The Role of Emotion and Language in Dyadic E-negotiations♦

Michael J. Hine[1], Steven A. Murphy[1], Michael Weber[2], Gregory Kersten[3]

[1] Sprott School of Business; Carleton University
1125 Colonel By Drive; Ottawa, ON, K1S 5B6
{mhine; murphy}@sprott.carleton.ca

[2] Department of Biology; Carleton University
1125 Colonel By Drive, Ottawa, ON, K1S 5B6
mweber@sprott.carleton.ca

[3] John Molson School of Business, Concordia University
1455 de Maisonneuve Blvd. West, Montreal, QC H3G 1M8
gregory@jmsb.concordia.cafiliation 1

Abstract

This paper examines the emotion and tone of language used by e-negotiation participants. Eight hundred e-negotiations of varying lengths were studied and significant differences between successful and unsuccessful e-negotiations were uncovered. Participants in successful e-negotiations expressed significantly more positive emotion and agreeable language, and significantly less negative language in their textual exchanges than participants in failed e-negotiations. Further, successful e-negotiations were shorter in

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elapsed time than unsuccessful e-negotiations. Logistic regression results indicate that use of agreeable language throughout the e-negotiation process is a significant predictor of e-negotiation success, while the use of negative language is only significant to e-negotiation success (failure) in the last half of the e-negotiation.

Keywords: electronic negotiation, computer mediated communication, emotion, logistic regression

1. Introduction

Electronic negotiation systems (ENSs) offer a variety of mechanisms to facilitate successful negotiation processes and outcomes. ENSs provide the negotiator with tools for electronic communication, for content and version management, and for decision analysis (Rangaswamy and Shell 1997; Schoop and Quix 2001; De Moor and Weigand 2004). These capabilities support problem-solving, consensus seeking and conflict resolution (Jelassi and Foroughi 1989; Lim 2000), and assist negotiators in reaching mutually satisfactory decisions (Lim 2000). While feature sets vary, fundamental to all ENSs is the physical separation of negotiators and the ability to exchange electronic text whose style and content can reflect negotiators' mood, strategy, position justification, social intentions, and attempts at persuasion and relationship building.

Workers (negotiators) in distributed settings make important attributions and judgements that affect communication processes and outcomes that are informed by emotions, communication cues and norms different from those in face-to-face (FtF) interaction (Walther et al. 2005). Due to the physical separation and electronic communication medium, dyadic e-negotiation participants may have less immediate information available about their remote negotiator partner, their experiences, their situations and their context than if negotiating in a FtF setting. Typically, they will also have less unspoken information about the immediate context and their counterparts initial perceptions. They rely solely on electronic information to inform their negotiation process, decisions and ultimate outcomes.

Computer mediated communication (CMC) theorists support two opposing perspectives regarding communicating FtF versus electronically with text (Walther and Parks 2002). The first perspective, called "cues filtered out" posits that important non-verbal cues that contain rich communicative information are unable to be transferred across electronic media. The alternative view, called "cues filtered in," suggests that non-verbal cues get approximated in CMC and users adapt their communication styles so that their messages contain as many, or more, social cues as in FtF interactions (Walther et al. 2005). CMC studies have determined that the content of electronic messages can contain both cognitive and emotional information (Rice and Love 1987) and that an individual's attributions, decisions, judgments, and negotiation strategies are influenced by both emotion and cognition. The perspective taken in our study is consistent with the cues filtered in perspective; that is, this work assumes that rich affective information can be delivered by a negotiator using text based communication media and that this affective information may have increased importance relative to similar information communicated FtF (Moore et al. 1999).

Historically, negotiation research has taken both a rational and cognitive perspective towards the negotiation process and outcome. More recently, researchers have shown increased interest in the affective component of negotiations including both the mood and emotional state of the participants. As reported by Van Kleef et al. (2004a), the most consistent findings on affect and negotiation are that negotiators who experience negative affect are more competitive and less likely to make concessions while negotiators who experience positive affect are more cooperative and appeasing. Barry et al. (2004) summarize

affect and negotiation research into the following categories: research where pre-existing moods and emotion are treated as a predictor of negotiation processes and outcomes; research where emotion is an experienced consequence of negotiation interaction; and research where displays of emotion are used strategically within a negotiation. While the body of literature in affect and negotiation is growing, to our knowledge no studies explicitly explore the linguistic aspects of emotional expressions in e-negotiations (with an important exception being Brett et al. (2007)) and their effect on negotiation outcomes.

Because meaning, and thus ultimately behavior concerning negotiation settlement, can be conveyed by not only what is said, but also by how it is said (Kruger et al. 2005), we are interested in the emotion expressed in text and the tone of the messages exchanged during the e-negotiation process. In the textual communication of e-negotiations, both emotion and tone refer to a particular style or way of writing something and is reflected in the use of specific words. For the purposes of studying dyadic e-negotiations we are primarily interested in understanding the impact of language that expresses positive emotion and tone versus negative emotion and tone.

The aim of this research is two-fold. First, we wish to establish if differences exist between the 'emotion' and 'tone' of language for the e-negotiations that concluded with agreement (successful), and those in which settlement was not achieved (unsuccessful). Second, we want to explore the extent to which 'emotion' and 'tone' language variables predict e-negotiation settlement. This study also complements earlier studies which analyzed e-negotiations conducted via the Inspire and SimpleNS systems. Kersten and Zhang (2003) used data mining techniques to seek rules characterizing successful e-negotiations. One of these rules they determined is that earlier exchanges of messages increased the probability of success. Pesendorfer et al. (2007) used two- and four-phases models to conduct content analysis; they confirmed the differences in information exchange and degree of cooperativeness in each phases of the two-phase model. Pesendorfer et al. analysis was based on a short (45 min.) negotiations and a sample of 110 participants. Sokolova et al. (2006; 2005) used machine learning to study the Inspire dataset which is also studied here. The results they obtained include confirmation that early exchange of information has positive effect on probability of success and that politeness characterizes successful negotiations. We expand on this later result and, by relating language to emotions, study the role of emotions on negotiation results.

This paper is organized as follows. Section 2 presents a summary and integration of relevant literature that motivates a series of hypotheses. In Section 3, we briefly discuss Inspire, the ENS used in this study, as well as describe the case and methodology employed for this research. Section 4 presents the results followed by a discussion, conclusion and future research directions in Section 5.

2. Literature and Hypotheses

As opposed to FtF communication, the relative intensities of positive and negative interaction are greater when interacting electronically, thus implying that the impact of positive and negative language within electronic text communication may be stronger than

in FtF settings (Moore et al. 1999). While positive and negative language can be operationalized in a variety of ways, we are interested in constructs that may affect e-negotiation outcomes. Relevant concepts directly reflecting positive electronic communication include the amount of positive emotion and agreeable language that is encoded in text. Other concepts that may indirectly reflect positive communication include the use of plural pronouns, which have been shown to create in-group perceptions, and psychological closeness, which have been positively linked to negotiation outcomes (Staub 1978). Similarly, negative electronic communication could include language that expresses negation directly, negative emotion and the use of singular pronouns, which have been shown to reflect out-group communication and thus negotiation impasse. In this study, all of the aforementioned linguistic dimensions are assessed with Linguistic Inquiry and Word Count (LIWC) software (Pennebaker et al. 2001).

LIWC analyzes written or transcribed verbal text and compares the text to a dictionary file. For each text file analyzed, output variables are written to the output file as percentage of total word use in the text file. A sampling of LIWC in academic writing reveals that the LIWC has been used to analyze text: to predict continued participation in newgroups (Joyce and Kraut 2006); to understand cognitive and health processes (Pennebaker and Francis 1996);, to study breast cancer support groups (Alpers et al. 2005); and to study words disclosing trauma (Pennebaker et al. 1997). To operationalize constructs mentioned earlier we used the following LIWC output variables (described in Table 1): positive emotion, negative emotion, assent, negate, I, and We.

***Table 1*: LIWC Output Variables**

Hypothesized Construct	LIWC Variable	Description
Positive Emotion	Positive Emotion	261 words such as happy, pretty, joy, pride, win etc
Negative Emotion	Negative Emotion	345 words such as hate, worthless, enemy, nervous, afraid etc
Agreeable Language	Assent	18 word stems indicating agreeableness including alright, fine, indeed, ok etc
Negative Language	Negate	31 word stems indicating dissent or disagreement including doesn't, isn't, never, not etc
Plural Pronouns	We	11 words representing plural

		pronouns including we, us, ours etc
Singular Pronouns	I	9 words representing singular pronouns including I, me, mine etc

2.1 Positive Emotion

Research into negotiators' positive emotions and their behavior has yielded fairly consistent results. Negotiators experiencing positive emotion tend to be cooperative (Anderson and Thompson 2004; Forgas 1998), and engage in problem solving strategies (Allred et al. 1997; Carnevale and Isen 1986). Positive emotion has also been shown to facilitate communication and increase joint gains in negotiation settings (Allred et al. 1997; Carnevale and Isen 1986). More recent research into emotions and negotiations has studied how one negotiator's emotional expressions can affect the other negotiating party and the resulting negotiation process (Brett et al. 2007; Kopelman et al. 2006; Martinovski et al. 2007; Van Kleef et al. 2004b). Not surprisingly, given the increased feedback and interactive complexity associated with interpersonal interaction (as opposed to intrapersonal interaction), these results are relatively inconsistent compared to those reported above.

Kopelman et al (2006) studied the strategic display of emotion in a variety of negotiation settings. In an ultimatum negotiation, managers strategically displaying positive emotions were more persuasive, and thus more likely to close a deal, than those who displayed negative or neutral emotions. Similarly, displaying positive emotion was a more effective strategy for gaining concessions from their negotiating counterpart in a distributive setting. Other research has shown that the expression of happiness by a negotiator causes smaller concessions and higher demands by the other negotiator than if anger was displayed and that happy negotiators were not necessarily more cooperative than angry participants (Van Kleef et al. 2004b). This result was found in a simulated, single sitting e-negotiation where participants were presented with pre-validated emotionally charged messages. Using happiness, or any other emotion for self or organizational purposes is akin to emotional labour. For example, should a negotiator feign anger, they would presumably due so to ensure that their position in the negotiation was maintained or improved. Clearly, while strategy and emotion in negotiation go hand in hand (Van Kleef et al. 2004b), that does not by any means preclude an emotional contagion effect (i.e., we believe that negotiation strategies are fluid and may be affected by emotion and tone).

In a study of online dispute resolution, Brett et al. (2007) found that neither a dispute filer or respondent's expression of positive emotion was related to whether a dispute was resolved. In dispute resolutions, participants often enter the process with strong emotions and entrenched attributions and judgments about the other party (Brett 2001). This is fundamentally different than a 'deal-making' negotiation (as used in this study) where parties enter into in the process more inclined to develop new relationships (Brett 2001) and thus are more likely to be assuaged and affected by positive emotional and tonal expressions. The lack of consensus regarding the effects of positive emotion on negotiation processes,

outcomes and negotiator response could be due to the use of different negotiation types, experimental designs, and assessment. Additional moderators and mediators could include underlying motivational systems, personality (Murphy et al. 2007) and gender (Schroth et al. 2005; Morris et al. 2002).

Our view is that in a dyadic deal-making e-negotiation, where there is time to establish rapport and build a relationship through the dynamic feedback and interactive e-negotiation process, negotiators' expressions of positive emotion will contribute to the success (reaching settlement) of an e-negotiation. Previous research has established that rapport influences settlement in email negotiations (Moore et al. 1999) and is fundamental to establishing the required trust to achieve integrated outcomes (Drolet and Morris 1995). Further, it has been established that the expression of positive affect is a critical mediating factor in the establishment of rapport (Moore et al. 1999).

H1: There will be proportionally more positive emotion expressed in successful e-negotiations than in unsuccessful e-negotiations.

2.2 Negative Emotion

As reviewed by Van Kleef et al. (2004b), negotiators who are in negative affective states tend to be more competitive and reluctant to make concessions. Negotiators experiencing negative affect have demonstrated increased use of competitive strategies (Forgas 1998), a decreased desire to work with one another in the future, and a decrease in joint gains (Allred et al. 1997). These studies, however, do not account for how emotional expressions of one party may affect the behavior of the other negotiating party, and ultimately the outcome of the negotiation. Two competing propositions have been put forth in the literature regarding this scenario (Van Kleef et al. 2004b). The first suggests that the expression of negative emotion (for example, anger) by one party will result in larger concessions by the other party. The perception of the expressed anger suggests that settlement is not likely, thus facilitating concessions and yielding behavior by the targeted party (Sinaceur and Tiedens 2006; Van Kleef et al. 2006; Van Kleef et al. 2004b). The second perspective, rooted in social contagion theory (Levy and Nail 1993), suggests that the expression of negative emotion by one party will result in the expression of reciprocating negative emotion by the other party resulting in a downward spiraling exchange of negative communication that will often result in an impasse. While social contagion theory was established in FtF communication, Thompson and Nadler (2002) suggest that contagion in both the socio-emotional tone and of the linguistic structure of electronic text does occur.

Consistent with the contagion perspective is Friedman and Currall's (2003) model of conflict escalation in email. They propose that aggressive tactics are employed by email communicators because of the lack of social cues and norms inherent in email communication; and because rehearsability associated with email affords its users the ability to focus excessive attention on messages that may inhibit problem solving. In an e-negotiation setting, aggressive behavior is actualized in negative emotional and linguistic expressions. In a study of online dispute resolution, Brett et al. (2007) found that dispute filers who communicate negative emotions are less likely to resolve their online disputes.

H2: There will be proportionally less negative emotion expressed in successful e-negotiations than in unsuccessful e-negotiations.

2.3 Agreeable and Negative Language

Liking, identification, future dependence, and good mood are expected to facilitate obtaining concessions (Pruitt, 1981). Evidence exists that we are particularly helpful to people we like (Baron 1971). Therefore it is to a negotiator's benefit to attempt induce a positive mood or communicate in a positive tone to the other party. This becomes increasingly important when communicating and coordinating electronically because, as opposed to FtF interaction, disputes managed electronically are more likely to escalate (Friedman and Currall 2003), and developing rapport is more difficult (Morris et al. 2002). Further, it has been shown that characteristics of email (consistent with message exchange characteristics in e-negotiations) can create angry moods in communicators, and cause negative perceptions and attributions of others.

Tactics commonly employed to build rapport and create in-group perceptions include behaving in a friendly manner, acknowledging and agreeing with others' ideas, attitudes, and values. Carnevale and Isen (1981) have shown that explicit information exchange and joint benefit are enhanced by positive mood, but not when the participants were separated. The perception of being agreeable and helpful may affect concession making by creating the appropriate conditions for reciprocity. Concessions require information exchange in order to gain insight into the other party's motivational structure (goals, values, constraints, etc.) (Pruitt 1981). The substance of arguments used to defend a position usually reveal information about the nature of the motives underlying this position. Strong and vigorous arguments almost always reveal high-priority issues while accommodating language indicates a concession is possible.

H3: There will be proportionally more agreeable and less negative language expressed in successful e-negotiations than in unsuccessful e-negotiations.

2.4 Singular and Plural Pronouns

According to Staub (1978), "When we define people as 'we,' we are more likely to help them (page 313)." The ratio of plural pronouns to singular pronouns is correlated with psychological closeness (Pruitt, 1981). This is known as the we/I ratio, and consists of two types of pronouns in communications; references to both participants as a single entity (plural pronouns such as: we, us, ours etc.), and references to themselves alone (singular pronouns such as: I, me, mine etc.). Increased reference to the negotiators as a single entity is considered an indicator of common group membership (in-group) and psychological closeness (Staub 1978) and is thus reflective of a positive tone. Additional research has found that outgroup e-negotiations results in more negative affect being expressed, less rapport being developed, and more resulting impasses than do in-group e-negotiations (Moore et al. 1999).

H4: There will be proportionally fewer singular pronouns and more plural pronouns in successful e-negotiations than in unsuccessful e-negotiations.

2.5 Duration and Time Pressure

The duration and time pressures involved in e-negotiation have also been linked to emotions and negotiation success. Negotiators are influenced by other's emotion when there is low, as opposed to high time pressure, and only when they were motivated to do so (Van Kleef et al. 2004a). E-negotiation researchers have found that synchronous e-negotiations contain less friendly and more affective communication, and that asynchronous e-negotiations contained friendlier communication and more private information (Pesendorfer and Koeszegi 2006). The rationale is that the asynchronous mode, and its associated rehearsability media characteristic, allows a negotiator to 'cool off' before responding to their counterpart in the negotiation – a cognitive response as opposed to an emotional one.

Walther's Social Information Processing (SIP) theory (1995) suggests that CMC leads to more positive impression projections and perceptions by individuals than FtF communication. Further, SIP posits that relationship formation is initially slower for CMC users than for FtF communicators, but that CMC-based relationships can strengthen quickly with time. Consistent with SIP, recent negotiation research has found that e-negotiations take longer than FtF negotiations and include the use of more tactics (Galin et al. 2007).

People under high time pressure become more sensitive to the effects of negative information (Wright, 1974). This was interpreted by Carnevale and Lawler (1986) as indicating that negotiators in a multi-issue, integrative setting become more susceptible to the hostile environment under high time pressure. This can result in a greater likelihood of impasse, or a breakdown in negotiations. The perception of time pressure impacts strategic choice and inhibits developing integrative agreements (Druckman, 1994, De Dreu, 2003).

At some point in any negotiation, perceptions of time pressure will be internally or externally acknowledged and will have an impact on the actions of the negotiator. As stated previously, there is heightened sensitivity to negative information under time pressure and when communicating electronically; and that negativity can quickly escalate in electronic communication through contagion often resulting in impasses. Alternatively it takes time to establish the rapport and relationships in e-negotiations that are typically associated with settlement. This leads us to the following hypothesis:

H5: Successful e-negotiations will take longer than negotiations than unsuccessful e-negotiations.

2.6 Negotiation Phases

Because negotiations go through a variety of different stages before final outcomes are realized, the linguistic content of e-negotiation text and its relative importance in e-negotiation settlement may vary in different phases of the negotiation. Walton (1969) suggested a two-phase model: the differentiation phase and the *integration* phase (see also Pruitt 1981; Putnam and Jones 1982). During the differentiation phase the parties discuss the issues and exchange opinions about differences. If they obtain a mutual understanding of the differences and a motivation to resolve the identified differences then they move to the integration phase. Development of a shared perspective in the early stages of a negotiation has outcome benefits in terms of reaching agreement (Olekalns and Smith 2005) and this can

be obtained through exchange of social and personal information. Such information exchange results, as Metcalf et al (1990) demonstrated, in the creation of an atmosphere conducive to cooperation and mutual adaptation which takes place in the integration phase. The continuing discussion in this phase leads, in the positive case, to conflict resolution. Walton's phases were recently validated in an e-negotiation setting by Pesendorfer et al who found more information exchange regarding needs, positions and priorities in the first half of e-negotiations and more use of threats, power, and creative solutions in the last half of e-negotiations (2007).

According to Adair and Brett (2005), a negotiation consists of four stages: relational positioning, identifying the problem, generating solutions, and reaching agreement. This interval-based approach, where time or number of iterations is used, may be related to negotiations of different lengths to test between-group differences as it allows comparison within and across comparable stages (Adair and Brett 2005). This categorization was deemed applicable to complex, mixed-motive negotiations of any length. Pesendorfer et al. operationalized these four stages by splitting their e-negotiation transcripts into four equal time slices (2007). They further collapsed the first two stages into a single phase (first half of the e-negotiation) and the last two stages into a second phase (last half of the e-negotiation). Consistent with Pesendorfer et al, we are interested in exploring differences between the first half (FH) of the e-negotiation and the last half (LH) of the e-negotiation. Specifically, as an additional exploratory component of this study, we wish to determine the relative importance of FH and LH emotion and tone variables in predicting e-negotiation success.

3. Methods

3.1 Inspire E-negotiations

This research studied multi-issue bilateral e-Negotiations conducted using the web-based Inspire ENS (Kersten and Noronha 1999). Inspire is designed to simulate the main characteristics of a real negotiation and has been used since 1995 to conduct over 3000 e-Negotiation simulations (for example, Köszegi et al. 2004; Sokolova et al. 2005; Vetschera et al. 2006). A detailed description of the system design, offer exchange process, and data logging methodology can be found in Kersten and Noronha (1999), and Kersten and Zhang (2003).

The majority of participants (57%) self-identified as undergraduate university students, although others (e.g., professionals, instructors, or interested individuals) also participated (Table 2). Of over six thousand participants, only a very few self-identified as a professional negotiator (n = 4), and these cases were removed from the data set. Each participant was normally paired with a counterpart from another university. No monetary incentive was offered for participation, although some received academic credit for participation or may have used the system for negotiation training. Participation was both anonymous and voluntary, and the e-negotiation could be discontinued by either party at any time.

Table 2: Pre-Negotiation Self-Identification of Occupation

Occupation	Percentage of Population
Student	56.6
Professional	16.9
Undefined	22.7
Other	0.04

Participants were randomly designated as either a buyer or a seller of bicycle parts and conducted the negotiation by logging in to the Inspire eNS system. Other than the case material specific to their role, no direction was given during the e-negotiation. Each party chose their own preferences, limits, strategies, and communication style and frequency. No training was given to any of the participants, although resource material (glossary, frequently asked questions, and a simplified two issue example not related to the negotiation case) was available on the InterNeg web site (http://interneg.org/inspire). Buyers represented Cypress Cycles, a firm that assembles and sells bicycles, while sellers represented Itex Manufacturing, a manufacturer of bicycle parts.

Participants were directed to reach agreement on four different issues (the price of the bicycle components, delivery schedules, payment terms, and defective parts return). Each case was neutrally framed. Participants were asked to negotiate for the benefit of their respective company, not for themselves.[1] Each party was also informed that their firm was interested in achieving a compromise agreement, but that other suppliers and buyers are possible so there were other options to an unsatisfactory outcome. Each party creates a preference structure for the four issues prior to the actual e-negotiation beginning. One negotiator cannot view the preferences and ratings that the other negotiator enters.

The e-negotiation involves multiple issues differing in utility to the negotiator, and follows the traditional offer-counter-offer negotiation format. The e-negotiation involves exchanging messages and/or offers, offer evaluation, and e-negotiation progress evaluation. Participants can exchange text messages independent of using the formal offer making facility of Inspire. Most often, participants will negotiate the issues through text exchange before making a formal offer. Alternatively, when making a formal offer, participants can include a text message with the offer. Because we are focused on the use of language in communication between participants, for the purposes of our study, a negotiation case

[1] An argument may be made that lack of rewards may diminish the negotiators interest in achieving an agreement. This is an important issue but there seems to be no solution which would satisfy both the interest of the negotiators to achieve an efficient agreement and to represent the interests of the firm. If the participants are rewarded for achieving an agreement they may achieve an agreement that is sub-optimal to the firm they represent. It is preferable that—as in real negotiations—a participant should terminate the process rather than accept a bad compromise.

consists of: all messages exchanged independent of any formal offers and all text messages exchanged in concert with a formal offer. Figures 1 and 2 give examples of these two possibilities. The parties exchange messages and/or offers until a settlement point is agreed upon, one of the participants breaks off the negotiations, or the predetermined deadline is reached. For the purposes of this study a successful negotiation is one where a settlement is reached, and an unsuccessful negotiation in one where there is an impasse (no settlement is reached).

Fri, 24 Nov 2000 08:49:46 GMT] **ASH** submitted message

Dear Mr. Ren3, I was very delighted to read your message. I think we are on the right way. Could you sent me an offer containing the conditions you mentioned in your message to make it clear? I am looking forward to hear from you. Yours Sincerely Dr. C.ASH Itex Sales Representative

Figure 1: Message With No Offer Included

[Fri, 24 Nov 2000 19:51:56 GMT] **ren3** submitted an offer,

Price	3.98 $
Delivery	20 days
Payment	Upon delivery
Returns	Full price

Dr. Ash, I am a small company, but I am willing to offer this price and pay upon delivery, they could help out your money circulation and you can get the money early to do some investment on other things. I hope we can settle on this deal. Sincerely yours, Ren

Your rating: **100**

Figure 2: Message Including an Offer

The complete dataset consisted of over 3000 bilateral e-negotiations. Due to unknown causes, some negotiators did not negotiate. These instances are designated as 'one side only' in the data set and were not included in the population for this study. The total number of available cases was 2353. Only cases that were undertaken in the English language, or that contained small amounts of easily translatable foreign language (*e.g.*, au revoir, ciao, auf wiederschon, *etc.*), were included in the data set. Due to the number of messages (over 27,000), a randomly selected representative sub-sample was extracted from the full data set. In order to have sufficient power for statistical analysis, a minimum of 40 cases per cell was determined to be required. This allowed dyads that exchanged from 4 to 13 messages, for both successful and unsuccessful e-negotiations, to be included in the data set, and a total sample of 800 cases.

3.2 Variables

E-negotiation success is a boolean variable. A value of 'true' indicates the e-negotiation was successful (a settlement was reached) and a value of 'false' indicates the e-negotiation failed

(an impasse reached). E-negotiation duration was defined as the time differential between the timestamp of the first message sent to the e-negotiation counterpart and the timestamp of the last message of the e-negotiation. All other variables were assessed using LIWC .

Note that because we were interested in whether there were differences in what was communicated earlier as opposed to later in the e-negotiation had any effect on negotiation success, three variables associated with each construct were created. Specifically, an LIWC output variable for a construct (for example positive emotion) was created for all the messages within a e-negotiation case, for the FH of the negotiation, and for the LH of the negotiation case. The splitting into FH and LH was based on the number of messages sent for the e-negotiation. For example, in a e-negotiation case containing 10 messages, the first five messages would be used in calculating the FH LIWC output, and the last five messages would be used to calculate the LH LIWC output. Before the LIWC analysis was undertaken all the data cleansed per LIWC guidelines.

3.3 Analysis

To test hypotheses 1 – 5, independent sample t-tests were run between successful and unsuccessful e-negotiations for all previously discussed variables. To answer our additional question concerning the capacity of linguistic dimensions predicting e-negotiation success, we ran a series of logistic regression models. The regression analysis was conducted separately for independent variables (IVs) that reflected all of the messages in each e-negotiation case, and for IVs that were split into their first and last half components. We followed the typical model building strategy of doing extensive univariate analyses for each potential independent variable to determine which variables should be added to the initial model (Hosmer and Lemeshow 2000). Variables that were insignificant in the initial models were dropped and final regression models with the remaining predictors were run.

4. Results

Hypotheses 1 through 5 were tested initially by independent sample t-tests using the aggregated data (that is, the entire e-negotiation), the results of which can be found in Table 3. The aggregated variables that were significantly associated with e-negotiation success were then entered into a series of regression models (Tables 4 and 5). Only once these first two steps were concluded did we move on to examine if differences did, in fact, exist between the FH and LH of the e-negotiation.

***Table 3*: Differences in Successful and Unsuccessful E-negotiations**

Variable	Outcome	N	Mean	SD	t-test	p-value
Positive Emotion	Successful	400	6.240	2.224	-5.102	.000
	Unsuccessful	400	5.474	2.018		
FH Positive Emotion	Successful	400	6.219	3.227	-.951	.342
	Unsuccessful	400	6.003	3.199		
LH Positive Emotion	Successful	400	7.633	3.599	-8.880	.000
	Unsuccessful	400	5.617	2.766		
Negative Emotion	Successful	400	.832	.796	-.601	.548
	Unsuccessful	400	.802	.567		
FH Negative Emotion	Successful	400	.805	1.096	-1.309	.191
	Unsuccessful	400	.705	1.065		
LH Negative Emotion	Successful	400	.740	.995	2.784	.005
	Unsuccessful	400	.932	.953		
Assent	Successful	400	1.566	1.020	-6.889	.000
	Unsuccessful	400	1.128	.758		
FH Assent	Successful	400	1.305	1.399	-4.275	.000
	Unsuccessful	400	.924	1.104		
LH Assent	Successful	400	2.177	1.986	-6.700	.000
	Unsuccessful	400	1.395	1.229		
Negation	Successful	400	1.027	.655	3.736	.000
	Unsuccessful	400	1.207	.702		
FH Negation	Successful	400	.994	.975	-.894	.371
	Unsuccessful	400	.934	.936		
LH Negation	Successful	400	.945	.873	6.689	.000
	Unsuccessful	400	1.422	1.127		

I	Successful	400	5.880	2.530	1.074	.283
	Unsuccessful	400	6.080	2.770		
FH I	Successful	400	6.431	3.242	.333	.740
	Unsuccessful	400	6.509	3.353		
LH I	Successful	400	5.964	2.966	1.894	.059
	Unsuccessful	400	6.379	3.222		
We	Successful	400	3.347	2.051	-1.467	.143
	Unsuccessful	400	3.133	2.086		
FH We	Successful	400	3.278	2.503	-1.531	.126
	Unsuccessful	400	3.010	2.445		
LH We	Successful	400	3.154	2.487	-1.474	.141
	Unsuccessful	400	2.899	2.398		
Negotiation Duration	Successful	400	11.385	6.603	6.818	.000
	Unsuccessful	400	14.457	6.130		

***Table 4*: Initial Regression Model**

Variables	B	S.E.	Wald	p-value	Exp(B)
Negate	-.416	.118	12.412	.000	.659
Assent	.565	.114	24.516	.000	1.759
Positive Emotion	.054	.043	1.569	.210	1.055
Duration	-.078	.012	40.019	.000	.925
Constant	.415	.317	1.719	.190	1.514

Nagelkerke's R^2: .169

***Table 5*: Final Regression Model**

Variables	B	S.E.	Wald	p-value	Exp(B)
Negate	-.442	.116	14.451	.000	.643
Assent	.636	.100	40.553	.000	1.889
Duration	-.078	.012	39.902	.000	.925
Constant	.663	.248	7.160	.007	1.941

Nagelkerke's R^2: .166

H1: There will be proportionally more positive emotion expressed in successful e-negotiations than in unsuccessful e-negotiations.

Hypothesis 1 was supported, as the positive emotions were significantly more likely to be associated with e-negotiation success. However, this finding should be interpreted with some reservation, as positive emotions did not emerge as being significant in the regression analyses.

H2: There will be proportionally less negative emotion expressed in successful e-negotiations than in unsuccessful e-negotiations.

Contrary to our predictions, hypotheses 2 was not supported, as negative emotions, at an aggregated level, were not found to be significantly associated with e-negotiation success.

H3: There will be proportionally more agreeable and less negative language expressed in successful e-negotiations than in unsuccessful e-negotiations.

Hypothesis 3 was supported, as there was proportionally more agreeable and less negative language in successful e-negotiations compared to unsuccessful e-negotiations. In fact, Assent and Negate emerged from the regression analyses as the two variables that contributed to the greatest amount of variance in e-negotiation success with respective Beta values of 0.64 and -0.44.

H4: There will be proportionally fewer singular pronouns and more plural pronouns in successful e-negotiations than in unsuccessful e-negotiations.

Contrary to our predictions, hypothesis 4 was not supported, as neither "I" nor "We" statements (singular and plural pronouns) were found to be significantly associated with e-negotiation success at an aggregate level.

H5: Successful e-negotiations will take longer than unsuccessful e-negotiations.

Hypothesis 5 was not supported, as unsuccessful e-negotiations, on average, were longer than successful e-negotiations. The regression analyses demonstrated that duration is a significant predictor of e-negotiation success (negative relation). However, the relatively small magnitude of the Beta, at 0.08, suggests that e-negotiation duration is not playing a substantive role, although statistically significant, in e-negotiation success.

In order to more deeply probe if variables predicted e-negotiation success in different ways over different stages of the e-negotiation, the sample was split into two stages; FH, and LH The independent sample t-tests for the split sample are shown in Table 3, while the subsequent logistic regression models are provided in Tables 6 and 7.

The independent samples t-tests, provided valuable additional information. That is, we were able to isolate variables according to negotiation stage, resulting in a more fine-grained analysis. Both LH positive and negative emotions emerged as being significantly associated

with e-negotiation success. While LH negative emotion became insignificant in subsequent logistic regression models, future research would be well served by examining emotion states as a e-negotiation nears the deadline.

We were also able to identify that while both FH and LH Assent were significantly associated with e-negotiation success, only LH Negate had a significant relationship. In subsequent logistic regression models, FH and LH Assent proved to be highly significant (respective Betas of 0.19 and 0.23), while LH Negate remained significantly negatively related with e-negotiation success, and yielded the strongest Beta value of any variable in our model (-0.453).

***Table 6*: Initial Regression Model (n = 800)**

Variable	B	S.E.	Wald	p-value	Exp(B)
FH Assent	.182	.067	7.303	.007	1.200
LH Positive Emotion	.136	.033	16.998	.000	1.146
LH Negative Emotion	-.079	.088	.823	.364	.924
LH Assent	.229	.074	9.472	.002	1.257
LH Negate	-.440	.089	24.477	.000	.644
Negotiation Duration	-.078	.013	37.503	.000	.925
Constant	.111	.297	.140	.708	1.117

Nagelkerke R^2: .256

***Table 7*: Final Regression Model (n = 800)**

Variables	B	S.E.	Wald	p-value	Exp(B)
FH Assent	.185	.067	7.578	.006	.831
LH Positive Emotion	.139	.033	17.892	.000	.870
LH Assent	.226	.074	9.335	.002	.798
LH Negate	-.453	.088	26.619	.000	1.573
Duration	-.077	.013	37.156	.000	1.080
Constant	.035	.285	.015	.902	.966

Nagelkerke R2: .255

5. Discussion, Conclusions and Future Directions

Reflecting upon our findings, the complex role of emotions requires further study in more naturalistic settings. The fact that we found so many emotion words in the e-negotiation transcripts and that positive and negative emotion had significant relationships with e-negotiation success, suggests that emotions play an important role in creating or changing the tone during a negotiation. This is interesting given this study is based upon a culturally and emotionally neutral bicycle negotiation case (i.e., the content of the case itself is unlikely to elicit any emotion from participants) where there were limited implications and motivation for participating negotiators. If emotions played a role in this relatively mundane

e-negotiation atmosphere, we argue that non-simulated e-negotiations are likely to have an entirely different magnitude of emotional intensity. Thus, future research incorporating naturalistic settings may uncover direct, moderating or mediating effects that we were not able to detect using this simulation.

The key outcome from our study is the important role of agreeable language. That is, assent and negate, were the strongest predictors of e-negotiation success. While assent was found to be significantly related to e-negotiation success throughout the entire e-negotiation, negate was only related to e-negotiation success in the LH of the e-negotiation. Taken collectively, maintaining a tone of assent seems to facilitate a cooperative approach to solving problems for mutual benefit, while negate seems to appear in the second half of e-negotiations as indicating a reluctance to make concessions, as a symbol of frustration and of impending e-negotiation failure (that is, the inability to reach agreement). With such strong Beta coefficients, accounting for nearly 25% of the variance in e-negotiation success, these findings should be understood and incorporated into the e-negotiation strategies of professionals. Our message is that the linguistic words that imply assent are critical to establishing a successful e-negotiation strategy. The more the e-negotiations moves towards words that are reflective of negate, the more likely the e-negotiation will fail. This finding, particularly the magnitude of the Beta coefficients associated with assent and negate, require replication in naturalistic settings.

The importance of I/we statements, like emotions, were surprisingly insignificant in our regression findings. However, the extent to which I/we statements are associated with assent and negate requires further study (although we found no statistically significant mediation or moderation in our data). Still, research has demonstrated for more than three decades that statements containing 'we' help to build rapport (Pruitt 1981; Staub 1978) and create in-groups (Moore et al. 1999) suggesting that future research needs to further examine the relationship between emotions, I/we statements and assent and negate.

E-negotiation duration, while significantly related to e-negotiation success, was a relatively weak predictor. That is, our data suggest that it is the tone created and maintained throughout the e-negotiation that is more important to achieving success than the duration of the e-negotiation. A more helpful line of inquiry was in separating negotiations into FH and LH, allowing us to see the relative strength of variable relationships over the duration of the e-negotiation. Future research could create stages that are based on naturalistic causes (e.g., the introduction of the parties, the first offer, the first FtF meeting, etc.), rather than superimposing a FH, LH structure or the four stage model of Adair and Brett (2005), consisting of: relational positioning, identifying the problem, generating solutions, and reaching agreement. The point to emphasize is whatever the division, it should be derived from the data itself, to adequately reflect context, rather than superimposed. Subsequent research could focus on determining if there are times in the e-negotiation process where strategically expressing emotion or tone is critical and whether those times can be generalized across negotiation type.

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