%	37,59%
 Tree	59,47	23,48	24,14	65,68	34,42%	13,59%	13,97%	38,01%
 History	50,82	28,18	26,31	63,91	30,03%	16,65%	15,55%	37,77%
 Dance	47,13	27,13	23,60	68,20	28,38%	16,34%	14,21%	41,07%
All Groups (Average)	51,99	27,72	23,54	64,93	30,88%	16,52%	13,99%	38,61%

Table 17: Average Absolute and Relative Length of Four Phases per Group

In the four phase model the last phase consists of most communicative acts in all experimental groups. The two phases in the middle of the negotiation are shorter than the first and, as the different groups do not show significant between group differences, the structure is quite similar for all groups.

The results of the t-test show that almost every phase in all four groups significantly differs from $\frac{1}{4}$ of the whole negotiation.

In the “Control Group”, the third phase is significantly shorter ($\alpha = 1\%$) and the fourth phase is significantly longer ($\alpha = 5\%$).

The second and the third phase are significantly shorter ($\alpha = 1\%$) in the “Tree Group”, whereas the first and the fourth phase are significantly longer ($\alpha = 5\%$ or 1% , respectively).

The results for the groups, provided with graphical support during the negotiation process show, that the first phase does not significantly differ from one fourth of the whole negotiation, but that the second and third phase are significantly shorter and the fourth phase is significantly longer ($\alpha = 1\%$).

Test Variable = 0,25			
Group	T	df	Significance (two-sided)
Control Phase 1	1,114	14	0,284
Control Phase 2	-1,332	14	0,204
Control Phase 3	-10,326	14	0,000
Control Phase 4	2,656	14	0,019
Tree Phase 1	2,220	18	0,039
Tree Phase 2	-5,862	18	0,000
Tree Phase 3	-3,743	18	0,001
Tree Phase 4	2,920	18	0,009
History Phase 1	1,257	21	0,222
History Phase 2	-2,795	21	0,011
History Phase 3	-3,931	21	0,001
History Phase 4	3,315	21	0,003
Dance Phase 1	0,809	18	0,429
Dance Phase 2	-4,201	18	0,001
Dance Phase 3	-3,529	18	0,002
Dance Phase 4	3,843	18	0,001

Table 18: Length Deviations from one Quarter ~ Results

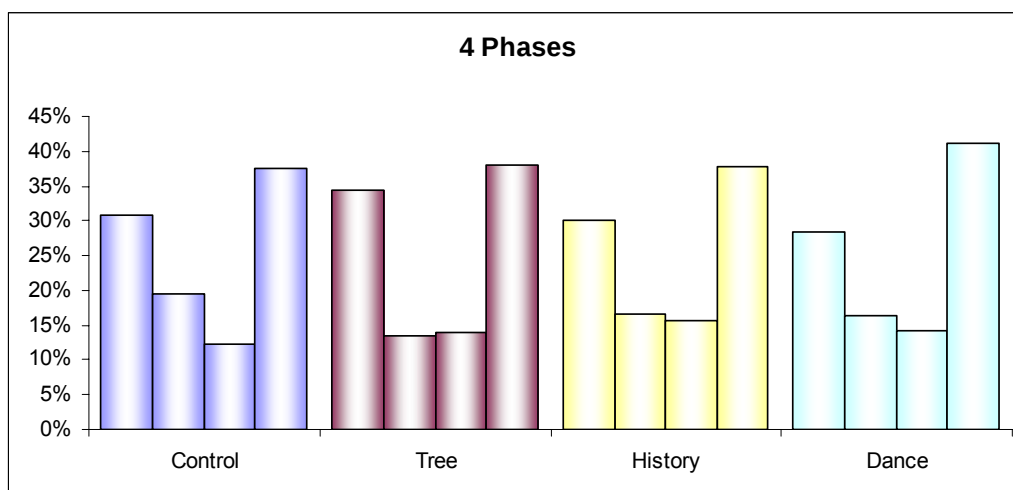


Figure 26: Average Relative Length of Phases in Experimental Groups, Four Phases

In general it was not possible to find four evenly spread negotiation phases in any experimental group. Figure 26 illustrates clearly the dominance of the first and last negotiation phase in all experimental groups.

5.3.3 Brief Summary

The results indicate that it is not possible to detect four discrete phases in electronic negotiation processes, but that the phase structures differ between negotiations supported with the negotiation dance graph and negotiations not provided with this tool.

Whereas in the “Control Group”, the “Tree Group” and the “History Group” it seems that negotiators just pass from a more competitive to more cooperative focus in their behaviour, in the “Dance Group” it can be seen that negotiators switch between their strategic focus. Negotiations are started with a more distributive phase. This phase is followed by a more cooperative one. Then a more competitive phase shows up again, before negotiators finally pass to a cooperative phase and come to an end.

In relation with phase length, it was not possible to detect four negotiation phases not significantly deviating from $\frac{1}{4}$ of the whole negotiation process. It makes thus perfectly sense to use a data-driven approach when splitting negotiations into four phases or three phases, respectively, as the outcome shows that phases should not be considered as intervals, as they differ significantly from being equal in length.

5.4 Discussion and Conclusion

The purpose of this diploma thesis was the provision of further insight into the phase structure of electronic negotiation processes. Furthermore, focus was put on the investigation of the influence of different levels of negotiation support and graphical support tools on the phase structure of negotiation processes. In contrast to existing empirical studies, negotiations conducted via active Electronic Negotiation Systems, offering various levels of support, have been tested for phases.

For the conduction of the phase analysis, a data-driven approach was used as this method is advantageous, because it splits all negotiations into a predefined amount of phases, and combines the interval-driven and event-driven approach. The length of negotiation phases was thus not externally imposed, but determined by the actual structure of the data.

Two research questions were developed, based on a broad theoretical background. The first research question dealt with the possibility to detect various numbers of phases during the negotiation process and the behaviour of negotiators in different negotiation phases, as well as their similarity to phase models identified in face-to-face negotiations. The second research question aimed at investigating phase length and to explore whether interval-driven

approaches, splitting negotiation processes into intervals of equal length, are appropriate for phase analysis.

The research intention was also to investigate, by analysing data from four experimental groups, having negotiated with different levels of negotiation support, whether different levels of negotiation support and graphical representation aids led to discrete phase structures during the negotiation process.

An identification of two discrete negotiation phases during the negotiation process was possible for all experimental groups, except the “Dance Group”. The phase structure showing up in the “Control Group”, the “Tree Group” as well as the “History Group” resembles phase models identified in face-to-face negotiations as they can be regarded as a differentiation and an integration phase. The phase structure of negotiation processes identified in negotiations in the “Dance Group” is not that clear, leading to the assumption that behaviour, and subsequently phase structure, of the negotiation process is different when negotiators are provided with the negotiation dance graph.

For the three phase model it can be concluded that the second stage in all three experimental groups could be determined a “transitional period/phase” as the detectable behaviour does not show many significant deviations from the average behaviour during the negotiation process. A three phase model does allow a more fine grained specification of the point when strategy changes during a negotiation, but finally resembles the two phase model, as a significant shift from distributive to integrative behaviour can be observed between the first and the third negotiation phase.

When splitting negotiations into four phases, the phase structure of negotiations in the “Dance Group” differentiates from the other experimental groups. Whereas in the other experimental groups a shift from more competitive to more cooperative behaviour is again detectable, the phases during the negotiation process of negotiators, provided with the negotiation dance graph, indicate that a negotiator’s strategy changes three times – from competition to cooperation, back to competition and returning to cooperation. It could thus be stated that “the negotiation dance graph leads to a kind of ‘strategy dance’”.

As it is not obvious where the detected deviations between the “Dance Group”, in which negotiators were provided with highest negotiation, and graphical support tools, and the other experimental groups come from, further analysis is needed to study, for example, between group differences or behaviour in more detail (considering subcategories).

As negotiation phases did not significantly deviate from being equal in length when splitting the negotiations into two phases, in all experimental groups, the interval-driven approach can be considered an appropriate tool for the conduction of further phase analysis. This approach is not suitable, however, if negotiations should be tested for more than two phases as in all experimental groups phases significantly differed from being equal in length.

With this diploma thesis a deeper insight into phase structures of electronic negotiation processes is provided and it could be shown that graphical support and different levels of negotiation support, respectively, lead to differences in phase structures. Further researchers are invited to expand the research and investigate the causes of the present results.

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Appendix



CURRICULUM VITAE

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2002/2003: Business French Course, Vienna
Certificate “DFA”, Chamber of Commerce Paris, France
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German Abstract

Um Verhandlungsprozesse zu untersuchen, können verschiedenartige Methoden verwendet werden. Phasenanalyse ist eine adäquate Methode um den Faktor „Zeit“ in die Untersuchung von Verhandlungsprozessen einfließen zu lassen.

In der gegenwärtigen Diplomarbeit werden elektronische Verhandlungsprozesse analysiert und es wird getestet, ob verschiedenartige Phasenstrukturen feststellbar sind und ob diese Modellen aus der traditionellen Verhandlungstheorie gleichen. Um die Phasenanalyse durchzuführen, wird eine innovative, neuartige datengeleitete Methode angewendet.

Die Besonderheit dieser Diplomarbeit liegt in der Untersuchung verschiedener Verhandlungsgruppen, die durch unterschiedliche Systeme während der Verhandlungen unterstützt wurden, und der daraus entstehenden Möglichkeit, verschiedene Phasenstrukturen zu erkennen und diese mit dem Grad der Unterstützung in Verbindung zu bringen.

Da dieses Phänomen bislang nicht untersucht wurde, eröffnen sich durch die Analyse neue Einblicke in Phasenstrukturen elektronischer Verhandlungen und die Resultate der Studie deuten darauf hin, dass graphische Unterstützung, wenn der „Negotiation Dance Graph“ zur Verfügung gestellt wird, zu unterschiedlichen Verhandlungsphasen während dem Verhandlungsprozess führt. Unterschiede im Phasenverlauf zeigen sich im Zwei-Phasen-Modell sowie im Vier-Phasen-Modell zwischen der „Dance Gruppe“ und den anderen Experimentalgruppen.

Prescriptive Phase Models of Negotiation

Prescriptive Phase Models of Negotiation			
Atkinson (1980)	Carlisle & Leary (1981)	Zarman and Berman (1982)	Michigan State Police Donohue et al. (1990)
Initiation Phases			
Exploration	Preliminaries	Diagnostic	Introduction and Relationship Development
Problem – Solving Phases			
Expectation	Positioning	Formulation	Problem Clarification and Relationship Development
Structuring	Bargaining		Problem Solving
Movement and Solution Development	Exploration		
Resolution Phases			
Conclusion	Settlement	Details	Resolution Structuring
<i>Holmes further distinguishes them in connection with the negotiation context:</i>			
Collective bargaining	Negotiating groups	Collective bargaining	Hostage negotiation

Prescriptive Models of Negotiation (Holmes 1992, p. 87)

Descriptive Phase Models of Negotiation

Descriptive Phase Models of Negotiation				
Douglas (1962)	Gulliver (1979)	Putnam, Wilson & Turner (1990)	T. Abott (1986)	Bednar & Curington (1983)
Initiation Phases				
Establishing the Range	Search for Arena	Agenda Definition and Problem Formulation	Introduction	Distributive
	Agenda and Issue Identification			
Problem – Solving Phase				
Roconnoitering the Range	Exploring the Range	Narrowing Differences	Demands Made, Met or Refused	Integrative
	Narrowing the Range		Impasse	
	Preliminaries to Final Bargaining		Suicide Threat	
Resolution Phases				
Precipitating the Decision-Making Crisis	Final Bargaining	Testing Agreement and Implementation	Surrender	Distributive
	Ritualization			
	Execution			
<i>Holmes further distinguishes them in connection with the negotiation context:</i>				
Collective bargaining	Connected to Douglas model, but variety of contexts & cultures	Spin-off from Douglas model – collective bargaining	Hostage negotiation	Bargaining model

Descriptive Models of Negotiation (Holmes 1992, p. 89)

Categorization Scheme

Create Value	Main Categories		Definition	Sub Categories		detailed description	Examples		
	1	make concession	Substantive negotiation behaviour that constitutes a concession or an agreement of parts of an offer or agreement to an offer package.	1	concession no. of single/double room	make or offer a concession (compared to own previous offer)			
				2	concession price of single/double room				
				3	concession add. services (meals, entertainm.)				
				4	concession lockout option				
				5	concession cost sharing				
				6	concession airport service				
				7	cond. concession no. of single/double room	offer a conditional concession (logrolling: if - then)			
				8	cond. concession price of single/double room				
				9	cond. concession add. services (meals, ...)				
				10	cond. concession lockout option				
				11	cond. concession cost sharing				
				12	cond. concession airport service				
				13	Acceptance				
				14	multi issue offer				
2	ask or give priority information	Statements requiring or providing information about needs or interests	1	request priority information		May I know what your expectations are about that?			
			2	request product information		How many rooms do you have?			
			3	reveal personal information (other than attribute related)		I had a very tough meeting today and now I am tired			
			4	give priority information (attribute related preferences)		The price of the rooms are most important to me			
			5	Clarification		If you look at your last offer, you can see that			
3	show social support	Statements that constitute emphatic communication or show positive emotions.	1	show concern or express understanding (empathic com.)		I understand your argument.			
			2	show positive emotion (incl. thanking & humor)		It is a great pleasure for me too.			
			3	express apology or regret		I am very sorry about that.			
			4	Make off-task comments (extra role)		Can I have your email?			
Main Categories		Definition	Sub Categories		detailed description	Examples			
Claim Value	4	positional offer	Substantive negotiation behaviour that constitute positional bargaining and value claiming.	1	positional offer no. of single/double room	make initial offer or repeat a previous offer/position (also if - then)			
				2	positional offer price of single/double room				
				3	positional offer add. services (meals, etc.)				
				4	positional offer lockout option				
				5	positional offer cost sharing				
				6	positional offer airport service				
				7	bottomline offer no. of single/double room	offer a concession by using a bottomline or threat			
				8	bottomline offer price of single/double room				
				9	bottomline offer add. services (meal, ...)				
				10	bottomline offer lockout option				
				11	bottomline offer cost sharing				
				12	bottomline offer airport service				
				13	request concession no. single/double room	offer a concession by using a bottomline or threat			
				14	request concession price single/double room				
				15	request concession add. services (meal, ...)				
				16	request concession lockout option				
				17	request concession cost sharing				
				18	request concession airport service				
	5	give positional information	information about facts or statements intended to persuade	1	state facts about product/service/company		Our rooms have air-conditioning.		
				2	self-supporting statements		We have the best rooms in the City		
				3	persuasive statements		Okay, I really like you and I make you a very special offer.		
	6	show negative response	Statements rejecting offers or proposals or showing negative emotions	1	reject proposals, offers or suggestions		We cannot lower the price.		
				2	set conditions (not related to concrete issue)		If you accept all this ...		
				3	show negative emotions or sarcasm		... but I have to say, that I'm really angry! ... You cannot be serious!		
	7	use tactics and contention	Communication that is intended to influence the other party	1	make commitments		This is my very last offer.		
				2	exert pressure		You have to decide until tonight.		
				3	make promises		In the next contract, we can offer you a better price.		
				4	suggest sequential issue negotiation		We should discuss the price first.		
5				refer alternative suppliers/buyers		We have a better offer of a different supplier!			
6				use authority related tactics		My boss will be very unhappy			
8	substantiate position	Normative statements to substantiate own position	1	stress similarities and common ground (normative)		Our guests are also your guests and therefore ...			
			2	request understanding/accommodation (normative)		Please understand that we cannot go below this price			
			3	refer to fairness (normativ statement)		This is a fair offer.			
			4	refer to trust & relationship (normativ statement)		We should think about our future relationship			
			5	express hope		We hope that you understand our position			
Main Categories		Definition	Sub Categories		Examples				
Process	9	Process variables	communication that is related to the negotiation process or specific for text-based, computer-mediated, asynchronous communication	1	time related or process coordination	I cannot access Internet over the weekend			
				2	system issues	Do you understand how this system works?			
				3	impersonal address, closing or signature	Yours sincerely, Playa Beach Resort			
				4	personalized address, closing or signature	I wish you a very nice evening and all the best, Playa Beach Resort			
				5	text structuring	my offer:, etc.			
				6	redundant units & anomalies				

Information for Negotiators

PLAYA HOTEL VS. BINGO TOURS



Background information

Bingo Tours, a European tour operator is a company that has grown considerably over the last years. The operator is active in nearly all European countries and offers full-service travels all over the world. *Bingo Tours* mostly targets elderly people (i.e. over 65 years).

Service at the resort includes:

- 7 nights accommodation at an upper middle-class hotel
- single or double room accommodation (extra charge)
- half board or full board (extra charge)
- home care (if necessary)
- travel escort
- language courses
- evening events (bingo and quiz games, live music)
- sight-seeing tours by bus with multilingual tour guides

Last week, Mrs./Mr. Gobin, the company's manager, found out about a big new hotel in Croatia, the *Playa Hotel*. Since the company does not yet have any partners there, Gobin got into contact with the hotel manager.

Playa Hotel is a large new upper middle-class hotel in Sibenik, Croatia. Sibenik is situated in northern Dalmatia, a region of growing interest for tourism. It offers many cultural sights and little islands to visit. Next to the city, there is the famous Krka National Park. The hotel is situated right next to the beach (50 m) and about 5 km from the city centre. The nearest airport is Zadar (120 km). The hotel offers 300 single and 200 double rooms, half or full board residential, a swimming pool, and many different sports facilities. Every room is equipped with a bathroom/toilet, a hair drier, telephone, satellite TV, mini-bar, air-conditioning, and heating.

Last week, the hotel manager, Mr./Mrs. Alpay, got an e-mail from a European tour operator, *Bingo Tours*, who specialised in travels for elderly people. *Bingo Tours* wants the *Playa Hotel* to become a partner.

Gobin and Alpay decided to negotiate the contract details for the coming season (summer 2007) via the electronic negotiation support system Negoisst.

Bingo Tours has a contract template it uses for hotel seasonal contracts (summer 2007 in this case):

- Number of Single Rooms
- Single Room Price (in € per room)
- Number of Double Rooms
- Double Room Price (in € per room)
- Extra Charge Full Board (in € per person and day)
- Lock-Out option for other operators (yes / no/ only for youth-travel operators)
- Airport Shuttle Service (percentage of costs)
- Cost-sharing for non-booked rooms (percentage of room price)
- Number of evening events per week
- Fee for evening events (in € per person and night)
- Price for sight-seeing tours (in € per person and tour)
- Meal option for low cholesterol diet (yes/ no)
- Meal option for low fat diet (yes/ no)
- Meal option for diabetic meals (yes/ no)

The summer season 2007 encompasses 14 weeks. For reasons of simplicity, calculations have been made on a weekly basis.

Bingo Tours and the *Playa Hotel* negotiate over a contract for the next season, but if they reach an agreement that is favourable for both sides, they can become long-term business partners.

Gobin promised to begin the negotiation on Monday, 11 December 2006 by sending a first message through the Negoisst system.

We kindly ask you to provide some feedback after the negotiation in this questionnaire:

<https://www.wi1.uni-hohenheim.de/survey/index.php?sid=18>

Note: The data is collected anonymously und through a secure internet connection. Your browser will probably ask you to confirm this.

Thank you!

PLAYA HOTEL VS. BINGO TOURS

PRIVATE INFORMATION FOR BINGO TOURS

Activity-based Costing analysis has shown that it is more profitable for *Bingo Tours* to concentrate on few big hotels than on many little hotels because of high fixed costs. Regarding this fact, *Bingo Tours* won't accept less than **150 single and 100 double rooms** from the *Playa Hotel*. For *Bingo Tours*, **single rooms** are preferred because old people often have to travel alone.

The room price should be lower than **30 € per single room and 50 € per double room**.

For the extra-charge for **full-board residential**, *Bingo Tours* won't pay more than **10 € per person**.

Many of the elderly people are on a special diet. From customer research, *Bingo Tours* found out that 20 % need to have low fat, low cholesterol or diabetic meals. *Bingo Tours* is, therefore, very interested in **special meal options** in the hotel but does not want to pay an extra charge for it.

The transfer between airport and hotel is only offered by one single bus tour operator. Because of the large distance, the **airport shuttle service** costs 30 € per person (round trip). *Bingo Tours* is not willing to bear more than **50 %** of the costs.

Another important issue is the lock-out option for other operators. In the past, *Bingo* had faced serious problems when their customers had to share the hotel with young guests (especially from Scandinavia and the United Kingdom) who consume large amounts of alcohol and are very noisy. The best option for *Bingo* would therefore be a **lock-out option for any other operator**. A lock-out option only for youth travel operators is acceptable; no lock-out option is unacceptable.

One problem with elderly people is that they do not plan their holiday long in advance or that they cancel their travel at short notice because of illness. Thus, *Bingo Tours* expects the average ratio of non-booked rooms to come to 15 %. In terms of **cost-sharing for these non-booked rooms, a 75 to 25 sharing rate** (75% by the operator, 25% by the hotel) is a standard arrangement in the travel industry.

Bingo Tours assures its customers **two sight-seeing tours per week for 35 € each**. From former experience *Bingo Tours* knows that usually all guests take part in both tours.

Although most of the elderly people like to join the evening events such as bingo and quiz games, they are not willing to pay an entrance fee. Nevertheless, *Bingo Tours* would accept an

extra charge of 5 € per person and evening to make sure that **at least three** evening events actually take place.

For management, staff, and equipment, the operator has fixed costs, which have already been considered in the calculations.

Based on this information the controlling department has provided a simplified decision model for the negotiation at hand. The importance of each issue is listed below.

Attribute	Importance	Worst Case	Best Case
Number of single rooms	12,5 %	150 rooms	250 rooms
Single room price	11 %	30 € per room and night	15 € per room and night
Number of double rooms	7,5 %	100 rooms	200 rooms
Double room price	16 %	50 € per room and night	30 € per room and night
Extra charge full board	5 %	10 € per person and day	2 € per person and day
Lock-out option for other operators	20 %	No lock-out option Lock-out option only for youth travel operators Lock-out option for any other operator	0 % 66 % 100 %
Airport shuttle service	3 %	50 % by the hotel	100 % by the hotel
Cost-sharing for non-booked rooms	10 %	75 % by Bingo Tours	25 % by Bingo Tours
Number of evening events per week	4 %	3 evening events per week	5 evening events per week
Entrance fee for evening events	2,5 %	5 € per person and event	0 € per person and event
Price for sight-seeing tours	2,5 %	35 € per person and tour	20 € per person and tour
Meal option for low cholesterol diet	2 %	No 42% Yes 100%	
Meal option for low fat diet	2 %	No 42% Yes 100%	
Meal option for diabetic meals	2 %	No 42% Yes 100%	

PLAYA HOTEL VS. BINGO TOURS

PRIVATE INFORMATION FOR PLAYA HOTEL

Private Information for the Playa Hotel

The *Playa Hotel* is very interested in *Bingo Tours* because elderly people are very profitable: they are easy to please and usually spend a lot of money in the hotel, especially at the hotel bar.

Playa Hotel **won't accept a total lock-out option** for other operators because in this case, the hotel would lose many regular customers and would be totally dependent on *Bingo Tours*. A lock-out option only for youth-travel operators, however, is acceptable.

For 2007, the hotel has already sold a certain contingent of rooms to *Family Tours*. Therefore, it can't offer *Bingo Tours* more than **200 single and 150 double rooms**.

Important issues for the hotel are the cost-sharing for non-booked rooms and the price per room. In terms of **cost-sharing for non-booked rooms, a 75 to 25 sharing rate** (75% by the operator, 25% by the hotel) is standard in the travel industry. Because of an estimated ratio of only 10% non-booked rooms, the *Playa Hotel* would accept this cost distribution; although a 100 % cost absorption by *Bingo Tours* would be even more preferable.

To cover the expenses, the prices per room must **not be lower than 17.50 € per single room and 30 € per double room**.

For **full-board residential**, the hotel demands an extra-charge of at least **5 € per person** per day. Usually, this option is booked by about 80 % of the guests. The hotel restaurant can offer **special meal options** (low cholesterol, low fat, diabetic meals). However, these optional meals cause costs of 2.50 € for low cholesterol and low fat and 5 € for diabetic meals per person per day. The hotel assumes that 20% of its guests take these special meals. The extra charge can be added to the room prices.

Sight-seeing tours are very costly for the hotel (about 15 € per person) but the guests insist on visiting the countryside. Thus, the *Playa Hotel* usually offers **two tours a week** and charges at least **25 € per person and tour**.

The transfer between airport and hotel is only offered by one single bus tour operator. Because of the high distance, the **airport shuttle service** costs 30 € per person (round trip). The hotel wants to bear as little as possible of these expenses.

As **evening events** are very profitable (about 10 € pure profit per person per evening), the *Playa Hotel* would like to offer **four evening events per week for 0 €**.

For staff, management, and credit withdrawals, the hotel has some fixed costs which have already been considered in the calculations.

The accounting department has aggregated the information and prepared a simplified decision model for you. The importance of each issue is listed below:

Attribute	Importance	Worst Case	Best Case
Number of single rooms	7,5 %	150 rooms	200 rooms
Single room price	11,5 %	17,50 € per room and night	30 € per room and night
Number of double rooms	12,5 %	100 rooms	150 rooms
Double room price	13 %	30 € per room and night	50 € per room and night
Extra charge full board	5 %	5 € per person and day	10 € per person and day
Lock-out option for other operators	15 %	Lock-out option for any other operator 17 % Lock-out option only for youth travel operators 50 % No lock-out option 100 %	
Airport shuttle service	10 %	50 % by the hotel	0 % by the hotel
Cost-sharing for non-booked rooms	5 %	25 % by Bingo Tours	75 % by Bingo Tours
Number of evening events per week	13 %	4 evening events per week	5 evening events per week
Entrance fee for evening events	1 %	0 € per person and event	5 € per person and event
Price for sight-seeing tours	2,5 %	25 € per person and tour	40 € per person and tour
Meal option for low cholesterol diet	1 %	Yes 42 % No 100 %	
Meal option for low fat diet	1 %	Yes 42 % No 100 %	
Meal option for diabetic meals	2 %	Yes 42 % No 100 %	