

**THE EFFECTIVENESS OF NEGOTIATION APPROACHES
IN DYADIC NEGOTIATION**

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ABSTRACT

The Effectiveness of Negotiation Approaches in Dyadic Negotiation

XIAN HUA HUANG

Interdependent approach study is a new area in negotiation research. A negotiation approach reflects people's predisposition towards conflict resolution. Although there are five single approaches, negotiators tend to use a combination of more than one approach during the negotiation process. Traditionally, researchers use the strongest approach to represent a negotiator's approach profile. However, a negotiator's approach profile is determined typically by the combination of single approaches and the strength of their occurrence measured by the Thomas-Kilmann questionnaire.

This is an exploratory study of interdependent approaches. Discovery and specification of the effectiveness of such profiles are the research focus. Approach effectiveness is discussed from two perspectives: first, the numbers of strong approaches included; and second, the profile similarity between negotiators. This study analyzes two datasets from the Inspire e-negotiation system. It shows that negotiation approaches are significantly correlated with each other and most people has one or two strong approaches. Although there is significant evidence that a larger number of strong approaches is more effective in the first dataset, it does not hold in the second, suggesting future studies around this topic; it also finds significant relationship with profile similarity and contract balance, although it does not show in the second dataset. In addition, no significant relationship between profile similarity and opening offer utility is found in both datasets. As an exploratory study, this thesis contributes to the understanding of interdependent negotiation approaches from a new manner.

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1 Introduction

Negotiation is an important activity in business and daily lives. It is estimated that negotiation activities accounts for about 20% of manager's working time (Foroughi et al., 1995). Therefore, it has been studied extensively in disciplines such as economics, political science, history, game theory, and management. Because every actor has different preferences, it is often difficult to agree on how gains and loses should be divided.

Among negotiation studies, one area of negotiation research has focused on proposing different negotiation approaches and creating behavioural models to measure these approaches. A negotiation approach can be defined as the pattern of individual behaviours that reappears in conflict situations (Gilkey and Greenhalgh, 1986), and it reflects the predisposition of the negotiator towards the negotiation. The influence of the negotiation approach on the process and broad outcomes makes it one of the most frequently studied topics in negotiation research.

Researchers have proposed different models trying to explain negotiation approaches and their effectiveness. These include, the earliest dichotomy (Deutsch, 1949; Deutsch, 1969) , a three approach model (Horney, 1945), and a dual concern model (Blake and Mouton, 1964; Thomas, 1976). Based on the dual concern model, a negotiation approach can be categorized as competing, collaborating, compromising, avoiding, or accommodating. These five distinct negotiation approaches have been widely examined in negotiation studies.

Researchers have formulated different propositions on reporting the effectiveness of the five approaches. Some of them (Blake and Mouton, 1964) proposed that collaborating was always the most effective approach regardless of the context; others (Olekalns, 2002) found that the effectiveness of an approach was context-dependent. In addition, there are researchers (Thomas, 1992; Van De Vliert, 1997) proposing that approach effectiveness is different between one-time negotiation and recurring negotiations.

Recent studies suggest that many negotiators tend to use some combinations of two or more negotiation approaches, which as a whole affects the effectiveness of the negotiation (Munduate et al., 1999). Therefore, we need to consider the approaches from an interdependent mode rather than individually. As such, the understanding of interdependent approaches and their effectiveness is essential for the success of these negotiations.

Regarding the effectiveness of the combination of approaches, very few experiments have been conducted (Van De Vliert, 1997). This thesis is an exploratory study whose primary purpose is:

The examination of the effectiveness of the combined use of two or more approaches on the negotiation process and outcomes.

There are some important concepts, models, and variables in the available negotiation literature, which serve as the basis for negotiation studies. The background knowledge is summarized in Chapter 2, Theoretical Background.

As part of negotiation studies, a negotiation approach has been examined extensively in past decades. To give more understanding of this issue, we need to introduce and define a negotiation approach and its measurement instruments, which will be covered in Chapter 3, Negotiation Approaches.

Having understood the negotiation approach, we turn to the focus of this study, the effectiveness of negotiation approaches. Regarding this topic, we need to understand what has been done in this area, which serves as the basis for in-depth discussion. Therefore, we have Chapter 4, Effectiveness of Negotiation Approaches.

Based on the information provided in the first four chapters, we move to introduce our research model and hypotheses regarding the effectiveness of the approaches, which are outlined in Chapter 5, Research Model and Hypotheses.

In Chapter 6, we will introduce the methodology used to test these hypotheses. Chapter 7 analyzes the data and gives explanations on the findings. Chapter 8 extends our study to another related dataset, and finally, we conclude the thesis by discussing the results and limitations and future work in Chapter 9, Concluding Remarks.

2 Theoretical Background

2.1 Definition of Conflict

Conflict has been studied extensively in management research. In literature, there is no single clear definition for conflict. Researchers have given definitions from different perspectives. Here are some important ones, e.g.:

“A conflict occurs whenever incompatible activities occur...An action that is incompatible with another action prevents, obstructs, interferes, injures, or in some way makes the latter less likely or less effective.” (Deutsch, 1973, p.10);

“conflict is content oriented differences of opinion that occur in interdependent relationships and can develop into incompatible goals and interests” (Putnam and Wilson, 1982, p.633);

“ conflict is the concerns of two people appear to be incompatible” (Thomas and Kilmann, 1974, p.9).

The most commonly cited definition of conflict is the one proposed by Putnam et al (1987, p.550), i.e.:

“a reaction of the individual to the perception that two parties have different aspirations that cannot be achieved simultaneously.”

From the aforementioned definitions, we can generalize three properties of conflict:

- (1)Interaction: conflict usually occurs during the interaction of the parties;
- (2)Interdependence: each party has some degree of potential to interfere with the other.

(3)The perceived existence of an incompatibility between the goals of each party.

Although most definitions indicate a strong relationship between incompatibilities and conflict, conflict does not necessarily occur when there are incompatibilities, disagreements, or differences with entities. Conflict will take place when the incompatibilities exceed a certain threshold level. It means that compatibilities should be serious enough to elicit conflict among parties (Rahim, 2001).

2.2 Forms of Conflict

People may encounter conflict situations without actual incompatibility. Interestingly, even people who share common interests and goals may sometimes find themselves involved in strong conflict situation because of the differences in the criteria used to judge the information and to make a decision. Conflicts result from such differences in opinions or viewpoints are called *cognitive conflicts* (Foroughi et al., 1995).

On the contrary, the second category is called *conflict of interest* (Foroughi et al., 1995), which refers to situations in which each party has contradictory interests or goals, i.e. one party's goal achievement will prevent the realization of the other party's goals.

Early social and behavioural researchers perceived all forms of conflict as leading to a destructive effect for an organization. Conflict and the tendency of each party to attempt to maximize their own benefits were seen as underlying forces that lead to negotiations (Bartos, 1974; Neslin and Greenhalgh, 1983). However, organizations require involvement and suggestion from every member if they are to survive an environment of

continuous change. Conflict, if properly constructed and managed, may be productive in the improvement of the organization's performance.

2.3 Definition of Negotiation

Negotiation is an intrinsic part of conflict management. For decades, researchers have investigated it from different perspectives, and derived different versions of definitions.

Lewicki et al (1999) defined negotiation as a goal-directed activity, which provides a process for mutually dependent individuals to resolve conflicting goals. In Evans et al's (1987) studies, negotiation is defined as an exchange activity with an intention to promote the possibility of mutually beneficial outcomes. Kersten et al (1991, p.1269) gave their definition as: "a form of decision-making with two or more actively involved agents who cannot make decisions independently, and therefore must make concessions to achieve a compromise."

From the aforementioned definitions, the following characteristics of a negotiation can be presented:

- There are two or more parties involved in the negotiation.
- There is a conflict between actors. Each of them must search for ways to resolve the conflict.
- The parties negotiate because they think they can use some form of influence to get a better deal that way than by simply taking what the other side will voluntarily give them or let them have.

- The parties engage in the negotiation because they prefer to search for agreement rather than to fight openly, have one side capitulate, permanently break off contract, or take their dispute to a higher authority to resolve it.
- The negotiation takes place when there are no established and accepted rules or procedures for conflict resolution.
- In the negotiation each party expects “to give and to take” possibly trading off less desired issues for those the party desires more.
- Successful negotiation involves the management of intangibles (e.g., relationships) as well as the resolving of tangibles (e.g. prices or the terms of agreements).

2.4 Taxonomy of Negotiation

There are many ways to categorize negotiations: Montreal Taxonomy (Ströbel and Weinhardt, 2003) has proposed a classification, which is based on the set of rules defining the number of parties, type of information exchanged, number of permissible rounds, and number and types of attributes. For the purpose of this thesis, we only introduce three classification variables: (1) the number of parties, (2) the number of decision attributes, and (3) the nature of gain.

Based on the number of parties, negotiation can be classified as dyadic (bilateral) negotiation and multilateral negotiation. Dyadic negotiation involves two parties aiming to reach an agreement on the underlying conflict issues; multilateral negotiation involves more than two parties.

Based on the number of attributes (issues), negotiation can be categorized as single attribute negotiation and multi-attribute negotiation. In single attribute negotiation, one attribute describing the deal in the offer can become an issue of the negotiation; in multi-attribute negotiation, there are several attributes to be negotiated and there is a trade-off among attributes.

Based on the nature of gain, a negotiation can be categorized as either *distributive*, in which one party's gains cause losses to the other party, or *integrative*, in which two parties cooperate to find a mutually beneficial outcome (Johnson and Johnson, 1997; Walton and McKersie, 1965).

Distributive negotiation is a "fixed pie" game in which one party can only gain at the other party's expense (Kersten et al., 2000). It is a simple allocation of resources between parties with no additional issues on the table. Negotiators try to maximize their own benefits.

Integrative negotiation refers to the system of activities which is instrumental to the attainment of objectives which are not in a fundamental conflict with those of the other party and which therefore can be integrated to some degree. Integrative negotiation aims to create additional value and maximize joint benefits, and hence it is a cooperative process rather than a competitive process (Kersten et al., 2000).

Kersten et al (2000) propose to consider the integrative negotiation and distributive negotiation as two extremes of a spectrum. In between there are different types of mixed negotiations that differ by the degree of conflict and the scope for cooperation.

From the perspective of the negotiators, the difference between *integrative* and *distributive* largely depends on the interaction between both parties. Communications progressively redefine each party's perception of the negotiation making it possible for one party to perceive a competitive process as an integrative one (Putnam and Jones, 1982). Because individuals habitually tend to generalize from their experiences (e.g. sport competition), they tend to apply these experiences to situations which are not objectively *distributive*. Therefore, many negotiations are considered *distributive* although it is possible to reach a mutually beneficial settlement (Putnam and Jones, 1982).

2.5. Contexts of Negotiation

Like all human interaction, negotiation takes its tone from the contextual circumstance in which it takes place. The contextual circumstance can influence the negotiation from the outset (Rollinson, 1993). Before we explore the negotiation process and outcome, it is useful to understand the contexts in which the negotiation is conducted. This section outlines the four important factors that shape the context.

2.5.1 Relative Power of Parties

Bargaining power is defined as the relative power of negotiators to inflict harm upon each other (Deutsch, 2003), or to force the counterpart to perform certain actions. Empirical studies show that the distribution of power affects the agreement achieved. If the power is distributed equally, then it is easier for the parties to reach an agreement with better outcomes (Magenau and Pruitt, 1978; Rubin and Brown, 1975).

The power of the conflicting parties influences the negotiators' motivation to maintain demands and exert pressure on their counterparts (Pfetsch and Landau, 2000). In markedly unequal situations, the inequality is likely to be accepted as legitimate and an agreement will be achieved quickly, with more benefits going to the powerful negotiator and with more messages sent by the less powerful party (Deutsch, 2003).

When the inequality is not so obvious and is not legitimated, the person with more power may not get more advantages because of the counterpart's strong resistance. In this situation, the weak negotiator who cannot expect fair outcomes, may break off or terminate the negotiation (Deutsch, 2003).

2.5.2 Negotiation Issues

The second factor is the issue itself. There is seldom only one issue in a negotiation and in most cases, some issues are more important than others. Negotiators usually bring a number of issues to the table in the hope that they will be able to make trade-offs between issues depending on their relative importance (Rollinson, 1993).

Multiple issues influence the tactics that negotiators are likely to use or their occurrence. The achievement of success in the less important issues may be sacrificed in order to achieve success in those that are paramount for the negotiator (Rollinson, 1993). These trade-offs may be made easier if negotiators have some knowledge of the preference structure of their opponents. However, if a negotiator mistakenly estimates the relative importance, it can be a barrier for conflict resolution. For this reason, it is vital to know the true preference structure of both parties in order to get optimal solutions.

2.5.3 Past Encounters

This factor reflects the way either party sees each other. These views, once formed, are extremely resistant to change: if parties negotiated with each other in the past, their impressions affect the environment of current negotiations (Rollinson, 1993). Therefore, if conflicts were settled with relative harmony in the past, then both parties are likely to have a positive attitude toward the present negotiation. However, if the past experiences were bitter, then hostility would probably emerge in the current negotiation environment.

2.5.4 Interpersonal Relations

Negotiators develop interpersonal relationship through interaction. Individuals who have worked together in the past know the expectation of each other, and they also know the issues which will irritate or relax the other party. Good interpersonal relations tend to allow negotiators to develop a rapport, and appreciate that their opponents are subject to pressure from their principals. Further, the negotiators who have good relationship and history of cooperation are more likely to exchange truthful information, which is important to elicit mutual understanding (Fry et al., 1983). Under the good negotiation climate, they are more likely to accept the position of their counterparts.

2.6. Negotiation Process and Outcomes

Negotiation processes often move through escalation and de-escalation of requests and demands. The ways escalation and de-escalation progress largely depend on the communication and negotiation skills employed by both parties (Walton, 1987). The escalation and de-escalation constitute the negotiation process with a purpose of seeking

an agreement, and all entities may change themselves and affect behaviours of other entities.

2.6.1 Three Stage Model

The negotiation process has been represented in literature with different stage models. The model differences are in the composition of stages and the negotiation activities assigned to each stage. One of such models, is the three stage model (see Figure 1) comprising antecedent stage, concurrent stage, and consequent stage (Graham and Mintu-Wimsat, 1997; Rubin and Brown, 1975).

In the antecedent stage, the negotiator's negotiation approaches and attractiveness are considered the most important independent variables (Graham and Mintu-Wimsat, 1997). Personal attractiveness is, however, not influential if a negotiation is conducted anonymously in electronic setting.

Negotiation approach is influential because the negotiator's strategies to handle conflict are more important in determining its outcome than the nature of the conflict itself (Hall, 1986). Negotiators form their negotiation approaches before opening of the negotiation. Then, during the process the negotiation, they will choose appropriate tactics following the selected approach.

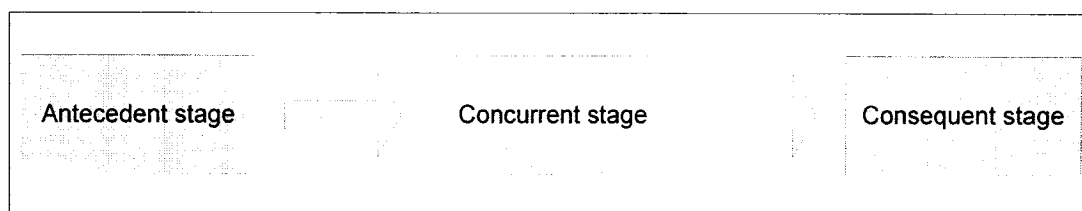


Figure 1. Three stages in a negotiation (Adapted from Graham et al., 1997)

Generally, negotiators who are positively oriented will behave more cooperatively than those who are negatively oriented (Deutsch, 1973). Therefore, negotiation approaches established before the negotiation will affect the characteristics of the subsequent interaction.

In the concurrent stage, negotiators engage in activities associated with the search for an agreement (Graham and Mintu-Wimsat, 1997). In order to achieve an agreement, both parties have to move closer to the other's position by identifying a common ground and making constructive offers. Each party needs to clarify and justify their position. Any message and other forms of information to support arguments of either party are submitted at this stage. Therefore, exchanging information and offers are core activities in this stage (Adair et al., 2006). In this stage, they may choose to fight or cooperate depending on the situational factors and the progress of the negotiation. Negotiators are influenced by and respond to the behaviours of their counterparts.

Finally, after exchanging information and discussing the possible solutions in the above stages, negotiators may either reach an agreement or leave problems unresolved in the consequence stage. During this stage, they may consider agreement improvement, and discuss about the agreement implementation, monitoring and conditions for re-negotiations (Kersten and Noronha, 1999).

2.6.2 Factors Affecting Outcomes

According to the three stage model (Graham and Mintu-Wimsat, 1997; Rubin and Brown, 1975), activities and behaviours in this stage will determine the final outcome. The

purpose of the process is to achieve a settlement which is a key negotiation outcome. There are also other outcomes which may be achieved during or on the conclusion of the process, including change in the relationship between the participants, relationships with the others caused by the negotiation, and new information and knowledge acquired through the negotiation (Faratin et al., 2000).

Exchanging messages pertains to the information seeking activities in the concurrent stage. Since cognitive difficulties encountered by negotiators are one of the major barriers to the achievement of integrative agreements, information is essential to remove the barrier, prevent the tendency toward premature closure. Through information exchange, each party can discover counterparty's behaviour patterns and preference structures and thus make it predictable to each other (Putnam and Jones, 1982). As a result, more information exchange is regularly anticipated as an important factor leading to mutually beneficial solutions (Foroughi et al., 1995; Pruitt, 1981; Walton and McKersie, 1965).

Negotiators proceed more readily under condition of trust than of persistent suspicion, mistrust and doubt about the intentions and behaviour of the other parties (Wu and Laws, 2003). In an environment of mutual trust, it is understandable that they feel easier to share or exchange information and jointly resolve the conflict. As a result, it is easier to understand each other's interest, to generate creative options, and to deliberate over criteria for benefit allocation (Wu and Laws, 2003).

When we think of the level of tension, the moderate level of conflict is most appropriate to find the optimal solution (Olekalns and Weingart, 2004; Walton, 1969). A medium level of tension leads to an active seeking information, considering more alternatives, and both parties have strong tendency to improve the situation.

On one hand, if the tension level is too high, it tends to escalate the conflict and shift negotiation to contentious condition. This shift usually reduces the negotiators' capacity to perceive process and evaluate information because of the aggressive and defensive interactions. On the other hand, the low level tension usually leads to inactivity and avoidance, neglect of information and low effectiveness since there is no urgency and incentives to be assertive. Therefore, only the moderate level of tension is beneficial to find the optimal solution (Olekalns and Weingart, 2004).

In the negotiation process, there are two types of sequential response to opponent's behaviours: reciprocal and complementary response (Medina et al., 2004). According to the reciprocity norm, individuals who receive gratifications tend to reward the partners with gratifications; while in a confrontation situation, subjects tend to reciprocate the attacks by aggressive or dominance behaviours. The reciprocity in response to confrontation behaviours usually leads to unfavourable outcomes for both parties, because it tends to cause impasse or stagnation (Brett et al., 1998).

Conversely, complementary response is the response to the adversary's action using opposing behaviours (Medina et al., 2004). Complementary behaviours in the hostile

situation is liable to mitigate the conflict, because it helps to reduce its intensity and facilitate the communication in the negotiation (Janssen and Van De Vliert, 1996). Thereby, in a confrontation situation, effective negotiators usually respond in a complementary way to their adversary's interventions for escalating the conflict and reciprocate their counterparty's integrative behaviours (Medina et al., 2004).

3 Negotiation Approaches

Early studies assumed that negotiators managed conflict in a fully rational way. However, not all negotiators behave rationally because of the lack of information and experience, emotions, or opportunities. This led the researchers to investigate the negotiator's behaviours and their sources (Van De Vliert, 1997).

According to Gilkey et al's (1986) definition, a negotiation approach is the pattern of individual behaviours that reappears in conflict situations. It reflects a general consideration of the attitude towards a conflict situation, and it represents a person's typical way of dealing with conflict and resolving it. In different studies, negotiation approach is sometimes interchangeably interpreted as styles, modes, strategies and orientations (Van De Vliert, 1997). In this thesis, we adopt the name of approach.

3.1. Dichotomy

The measurement of negotiation approaches plays an important role in conflict management theory. Deutch (1949; 1969), one of the recognized researchers of conflict and conflict management, proposed a dichotomy perspective on conflict behaviours:

cooperation and competition. Following this early model, a richer model of continuum between cooperation and competitiveness (see Figure 2) has been used to measure negotiator's approaches (Shell, 1999). Cooperation is oriented towards helping others achieve their goals, and competitiveness is oriented toward winning and maximizing their own outcomes.

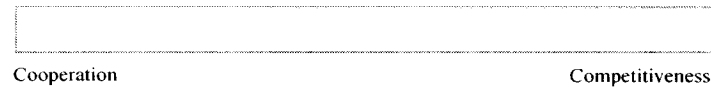


Figure 2. A dichotomy of approaches

Cooperation comes from negotiator's innate and strong belief that the negotiation problem is a shared decision problem which should be approached and solved by all the parties involved. Therefore, cooperation is usually seen as an agreeable and constructive process that tempers the discord, while the competition is viewed as a disagreeable and destructive process that fuels the discord (Deutsch, 1949; Deutsch, 1969).

According to this dichotomy classification, people are either competitors or co-operators with each category exhibiting different behaviours (Shell, 1999). The differences in the negotiators' behaviours lead to the differences in the effectiveness of the process and the outcomes. Ample research has examined the influence of these two approaches in conflict and negotiation settings. The following are some examples:

Most people think of others as themselves. A competitor believes other persons are also competitive. Hence, in the information exchange activities, they tend to receive more information from other persons while withholding their own information. They may also pretend to work with their partners, and then take their money off the table (Shell, 1999).

Conversely, co-operators usually assume that other people are honest and cooperative, like themselves. They think that their opponents will also engage in collaborative efforts and provide relevant and useful information (Shell, 1999). They seek to maximize the pool of resources and use information exchange to establish trust, understand opponent's needs, solve the negotiation problem, and retain flexibility until the close of negotiation (Kersten et al., 2002; Wilson and Putnam, 1990).

Competitors and co-operators also behave distinctly in concession making. Aggressive competitors tend to move slowly and cautiously, and they try not to make any concession (Richardson and Hammock, 1987); while co-operators tend to make unilateral concessions, expecting "the other side will recognize their good faith and feel an irresistible moral obligation to reciprocate with concessions of comparable value." (Williams, 1993, p.169). It seems that co-operators rely on the principle of reciprocity. Hence they exhibit behaviours they expect to see from their opponents, invoking the reciprocity or mutual exchange (Richardson and Hammock, 1987).

Competitors and co-operators also have distinct expectation regarding the negotiation outcome. Generally speaking, establishing a high expectation is relatively easier for competitors because of their "win-lose" philosophy and the perception of the opponents as "obstacles" to the achievement of good results (Shell, 1999). Co-operators need more efforts to achieve it because they always think of other's needs. As a result, competitors usually make high opening offers whereas co-operators try making opening offers which

they consider reasonable (Shell, 1999).

Since co-operators usually assume others are collaborative, they face the risk of falling into the trap by trusting too quickly (Shell, 1999). Competitors, following the rules of “A tough person gets more”, have strong tendency to meet their objectives by dominating the counterparts particularly when they realize that their counterparts are co-operators (Shell, 1999). They try to use more promises and threats to induce concession from the counterpart. Consequently, the co-operator risks being exploited (Angelmar and Stern, 1978).

While a co-operator may engage in competitive actions, for a competitor it is more difficult to be cooperative. This is because of the perception of the counterparts being also competitive rather than cooperative. Therefore, a competitor usually behaves competitively regardless of the opponent and situation (Schei and Rognes, 2003; Shell, 1999). Conversely, cooperative persons tend to reciprocate and behave like their opponents. That is, they are cooperative when their opponents act cooperatively and competitive when their opponents act competitively (Schei and Rognes, 2003; Shell, 1999).

Negotiation is quite a complex issue. There are rarely pure competitive or cooperative conflict situations. As a result, focusing on dichotomy is not sufficient for describing people's behaviours.

3.2 Three Approach Model

A problem with the dichotomy model is that it overlooks the possibility that parties may decide to avoid interaction and downplay the conflict issue. In real world conflict resolution, people may choose avoiding in response to the conflict situations. Therefore, it is reasonable to consider avoidance as a new element of negotiation approach (De Dreu and Van Vianen, 2001).

Putman et al. (1982) proposed a negotiation approach model based on three approaches: ‘collaborating,’ ‘contending,’ and ‘avoiding’. The scope of these approaches and their roles in conflict resolution are essentially the same as the concepts of ‘moving toward people,’ ‘moving against people’ and ‘moving away from people’ which were proposed by Horney (1945).

There is a significant overlapping between Deutch’s (1949; 1969) consideration of collaboration and competition and Putman et al.’s (1982) consideration of collaborating and contending approaches. A negotiator uses collaboration in an effort to work out a mutually acceptable solution and uses contending approach trying to impose one’s will, wishes, and perspectives on the counterpart. The third avoiding approach is the one in which the negotiator tries to ignore the conflict situation.

In this three approach model, collaborating and contending are perceived as more active than avoiding’ they are more likely to actively solve or escalate the conflict respectively than the avoiding approach. Avoiding and collaborating are seen as more agreeable than

contending responses. But avoiding is more likely to leave the conflict as it is, without either solving or escalating it (Van De Vliert and Euwema, 1994).

There are several other models which are based on three negotiation approaches. For example, Hocker et al.'s (1991) literature review led them to a conclusion that there are three types of approaches: avoidance, competitive, and collaborative. Billingham et al. (1987) suggest another three approaches: reasoning, verbal aggression, and violence; whereas Rands et al. (1981) suggested attack, avoid, and compromise.

While these models share similarities (e.g., between collaboration and reasoning, and competition and aggression) there are also differences (e.g., violence is not considered in other models). These differences indicate that the models are incomplete; no one model includes all key approaches (Rahim, 2001). Furthermore, the empirical basis for the aforementioned three approach models is not clear. In order for the analysis to be meaningful, the model should be constructed on the basis of theory and past research (Rahim, 2001). Unfortunately, researchers provided no evidences of the relationships between these three approach models and individual, group, and organizational outcomes. In addition, these three approach models are weak in explaining conflict behaviours in organizational settings (Rahim, 2001). Therefore, none of these three approach models has been widely examined in negotiation studies.

3.3 Dual Concern Model

In many conflict situations, people may have more than one interest instead of one. Blake and Mouton (1964) presented the Managerial Grid based on the attitudes of the manager

in the two dimensions: “concern for production” and “concern for people”. In the Managerial Grid, each concern is conceptualized by a 9 point scale ranging from 1 to 9 (1=minimum concern; 9=maximum concern). Therefore, in the two dimensional space, there are 81 different combination of concerns (see Figure 3).

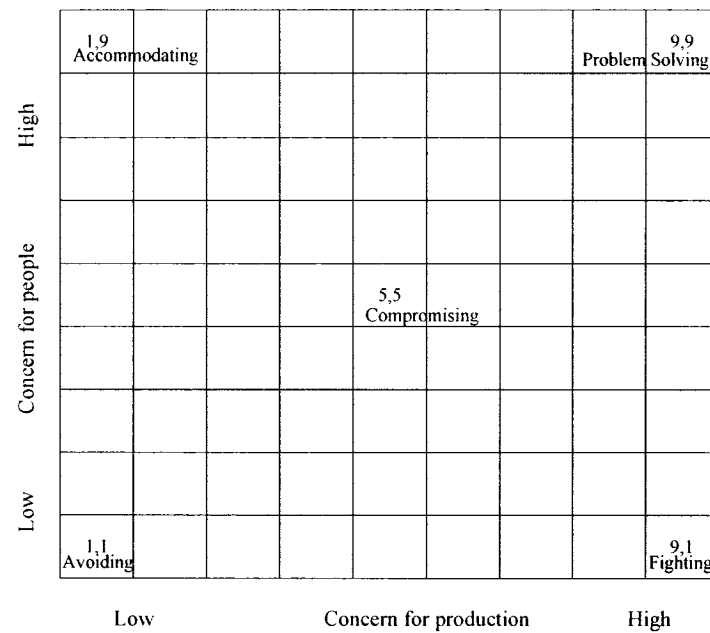


Figure 3. Managerial Grid (Adapted from Blake and Mouton, 1964)

When it was firstly introduced, the Managerial Grid was restricted to managerial behaviours including managerial conflict behaviours (Van De Vliert, 1997). Following this framework, the Managerial Grid focused on explaining locations of five conflict behaviours: (1,1); (1,9); (5,5); (9,9); (9,1), which are marked by avoiding, fighting, compromising, problem solving, and accommodating respectively.

Beginning with 1970s, the Managerial Grid was extended to characterize conflict types other than pertaining to production and it was applied to negotiators other than managers

(Van De Vliert, 1997). Based on the conceptual framework of the Managerial Grid, researchers began to describe one's conflict management styles from the two dimensional views. Some researchers used other labels for the two dimensions and verified the resulting models. For instance, Thomas and Kilmann (1976) proposed "assertiveness" versus "cooperativeness"; Rahim (1983) considered "concern for self" and "concern for others"; while Pruitt et al proposed "concern about own outcomes" and "concern for others' outcomes" (Pruitt and Rubin, 1986). In this thesis, we discuss this dual concern model based on Thomas and Kilmann's (1976) definition: assertiveness and cooperativeness (see Figure 4).

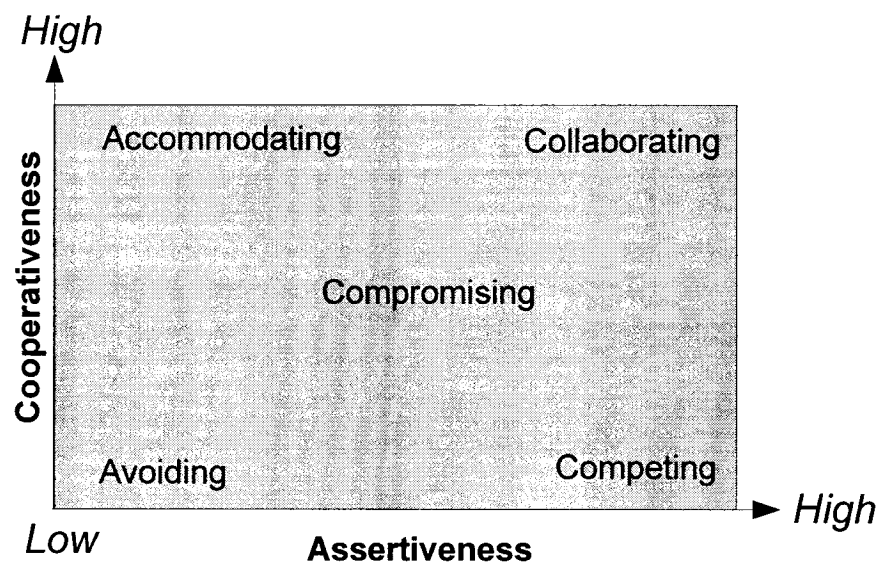


Figure 4. Five approaches in dual concern model (Adapted from Thomas et al., 1976)

Cooperativeness is defined as attempting to satisfy the other party's concern; and assertiveness is defined as attempting to satisfy one's own concern (Thomas, 1976). According to this model, any person's negotiation approach is a function of people's degree of assertiveness and cooperativeness. These two dimensions of behaviour can be

used to define five kinds of different approaches of dealing with conflicts (Thomas, 1976). The five approaches are avoiding, accommodating, competing, collaborating, and compromising. We will discuss them respectively in the following subsections.

3.3.1 Avoiding

Avoiding is used to describe behaviour that is unassertive and uncooperative. An individual with avoiding approach tends not to immediately pursue his or her own concerns or those of the others, because no compromise will satisfy their concerns or the cost of the conflict resolution will outweigh their possible benefits (Thomas, 1976). Avoiding has no incentives to engage in problem solving, and they usually avoid, postpone or withdraw rather than address the conflict at hand. It is a passive approach for conflict resolution. Consequently, negotiators lack the basic information to find the optimal solution (Friedman et al., 2000).

Strength: the purpose of avoiding is not to engage in the conflict. This approach may be used when there is strong relationship between parties and the negotiator does not want to endanger. It can also be used when negotiator wants a “cooling off period” in order to postpone discussion to a later time when the atmosphere is highly emotional (Kersten, 2005).

Weakness: The most obvious weakness is that the conflict may remain and continue affecting both the avoider and the others. Another shortcoming is that it misses the opportunities associated with successful conflict resolution including establishing a relationship, building understanding, learning, and creating new opportunities (Kersten,

2005).

3.3.2 Accommodating

Accommodating is used to describe behaviour that is both unassertive and cooperative. An individual with accommodating approach tends to neglect his or her own concerns to satisfy the concerns of other persons (Thomas, 1976). Similar to avoiding, it is also a passive approach.

Strength: The direct purpose of accommodating approach may be to resolve a conflict with minimum time and effort. Because accommodators satisfy counterparts' needs at their own cost, they are most likely to maintain goodwill, positive relationship and cooperation. Therefore, the accommodating approach may be altruistic or calculated with the hope of being reciprocated in the future (Kersten, 2005).

Weakness: although the accommodating approach makes it easier to reach agreement, the solution is not necessarily effective. The accommodator, by not presenting concerns and making arguments for better solutions, may delegate responsibility to irresponsible people and unwillingly cause harm (Kersten, 2005).

3.3.3 Competing

Competing is used to describe behaviours that are both assertive and uncooperative (Thomas, 1976). An individual with competing approach tends to pursue his or her own concerns at other persons' expense, using whatever power which seems appropriate to

win his or her position. Therefore, competing is a “power-oriented” approach (Thomas and Kilmann, 1974).

Strength: competitors generally have high confidence and no difficulties in facing the conflict (Thomas, 1976). Competing approach may yield better agreement for the negotiator than other approaches. Normally, the competing approach is used if an action has to be taken very quickly and concession may endanger security of an organization or other people (Kersten, 2005).

Weakness: negotiation with one or more parties using competing approach is broken down more often than otherwise. Regularly, negotiators using competing approach seem too “tough” and may alienate others including parties on whom the implementation of the agreement may depend (Kersten, 2005).

3.3.4 Collaborating

Collaborating is used to describe behaviours that are both assertive and cooperative. An individual with collaborating approach tends to work with other persons to find a solution that fully satisfies the concerns of both parties (Thomas, 1976). Therefore, it is an active approach seeking mutually beneficial solutions.

Strength: negotiators with collaborating approach believe that joint discussion and search for solutions lead to optimal agreement; therefore they are committed to the process and agree on devoting time and attention. It is very useful when learning, incorporating

insights are important in conflict resolution (Kersten, 2005).

Weakness: collaborating approach needs significant time and attention, and commitment from all parties involved. The cost used to find the mutually beneficial solution may be used elsewhere. Since the collaborating approach requires open discussion about each party's true objectives, preferences, and constraints, a collaborator may be exploited by the party who withholds information or provides false information (Kersten, 2005).

3.3.5 Compromising

Compromising is used to describe behaviours that are both moderate in assertiveness and cooperativeness (Thomas, 1976). In order to find a mutually acceptable solution, some degree of concession has to be made by all the parties involved.

Strength: this approach is used if strong competition is not the preferred option because of the relationship and atmosphere or when collaborating is inappropriate because of the requirement of time, commitment and information disclosure. It is also used in situation where negotiators understand that they have to allow their counterpart achieve some of their objectives. It is also used to break the deadlock and achieve temporary solution to complex issues (Kersten, 2005).

Weakness: compromising approach lead to agreement based on the concession making from both parties. This pragmatic approach may often leads to short-term solution, which can be improved if they devote more time and effort (Kersten, 2005).

From academic studies, research also provides fairly strong support for the dual-concern model. Multidimensional plots of interrelationships show that the five conflict approaches fit in a two-dimensional space in the manner theorists suggest (Van De Vliert, 1990; Van De Vliert and Euwema, 1994). Therefore, the five approach model is appropriate in describing people's behaviours in conflict situation.

There are many studies which have found that negotiation approach influences the effectiveness of negotiation processes and outcomes (Friedman et al., 2000; Thompson and Hastie, 1990; Van De Vliert et al., 1995). De Dreu et al. (2000) provided a quantitative evaluation of the negotiation approaches with the dependent variables of contentious behaviour, problem solving behaviour, and joint outcome from the negotiation. The author concluded that with regard to negotiation outcomes, the five approaches do affect negotiation behaviour and outcomes as the dual concern model predicted.

3.4 Relationship between Five Approaches

3.4.1 X-cross Relationship

A complementary perspective to the Managerial Grid model is one in which the five approaches are directly related to each other rather than through the two concerns (Rahim, 2001; Thomas, 1976; Van De Vliert, 1997). This is achieved through the approach positioning on the two dimensional space defined by the distributive and integrative dimensions. This representation can be depicted as "X-cross" relationship (see Figure 5) The "X-cross" stands for an integrative and distributive way of allocating benefits

between parties. The integrative dimension represents the integrative bargaining and the distributive dimension represents the distributive bargaining proposed by Walton and McKersie (1965).

In the “X-cross”, the integrative dimension is the scale from avoiding to collaborating, which is the extent to which negotiator minimize or maximize the joint outcome together (Rahim, 2001). In other words, this dimension concerns the variation of the size of a negotiation pie, corresponding to the diagonal from (1, 1) to (9, 9) in the Managerial Grid (Van De Vliert, 1997). In this scale, the sum of concerns of individuals increases from “1+1” to “9+9”. Therefore, avoiding represents the lowest concerns about the joint outcome while collaborating represents the highest concern about the joint outcome.

On the other hand, the distributive dimension stands for the “fixed pie” bargaining. It aims to maximize one party’s benefit at the cost of the counterpart (Rahim, 2001). In other words, this dimension concerns how to divide the negotiation pie, corresponding to the diagonal from (1, 9) to (9, 1) in the Managerial Grid. In this scale, the sum of concerns of individuals is constant at “1+9” while the individual concern varies from “1” to “9”. Therefore, competing means to get the highest benefit for self while accommodating tends to maximize opponent’s outcome by sacrificing their own benefits (Van De Vliert, 1997).

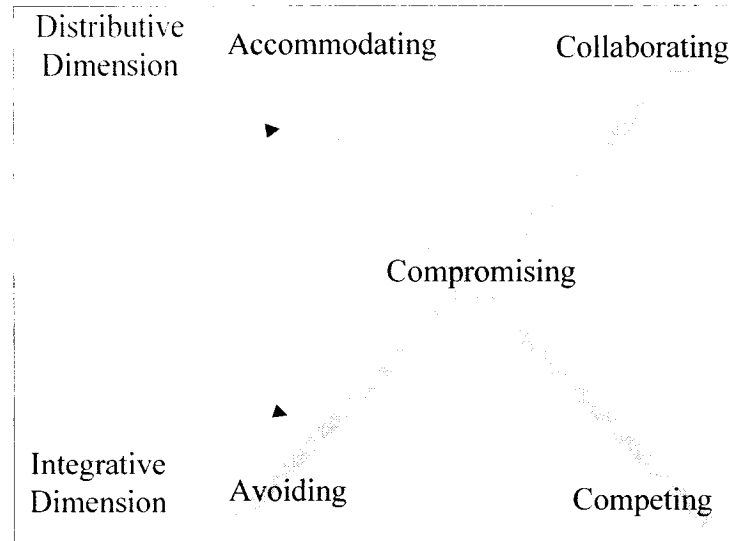


Figure 5. X-cross interpretation (Adapted from Rahim, 2001)

In the dual concern model, each component of conflict behaviours can be conceptually related to each other in terms of the common factors of integration and distribution. Therefore, the “X-cross” provides a more elegant way for describing and interrelating components of conflict behaviours in terms of the magnitude of integrative dimension and distributive dimension (Van De Vliert, 1997).

3.4.2 Approach Profile

Thomas and Kilmann’s (1974) Management Of Differences Exercise (MODE) is an self assessment instrument (see Appendix I) to capture people’s five approach configurations. The answers from the MODE instrument can be transformed to a negotiator’s approach combinations in terms of scores in these five approaches (see Appendix II, III and IV). The score of each approach falls into an interval of [0, 12]. For convenience, we hereby call the combination of strength of the five approaches a *profile*.

The interpretation of a profile requires comparison with the norm. Professor G. Richard Shell (2001) develop a norm based on a 1682 participants of the Wharton School executive programs who filled in the MODE. The scores assigned to each of the five approaches the three strength degrees (weak, medium, and strong) are given in Table 1.

The respondent can locate their scores as falling in the upper 25%, middle 50%, or lower 25% in the norm. For each approach, if any score falls in the upper 25%, it is interpreted as strong or high in this approach; if it falls in the lower 25% of the norm, it is said weak; and for the middle 50%, it is interpreted as average or medium (Figure 6).

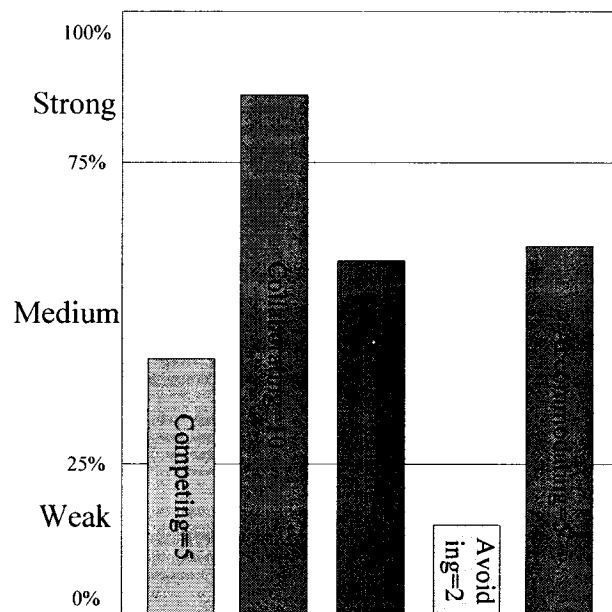


Figure 6. An example MODE profile

Table 1. Degree of strength of negotiation approach

Strength degree	MODE scores for each approach obtained				
	Competing	Collaborating	Compromising	Avoiding	Accommodating
Weak (25% and less)	0-3	0-4	0-5	0-3	0-2
Medium (26-75%)	4-7	5-7	6-9	4-6	3-6
Strong (over 75%)	8-12	8-12	10-12	7-12	7-12

4 Effectiveness of Negotiation Approaches

An approach is *effective* if its use leads to a result which is considered better than the status quo. The *effectiveness* of an approach is an indicator of the extent by which it improves the status quo. It can be expressed in terms of, but not limited to, the following variables, e.g. the agreement or not, utility, Pareto optimality, fairness, satisfaction, relationship improvement, and knowledge acquired (Faratin et al., 2000; Lim and Benbasat, 1992). In negotiation literature, scholars (Medina et al., 2004; Van De Vliert, 1997) have examined effectiveness of the five negotiation approaches from four distinct perspectives: single perspective, contingency perspective, time perspective and interdependent perspective. These four perspectives are discussed in the following sections.

4.1 Single Perspective

Blake and Mouton (1964) consider collaborating to be the most effective approach because it explicitly aims at reaching an agreement that is mutually beneficial to both parties. They note that this is the most constructive way in resolving conflicts because it represents high concerns for both parties' interests.

In the conceptual work of Managerial Grid, collaborating (or problem solving) is located in the cell of (9, 9), which is assumed to produce the highest possible outcomes individually and jointly. In this perspective, collaborating is always the most effective approach regardless of the situation and therefore preferred in every negotiations. Therefore, collaborating is recommended as the best approach in any conflict resolutions.

Banas et al. (2002) find that the greater the extent to which one is more collaborating compared to one's partner, the greater part he or she would get from the negotiating pie. They sum up this surprising result noting that "nice people finish first". Similarly, collaborators are more likely to abide by ethical rules and thus get better outcome because ethical rules prevent them from falling into traps (Reitz et al., 1998).

However, we should not overlook the downside of the collaborating approach. Because this approach needs a symmetric behaviour from the opponents, there are insufficient opportunities for this approach to generate the optimal outcomes particularly in some strong conflict situations (Van De Vliert, 1997). As mentioned in Section 3.3.4, collaborating also needs significant time and attention and commitment from all parties involved. If there are opportunities which are in competition to the negotiation, then the resources required to find the optimal solution may be used instead in realizing the other opportunities. In other words, collaborating approach has high opportunity costs.

Besides the associated costs, there are situations when collaborating approach is disadvantageous to the negotiator. When a co-operator negotiates with an aggressive competitor, the competitor usually gets more from the table (Angelmar and Stern, 1978; Shell, 1999). This is because negotiators with collaborating approach tend to disclose more information about personal utility structures with the hope that their opponent reciprocate their collaboration, they have potential risk of being exploited by aggressive

opponent. Therefore, they might lower their individual outcome by devoting themselves too much into the problem solving process.

4.2 Contingency Perspective

The results of some empirical studies indicate that collaborating is not always the most effective in value creation. This is the case when the mutual relationship blocks high joint gains and when the solution sought does not worth the time and resource consumed (Hocker and Wilmot, 1991). Therefore, the single perspective view is questioned by a new view, situation-strategy-outcome model, which demonstrates that strategies that successfully create value are context-dependent (Olekalns, 2002). This view explains the situational nature of the negotiation approach: the higher outcomes stem from the use of appropriate approaches instead of the “one best way”.

As noted in Section 3.3, each approach has its strength and weakness. Therefore, an approach that is appropriate in one situation may be inappropriate in another situation. According to the contingency view, any approach could be effective if it is properly used in an appropriate situation. For example, competing is often more appropriate in urgent situations where time is considered as most important. Accommodating approach is preferred if the outcome is worth more to others or if maintaining a harmony relationship is important. Therefore, some researchers (Knapp et al., 1988; Pruitt et al., 1983) tend to treat negotiation approach as strategies or intentions to match the situation rather than stable traits. Consequently, the answer regarding “best approach” is going to be quite different in different contexts.

4.3 Time Perspective

The existence of a “single best approach” is challenged by the contingency view. This view has, however, short-time orientation; it focuses on matching the negotiation approach to the immediate conflict situation and on identifying the most appropriate approach here and now (Van De Vliert, 1997).

Usually we examine the effectiveness of negotiation approaches from the one shot negotiation period. It is because researchers tend to draw conclusion based on the outcomes derived from single negotiation session. This is, however, a definite weakness of contingency perspective.

Time perspective (Thomas, 1992; Van De Vliert, 1997) tries to find a compatible explanation on the incompatibility between the single perspective and contingency perspective. In fact, the “one best way” may be construed as taking into consideration long-time orientation of creating desirable future circumstances. It is obvious that negotiation of the agreement represents only the beginning of the transaction, and whether the terms of the agreement are fulfilled depend upon the character of the relationship, which is usually unique, continuing, and long term. Therefore, negotiators with long term planning may accept short-term inefficiencies for long-term gains.

Skilful and effective negotiators know that they may “win the battle but lose the war”. They know that by creating a loser they may win the agreement but lose the contract implementation. Similarly, experienced competitive negotiators realize that the effects of

interdependence reach far beyond the contract. An agreement overwhelmingly favours one party at the cost of another may discourage the loser's further participation (Shell, 1999).

In contrast, the "one best way" put the measurement of effectiveness into longitudinal view, because negotiators believe that the one time wisdom might be long term folly, and vice versa (Van De Vliert, 1997). Therefore, they strive to reach an agreement which is mutually beneficial to both parties by the use of collaborating approach. These explanations are reasonable in longitudinal negotiation because ethic is more important in the long term, particularly for the recurrent negotiation. However, the short time negotiators are relatively pragmatic, the ethic rule may not hold in such situations. Therefore, the one shot effective approach may be true if it is taken out of a larger context and if the past and future do not play a role. By this time perspective, the contingency perspective and the commitment and ethics proposed by single perspective are not incompatible by taking time horizons into account.

4.4 Interdependent Perspective

The arguments of aforementioned perspectives are based on two underlying assumptions (Van De Vliert, 1997). One is that approach use is mutually exclusive, that is, only one approach may be used at a time. A related assumption is that negotiators prefer to use a particular approach throughout the process of the negotiation. The second underlying assumption is that conflict behaviours have pure and mutually independent relations with effectiveness on the negotiation outcomes. It means that the effectiveness of collaborating

has no relationship with the four other approaches. However, these assumptions were challenged in recent studies.

Researchers (Medina et al., 2004; Munduate et al., 1999; Olekalns et al., 1996; Van De Vliert, 1997) observed that in simple conflict situation a single approach might be effective while in complex conflicts characterized by multiple issues and/or many participants, two or more approaches may be used. This change results from the two important observations of negotiation processes: (1) negotiators change of behaviours from one to another in a single conflict episode; and (2) the effectiveness of approaches may be determined by the demand of the moment or the sequence of approaches used.

Blake and Mouton (1964) proposed, in addition to the dual concern model, also more complex grid models in order to account for the negotiators use of multiple approaches. In these models two or more of the five pure approaches may either been used consequently or simultaneously and in conjunction with each other. If we examine the grids in details, then we can observe that the majority of the grids are mixtures of the five approaches. Therefore, every cell allows the adoption of multiple components of approaches, and the Managerial Grid itself hints the existence of the multiple-approach mode. The need for the consideration of multiple approaches was voiced by Van De Vliert (1997, p.13): “Some reaction to conflict issues cannot be explained by a single level of concern for one’s own goals combined with a single level of concern for the other’s goal..... This important feature of the theory has not been noticed by many

researchers who have based their work on the conflict management grid over the last 30 years”.

When examining the correlation between five approaches from different samples, the significant correlations between the five approaches lead to the consideration that different approaches might come together rather than separately. Munduate (1999) reviewed data from 14 studies which assessed the five approaches to conflict resolution and reported significant correlations between approaches. These 14 studies used different experiment designs and instruments to capture negotiator's approach profiles. The significant positive correlation between approaches means that these pairs of approaches are compatible and may be used jointly to resolve conflicts. The meta-analysis of correlation indicates the following relationships or compatibilities among approaches:

- Three pairs of approaches: (1) compromising and collaborating; (2) accommodating and compromising; and (3) avoiding and accommodating are significantly positively correlated. These strong correlations indicate that these approaches are compatible with each other.
- Two pairs of approaches: (1) avoiding and collaborating; and (2) accommodating and competing are significantly negatively correlated. Therefore, they can be interpreted as “incompatible” approaches.

The combined use of different approaches can also be observed in most real world negotiations: labour strikes, international negotiations, and family squabbles often involve a sequence of flexible approaches. One approach is rarely used to the exclusion

of others. Notably, these approaches may be employed simultaneously or sequentially in varying degrees. Several studies (Olekalns and Smith, 2000a; Weingart et al., 1990) have demonstrated that in the process of value creation, negotiators often incorporate otherwise infrequently used approaches.

Negotiation effectiveness is the result of the negotiators' approach throughout negotiation. Therefore, approach effectiveness is a function of various component behaviours that intermediate and moderate each other's impact (Van De Vliert, 1997). Since more than one approach play a role, when we consider the effectiveness of these interdependent approaches, we can not overlook the effect of other approaches.

4.5 Interdependent Approach Studies

Beginning from late 1990s, studies on the interdependence between negotiation approaches have undertaken (Van De Vliert, 1997). Research on the effectiveness of interdependent approaches have proceeded in three dimensions based on different assumptions and using different methodologies (Medina et al., 2004).

The first research dimension concentrates on analyzing the effectiveness of interdependent approaches under the assumption that the approach profile can be a predictor of the effectiveness of conflict resolution, e.g. Munduate et al. (1999) and Van De Vliert et al.(1995). This dimension of study tries to predict the effectiveness by analyzing the elements of negotiator's approach profiles. The assumption is that approach will affect negotiation behaviour during the process and in turn influence the outcome.

Therefore, its discussion is mainly focused on the approaches (antecedent stage) and their outcomes (consequence stage), without scrutinizing the process.

The second research dimension focuses on the analysis of the temporal complexity, and the negotiation phases associated with the participant's behaviours, e.g. Olekalns et al. (2004). This kind of research segments the negotiation process into the combination of the integrative phase and distributive phase, under the assumption that negotiator's behaviours cause the maintenance (or shift) of integrative phase and distributive phase, which in turn determine the effectiveness of a negotiation. The longer the negotiation stays in the integrative phase, the better the joint outcome is anticipated.

Research along the third dimension concentrates on the sequential complexity under the assumption of dyadic effectiveness being affected by both the combination of approaches and their interaction, e.g. Van De Vliert et al. (1999). This dimension distinguishes two types of sequential behaviours (Medina et al., 2004): (1) complementary response; and (2) reciprocity, which are assumed to affect the course of negotiation and outcome. Complementary response is the use of opposing behaviours at the adversary's action. When the opponent is releasing cooperative behaviours, the reciprocal response has a positive effect on joint outcome while the complementary response has a negative effect. Reciprocity is the response to the other party with the same manner as he or she used in the previous turn. In common sense, it means a "tit for tat" behaviour: when the opponent is releasing aggressive behaviours, the reciprocal response has a negative effect on the joint outcome whereas complementary response is negative to joint outcome (Janssen and

Van De Vliert, 1996; Putnam and Jones, 1982). Research in those three dimensions is summarized in Table 2.

Table 2. Summary of the three dimensions

Dimension	Focus
First dimension	This dimension of study tries to predict the effectiveness by analyzing the elements of negotiator's approach profiles
Second dimension	Analyze the temporal complexity by segmenting the negotiation into integrative phase and distributive phase.
Third dimension	Analyze the sequential complexity by examining the negotiator's interaction.

Since few experiments are conducted on interdependent approach studies, there are many questions unanswered. In this thesis, we will focus our study on the first research dimension. We try to identify the relationship between the interdependent negotiation approaches in a profile and its effectiveness. Hence, our research objective is to:

Experimentally determine the effectiveness of interdependent approaches comprising a negotiator's profile.

In the next chapter, we introduce the research model and hypotheses.

5 Research Model

Each person has a particular approach profile, which indicates the order of preferences for the usage of approaches within the situational context. The configuration of the five approaches not only determines the dominant preferences but indicates which backup approaches the respondents may utilize if the dominant one is not appropriate (Shell, 2001).

We have considered a few ways to examine the relationship of specific profiles and the negotiation effectiveness. Because people may have more than one strong approach in their profile, one approach considered was to study negotiations between a person strong at both avoiding and accommodating with a counterpart strong at both collaborating and competing; another approach was to study negotiations between participants whose approach strength was medium for every approach (a relatively even profile) with those who have quite uneven profiles. The difficulty in the implementation of these and similar approaches lies in the data requirement; because of the possible variations in the profiles it is necessary to include a prohibitively large number of participants. For example, after analyzing the profiles of 94 participants, only two of them had scores medium in every approach. Limited by the availability of participants, we have had to focus on more general type of profiles and their relative effectiveness.

People may have more than one strong approach in their profile. Most studies usually choose the strongest approach to represent a negotiator's predisposition while disregarding other approaches (Van De Vliert, 1997). This method is straightforward and easy to implement because the strongest approach is likely to be used during the negotiation. However, it overlooks the possibility that people may have more than one strong approach. In literature, there is no answer to the question as to whether the number of strong approaches in a profile has an impact on the effectiveness of negotiation.

In next section, we discuss the possible effects of the number of strong approaches.

5.1 Number of Strong Approaches

It is easy to understand that negotiators prefer to use approaches they are mostly familiar with because they can use them with greater ease and proficiency (Shell, 2001). For example, people strong in competing or collaborating enjoy the negotiation process more than others. In particular, competitors tend to be very assertive and a change to co-operators may be very difficult for them. Conversely, people who are weak or moderate in competitiveness may have difficulties in exhibiting assertive behaviours because they are not used to it. When faced with a negotiator with strong competing approach, they need to summon all their energies while the counterpart will experience less stress (Shell, 2001).

A negotiation usually starts with individual's actions which reflect the initial negotiator's goals. During the process of the negotiation, negotiators monitor the progress towards their goals and make adjustments if they notice a mismatch. These adjustments shape the negotiation process and influence the outcome.

When more than one approach may be called upon as the situation and the characteristics of the counterpart dictate, the existence of multiple strong approaches may be interpreted as an opportunity to easily use different approaches. This, in turn, indicates a greater flexibility of a negotiator (Olekalns and Weingart, 2004). People tend to assess the situation and partner they face, check to see if the strongest (or most familiar) approach is appropriate, and then proceed. If the strongest approach is perceived as inappropriate, they switch to their second strongest approach (Goodwin, 2002; Shell, 2001).

The above suggests that a negotiator's willingness to convey flexibility rather than firmness during a negotiation has a positive impact on outcome (Olekalns, 2002; Walton and McKersie, 1991). A larger number of strong approaches enables negotiators to more easily choose appropriate approaches they are familiar with when required. Therefore, they are assumed to have a better adaptability to the context.

The contingency perspective (see Section 4.2), shows that the effectiveness of approaches is context dependent (Olekalns, 2002). An approach appropriate in one situation might be inappropriate in another conflict context. In the process of conflict resolution, people who use different approaches tend to have different effects. Because negotiators may frequently move from one approach to another in a single conflict episode, the approach effectiveness is determined by the demand of the moment and the sequence of use.

For negotiators, a larger number of strong approaches enables them to switch between approaches or to employ different approaches simultaneously when the situation dictates in order to bargain for benefits. The result is that they are more likely to use the appropriate approaches at the right time. Therefore, a profile with a larger number of strong approaches enables a negotiator to use appropriate approaches to claim values in the bargaining process. As a result, they are more likely to get a higher *individual outcome*, which is an indicator of the value achieved by a party by reaching an agreement on the individual basis. Hence, our first hypothesis:

H1: Negotiators with a larger number of strong approaches in profile tend to achieve higher individual outcomes.

A large number of strong approaches enables a negotiator to choose one that is appropriate to control the level of tension. As noted in Section 2.6.2, a complementary response to aggressive behaviours tends to deescalate the conflict level, while a reciprocal response tends to escalate the conflict. Depending on the situation, a negotiator can flexibly exhibit reciprocal or complementary responses when dictated by the situation. Therefore, the conflict can be controlled at an appropriate level.

According to our discussion in Section 2.6.2, under an appropriate level of tension, information exchange activities can be maintained. Therefore, more knowledge acquired through information exchange provides in depth knowledge in problems, limitations and criteria; as a result, these negotiators are able to propose creative candidate solutions which are mutually acceptable.

Conversely, the reluctance to change usually runs the risk of violating an opponent's resistance point, and makes it more difficult for him to abandon an untenable position (Walton and McKersie, 1991), even if they have noticed the high tension level. As a result, they lose more opportunities to find optimal solution in the light of unfolding negotiations.

Keeping flexible in the negotiation process also has another advantage: it allows negotiators to continue to test the feasibility of various positions (Walton and McKersie, 1965; Walton and McKersie, 1991). Consequently, they are able to find the solution which is closer to the optimal solution.

Optimal solution has different definitions based on some criteria. One famous optimal solution is Nash solution, which maximizes the product of two parties' individual outcomes (Neslin and Greenhalgh, 1983). Nash solution is also known as to maximize joint gain of both parties while taking into account elements fairness (Faratin et al., 2000).

Another optimal solution is known as *Kalai-Smorodinsky solution* which is interpreted as endogenously providing more weighting to the negotiator who needs more. The Kalai-Smorodinsky solution corresponds to the solution which maximizes the minimum value of two parties' individual outcomes (Rios, 2005).

In order to jointly check how close the final agreement is to the optimal solution, we use three different terms, *ratio to Nash solution*, *distance to Nash solution*, and *distance to Kalai-Smorodinsky (KS) solution*. Therefore, we have the following hypotheses:

H2a: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a larger ratio to Nash solution;

H2b: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a shorter distance to Nash solution;

H2c: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a shorter distance to Kalai-Smorodinsky (KS) solution.

The aforementioned hypotheses are generated without considering the profile of other negotiators. However, negotiation is an interactive process, during which both parties play a role in the determination of effectiveness. Therefore, one interesting question emerges: what will happen if negotiators have similar approach profiles? This question is, however, unanswered in past studies.

In the next section, we move to this topic.

5.2. Profile Similarity

In negotiation literature, similarity can be defined in various dimensions, e.g. race, age, status, ethnicity, attitude, interests, values, and personality. The degree of similarity between negotiators has been found to be influential to the negotiation process and outcomes (Ang et al., 2000). Because there is no such a term of *profile similarity* in past studies, we define it here as an indicator of how similar two negotiator's approach profiles are.

An opening offer reflects the negotiation strategy of the negotiator. At the beginning of the negotiation, some negotiators will propose an opening offer indicating their starting position. For example, on the same role, negotiator A proposes an opening offer which claims a utility value of U_{a0} for A; while negotiator B may propose an opening offer

which asks a utility value of U_{b0} for B. Our next hypothesis tries to relate the profile similarity with U_{a0} and U_{b0} .

An opening offer can act as an anchor point from which a negotiator makes subsequent concessions and adjustments. Therefore, a negotiator usually proposes an opening offer to stake claims and then gradually makes concessions until an agreement is reached toward the middle of the bargaining zone formed by their reservation prices or limits (Adair et al., 2006).

Some negotiators tend to make their “final offer first”; while others take an obviously unrealistic position at first and gradually modify their position in subsequent bargaining moves, at the same time increase their resolution not to make further concessions (Gelfand and Brett, 2004).

Recall our discussion in Section 3.1: a competitor usually asks a high opening offer (claiming more utility) because they try to get as much as possible from the negotiation pie; whereas a co-operator often makes a reasonable opening offer (claiming a moderate utility) because they have equal concern for the counterpart (Shell, 1999). In other words, competitors make similar opening offers which claim a high level of utility; co-operators make similar opening offers which only ask a moderate level of utility. Therefore, these findings support that profile similarity does affect the opening offers in the world of dichotomy.

Although the above findings come from studies of dichotomy, they may still be valid in the five approach context because an approach profile indicates a negotiator's predisposition and strategy on how to conduct the negotiation. Therefore, a high similarity between two negotiators' approach configurations implies that two negotiators share a similar predisposition on the conflict resolution, and what strategies should be used in the light of the negotiation. This similarity in predisposition and strategy can be reflected in the similarity of utility values claimed in negotiators' opening offers. Therefore, our third hypothesis:

H3: The more similar the profiles of negotiators on the same role, the smaller the difference between the utility values claimed in their opening offers.

This similarity in concerns and negotiation approaches means that they, in effect, speak the "same language". During the process of interacting with others who are similar to oneself, people are liable to share common focal points, references, assumptions and so on (Davis and silk, 1972). Therefore, the actions of the counterpart are more predictable to each other (Olekalns, 2002; Olekalns and Smith, 2000b).

Similarity is also liable to gain confidence and acceptance from the other negotiators, who are accustomed to such familiar language and arguments and reasoning that they trust. Obviously, this familiarity may equip negotiators with insight as to the point of view of their counterparts, and provide a better grounding to sense other parties' intentions and behaviours (Cole and Teboul, 2004).

People with similar profiles also have similar concerns and similar attitudes regarding the fairness between them (Shell, 1999). On one hand, they have a good sense as to whether the contract is fair to both parties; on the other hand, each party can avoid being exploited by the other side because they share similar criteria of fairness. Therefore, this good sense will help negotiators find a fairer contract. This can be seen from our discussion in Section 3.1: when a competitor negotiates with a co-operator, the rule is “a tough person gets more”. A competitor has a strong tendency to meet his objectives by dominating the counterpart particularly when he realizes that his counterpart is a co-operator. Consequently, the co-operator is liable to be exploited and the result is usually favourable to the competitor (Angelmar and Stern, 1978).

Because negotiators use similar configurations of approaches and follow the similar “discourse” to claim value, each party can avoid being exploited by the counterpart. Therefore, it is reasonable to assume that they tend to reach a more balanced contract, which means the contract tends to bring equal utility value for both parties. Hence, our fourth hypothesis:

H4: The more similar the approach profiles in a dyad, the more balanced is the contract they reach.

We have discussed the effectiveness of negotiation approaches from two perspectives: number of strong approaches, on which we have four hypotheses; and profile similarity, on which we have two hypotheses. To sum them up, we put all hypotheses into Table 3.

In order to verify these hypotheses, we introduce the methodology in the next section.

Table 3. Hypotheses and independent variables

Hypotheses	Independent Variables
H1: Negotiators with a larger number of strong approaches in profile tend to achieve higher individual outcomes;	No. of strong approaches
H2a: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a larger ratio to Nash Solution;	No. of strong approaches
H2b: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a shorter distance to Nash solution;	No. of strong approaches
H2c: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a shorter distance to Kalai-Smorodinsky (KS) solution.	No. of strong approaches
H3: The more similar the profiles of negotiators on the same role, the smaller the difference between the utility values claimed in their opening offers.	Profile similarity
H4: The more similar the approach profiles in a dyad, the more balanced is the contract they reach.	Profile similarity

6 Methodology

Our research follows the three stage model (Graham and Mintu-Wimsat, 1997; Rubin and Brown, 1975) which we have discussed in Section 2.6.1. In the antecedent stage, negotiators have their own approach profiles which reflect their predisposed strategies. There are two parties in each negotiation session, and they may have similar or distinct approach profiles (see Figure 7). We will obtain the negotiator's approach profile in this initial stage.

Once they have entered the concurrent stage, each party will exhibit behaviours they think as appropriate to bargain and exchange information. In this stage, the process can be captured by the number of offers, number of messages, and opening offers; and in the consequent stage, the negotiation outcome will be delimited by agreement or its lack

thereof, individual outcome, joint outcome (ratio to Nash solution, distance to Nash solution, and distance to KS solution), and contract balance.

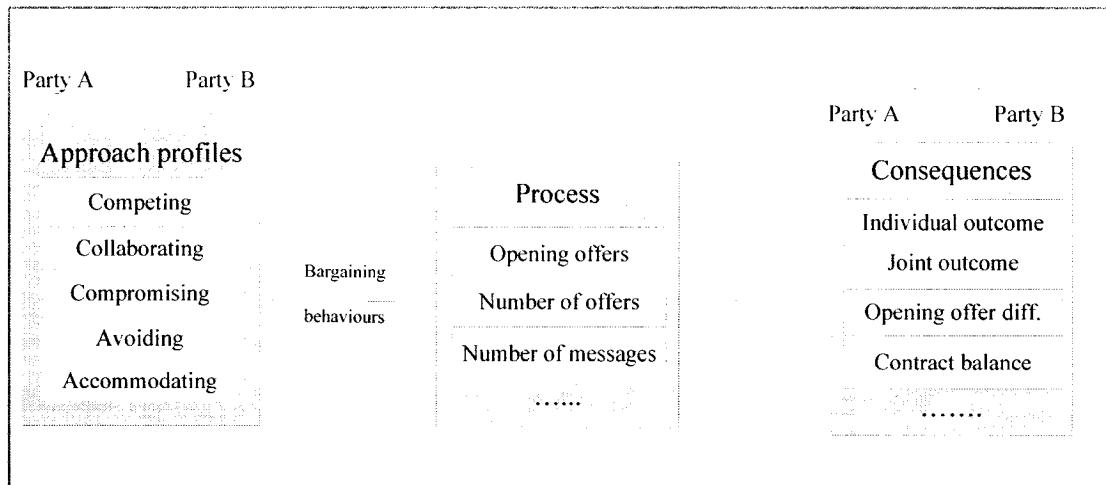


Figure 7. An overview of the research framework

6.1 Electronic Negotiation

Electronic negotiations are negotiations conducted electronically e.g. via the Internet. E-negotiation systems (e.g. Inspire system) can offer features such as analytical support, process management due to the underlying ICT infrastructure. Consequently, electronic negotiation systems are able to support negotiations by improving the process and outcome and reducing the transaction cost (Olekalns et al., 1996).

Electronic negotiation has another advantage: it eliminates the effect of other external factors, e.g. personal attractiveness, because of its anonymous and remote settings. Therefore, negotiators can focus on the negotiation issue itself.

6.2 Inspire E-negotiation System

The Inspire system used in this experiment is generated by the Invite software platform (Strecker et al., 2006) which is a negotiation support system platform mainly developed for the protocol-driven generation of systems. The Inspire which we used is very similar to the existing Inspire system (<http://interneg.org/inspire>) and has the same capabilities and tools. The main differences are invisible to the users and they pertain to the underlying database technology and reliance on workflow and protocols.

Inspire allows users to negotiate a case independently of time and place restrictions. The system provides users with general and private information about the case, allows them to rate the issues and options, allows them to send messages and offers. The system will record all the messages and offers, based on which the negotiation history and the visual representation of negotiation tracks (see Figure 8) is provided dynamically in a symmetric manner (Kersten and Noronha, 1999).

The Inspire system can also provide analytical support for negotiators, and it models the process of negotiation into three stages (Angur and Lotfi, 1996; Kersten and Noronha, 1999): pre-negotiation, negotiation, and post-settlement. In the phase of pre-negotiation, all negotiators are required to rate their preferences based on the negotiation case. Through a hybrid conjoint measurement, the Inspire system generates a utility function for each negotiator.

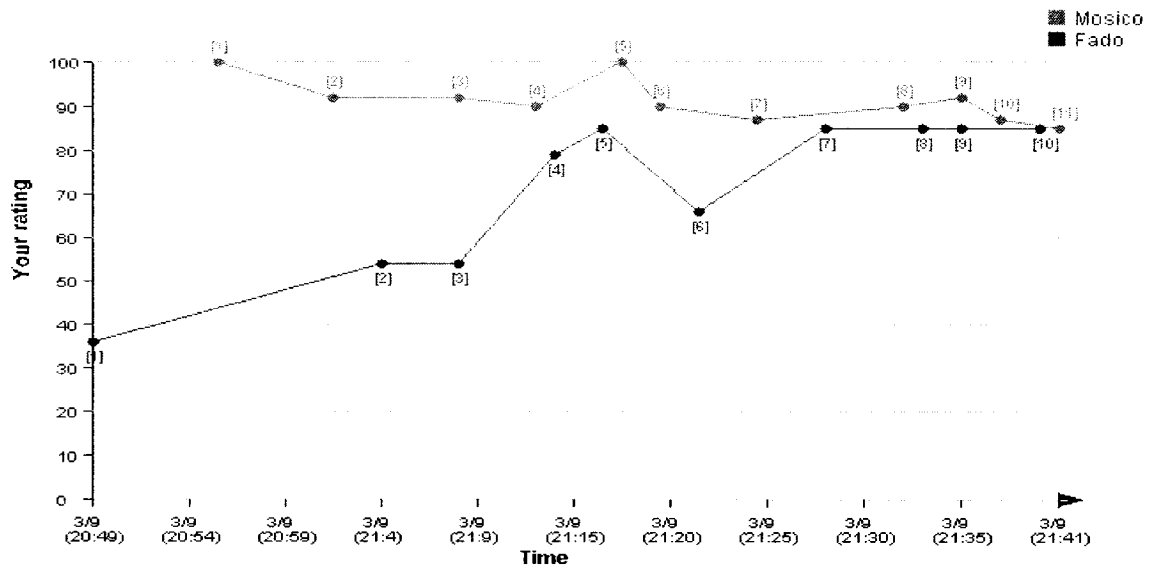


Figure 8. The negotiation history in terms of utility of each offer

During the negotiation stage, the system calculates the utility values of each offer while each party exchanges offers. These utility values are provided to each party confidentially. In the post-settlement stage, after the two parties have reached an agreement, the system will suggest an efficient offer (Pareto optimal) if the agreement is inefficient according to the utility function. Negotiators can reject the suggested offer, or they can accept it as the final contract. In the post-questionnaire stage, questions about system adoption and the user's and opponent's conflict modes are asked.

6.3 Participants

Each negotiation involved two participants. All of the participants were recruited from Concordia University.

To encourage participation, each participant was given a financial compensation of \$24. In addition, the participants could receive a performance bonus of \$40. To avoid the

impact of negotiation experience (Thompson, 1990), all the students recruited had no prior negotiation experience.

Each negotiation session lasts for three hours, and each participant was given one hour to bargain, and they can either reach an agreement or end the negotiation without an agreement.

To protect the rights of participants, all the participants were informed of the purpose of study, experiment duration, and rights. In addition, the participants had the right to quit the experiment at any point during the process.

6.4 Experiment Procedure

In order to eliminate external factors, four major factors (see Section 2.5) in negotiation context (Rollinson, 1993) are controlled:

- In the case part, we made effort to balance the power of the two parties so that the power effect can be disregarded;
- In the issue part, each negotiation dyad negotiates on the same set of issues comprised in the same negotiation case;
- Every participant negotiates anonymously with the other party through the system, and all the participants are assigned identification numbers to keep their responses anonymous and confidential. Hence the effect of any personal relationship was eliminated;

- The anonymous e-negotiation setting and the same case background also eliminates the effect of past encounters. Therefore, we can focus our study on the effect of the approach profiles.

In addition, all participants were randomly matched to form dyads, and their roles were also randomly assigned. Therefore, the negotiation environment can be deemed as equal for every negotiator.

The experiment procedure follows a defined workflow. First, participants register online for the experiment. Once an experiment is scheduled and participants have been invited, they are distributed evenly to two different labs depending on the negotiation side they represent. The experiment takes approximately three hours, with one hour reserved for negotiation. Once the participants in both labs are matched with each other, they start filling in a set of pre-questionnaires which consist of the MODE (as discussed in section 3.4), quiz, expectations and BATNA (best alternative to a negotiated agreement), and case ratings of issues and options.

In this experiment, each party was required to evaluate the attributes of the issue and assign scores to each attribute based on their assigned role. Although the Inspire system suggests a more efficient agreement in the post settlement stage, our analysis is based on the original agreement negotiators reached instead of the post-settlement agreement.

6.5 Negotiation Case

The negotiation case is about a contract negotiation between a singer's agent (Fado) and a contract manager (Mosico) of a well known entertainment company, WorldMusic. On one hand, in order to enhance her reputation, the singer needs to sign a contract with a major entertainment company. On the other hand, although WorldMusic is a big promoter of promising young artists, there are also other well known and respectable entertainment companies.

There are four issues to be negotiated in the contract: the number of promotional concerts, number of new songs, royalties for CDs, and the contract signing bonus. The conflict and compatibility between the two parties on these issues are listed below:

- The order of importance from the point of view of Mosico is: first, the number of concerts (most important), then the number of songs, Royalties for CDs, and finally the signing bonus (least important).
- The order for Fado is: the number of concerts (most important), number of songs, signing bonus, and royalties for CDs (least important).
- To Fado, the fewer promotional concerts the better. On the contrary, Mosico prefers as many concerts as possible.
- A medium number of new songs is desirable for both parties.
- Fado prefers a higher royalty for CDs rather than lower; however, a medium rate of royalties for CDs is desirable for Mosico.
- A higher bonus is preferred by Fado. In contrast, Mosico prefers a bonus as low as possible.

The case includes both public information and private information. Public information generally introduces the background of the negotiation, issues to negotiate, and options for each issue. The public information is released to both parties.

The private information provides the detailed information about the preference information of the party they represent. The private information is not given to the counterpart (a detailed description of the case is provided in Appendix V).

6.6 Measurements

The approach profile of each participant is captured by MODE in the pre-negotiation stage. The number of strong approaches is calculated by comparing with the norm introduced in Section 3.4.2.

Hypothesis 1 relates the number of strong approaches with negotiator's individual outcome. *Individual outcome* is an indicator of the utility value achieved by each party by reaching an agreement on the individual basis. The individual outcome is denoted by U_a for party A, and U_b for party B. The calculation of individual outcome comes from a negotiator's utility structure, or in other words, preference structure.

Utility structure can be elicited by the negotiation system, in which negotiators are asked their preference and weight on each issue; or can be given by the principal whom a negotiator negotiating on behalf of, in which case, a negotiator is an agent of the principal.

Because the elicited structure can be different from principal's utility structure, the individual outcome on different underlying structure can also be different.

In our negotiation case, because each of the four issues has a weight in a negotiator's utility structure, individual outcome is calculated from each party's utility structure as:

$$U = \sum_{i=1}^n u_i * w_i$$

Where u_i is the achieved utility value for issue i , and w_i is the weight of issue i in negotiator's utility structure.

Hypothesis 2 relates the number of strong approaches to the joint outcome in terms of the ratio to Nash solution, distance to Nash solution, and distance to Kalai-Smorodinsky (KS) solution.

Joint outcome reflects the utility level achieved by the two parties as a whole by reaching the agreement. Game theory (Nash, 1950) tries to find solution from an axiomatic approach. This approach focuses on solution concepts which are characterized by some desirable properties of the negotiation outcome, an ideal solution for all the parties. In Nash method, it is calculated as the product of the additional utility achieved by each individual through the negotiation (Neslin and Greenhalgh, 1983). Nash solution is known as the agreement maximizing $U_a * U_b$ (Faratin et al., 2000). It is an efficient solution which lies on the efficient frontier (see Figure 9), which refers to the locus of

achievable joint evaluations from which no joint gains are possible (Faratin et al., 2000; Lim and Benbasat, 1992).

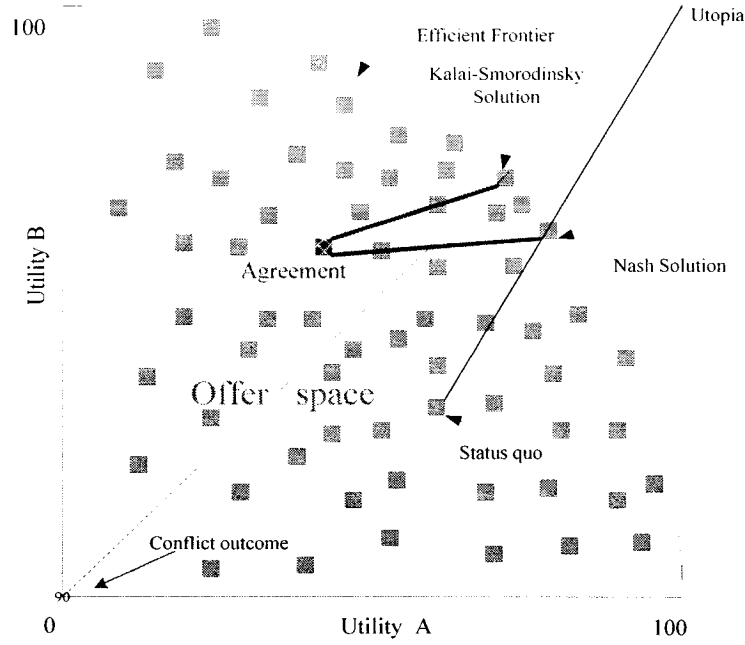


Figure 9. Joint outcome measures (Adapted from Faratin et al., 2000)

Lim and Benbasat (Lim and Benbasat, 1992), in their NSS studies, proposed a distance method to measure the quality of the final solution. Combined Nash method with the distance method, comes the measurement of *distance to Nash solution* (Faratin et al., 2000), which is calculated as Euclidean distance from the final agreement to the Nash solution (see Figure 9).

$$L_2(F, N) = \sqrt{(U_{af} - U_{aN})^2 + (U_{bf} - U_{bN})^2}$$

In this equation, U_{af} , U_{bf} stand for the utility of party A and party B by the final agreement; U_{aN} , U_{bN} represent the utility of party A and party B by the Nash solution.

The shorter is the distance; the better is the joint outcome or the final solution.

Using the terms defined in above formula, a simplified version is the *ratio to Nash solution*, which is expressed by

$$(U_{af} * U_{bf}) / (U_{aN} * U_{bN})$$

The range of ratio to Nash solution is [0, 1], the closer is the ratio to one; the better is the joint outcome or the final solution.

Kalai-Smorodinsky (KS) solution can be specified by the cross point of efficient frontier and the diagonal line from conflict outcome (the origin) to utopia point (Faratin et al., 2000), which corresponds to the solution where both parties can realize their aspirations at the highest levels measured with their utilities (see Figure 9). In a discrete offer space, KS solution corresponds to the solution which maximizes the minimum value of two parties' individual outcomes (Rios, 2005). Similar to distance to Nash solution, the *distance to Kalai-Smorodinsky solution* is calculated by:

$$L_2(F, K) = \sqrt{(U_{af} - U_{ak})^2 + (U_{bf} - U_{bk})^2}$$

In this equation, U_{af}, U_{bf} stand for the utility of party A and party B by the final solution; U_{ak}, U_{bk} represent the utility of party A and party B by the KS solution. Again, the shorter is the distance; the better is the joint outcome or the final solution.

Hypothesis 3 relates the profile similarity with the utility difference in opening offers. In order to define the similarity between profiles, we first consider the Euclidean distance (L2) between two negotiators' (A and B) approach profiles in the five dimensional space:

$$L_2(A, B) = \left(\sum_{i=1}^5 (Approach_{Ai} - Approach_{Bi})^2 \right)^{1/2}$$

The shorter the profile distance, the more similar are the two profiles. However, one weakness associated with the measure of profile distance is that it does not take into account types of approaches or dimensional similarity. In distance method, some information is lost: the difference in every approach is regarded as the same.

Rahim (1992; 2001) proposed a measure to calculate the magnitude of the integrative dimension and distributive dimension. In this method, researchers first get scores for the five approaches; then the magnitude of the two dimensions can be presented by integrative score and distributive score, which are calculated by the following formulas:

$$\text{Integrative Score (IS)} = \text{Collaborating score} - \text{Avoiding score}$$

$$\text{Distributive Score (DS)} = \text{Competing score} - \text{Accommodating score}$$

The calculation of the scores for each of the two dimensions is simple and the scores are easy to interpret. A positive score in the integrative dimension can be interpreted as that the negotiator tries to satisfy the needs of both parties; and a negative score in this dimension means the negotiator has low concerns about two parties.

Conversely, a positive score in the distributive dimension can be seen as that the negotiators tries to satisfy their own needs; and a negative score in the distributive dimension indicates high concern for the opponent.

Obviously, a zero score in each dimension means the equal concern for both parties' interests. The ease of score calculation and interpretation led other researchers to adopt

them in their empirical studies, which further confirm that the two dimensions are reasonable in explaining the relationship of the five approaches (Goodwin, 2002).

Following the aforementioned method, we propose two measures to represent profile similarity separately:

$$\text{Difference in Integrative Score (DI)} = |IS_A - IS_B|$$

$$\text{Difference in Distributive Score (DD)} = |DS_A - DS_B|$$

where $|x|$ indicates the absolute value of x ; IS_A the integrative score of negotiator A; IS_B the integrative score of negotiator B; DS_A the distributive score of A; and DS_B the distributive score of B. In these two measures, the smaller the value of DI and DD, the more similar the two profiles.

Utility difference in opening offers is measured by the ratio of the utilities of the first offers proposed in dyads on the same role, called *opening offer score ratio*. For example, on the Mosico's side, negotiator A proposes the first offer of the dyad which claims a utility value of U_{MA} for Mosico; another negotiator B, also on Mosico's side, proposes a first offer of its dyad which claims a utility value of U_{MB} for Mosico. First offer score ratio is calculated by $\text{Min}(U_{MA}, U_{MB}) / \text{Max}(U_{MA}, U_{MB})$. In the case of $U_{MA}=95$, $U_{MB}=100$, it equals $95/100$ or 0.95 . The higher is this value, the smaller is the difference between utility values claimed in the opening offers.

Hypothesis 4 relates dyadic profile similarity and contract balance. *Contract balance* is an indicator that how well the agreement reflects the needs of each participant (Delaney

et al., 1997). It is also regarded as a measure of agreement fairness (Foroughi et al., 1995). Contract balance can be measured by the ratio U_a / U_b of the utilities of the two parties. For example, if the agreement brings a utility value of 70 for Mosico and 85 for Fado, the contract balance is calculated by $\text{Min}(70, 85) / \text{Max}(70, 85)$, which equals to 0.82. A ratio closer to one indicates that the utilities of two parties are more balanced.

7 Results and Discussion

The data are collected from two similar experiments. The first experiment did not provide any analytical support to the negotiators while the second experiment did. With analytical support, a negotiator is given the utility value of each offer and the graphical representation of the negotiation history. Aside from the analytical support, the experiment settings are exactly the same for the two experiments.

There are 42 participants in the first experiment. Of these participants, 23 of them are female, which accounts for 54.76% of the total; 19 of them are male, which is 45.24% of the total. Out of the 21 dyads formed, 18 dyads or 86%, reached agreement in the one hour negotiation session.

In the second experiment, there are 52 participants, 24 females, which accounts for 46.15% of the total; and 28 male, which is 53.85% of the sample. Out of the 26 dyads, 19 reached agreement in the one hour session, a success rate of 73.07%.

Because the two experiments have different settings on analytical support, we need to consider the potential impact of analytical support on the negotiation process and outcome. We code the experiment setting and use an additional binary variable to indicate whether negotiators are provided with analytical support.

Another independent variable which might have an effect is gender. From literature, there are inconsistent findings regarding whether gender has effect on the negotiation outcome. Although some researchers have provided positive evidence that deals negotiated by women are significantly worse than those negotiated by men (Calhoun and W.P.S., 1999); recent review shows that gender fails to explain the variance in negotiation outcomes (Bazerman et al., 2000).

Due to the inconsistency of studies in gender differences, it was decided to check the gender effects on the outcome of this study; and it is also necessary to know whether our hypotheses hold valid for different gender groups. We therefore code female as “0” and man as “1” respectively. In the combined datasets, we have 94 participants, in which 47 (50%) are female and 47 (50%) are male. Therefore, to check our hypotheses, we need to consider two more additional categorical variables: analytical support and gender.

7.1 Approaches

We calculated the 94 participants’ MODE scores and the results are summarized in Table 4. In addition, the maximum, minimum, mean and standard deviations are also listed.

The results show that compromising is the most frequently used approach by negotiators with the highest mean value, followed by accommodating, avoiding, collaborating and competing.

Table 4. Approach description

Approaches	N	MODE Scores			
		Minimum	Maximum	Mean	S. D.
Collaborating	94	0	10	5.48	2.08
Competing	94	0	12	4.51	2.64
Compromising	94	2	12	7.78	2.17
Avoiding	94	1	11	6.09	2.19
Accommodating	94	2	12	6.15	2.28

The five approaches may exhibit different compatibility or incompatibility with each other. Therefore, it is highly possible that some strong approaches occur jointly while others exclude each other. In order to further verify the correlations reported by other researchers (Munduate et al., 1999), we check the Pearson Correlation (Lattin et al., 2003) of these five approaches.

In our sample, some significant correlations between the five approaches (see Table 5) are identified. There is a significant negative correlation between the following pairs of approaches: collaborating and avoiding; collaborating and accommodating; competing and compromising; competing and avoiding; competing and accommodating; compromising and avoiding; and finally, between the approaches of compromising and accommodating.

The results show that approaches along the integrative dimension (avoiding and collaborating) or distributive dimension (accommodating and competing) tend to be incompatible. These findings confirm the results reported by Munduate et al (Munduate et al., 1999). The incompatibility may come from the underlying concept of the dual concern model. Approaches along these dimensions are represented by irreconcilable concerns with self or both parties. For instance, avoiding is represented by low concerns on both parties' benefits, while collaborating means high concerns on both parties' interests. Therefore, it is hard to manage these irreconcilable concerns during conflict situations. It is also hard to imagine that a negotiator can use avoiding and collaborating approaches at the same time.

Table 5. Correlations between approaches

Approaches	Collaborating	Competing	Compromising	Avoiding	Accommodating
Collaborating	1	-.165	-.134	-.356**	-.253*
Competing		1	-.266**	-.379**	-.385**
Compromising			1	-.204*	-.337**
Avoiding				1	.000
Accommodating					1

*Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed).

Similarly, the results also show that passive approaches (avoiding and accommodating) tend to be incompatible with active approaches (collaborating and competing). Since compromising is a “half-hearted” collaborating (Pruitt, 1983), it shares some similar attributes with collaborating approach. As a result, compromising is also incompatible with avoiding and accommodating.

However, the significant negative correlation only tells us that people seldom have that particular combination of strong approaches. It does not preclude that negotiators may use both of them in the same negotiation session. In a specific context, a negotiator may adopt collaborating approach for some issues; and then turn to an avoiding approach for other issues.

We further checked strong approaches in each negotiator's profile. Once again, whether an approach is strong is based on the comparison with norm, which is generated from group statistics. Among the 94 participants, 18 persons are strong in collaborating; 13 persons in competing; 20 persons in compromising (see Table 6, note that we have identified 133 strong approaches in 94 participants because some people are strong at more than one approaches); 44 persons in avoiding; and 38 persons are strong in accommodating. The high ratio of avoiding and accommodating show that many participants in our sample tend to avoid conflicts.

Table 6. Strong approach distribution

Strong approaches	No. of participants	Ratio
Collaborating	18	19.15%
Competing	13	13.83%
Compromising	20	21.28%
Avoiding	44	46.81%
Accommodating	38	40.43%

In regard to the strong approach combinations, there are only 7 persons who have no strong approaches in profile, which accounts for 7.45% of the group; 43 persons have one strong approach, which accounts for 45.74%; 42 persons have two strong approaches in

their profiles, which accounts for 44.68%; 2 persons have three strong approaches, which accounts for 2.13%.

In this sample, there are only two participants who have three strong approaches. Both of them are strong in competing, avoiding and accommodating. There are no participants who have more than three strong approaches. It looks that most people tend to have one or two strong approaches, while only a small percentage of persons can effectively manage three or more strong approaches. One reason may be that it is very difficult for a negotiator to effectively manage a larger number of strong approaches because some approaches contradict each other. Another reason comes from the design of MODE: the sum of scores in five approaches is 30. It suggests that a negotiator could not be strong at all approaches.

Table 7. The distribution of approach combinations

Strong approaches	No. of participants	Ratio
Collaborating + Competing	2	4.76%
Collaborating + Compromising	3	7.14%
Collaborating + Accommodating	6	14.29%
Collaborating + Avoiding	3	7.14%
Competing + Compromising	2	4.76%
Competing + Avoiding	1	2.38%
Competing + Accommodating	1	2.38%
Compromising + Avoiding	7	16.67%
Compromising + Accommodating	2	4.76%
Avoiding + Accommodating	15	35.71%

Among the 42 participants who have a combination of two strong approaches, there are 10 different kinds of combination. The combination of avoiding and accommodating is

the most frequent, which accounts for 35.71%, indicating that a large proportion of them manage conflicts by using a combination of the two passive approaches. The distribution of these combinations is shown in Table 7.

7.2 Profiles and Outcomes

As one step to check hypotheses 1 and hypothesis 2, we first associate the number of strong approaches, number of persons, with the mean values of outcome variables. Those mean values are grouped by the number of strong approaches (see Table 8).

Table 8. Mean results of each group

No. of strong approaches	No. of persons	Agreement rate (%)	Individual outcome (%)	Ratio to Nash (%)	Distance to Nash	Distance to KS
0	7	42.86	78.50	60.82	48.28	49.71
1	43	74.42	69.47	75.69	28.58	27.75
2	42	80.95	81.94	85.32	18.65	18.54
3	2	100	80.50	88.98	15.20	15.20

The first column lists the number of strong approaches in an ascending order. If hypothesis H1 holds, the individual outcome, ratio to Nash solution should also follow the ascending order, whereas the distance to Nash solution and distance to KS solution should have a descending order.

We can observe from Table 8 that the ratio to Nash follows the hypothesized order: the more strong approaches, the greater the ratio to Nash; in terms of distance to Nash solution and distance to KS solution, they also exhibit the order as anticipated: the more strong approaches, the shorter the distance to Nash solution and KS solution; therefore, the better the joint outcome.

Individual outcome does not follow the ascending order strictly: group 0 has a higher mean individual outcome than group 1, and group 2 has a slightly higher individual outcome than group 3. However, group 0 and group 3 only include a few participants, and are unable to adequately represent people with 0 or 3 strong approaches. To further analyze the relationship between number of strong approaches and outcome, we merge group 1 with group 2 and form a new group A, characterized by less than 2 strong approaches; and merge group 3 with group 4 and form a new group B, characterized by 2 or more strong approaches. In the following parts, our discussion will be based on these two groups (see Table 9).

Table 9. Mean results after merge

Group	No. of strong approaches	No. of persons	Agreement rate (%)	Individual outcome(%)	Ratio to Nash(%)	Distance to Nash	Distance to KS
A	<2	50	75.00	72.06	73.34	31.68	31.22
B	≥2	44	81.82	81.86	85.52	18.46	18.35

The mean values of the two groups follow the hypothesized order: group B has a higher individual outcome, a higher ratio to Nash solution, a shorter distance to Nash solution, and a shorter distance to KS solution. Nevertheless, the observation of means may not give reliable results. We, therefore, run a three-way ANOVA with three factors: analytical support, gender, and number of strong approaches. The results are shown in Table 10.

In terms of individual outcome, the results reveal a significant difference between group A whose number of strong approaches is less than 2, and group B whose number of strong approaches is no less than 2 ($F=4.374$, $p<0.05$). It indicates that the larger the

number of strong approaches in profile, the better the individual outcome can be achieved. Therefore, Hypothesis H1 is supported at a 5% significant level.

In this sample, negotiators with a larger number of strong approaches in profile got better individual outcome. Since the effectiveness of approaches is context dependent, a multiple strong approach profile is advantageous in value claim activities. During the process of negotiation, these negotiators are more flexible once they notice the necessity to change, a larger number of strong approaches indicates their flexibility to choose appropriate approaches at ease, and therefore contributes to a better individual outcome.

Table 10. Tests of Between-Subjects Effects (Individual outcome)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	.651(a)	7	.093	2.629	.019
Intercept	40.806	1	40.806	1153.011	.000
Analytical support (AS)	.000	1	.000	.000	.987
Strong	.155	1	.155	4.374	.040
Gender	.058	1	.058	1.647	.204
AS * Strong	.006	1	.006	.175	.677
AS * Gender	.197	1	.197	5.554	.021
Strong * Gender	.112	1	.112	3.161	.080
AS * Strong * Gender	.112	1	.112	3.176	.079
Error	2.336	66	.035		
Total	45.988	74			
Corrected Total	2.987	73			

a. R Squared = .218 (Adjusted R Squared = .135)

In addition to the effect of number of strong approaches, the results also indicate a significant interaction effect with analytical support and gender ($F=5.554$, $p<0.05$): the effect of analytical support on individual outcome depends on gender: when male participants are provided with analytical support, they are more likely to obtain higher individual outcomes.

The interaction may come from the profile difference between male and female. From the literature, we know that males are more likely to negotiate competitively than females. In the current sample, the average distributive score for male participants is -0.87, and for female negotiators is -3.00. A further T-test shows that males are significantly higher in this score than females ($t=-2.357$, $p<0.05$). When men are provided with analytical support, they can more effectively get values for themselves because of the increased awareness of the situation.

Regarding the joint outcome, we examine it from three different measures: ratio to Nash solution, distance to Nash solution, and distance to KS solution. The three-way ANOVA on product produces Table 11.

Table 11. Tests of Between-Subjects Effects (Ratio to Nash solution)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	.412(a)	7	.059	1.008	.434
Intercept	43.454	1	43.454	743.864	.000
Analytical support (AS)	.082	1	.082	1.396	.242
Strong	.306	1	.306	5.237	.025
Gender	.002	1	.002	.035	.852
AS * Strong	.019	1	.019	.333	.566
AS * Gender	.008	1	.008	.138	.711
Strong * Gender	.001	1	.001	.010	.922
AS * Strong * Gender	.013	1	.013	.226	.636
Error	3.855	66	.058		
Total	50.765	74			
Corrected Total	4.268	73			

a R Squared = .097 (Adjusted R Squared = .001)

The result indicates that negotiators in group B yield a significantly higher ratio to Nash solution ($F=5.237$, $p<0.05$). Therefore, Hypothesis H2a is supported at 5% level. It means that a larger number of strong approaches are productive in improving joint outcomes

measured by ratio to Nash solution. It also shows that both analytical support and gender have no significant contribution to the ratio to Nash solution.

In terms of distance to Nash solution, the three-way ANOVA produces a similar result. The output is shown in Table 12. The results show that the agreements made by negotiators in group B have a significantly shorter distance to Nash solution than those made by members of group A ($F=5.883$, $p<0.05$). Therefore, Hypothesis H2b is supported at 5% level. It means that, a larger number of strong approaches are helpful in reaching an agreement closer to Nash solution.

Table 12. Tests of Between-Subjects Effects (Distance to Nash solution)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	4416.545(a)	7	630.935	1.070	.392
Intercept	43921.804	1	43921.804	74.520	.000
Analytical support (AS)	266.214	1	266.214	.452	.504
Strong	3467.471	1	3467.471	5.883	.018
Gender	15.476	1	15.476	.026	.872
AS * Strong	345.531	1	345.531	.586	.447
AS * Gender	1.995	1	1.995	.003	.954
Strong * Gender	.003	1	.003	.000	.998
AS * Strong * Gender	446.022	1	446.022	.757	.388
Error	38900.254	66	589.398		
Total	90504.000	74			
Corrected Total	43316.799	73			

a. R Squared = .102 (Adjusted R Squared = .007)

In terms of the distance to KS solution, the three-way ANOVA produces a similar result. The results are presented in Table 13 and show that the agreements made by negotiators in group B have a significantly shorter distance to KS solution than those made by members of group A ($F=5.149$, $p<0.05$). Therefore, Hypothesis H2c is supported at 5% level, i.e. a larger number of strong approaches are helpful in reaching an agreement closer to KS solution.

Table 13. Tests of Between-Subjects Effects (Distance to KS solution)

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	3999.541(a)	7	571.363	.913	.502
Intercept	43111.627	1	43111.627	68.917	.000
Analytical support (AS)	115.237	1	115.237	.184	.669
Strong	3221.257	1	3221.257	5.149	.027
Gender	41.500	1	41.500	.066	.798
AS * Strong	385.840	1	385.840	.617	.435
AS * Gender	4.711	1	4.711	.008	.931
Strong * Gender	16.625	1	16.625	.027	.871
AS * Strong * Gender	314.123	1	314.123	.502	.481
Error	41286.893	66	625.559		
Total	91377.985	74			
Corrected Total	45286.434	73			

a R Squared = .088 (Adjusted R Squared = -.008)

Since the three measures of joint outcome yield consistent results, it seems that a negotiator with a larger number of strong approaches in profile does tend to yield a higher joint outcome. For a larger number of strong approaches, the greater flexibility enables negotiators to change their strategy stands when they realize that there is a potential risk of stalemate or escalation of conflict. They are more likely to choose strategies to shy away the resistance points and use an appropriate approach to control the conflict level so that their problem solving activities, e.g. information exchange, can be maintained. The increased knowledge gives them more insights on the problems and they are able to generate creative solutions and test their feasibility. As a result, they appear to achieve better joint outcomes than those who have fewer strong approaches.

Therefore, in our sample, the number of strong approaches does have effect on improving the agreement quality by both a higher individual outcome and a higher joint outcome. In other words, it has significant positive effects both on claiming value and creating value during the negotiation process.

The results also provide evidence of an interdependent perspective: different approaches interrelate with each other and jointly affect the negotiation outcome. Since most negotiators have one or two strong approaches, it is inappropriate to consider only one strong approach in negotiation studies. It again supports the general proposition that a larger number of strong approaches are productive to negotiation outcomes, both at the individual and dyadic levels. Hence, it is a positive characteristic for a negotiator to have a larger number of strong approaches in real world negotiation.

7.3 Profile Similarity

This study also analyzed the profile similarity and its effectiveness. It is assumed that the similarity between negotiators' approach profiles has impact on the negotiation process and outcome.

On Mosico's side, 16 negotiators propose the first offer, and the average utility value of these first offers is 87.38. We match the 16 Mosicos with each other, and get 57 pairs of Mosicos for analysis. The average difference in integrative dimension is 4.21, and the average difference in distributive dimension is 4.35.

On Fado's side, 31 negotiators propose the first offer. Similarly, we match these 31 Fados with each other and get 237 pairs for analysis. The average utility value of these first offers is 90.06. The mean difference in integrative dimension (hereafter we use the

acronym DI) is 3.11, and the mean difference in distributive dimension (hereafter we use the acronym DD) is 3.54 (see Table 14).

Table 14. Data description of profile similarity

Role	N	DI		DD	
		Mean	S.D.	Mean	S.D.
Mosico	57	4.21	3.05	4.35	2.94
Fado	237	3.11	2.25	3.54	2.59

On the dependent variable side, the description of the opening offer utility ratio and contract balance are also summarized in Table 15.

Table 15. Data description of dependent variables

Variables	N	Mean	Min	Max	Std. Dev.
Opening offer utility ratio (Mosico)	57	0.84	0.35	1.00	0.21
Opening offer utility ratio (Fado)	237	0.87	0.68	1.00	0.11
Contract balance	74	0.74	0.00	1.00	0.24

In considering of the potential effect of analytical support and gender, in order to further check the relationship between opening offer utility ratio and profile similarity, we chose five variables as predictors: DI (Difference in Integrative score), DD (Difference in Distributive score), analytical support, same gender, and role, which may affect the opening offer utility ratio. The multiple regression produces Table 16.

Table 16. Regression coefficients (opening offer score ratio)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.860	.028		30.760	.000
Analytical support (AS)	-.073	.017	-.256	-4.245	.000
DI	-.005	.003	-.082	-1.389	.166
DD	.005	.003	.104	1.797	.073
Same Gender	-.001	.015	-.004	-.069	.945
Role	.056	.021	.162	2.682	.008

a Dependent Variable: Opening_offer_score_ratio

According to Hypothesis 3, negotiators with more similar approach profiles on the same role tend to ask more similar utility values in their opening offers. It means that, the more similar (smaller value of DI and DD) the negotiator's approach profiles, the smaller the difference (larger opening offer score ratio) in the utility values asked in their opening offers. As indicated by the output, neither DI ($t=-1.389$, $p>0.10$) nor DD ($t=1.797$, $p>0.05$) has a significant relationship with the opening offer score ratio. We have no significant evidence that negotiators with similar approach profiles on the same role tend to ask for similar amounts of utility values in their opening offers. Therefore, Hypothesis 3 is not supported at 5% significant level.

Because an opening offer is an indicator of a negotiator's strategy, people who have similar negotiation approaches are expected to ask for a similar amount of utility value in their offers. The reason why we did not find significant relationship may be that we overlooked the negotiation context, which may affect a negotiator's perception. They will first assess the context, and then decide which strategy is proper in this situation. Although negotiators have similar profiles, they may adopt different strategy to initiate the negotiation and therefore ask different values. Therefore, other factors or settings may influence people's perception and in turn the value asked in the opening offers.

Following this thought, we further checked the first offers on either role. We find that most negotiators tend to ask for very high utilities in their first offers: the mean utility in the first offers is 89.15. In particular, 45% negotiators asked a utility value of 100 in their opening offers; and 70% negotiators asked above 90 in their opening offers. These

negotiators seem to leave more spaces for concession-making during the process of negotiation.

There may be several reasons that participants tend to ask for very high utilities in their first offers. The first reason may be the settings of the experiment (one time negotiation and performance bonus), and hence participants have no incentive to try to develop a long term relationship. They therefore try to get more utilities from the negotiation table without considering future business. The second reason may be that the experiment is anonymously conducted in the electronic negotiation system, which also enables negotiators to focus on the issue itself without considering the relationship, emotion, and characteristics of the counterpart.

Finally, the inexperience of negotiators may explain why they tend to ask for high utilities in their first offers. In a real world negotiation, some experienced negotiators do propose a “factual offer” which is close to the anticipated final agreement so that they can keep a positive atmosphere, good relationship, and resolve the conflict as soon as possible. However, inexperienced negotiators tend to behave more competitively in negotiation (Thompson, 1990). That is, the experience may influence people’s assessment on the context, and therefore the strategy used in their opening offers. In the experiment design, every participant in our sample is the first time negotiator. As a result, most of them tend to ask high and infeasible opening offers.

The result also reveals a significant relationship between analytical support and opening offer utility ratio ($t=-4.245$, $p<0.01$). It is understandable that analytical support gives a negotiator a precise picture of the current position, and how much they asked in their offers. Therefore, they can adjust the utility values to accurately reflect their positions. On the other hand, people without analytical support have difficulties in adjusting this value in an accurate way because they are not given the number of utility value in their offers.

In addition, the result identify a significant relationship between role and opening offer utility ratio ($t=2.682$, $p<0.01$). This significant relationship coincides with our assumption: people on different role have different context, which affect their positions in a negotiation. Therefore, it is quite reasonable for us to emphasis “on the same role” in the hypothesis.

To check the relationship between profile distance and contract balance, we chose contract balance as dependent variable and run another multiple regression on the aforementioned four predictors. The output produces Table 17.

Table 17. Regression coefficients (Contract balance)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.837	.079		10.621	.000
Analytical Support (AS)	-.012	.082	-.025	-.148	.883
DI	-.026	.010	-.292	-2.470	.016
DD	-.002	.010	-.030	-.243	.809
Gender	.004	.081	.009	.053	.958
AS*Gender	.029	.112	.053	.256	.799

a Dependent Variable: Contract balance

It was anticipated that profile similarity may equip negotiators with insight on the point of view of their counterparts, and that they have a better grounding to sense each other's intentions and behaviours. They should be able to know what is fair to them, and therefore avoid being exploited by the other side.

The result indicates that DD (Difference in Distributive score) and DI (Difference in Integrative score) do not have the same effect on contract balance. On one hand, it shows a negative relationship between DI and contract balance ($t=-2.470$, $p<0.05$), indicating that negotiators with similar integrative score (smaller DI) tend to yield a balanced agreement (larger contract balance value), therefore, Hypothesis 4 is supported at 5% level. On the other hand, there is no significant evidence that DD (Difference in distributive score) has an impact on contract balance ($t=-.243$, $p>0.05$).

It seems interesting that a similarity in integrative score has a significant effect on contract balance whereas distributive score does not. It means that integrative dimension and distributive dimension play distinctive roles in negotiation. Because integrative dimension represents the concern on both parties' benefits, a similar score in integrative dimension means that people have similar concerns on both counterparts and themselves; or in other words, they have a similar ruler on equity. Therefore, when they negotiate together, both parties share a similar attitude on satisfying each other's need; consequently, both parties' welfare can be well balanced. Nevertheless, similarity in distributive score only represents people's concern for themselves. The distributive oriented negotiator would not care about the other side's need. They may even withhold important information, lower information exchange quality, and create barriers for

understanding the requirements and situation (see Section 2.6.4). Consequently, they have little interest in reaching a balanced agreement.

In summary, the hypotheses about the impact number of strong approaches are supported in our sample, indicating that the number of strong approaches do have a significant impact on both individual and joint outcomes. We, however, have no evidence that profile similarity has a significant impact on opening offer utility ratio. When we predict opening offer utility ratio, it is suggested to consider other factors which may affect people's perception of the negotiation context. We also find similarity in integrative dimension has significant influence on the contract balance, The more similar the integrative score, the more balanced is the contract they are liable to reach. All the hypotheses and findings are summarized in Table 18.

Table 18. Hypotheses and results

Hypotheses	Supported (Yes/No)
H1: Negotiators with a larger number of strong approaches in profile tend to achieve a higher individual outcome;	Yes
H2a: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a larger ratio to Nash solution;	Yes
H2b: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a shorter distance to Nash solution;	Yes
H2c: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a shorter distance to Kalai-Smorodinsky (KS) solution;	Yes
H3: The more similar the profiles of negotiators on the same role, the smaller the difference between the utility values claimed in their opening offers;	No
H4: The more similar the approach profiles in a dyad, the more balanced is the contract they reach.	Yes

8 An Extended Study

In order to enhance our understanding on the issues we checked above, we also checked the four hypotheses using another dataset. This second dataset is collected from two e-negotiation experiments conducted in the same laboratory. One experiment (42 participants) provides negotiators with analytical support while the other (48 participants) does not. The difference between the experiments discussed in Section 6 and these two experiments is that in the latter the utility structure is fixed for every dyad. That is, Fados in all dyads have the same utility structure, and Mosicos in all dyads share the same utility structure. Therefore, every dyad has the same offer space.

Participants are also recruited from Concordia University and each participant has no prior negotiation experience. In addition, the procedure and negotiation case are exactly the same in all these experiments.

The results given in Table 19 also show a significant negative correlation between collaborating and avoiding, competing and accommodating. Therefore, approaches along an integrative dimension are incompatible in nature, and so do approaches along a distributive dimension. Also, competing has significant negative correlations with two passive approaches (avoiding and accommodating). Although the correlation between collaborating and accommodating is not significant ($r=-.161$, $p=0.13$) at 5% level, it does show a negative tendency between these two approaches.

Regarding the mean MODE score in these five approaches, compromising ranks first (7.72), followed by avoiding (6.48), accommodating (6.16), collaborating (5.19), and competing (4.44). The rank of the five approaches follows exactly the same order than the first dataset, indicating that people generally tend to use compromising most frequently and use competing least frequently.

Table 19. Correlations between five approaches

Approaches	Collaborating	Competing	Compromising	Avoiding	Accommodating
Collaborating	1	-.074	-.208*	-.439**	-.161
Competing		1	-.412**	-.488**	-.477**
Compromising			1	.006	-.134
Avoiding				1	.003
Accommodating					1

*Correlation is significant at the 0.05 level (2-tailed); **Correlation is significant at the 0.01 level (2-tailed).

There are seven participants who have no strong approaches in profile with a ratio of 7.78%; 43 participants who have only one strong approach with a ratio of 47.78%; and 39 participants who have two strong approaches with a ratio of 43.33%. There is only 1 participant who has three strong approaches. The distribution of strong approaches is similar to that of the first dataset: most people have one or two strong approaches, and only a minor percentage of persons have zero or more than two strong approaches.

Among all the negotiators who have two strong approaches, the most frequent combination is “avoiding + accommodating”, which accounts for 35.89% or 14/39. This result is similar to that of the first dataset, indicating that a large percentage of persons tend to use the combination of the passive approaches.

We also form two groups of participants: one group with the number of strong approaches less than two, and another group with two or more strong approaches. To check the Hypotheses, we adopt the same analysis method, and the output is summarized in Table 20.

In current dataset, we have no significant evidence that the hypotheses regarding the number of strong approaches are valid; these hypotheses yield inconsistent results in two datasets.

Table 20. Hypotheses and results on the second datasets

Hypotheses	Supported (Yes/No)
H1: Negotiators with a larger number of strong approaches in profile tend to achieve a higher individual outcome;	No ($F=0.003$, $p>0.50$)
H2a: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a larger ratio to Nash Solution;	No ($F=0.005$, $p>0.50$)
H2b: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a shorter distance to Nash solution;	No ($F=0.075$, $p>0.50$)
H2c: Negotiators with a larger number of strong approaches in their profiles tend to yield a contract with a shorter distance to Kalai-Smorodinsky (KS) solution;	No ($F=0.001$, $p>0.50$)
H3: The more similar the profiles of negotiators on the same role, the smaller the difference between the utility values claimed in their opening offers;	No ($t=1.120$, $p>0.10$)*
H4: The more similar the approach profiles in a dyad, the more balanced is the contract they reach.	No ($t=2.350$, $p<0.05$)*

* Coefficient of DI

The first reaction is that the number of strong approaches alone may be insufficient to explain the variance in negotiation outcomes. Following this thought, we try to analyze the configuration of strong approaches in the dataset.

In both datasets, the combination of “Avoiding +Accommodating” (noted as “A+A”) accounts for around 36%, which is the largest group among people who have more than one strong approaches. According to the dual concern model, both approaches are passive. People who have such a combination have low concerns with benefits to either themselves or both parties. If the configuration does affect the outcome, people falling in this group should have below average individual outcome. Table 21 lists the mean individual outcomes of them.

Table 21. Mean individual outcome of “A+A” group				
	The first dataset		Current dataset	
	Overall (94 persons)	“A+A” group (15 persons)	Overall (90 persons)	“A+A” group (14 persons)
Mean individual outcome	0.76	0.85	0.77	0.80

From the data, we can see that people with “A+A” get above average individual outcome in both datasets. It means that, this group of people still has advantages in bargaining, although they are strong in a passive approach. Recall that effectiveness is context dependent: every approach can be effective if put in an appropriate context. Passive methods can be effective if the tension level is too high, a fast solution is desired, or accommodating can be reciprocated by the counterpart. Because people usually do not stick to one single approach during negotiation, the two strong approaches in profile give them more adaptability to the changing context in negotiation, which in turn leads to a higher individual outcome.

The inconsistency may lie in difference in utility representation: in the first dataset, the system elicits every negotiator’s utility; in this second dataset, all negotiators on the same role are assigned identical utility structure (principal’s preference). However, the

principal's utility structure may not be identical to the elicited utility structure. During the negotiation, they may not follow the principal's utility. Therefore, the utility represented by the principal's utility structure may be inaccurate.

Another possible reason is that the captured approach profile is not functional in this situation because the principal's utility structure is imposed on the negotiator. As a result, they will deviate from their profiles and behave differently. Therefore, the process and outcome are affected consequently.

Regarding the profile similarity and opening offer utility ratio, the results are consistent with those of the first dataset. We have no significant evidence that profile similarity, in terms of DI and DD, alone can predict the opening offer score ratio. We therefore need to consider other factors when making prediction.

Again, we use DI (Difference in Integrative score) and DD (Difference in Distributive score) to predict first offer score ratio. The result is consistent to that of the first dataset. There is no significant evidence that people with similar DI ($t=1.120$, $p>0.10$) and DD ($t=1.021$, $p>0.10$) will propose a similar amount of utility in their first offer.

We also find no evidence that DD has a significant impact on the contract balance ($t=0.071$, $p>0.50$). This result is also consistent with that of the first dataset. In addition, we find a significant relationship between DI and contract balance ($t=2.350$, $p<0.05$). However, the coefficient is positive, indicating that people with a larger difference in

integrative score tend to yield a more balanced agreement. This result is inconsistent with that of the first dataset. Therefore, the predictability of DI in contract balance is unreliable.

One possible explanation of this inconsistency is that negotiators do not always follow the assigned utility structure (principal's preference), or negotiator's captured profile is not functional when they are imposed principal's preference. The second reason may be that we missed other variables which may potentially have some effects, e.g. negotiator's lack of experience, information exchange activities during the process. The large variation during the process makes the prediction unreliable.

In this exploratory study, we also tried to assess the effect of a negotiator paired with another negotiator who may have the same or different number of strong approaches. We used the data of 48 participants from one experiment, in which the preference structure is fixed and no analytical support is provided. These 48 participants form 24 negotiation dyads, of which 13 dyads are called "1 vs. 2" (one party has one strong approach and the counterpart has two strong approaches); 10 dyads are called "2 vs. 2"; and 1 dyad are called "1 vs. 2". Table 22 gives a brief description of the negotiation results.

Although the "2 vs. 2" group generates a higher agreement rate, and a longer distance to Nash solution and Utilitarian solution in terms of mean value, the variance is too large to draw a conclusion. Limited by our sample size, it is hard to get any conclusive results

regarding their relative effectiveness on the outcome. This topic may, however, be studied in future work.

Table 22. Data description of the negotiation results by pair

Group	Number of negotiations	Agreement rate	Distance to Nash		Distance to Utilitarian	
			Mean	S.D.	Mean	S.D.
1 vs. 2	13	62%	21.81	19.56	17.16	19.46
2 vs. 2	10	70%	23.23	23.61	21.40	22.74
1 vs.1	1	100%	0	0	0	0

9 Concluding Remarks

9.1 Limitations

This thesis is an exploratory study towards providing initial insights into the area of interdependent negotiation approaches. It may also serve as a starting point for future studies. In this thesis, we aim to analyze the negotiator's profile by analyzing its structure from two perspectives: the number of strong approaches and the dyadic profile similarity.

However, this study is subject to the following limitations: firstly, student subjects may not be representative of the business population. As a result, the behaviours exhibited by students may not reflect those made by real world managers in business negotiations.

The second limitation is the artificial setting of the laboratory experiment which may make the results inapplicable to real business settings. In the experiment, we use a highly simplified case with fixed number of issues and options, which may not be representative of real world negotiations.

The third limitation pertains to the small sample size. This could have affected the reliability of the results. Specifically, the analysis of outcome is based on negotiators who reached agreement. The number of negotiators who reached agreement is 74 in the dataset. As a result, all the findings in this study are only preliminary.

Finally, in considering the anonymity of e-negotiation in our experiments, the result may not be valid in face-to-face negotiations.

9.2 Conclusion and Future Work

We use two datasets to examine the influences of interdependent approaches on the negotiation process and outcome. In these two datasets, we find that approaches along an integrative dimension are incompatible, and so do those along distributive dimension. The incompatibility comes from the underlying concept of the dual concern model because these approaches represent mutually exclusive concerns on the parties involved.

The results also show that most persons have one or two strong approaches, and only a minor percentage of people have zero or more than two strong approaches. Regarding the combination of strong approaches, “avoiding + accommodating” is found to be the most frequently used combination.

In the first dataset, negotiators with more strong approaches tend to yield both better individual outcome and joint outcomes. However, data analysis in the second dataset yields inconsistent results. The inconsistency puts in question the reliability of the number of strong approaches in predicting the negotiation outcome. Therefore, great

caution is suggested before predicting outcome by analyzing the number of strong approaches in a profile.

This study does not find consistent evidences that profile similarity (in terms of, DD and DI) alone serves as a good predictor of the negotiation process and outcome in terms of first offer score ratio and contract balance. We may need to consider other variables which may have a potential impact on process and outcomes: e.g. experience, information exchange activities etc. It, however, needs more studies in the future.

Further studies can be conducted in either of the following ways:

- Replicate the experiment to see if these findings are still valid
- Pair negotiators by profiles rather than randomly. For example, “avoiding + accommodating” negotiators vs. “collaborating + competing” negotiators. This however, would need a huge sample size.
- Segment negotiators’ profiles by cluster analysis and examine the effectiveness difference. This method considers the interaction of each approach in the profile, no matter how strong or weak.
- Examine the relationship between profiles and the negotiation process in future experiments, e.g. information type, information quality, and information exchange frequency etc.

This study shed some light on the negotiation approach from the interdependent perspective. The discussion of multiple strong approaches and profile similarity enhances

people's understanding on approaches and their potential effects. In practice, it provides a new way to improve people negotiation skills by analyzing and developing their profiles. It also reminds researchers to consider the potential effect of approach profiles in theory building and experiment design.

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Appendix I. Sample MODE Questionnaires

Instructions

Consider situations in which you find your wishes differing from those of another person. How do you usually respond in such situations?

On the following pages are several pairs of statements describing possible behavioral responses. For each pair, please circle the "A" or "B" statement that is most characteristic of your own behavior.

In many cases, neither the "A" nor the "B" statement may be very typical of your behavior; but please select the response that you would be more likely to use. Indicate your answer by using the mouse. To change an answer, simply click on another response.

Please answer every question. There are 30 items on the inventory. Do not spend too much time thinking about each one. Rely on your first impression.

1. ☒ A. There are times when I let others take responsibility for solving the problem.
☐ B. Rather than negotiate the things on which we disagree, I try to stress those things upon which we both agree.
2. ☐ A. I try to find a compromise solution.
☒ B. I attempt to deal with all of his/her and my concerns.

.....

.....

29. ☐ A. I propose a middle ground.
☒ B. I feel that differences are not always worth worrying about.
30. ☒ A. I try not to hurt the others feelings.
☐ B. I always share the problem with the other person so that we can work it out.

(Source: Inspire e-negotiation system, InterNeg Research Centre)

Appendix II.MODE Score Conversion Matrix

The questions and approaches matrix

	Competing	Collaborating	Compromising	Avoiding	Accommodating
Question 1				a	b
Question 2		a	b		
Question 3	b				a
Question 4			b		a
Question 5		b		a	
Question 6	a			b	
Question 7			a	b	
Question 8	b	a			
Question 9	a			b	
Question 10	b		a		
Question 11		a			b
Question 12			b	a	
Question 13	b		a		
Question 14	b	a			
Question 15				b	a
Question 16	b				a
Question 17	a			b	
Question 18			b		a
Question 19		a		b	
Question 20		a	b		
Question 21		b			a
Question 22	b		a		
Question 23		a		b	
Question 24			b		a
Question 25	a				b
Question 26		b	a		
Question 27				a	b
Question 28	a	b			
Question 29			a	b	
Question 30		b			a

Note:

- Every question has two candidate answers: a and b
- “a” means the first answer for the corresponding question;
- “b” means the second answer for the corresponding question;
- A score for an approach is the number of answers in that column chosen by a respondent.

Appendix III. A SAS Program to Calculate MODE Scores

```
*****
*   This SAS program is used to read Thomas-Kilmann questionnaire raw   *
*   data and convert the raw score into MODE score.                       *
*                                                                           *
*   Author: Xian Hua HUANG           Date: April.15th, 2006                *
*                                                                           *
*****
```

```
DATA TKIFORT6;
  INFILE 'D:\SASDATA\Thomas\TKI31csv.CSV' DSD FIRSTOBS=2;
  /* The raw data has been stored in an csv file, TKI31csv.CSV */
  INPUT USERID Q1-Q30;
    COMPETING=0;
    COLLABORATING=0;
    COMPROMISING=0;
    AVOIDING=0;
    ACCOMMODATING=0;
    Q1A=0;Q1B=0;
    Q2A=0;Q2B=0;
    Q3A=0;Q3B=0;
    Q4A=0;Q4B=0;
    Q5A=0;Q5B=0;
    Q6A=0;Q6B=0;
    Q7A=0;Q7B=0;
    Q8A=0;Q8B=0;
    Q9A=0;Q9B=0;
    Q10A=0;Q10B=0;
    Q11A=0;Q11B=0;
    Q12A=0;Q12B=0;
    Q13A=0;Q13B=0;
    Q14A=0;Q14B=0;
    Q15A=0;Q15B=0;
    Q16A=0;Q16B=0;
    Q17A=0;Q17B=0;
    Q18A=0;Q18B=0;
    Q19A=0;Q19B=0;
    Q20A=0;Q20B=0;
    Q21A=0;Q21B=0;
    Q22A=0;Q22B=0;
    Q23A=0;Q23B=0;
    Q24A=0;Q24B=0;
    Q25A=0;Q25B=0;
    Q26A=0;Q26B=0;
    Q27A=0;Q27B=0;
    Q28A=0;Q28B=0;
    Q29A=0;Q29B=0;
    Q30A=0;Q30B=0;
  IF Q1=1 THEN Q1A=1;
                  ELSE Q1B=1;
  IF Q2=1 THEN Q2A=1;
                  ELSE Q2B=1;
```

```

IF Q3=1 THEN Q3A=1;
      ELSE Q3B=1;
IF Q4=1 THEN Q4A=1;
      ELSE Q4B=1;
IF Q5=1 THEN Q5A=1;
      ELSE Q5B=1;
IF Q6=1 THEN Q6A=1;
      ELSE Q6B=1;
IF Q7=1 THEN Q7A=1;
      ELSE Q7B=1;
IF Q8=1 THEN Q8A=1;
      ELSE Q8B=1;
IF Q9=1 THEN Q9A=1;
      ELSE Q9B=1;
IF Q10=1 THEN Q10A=1;
      ELSE Q10B=1;
IF Q11=1 THEN Q11A=1;
      ELSE Q11B=1;
IF Q12=1 THEN Q12A=1;
      ELSE Q12B=1;
IF Q13=1 THEN Q13A=1;
      ELSE Q13B=1;
IF Q14=1 THEN Q14A=1;
      ELSE Q14B=1;
IF Q15=1 THEN Q15A=1;
      ELSE Q15B=1;
IF Q16=1 THEN Q16A=1;
      ELSE Q16B=1;
IF Q17=1 THEN Q17A=1;
      ELSE Q17B=1;
IF Q18=1 THEN Q18A=1;
      ELSE Q18B=1;
IF Q19=1 THEN Q19A=1;
      ELSE Q19B=1;
IF Q20=1 THEN Q20A=1;
      ELSE Q20B=1;
IF Q21=1 THEN Q21A=1;
      ELSE Q21B=1;
IF Q22=1 THEN Q22A=1;
      ELSE Q22B=1;
IF Q23=1 THEN Q23A=1;
      ELSE Q23B=1;
IF Q24=1 THEN Q24A=1;
      ELSE Q24B=1;
IF Q25=1 THEN Q25A=1;
      ELSE Q25B=1;
IF Q26=1 THEN Q26A=1;
      ELSE Q26B=1;
IF Q27=1 THEN Q27A=1;
      ELSE Q27B=1;
IF Q28=1 THEN Q28A=1;
      ELSE Q28B=1;
IF Q29=1 THEN Q29A=1;
      ELSE Q29B=1;
IF Q30=1 THEN Q30A=1;
      ELSE Q30B=1;
COMPETING=q3b+q6a+q8b+q9a+q10b+q13b+q14b+q16b+q17a+q22b+q25a+q28a;

```

```

COLLABORATING=q2a+q5b+q8a+q11a+q14a+q19a+q20a+q21b+q23a+q26b+q28b+q30b;
COMPROMISING=q2b+q4b+q7a+q10a+q12b+q13a+q18b+q20b+q22a+q24b+q26a+q29a;
AVOIDING=q1a+q5a+q6b+q7b+q9b+q12a+q15b+q17b+q19b+q23b+q27a+q29b;
ACCOMMODATING=q1b+q3a+q4a+q11b+q15a+q16a+q18a+q21a+q24a+q25b+q27b+q30a;
/* If calculated correctly, the total should be 30 */
TOTAL=COMPETING+COLLABORATING+COMPROMISING+AVOIDING+ACCOMMODATING;

PROC PRINT DATA=TKIFORT6;
    TITLE 'THOMAS KILMANN SCORES FOR T6';
    VAR COMPETING COLLABORATING COMPROMISING AVOIDING ACCOMMODATING
TOTAL;
RUN;

/*now export the calculated MODE score to an excel file.*/
PROC EXPORT DATA=TKIFORT6
    DBMS=EXCEL OUTFILE='D:\31TKI.XLS' REPLACE;
RUN;

```

Appendix IV. Sample raw MODE Scores

Format of TKI31csv.CSV

User ID	Q1	Q2	Q3	Q4	Q28	Q29	Q30
32	2	1	2	1		2	1	2
37	1	1	1	1		1	2	2
40	1	1	2	1		2	1	1
47	2	1	2	1		2	2	2
48	1	1	2	1		1	2	1
53	1	1	2	1		2	1	2
54	2	2	1	1		2	2	2
55	1	1	1	1		1	2	2
56	1	1	1	1		2	2	1
57	2	1	2	1		2	1	2
58	2	2	1	1		1	1	2
59	1	1	2	1		2	2	2
60	1	1	1	1		2	2	2
62	1	2	1	2		2	1	1
63	1	1	2	1		2	1	2
65	2	2	1	1		1	2	1
69	1	1	2	1		2	1	2
70	1	1	2	1		2	2	2
71	1	1	2	1		1	1	2
72	2	2	1	1		2	1	2
73	2	1	1	1		1	2	2
74	1	1	2	1		2	2	2
75	2	1	2	2		2	1	2
76	2	1	2	1		2	1	1
78	1	1	2	2		2	1	2
80	1	1	2	1		2	2	2
81	2	1	1	1		1	1	1
82	1	1	1	1		1	2	1
83	2	2	2	1		2	1	2
85	1	1	1	1		2	2	1
86	1	2	2	2		2	2	2

Appendix V. Negotiation Case

Contract negotiation between Ms. Sonata and the WorldMusic

Public Information

It's not easy to be an artist. They see the world in their own ways; some want to be famous, others rich, and yet others want to enrich the lives of their fans.

Ms. Sonata is a young artist who belongs to the last group. She is not yet widely recognized, but she is a spiritual singer and composer of a new genre of music called yowl-pop. Her songs—according to her admirer—helps listeners better understand their inner selves.

In order to spread her positive feelings, Ms. Sonata reluctantly decided to sign a contract with a major entertainment agency. She is known for hating business deals, therefore she asked **Fado**, whom she knows and trusts, to represent her in the contract negotiation. Fado is an independent agent who—although young—has the reputation of being able to establish good relationships with often eccentric artists as well as with the entertainment companies.

One of the major entertainment companies is **WorldMusic**, respectable and well known around the world. WorldMusic prides itself as the best promoter of promising young artists. However, there are also other well known and respectable entertainment companies, including EntertainMusic and UniversMusic.

Mosico is one of WorldMusic's employees. Although quite young, Mosico had already been involved in several recent contract negotiations. In a recent magazine article featuring one of the artists signed by Mosico, the journalist favorably wrote that Mosico is a contract manager dedicated to promoting new talent.

Fado contacted Mosico and informed him that Ms. Sonata may be interested in signing a contract with WorldMusic. It is common practice that the first contract is signed for three years and there are only four issues for negotiation. These issues are listed in the table below with the possible options for each issue.

Standard issues and their values for the first contract negotiation

Issues to negotiate	Issue options
Number of new songs (introduced and performed each year)	11; 12; 13; 14; or 15 songs
Royalties for CDs (in percent)	1.5; 2; 2.5 or 3 %
Contract signing bonus (in dollars)	\$125,000; \$150,000 or \$200,000
Number of promotional concerts (per year, for 1,000 or more people each)	5; 6; 7 or 8 concerts

Role information for Mosico, a contract manager at WorldMusic

Your name is **Mosico**. You are a contract manager at WorldMusic, recognized by the senior management for your ability to connect with both well-known and relatively unknown but promising artists. You are also able to negotiate with artists and their agents in a way that they find agreeable. This promotes long-term relationships. You are convinced that it is possible to endorse less known artists. Obviously, these artists cannot expect high bonuses and royalties before their career takes off.

Recently, you talked over the phone with **Fado**, the agent of Ms. Sonata. You have heard about Ms. Sonata, a reclusive rising star with an exceptional voice, but it is not clear if she could attract large audiences in concerts and many CD buyers. You were thinking about approaching Ms. Sonata, but you were not sure because she seems quite eccentric. She believes that her mission is to sing for the betterment of people rather than for fame or money. You agree that her songs are unique and may fascinate some people, but it is not obvious if she could attract large audiences and many CD buyers.

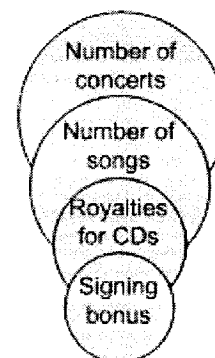
One of the important activities that every artist has to undertake is promotion. Many artists know it very well; in fact, some of them would do nothing else but promote themselves, by going to parties and other glossy events. Occasionally, there are artists who like to be left alone, feel best in small groups of friendly admirers. Ms. Sonata is one of these reclusive artists who are very difficult to promote. However, when successful, these artists may be very profitable for the agency because they care about their art.

Before meeting Fado you discussed the Agency's priorities and requirements with senior management. Senior managers could not give you very detailed information regarding the importance of the negotiated issues and options, but during a few short meetings they gave you many indications as to the relative importance of the issues and the agency's preferences. To help visualize the relationship between the issues you drew circles with their size indicating the issues' importance. You did the same for the options of each issue.

Note: The sizes of the circles are only indicative as you did not measure precisely the radius of each circle. You draw them quickly and show them to the management so that they could see whether you correctly understood their intentions.

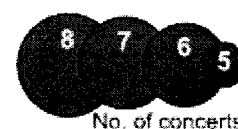
Importance of the four issues:

- It is clear that the most important issue is the **number of promotional concerts**. This is because successful concerts are critical to the artists' popularity and approval ratings. Without the concerts the agency cannot establish the artist in a particular market.
- Almost as important an issue is the **number of new songs**. Obviously the artist has to produce new songs to be recognized and accepted.
- **Royalties for CDs** are less important; some managers note that they are only half as important as the number of songs.
- The **contract signing bonus** is the least important issue. It is less important than the royalties for CDs. This is because the agency views a contract as an investment opportunity that can bring in many of millions of dollars. The bonus size is seen as a token of appreciation, but obviously within limits.
- The illustration of the issue importance is given in the figure.



1. Number of promotional concerts

This is the most important issue for the management. The more concerts the better for WorldMusic. From your discussion with the management, it follows that 5 concerts is significantly worse than 6 and more. Less than 5



makes little sense in the entertainment business.

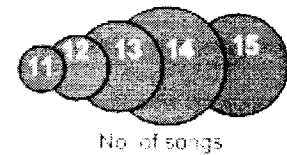
2. **Number of new songs**

It is a long established practice that too few songs are disastrous but too many are also not profitable. The best number of songs is 14; 14 songs make two full CDs.

15 songs are worse than 14 because it is considered somewhat too many.

13 songs are almost as good as 15.

12 songs are worse than 13 because 13 songs allow the discarding of the worst song if necessary. Having 11 new songs is the worst option because only one CD can be produced.



No. of songs

3. **Royalties for CDs**

Royalties strongly depend on the artist's present standing. Typically, WorldMusic pays between 2.0% and 2.5% royalties. If the artist is very well known during contract signing, the royalties can go up to 3%.

Based on the research done regarding Ms. Sonata's standing, the management considers 2.0 % the best option; 2.5% is considered somewhat too high. The management prefers 2.0% much more than 1.5% because of the artist's standing. And it makes little sense to try and save a little now and loose the artist's interest in cooperating with the agency. The research done convinced the management that 3.0% is too much.



Royalties for CDs

4. **Contract signing bonus**

This issue is considered the least important, although the agency does not want to be seen as throwing money away. The management's preference is to pay less rather than more.



Contract bonus

The information you obtained about the agency's top management preferences are your guide in your negotiations with Fado. It reflects WorldMusic strategic directions in the next three years and will provide guidance not only for this negotiation but also for negotiations with other artists. Therefore the ratings are quite sensitive and you were told not to discuss them with anyone.

Due to conflicting schedules, you and Fado cannot have a face-to-face meeting to negotiate the contract in the next weeks. Your boss suggests that you make use of the Invite Inc. services to negotiate through the web.

Role information for Fado, the representative of Ms. Sonata

Your name is **Fado**. You are a free agent representing artists in their contract negotiations with entertainment agencies. You pride yourself on being the artists' agent as well as their friend and supporter. You want to build a relationship with the artists so that they use your services for many years. Therefore, you are interested in representing those artists, like **Ms. Sonata**, who have strong potential for success by being genuinely interested in and willing to work hard on their careers.

You contacted **Mosico**, a young mid-level manager for **WorldMusic**, one of the most prestigious entertainment agencies. Mosico is known for signing both well-known and relatively unknown artists. In your phone conversations, you mentioned that Ms. Sonata might be interested in signing a contract with WorldMusic. Mosico tells you that WorldMusic would be willing to negotiate a contract with Ms. Sonata.

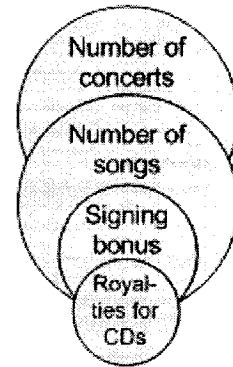
Since this would be Ms. Sonata's first contract, the negotiations would involve a standard contract form of four issues: number of promotional concerts, number of new songs, percentages of royalties for CDs and signing bonus.

You organized a meeting with Ms. Sonata to discuss these issues. Based on your experience, you know that artists have difficulties expressing their preferences over these issues. You used simple software to help Ms. Sonata visualize her preference for issues and options in the negotiation. During the meetings she was able to give you many indications as to the relative importance of the issues and her preferences. To show Ms. Sonata the relationship between the issues you drew circles with their size indicating the issues' importance. You did the same for the options of each issue.

Note: The sizes of the circles are only indicative as you did not measure precisely the radius of each circle. You draw them quickly and show to the management so that they could see whether you correctly understood their intentions.

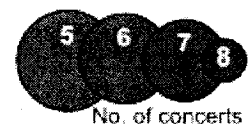
Importance of the four issues:

- You asked Ms. Sonata to think aloud the importance of issues. She said that this is quite easy-every issue is important to her. But, she added, she really does not want to have too many **promotional concerts**, so it is very important for her that she has as few concerts as possible.
- Ms. Sonata says that she must write as many **new songs** as she can, because this is her only way to enrich her fans. This issue of new songs is equally important to the first issue, promotional concerts.
- **Signing bonus** is less important than the first two issues. Although she would like to make money, she must remain true to herself; that is, write and sing songs.
- She is the least concerned with the **royalties for CDs**.
- The illustration of the issue importance is given in the figure.



1. Number of promotional concerts

This issue is very important because Ms. Sonata would rather have no concerts at all. She understands that it is not possible so her preference is the fewer concerts the better. She finds that between 5 and 7 concerts every additional concert is equally bad for her. But she considers giving 8 concerts a lot worse than 7.



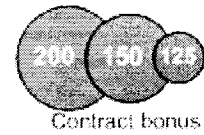
2. **Number of new songs**

Ms. Sonata likes writing songs. After you noted that the maximum number of songs is 15 in the contract form, she was surprised. She said that the best for her would be writing 14 songs because she also writes poetry and short stories. 15 songs somewhat worse than 14, because she thinks it is a bit too many. Her preference for 13 is a little lower than 15. She added that 12 songs is barely acceptable, while 11 is not enough.



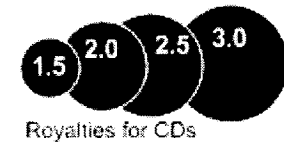
3. **Contract signing bonus**

Ms. Sonata considers this issue much less important than the first two issues. This is not to say that the bonus is not important; her obvious preference is to obtain a higher bonus rather than a lower one. She notes, however, that the difference between 125 and 150 thousands dollars is greater than between 150 and 200 thousands.



4. **Royalties for CDs**

This is the least important issue for Ms. Sonata but -she notes- it does not mean that royalties are unimportant. She naturally prefers higher royalties rather than lower. However, her preference for 1.5% and 2.0% are much lower than her preference for 2.5% because she thinks that receiving a very lower royalty insults her musical talents. The 3.0% is obviously the best but not so different from 2.5%.



Your ratings will guide you in your negotiations with Mosico. Because they reflect Ms. Sonata's preferences and also describe her attitude towards monetary and non-monetary issues, she instructs you not to discuss them with anyone.

You were going to negotiate with Mosico later this week, but you learned that Mosico will be away on a business trip for the next three weeks. However, Mosico suggest that you make use of Invite Inc. services to negotiate this contract over the web. Given the situation, you accept to use the Invite Inc. services.