Cue Usage Characteristics of Angry Negotiators in Distributive Electronic Negotiation

Sriram Venkiteswaran(✉) and R. P. Sundarraj

Indian Institute of Technology Madras, Chennai, India
sriramve2000@gmail.com, rpsundarraj@iitm.ac.in

Abstract. The role of anger in negotiation is explored in considerable depth in many papers in the literature. In the electronic negotiation situation, one way to express anger (in addition to plain textual messages) is through the use of emoticons and para-linguistic cues. Cue usage by angry negotiators under different levels of anger is unexplored in negotiation literature. In this paper, we address this gap by conducting a distributive electronic negotiation experiment and studying the usage of cues (statements and para-linguistic cues including emoticons) by angry negotiators while interacting with their counterpart (computer). We report that participants tend use more para-cues, especially emoticons, as their anger intensity increases and that emoticons have the ability to replace other para-cues while composing angry messages. The findings provide promising inputs on design of user interfaces for electronic negotiation systems.

Keywords: Emoticons · Emotions · Anger · Negotiations · Cues · Anger intensity

1 Introduction

Emotion in negotiation has attracted a lot of attention in the past ten years [1–3, 51] and among all the emotions, the role of anger in negotiation has received considerable focus [3–6]. Usage of emotions such as threats [7] and other extreme form or anger [8–10] and their impact in terms of eliciting concessions [3, 5, 11, 12] were explored in detail. While anger is recognized and analyzed to a great extent, not much attention was given to the study of negotiator behavior under varying anger levels (i.e. anger intensity). In this study, we address this gap by studying message communication behavior of angry negotiators during an electronic negotiation as they go through varying degrees of anger. With modern UIs and Web 2.0 technologies, the options to communicate emotion through the Instant Messaging (IM) systems has improved many fold. Pictures, emoticons, emojis and other pictorial representations are available to be used along with written communication that greatly improves the ability to convey affect in addition to the usage of other traditional cues. In spite of all this development, the question of how angry negotiators leverage emoticons and other para-linguistic cues to convey anger and anger intensities have remained largely unexplored. As modules containing emoticons and other para-linguistic cues are now routinely bundled with

D. C. Morais et al. (Eds.): GDN 2019, LNBIP 351, pp. 178–192, 2019.
https://doi.org/10.1007/978-3-030-21711-2_14

chat software in mobile phones and computers, a better understanding of its usage can be crucial input in designing user friendly interfaces for electronic negotiation and a valuable contribution to the existing literature. Hence, we propose a comprehensive study on how the different types of para-linguistic cues are used by angry negotiators to express different anger intensities in a synchronous electronic negotiation. In the process, we attempt to answer the following research questions:

Research Questions:
How are paralinguistic cues used in conveying anger?
What is the relationship between paralinguistic cues and anger intensity?

The usage of cues in Computer-mediated-communication (CMC) has attracted researcher's attention for some time resulting in several categorizations. As early as 1980, Carey categorized nonverbal cues in CMC into five types: vocal spelling, lexical surrogates, spatial arrays, manipulation of grammatical markers, and minus features [21]. Vocal spelling includes extended emphasis such as "weeeeellllllll" and "yessss" while lexical surrogates use non-standard spelling such as "mhmm" and "uh huh" to mimick vocal intonation or tone. Text based emoticons using keyboard characters such as :-) for smile and :-D for laughing were categorized as spatial arrays and are used to represent facial expressions. Methods to indicate pauses (…), attitude or surprise (!!!) and tone of voice (SHOUT) were categorized as Manipulated grammatical markers. Carey's categorization also included Minus features refer to omission of certain language standards that are commonly expected such as lack of capitalization at the beginning of a sentence. Usage of capital letters, asterisks, blank spaces, or character repetitions, as well as combinations of these devices were also reported as writing styles [22]. Other cues identified include para and prosodic cues such as asterisks, capitalized words, repeating letters [23] and italicized words [24]. Emoticons are a relatively recent addition to the cue toolbox. Emoticons are defined in several ways, as string of characters that convey a particular emotion when viewed sideway [25], as pictographs [26] and as a creative way to add expression to text-based communication [27]. Modern emoticons may be a static or animated and incorporate several common emotional states to enable precise communication of emotion.

In addition to studying the usage of para cues, researchers have also focused on their ability to convey affect. Analyzing instant messaging conversations, Hancock et al. found that exclamation marks were a significant predictor of whether the receiver believed that the sender is in a positive mood [28]. Emoticons were also found to be a key cue in interpreting sender's emotion [26, 29, 30]. Riordan et al. analyzed cue usage using LIWC [32] (Linguistic Inquiry and Word Count) in five corpora downloaded from the internet [31]. They found that cues were used predominantly in disambiguation of a message, regulation of an interaction, expressing effect and strengthening message content. The ability of para-cues in general, in communicating affect in CMC was investigated by Harris et al. [33]. A range of emotion words, linguistic markers and paralinguistic cues were investigated on their ability to convey emotion in emails, with the conclusion that the number of emotion cues used is directly proportional to the strength of the sender's emotion as perceived by the receivers. Trends in emoticon usage in short internet chats showed that they are mostly used to convey emotion, strengthen a message and to express humor. They are used more when

participants are communicating with their friends as opposed to strangers and in more positive context than in negative ones. In short, emoticons are used in a way similar to facial behavior in Face-to-Face (F2F) communication with respect to social context and interaction partner [34]. They are increasingly recognized as a way to indicate writer's moods or feelings in CMCs [35].

Yet, in the domain of negotiation, an understanding of influence of para-cues is lagging. A recent work in this field involves a study on usage of emoticons in synchronous and asynchronous chat communication in an electronic negotiation setting [36]. This study found that emoticons support and supplement text messages, increases the communication of positive affect in asynchronous negotiations and decreases communication of negative affect in synchronous negotiations. Apart from this, we could not find any literature exploring the significance of para-cues in conveying effect in electronic negotiations. Even this study [36] was focused on the impact of only emoticons, ignoring a larger group of para-cues (e.g. vocal spelling, lexical surrogates, spatial arrays, capitalized words, manipulation of grammatical markers, minus features) and was not focused on anger intensity. While [33] considered a larger set of cues, it did not include emoticons (static and dynamic), was focused on emotion perception and not emotion expression, email based and not in the negotiation domain.

In our work, we incorporate a wider range cues including animated emoticons and focuses exclusively on anger intensity. This study also differs from [33] by including animated emoticons in addition to other cues, focuses on their impact on message composition behavior (instead of message perception), and takes place in an electronic negotiation environment (instead of email based general CMC).

2 Theoretical Model

In F2F communication, several cues such as facial expression, body posture and speech patterns can readily be used to convey the intended message of the speaker [13, 14]. In contrast to F2F, electronic communication is considered cold and anonymous [15] and absent of all these stimuli which aid in identification of emotion. Two opposing theories exist with regard to communication using electronic media: 'cues filtered-out' and 'cues filtered-in'. The 'cues filtered-out' theory [16] argues that in computer mediated communication (CMC) there is a reduction in social cues about the negotiating counterparts such as their experiences, situations, perceptions and context and are dependent solely on the information exchanged via the communication channel. Important non-verbal cues containing rich information are unable to be transferred across electronic media. For example, there is an increased incidence of flaming when using computer mediated communication as compared to F2F negotiation, and this difference is attributed to the inability to transfer social cues from one negotiator to another in an electronic negotiation setting [17, 18].

'Cues filtered-in' theory [19], on the other hand, states that rich affective information can be transferred using text-based messages [20]. Theories that oppose the 'cues-filtered-out' classification, such as Social Information Processing (SIP), state that with newer, multimedia forms of communication it is possible to achieve the same level of impressions of others and develop relationship as off-line communication [16] by

using whatever cue is available in the chosen communication channel, but communicators would need more time to accomplish this objective. While there is some empirical evidence to support each viewpoint, a recent review concludes that expression of emotion is similar in both, off- and on-line modes, and found no indication that CMS is a less emotional medium compare to F2F [46].

While the above theories mostly deal with affect and relationships, it is still unclear how affect intensities are communicated in CMC in general, and in a negotiation context in particular. Media Richness Theory [47] defines richness of a medium by *four dimensions,* namely: (i) number of cue systems; (ii) immediacy of feedback; (iii) potential for natural language; and, (iv) message personalization. Incorporating multiple cue systems, synchronous sender-receiver exchanges, the ability to converse in natural languages, and the ability to personalize each message to the participant all contribute to a richer medium. According to this formulation, F2F communication is the richest medium followed by telephone, letters, and memos. In our experiment, we attempt to enhance the richness of each of the aforementioned four dimensions. Specifically, the number of cue systems is increased to include natural language statements, static and animated emoticons, other para-cues (e.g. vocal spelling, lexical surrogates, manipulated grammatical markers), and minus features. The experiment involves a synchronous negotiation exercise, making it a simultaneous bi-directional interaction (similar to F2F). Participants can choose multiple natural language statements to compose their messages and they interact directly with their counterparts. On the basis of this rich setup, in the next section we articulate various hypotheses to study the communication of anger intensity.

3 Hypothesis

In this paper, we study how an angry negotiator communicates emotion and emotion intensity using various para-cues. For hypothesis formulation, we combine the cues into three categories: text messages, emoticons (static and animated emoticons), and other para-cues (vocal spelling, lexical surrogates and manipulated grammatical markers). Usage of para-cues may convey tone to the message and facilitate the communication of type and degree of emotion [34]. In [37], the hypothesis that emoticons will supplement text messages in electronic negotiation was supported. In the study of corpus of CMCs [32], it was found that usage of para-cues such as capitalized words, repeated punctuations, emoticons and combined cues were common. Cues are used together frequently. Capitalized word was frequently used with repeating exclamation marks, asterisks, repeating question marks, repeating letters and emoticon. Three-way usage of capitalized words with combined question mark and exclamation point was also found to occur. Emoticons, capitalized words, asterisks, underscores, angled brackets, curly braces exclamation marks, repeating letters, repeating exclamation marks were also used with one another. However, how para-cues and emoticons are used together in expressing anger is not explored in detail. We hypothesize that, if participants choose to use emoticons, they will no longer feel a need to support it with other para-cues. Conversely, usage of other para-cues will not necessitate the usage of emoticons. Hence,

H1a: There will be a negative correlation between emoticons and other para-cues usage in angry messages.
H1b: There will be a negative correlation between static emoticons and other para-cues usage in angry messages.
H1c: There will be a negative correlation between animated emoticons and other para-cue usage in angry messages.

Previous research has shown that participants have also successfully detected emotion in CMC using the metadata of the messages such as message length, usage of negative terms and message exchange rate [37]. "Number of cues" was also used as a cue to study message communication. In [33], the number of para-cues contained in positive messages was found to be positively correlated with valence and degree of emotion by receivers. Due to the difficult context setup by a distributive negotiation, we expect the participants to use the number of cues to express various anger intensity levels. Specifically,

H2a: In angry messages, anger intensity will be positively related with the number of cues used.
H2b: In angry messages, anger intensity will be positively related with the number of emoticons used.
H2c: In angry messages, anger intensity will be positively related with the number of other para-cues (excluding emoticons) used.

4 Experiment

We took as basis the multi-round electronic negotiation used by Van Kleef [3] and made modifications to suit our needs. The object of the negotiation is a used cell-phone. Issues under consideration were price, warranty and service (Table 1). Participants were informed that they will be randomly assigned the role of a buyer or seller but, in reality, all of them were assigned the role of a buyer. In this aspect, we deviate from the setup used in [3]. With e-commerce becoming common, almost everyone would have assumed the role of a buyer at some point of time making it easier to relate to the task. Research indicates that such role-reversals do not impact concession making [38].

Table 1. Participant's issue options

Price ($)	Warranty (months)	Service (months)
150	1	1
145	2	2
140	3	3
135	4	4
130	5	5
125	6	6
120	7	7
115	8	8
110	9	9

Personalized utility: While payoffs are assigned to each issue choice in [3], we use a utility function based on user's preferences to calculate individual payoff, which enhances the relevance of the offer. Participant's preference for price, warranty and service were captured by asking to rate them individually on a scale of 0 to 1 and Eq. 1 is used to calculate individual utility. The utility ranges from 0 to 1, with a utility of 1 being the best utility and 0 being the worst utility for the buyer.

$$u_{i,r} = \frac{p_{pref,i} * (P_{max} - p_r)}{P_{max} - P_{min}} + \frac{w_{pref,i} * (w_r - W_{min})}{W_{max} - W_{min}} + \frac{s_{pref,i} * (s_r - S_{min})}{S_{max} - S_{min}} \quad (1)$$

Where,

$u_{i,r}$ is the utility of user i at round r,
$p_{pref,i}, w_{pref,i}, s_{pref,i}$ is the preference of price, warranty and service respectively of user i,
$P_{max}, W_{max}, S_{max}$, are the maximum price, warranty and service that a user can select,
$P_{min}, W_{min}, S_{min}$, are the minimum price, warranty and service that a user can select,
p_r, w_r, s_r is the price, warranty and service selected by a user in round r,
$p_{pref,i} + w_{pref,i} + s_{pref,i} = 1$,
$0 \leq p_{pref,i}, w_{pref,i}, s_{pref,i} \leq 1$.

4.1 Experimental Steps

A web-based application that takes the user through a series of steps through a wizard was developed. The different steps are explained below:

Step 1 (Demographic data): Gender, age group, country and state of birth, country and state of residence and job level of the participants were captured.
Step 2 (Summary of steps): Summary of the instructions with a flowchart of the negotiation process was shown in step 2.
Step 3 (Inter-issue preferences): Preferences for price, warranty and service were captured.
Step 4 (Role assignment): The participants were asked for wait while the computer supposedly assigns them to buyer and seller roles and pairs them up.
Step 5 (Offer generation from the e-negotiation system): This is the main negotiation web-page, and its layout is shown in Fig. 1. The seller (computer) provided the first offer. The offer was shown in a text box as "My first offer is: price = Rs. 150, warranty = 1 month and service = 1 month". Typographical errors and more subtle errors were introduced to make the responses more human. The utility of the seller's offer to the buyer and buyer's previous offer and its corresponding utility was also displayed for easy comparison and decision making. The buyer is asked whether he accepts the offer, which he can accept or reject through a drop-down box.

Initially, on page load, only the seller's offer, buyer's previous offer, their utilities and the question of whether the participants accept or reject the offer is displayed to avoid confusion. If the offer is rejected, the issue options table, utilities of counter-offer, emotion and emotion intensity elicitation questions and a chat-box along with pre-

defined statements and emoticons are displayed. Buyer information is shown in blue and seller information in red. The participant selects the counteroffer from the HTML table. The corresponding utility, is calculated in real time and displayed for comparison. The buyer is prevented from submitting an offer that has lower utility than the current computer's offer.

Text boxes were provided to the participant to record their responses while submitting the counter offers. The cues featured three angry, two happy and one neutral sentence. Top three angry sentences and top two happy sentences were selected based on their perceived intensity from a previous study [39]. Further a palette paralinguistic cues were also selected. One happy and one angry static emoticon, one happy and one angry animated emoticon were selected from the top recommendations from a Google search. Manipulated grammatical markers (e.g. 'caps lock' and '!!'), vocal spelling manipulations (e.g. goood offer, baaad offer), lexical surrogates (e.g. ugghh) were selected as para-cues based on literature [21]. The participants were mandated to choose at least one text statement and at least one cue from the list. However, a full-stop cue (i.e. '.') was also included in the pallet of para-cues, in case the user did not want to select any cue. The position of the statements and cues were randomized for each round. Along with the statement, the emotion and emotion intensity of the participants were also captured. Once the participant provides all the information, we move on to Step 6.

If the computer's offer is accepted, the participants were asked to provide only their emotion, emotion intensity and message to the counterpart. Then the participant is directed to an animated screen displaying the message, "Please wait while your opponent evaluates your offer and responds". After 1.5 min, a message "Thank you for accepting the offer", is displayed and the negotiation ends. The layout of the page and the descriptions of the corresponding sections are provided in Fig. 1.

Step 6 (Counteroffer submission): Once the participants submit the counteroffer, an animated screen displaying "Please wait while your opponent evaluates your offer and responds" is displayed. After 1.5 min, the negotiation page (see Fig. 1) re-appears for the next round with the new counter-offer. The negotiation ends if the buyer accepts the offer or if the utility of the counter offer provided by the buyer equals the computer's next offer or if six rounds are completed.

4.2 Anger Induction Strategy

Anger is induced by incorporating long wait time between rounds and a dynamic distributive strategy. Participants in distressed situation may interpret a long response time by the counterpart as a personal attack [8, 40] and has been known to induce anger [9]. Hence a 1.5 min time gap was introduced. Further, a dynamic distributive strategy, unique to this experiment, based on the participant's preferences was used to induce anger. Prior to the negotiation, the participants were asked to provide the importance of each of issue in a scale of 0 to 1 and they are ranked accordingly. The participants were told that sellers always make the first offer. And as the buyer role is always assigned to the participants. the computer makes the first offer in all cases. Distributive negotiations are characterized by extreme first offers, no or small number of concessions, going back

on offers and lesser amount of concessions as compared to integrative negotiations. This characterization is implemented in different rounds as follows,

Round 1: start with the extreme offer ($150 for price, 1 month for warranty and 1 month of service). This is the worst deal to the participant with a utility of zero (as per Eq. 1). If the offer is rejected, the participant is asked to choose a counteroffer and move to round 2.
Round 2: The revised offer by the computer keeps the same value for two issues and concedes one unit on the third issue. The concession is made on the buyer's least preferred issue. If this offer is rejected by the buyer, he/she will be asked to provide a counteroffer to move on to round 3.
Round 3: The computer goes back to the offer provided at round 1, negating the concession offered in round 2. A rejection of this offer takes the participant to round 4.
Round 4: The computer repeats the offer given in round 2. Rejection of this offer lead to round 5.
Round 5: No change in the computer's offer.
Round 6: A small concession of one unit on the participants second least preferred issue is added to the round 4 offer. Table 2 lists an implementation where the buyer's issue preference is price, warranty and service in that order.

Table 2. Strategy implementation for buyer preference of price > warranty > service

Round 1: Price = $150, Warranty = 1 month, Service = 1 month.
Round 2: Price = $150, Warranty = 1 month, Service = 2 months.
Round 3: Price = $150, Warranty = 1 month, Service = 1 months.
Round 4: Price = $150, Warranty = 1 month, Service = 2 months.
Round 5: Price = $150, Warranty = 1 month, Service = 2 months.
Round 6: Price = $150, Warranty = 2 months, Service = 2 months.

The experiment was conducted in the classroom and over phone. A presentation was prepared and explained to the participants in-person (in the case of classroom experiment) and over phone (in case of remote experiment). They were told that the intent is to study negotiation where the participants do not see each other, that they may be a buyer or seller and the task is to negotiate the sale of a cell phone. They were informed that the negotiation will end if an agreement is reached or when time runs out. No mention was made on the time limit. Information on how to select preferences and the meaning of utility were explained. Screenshots of the web pages were included in the presentation to familiarize the participants. The participants were then led to a lab for the experiment. The computers in the lab were spaced sufficiently and a proctor ensured that the participants do not speak or interact in any other way.

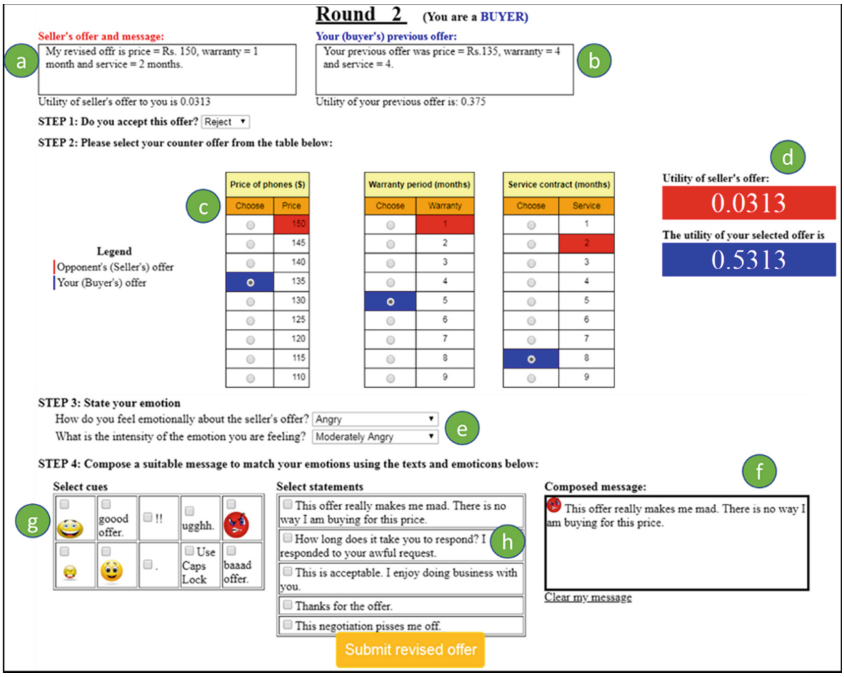

Fig. 1. Layout of the main negotiation page. ***Sec. a:*** *Seller offer communication;* ***b:*** *Previous offer display for comparison;* ***c:*** *Options table with the seller offer coded in red and buyer offer in blue;* ***d:*** *Realtime display of buyer and seller utility as per user selection of price, warranty and service* ***e:*** *Emotion and emotion intensity capture. "Angry", "Happy", "Sad" and "Other" are the emotion choices;* ***f:*** *Chat-box for viewing composed message.* ***g:*** *Para-linguistic cue display for message composition;* ***h:*** *Angry, happy and neutral statements for message composition;* (Color figure online)

5 Results

Ninety-six participants took the experiment, out of which 66.67% were male and 33.33% were female. Angry emotion was coded as 1 and non-angry emotion was coded as 0 and a logistic regression was carried out with emotion as dependent variable and round as independent variable. The results gave a positive effect of round id on emotion with each increase in round resulting in a 33% likelihood of participants getting angry suggesting that the experimental manipulation was successful in inducing anger. A total of 271 angry statements were recorded out of 390 statements (70%), providing more evidence that the anger induction was successful. The distribution of cues among the corpus of angry statements is shown in Fig. 2.

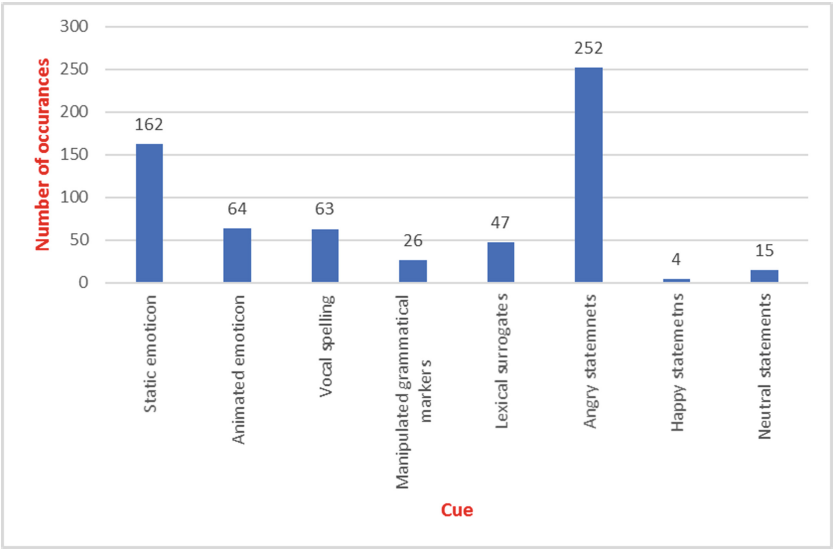

Fig. 2. Cue occurrence in corpus

There was a significant negative correlation between emoticons and other para-cues ($r = -0.66$, $p < .001$, $n = 271$). Further, a significant negative correlation was found between static emoticons and other para-cues ($r = -0.47$, $p < .001$, $n = 271$) and between animated emoticons and other para-cues ($r = -0.20$, $p < .001$, $n = 271$) providing support for H1a, H1b and H1c. Further decomposing emoticons into angry and happy static and animated emoticons found that angry static emoticons were negatively correlated with other para-cues (-0.45, $p < 0.001$, $n = 271$), angry animated emoticons were negatively correlated with other para-cues (-0.21, $p < 0.001$, $n = 271$). Happy emoticons do not have any significant correlation with other para-cues (Table 3).

Table 3. Relationship between anger intensity and number of cues

Dependent variable: Anger intensity				
Intercept	**Independent variable:** Number of			R^2 (Adj.)
	Cues	Emoticons	Other para-cues	
3.0416^{***} (0.1785)	0.3280^{**} (0.1167)	–	–	0.0249** F(1, 269) = 8.8960
2.8201^{***} (0.1714)	–	0.8569^{***} (0.1394)	−0.1095 (0.1307)	0.1417^{***} F(2, 268) = 23.3

Note: Two equations modeled are:
Anger intensity = intercept + number of cues
Anger intensity = intercept + number of emoticons + number of other para-cues
$^{*}p < 0.05$, $^{**}p < 0.01$, $^{***}p < 0.001$. Standard error in parenthesis.

Results of regression of anger intensity on number of cues returned a significant result. Anger intensity was further regressed onto number of emoticons and number of other para-cues. Results showed a significant impact of number of emoticons on anger intensity while number of para-cues was not found to have a significant impact on anger intensity. Thus, H2a and H2b are supported and H2c is not supported.

Further, emoticons were broken down into number of happy and angry static and animated emoticons and their relationship with anger intensity was studied. A significant regression equation was found $F(5, 265) = 10.76$, $p < 0.000$, with an R^2 (Adj.) of 0.1531. Anger intensity was found equal to 2.7582 + (1.0646 * number of static angry emoticons) − (0.4248 * static happy emoticons) + (0.6255 * number of animated angry emoticons) + (0.4414 * number of animated happy emoticons) − (0.0889 * number of other para-cues). The number of angry static and animated emoticons were significant predictors of anger intensity (Table 4).

Table 4. Results summary

Hypothesis	Results
H1a: There will be a negative correlation between emoticons and other para-cues usage in angry messages	Supported
H1b: There will be a negative correlation between static emoticons and other para-cues usage in angry messages	Supported
H1c: There will be a negative correlation between animated emoticons and other para-cue usage in angry messages	Supported
H2a: In angry messages, anger intensity will be positively related with the number of cues used	Supported
H2b: In angry messages, anger intensity will be positively related with the number of emoticons used	Supported
H2c: In angry messages, anger intensity will be positively related with the number of other para-cues (excluding emoticons) used	Not supported

6 Discussion

Angry statements and static emoticons together account for 67% of the cues. Only three instances of happy static emoticons, two instances of happy animated emoticons and four instances of happy statement usage were found, suggesting reduced composition of ironic or sarcastic messages and that participants leave little room for ambiguity in expressing anger. While [36] found that emoticons act as supplement to text messages, our result show that emoticons can replace other para-cues as well. The empherical evidence suggests that angry emoticons and para-cues are used in a mutually exclusive manner, thereby suggesting that both static and animated angry emoticons have the ability to communicate anger as well as the other para-cues. [33] reported that message receivers recorded a higher degree of sender's emotion with the increase in the number of emotion cues. Our regression result between anger intensity and number of cues adds to this result by suggesting that message composers indeed use the number of cues itself as a cue to convey higher emotion (anger) intensity. Emoticons score over other

para-cues in this respect with the usage of more number of angry emoticons signifying higher anger intensities.

Our results point to two findings. First, both static and animated angry emoticons have the ability to replace other para-cues while communicating anger. Second, both the number of static and animated angry emoticons can be used as predictors of anger levels while para-cues do not have any role to play. While researchers have studied static emoticons before, our study find that animated emoticons are also useful in composing angry messages and the also have value in predicting anger levels. The Emotion as Social Information (EASI) [48, 49] model argues that participants deduce social information of their counterpart through emotions and they use such information to guide their actions. As emotion intensity (anger intensity, in our case) is a key component of emotion, it is possible that intensity levels are also processed by the recipients and used to decide their responses. Our findings suggest that, changes in the number of angry emoticons in a corpus of received messages can be used to determine shifts in anger levels of counterparts and participants need not pay much attention to other para-cues. As anger can lead to impasse or breakdown of negotiation and have adverse impact on relationships, any tool or feature that mitigates these negative effects and clarify emotional states adds value to negotiation research. Designers of negotiation systems supporting distributive negotiations may benefit by focusing more on angry static and animated emoticons instead of other para-cues. Features that automatically convert ASCII based angry emoticons to pictorial ones (as is already available in several software such as MS Word) may enable participants to convey different anger intensity levels clearly and unambiguously and may have the potential to lead to better negotiation outcomes.

7 Conclusion

Anger plays a significant role in negotiations. In this paper we addressed a dimension of anger, anger intensity, by investigating message composition behavior of angry negotiators under varying levels of anger. Our results show both static and animated angry emoticons play a central role in the communication of anger levels. Communication systems designed for distributive negotiations need to consider both these forms of emoticons as a key cue in the expression of anger intensity.

Our study is not without limitations. The personalized utility function is one way of capturing the utility of the participants. Adopting other approaches might result in different conclusions. While a presentation of the preference elicitation screen and an explanation was given to the participant before the experiment to enhance their understanding, there is a chance that other factors might also influence their understanding of the weights. A corpus of 391 statements might be too low to arrive at definitive conclusions. While care was taken in the experiments to hide the real intent, the fact that emotion and emotion intensity information is elicited in all rounds might have given away the goal of the experiment and this might have had an impact on the result. Emotion and emotion intensity are elicited as self-reports. Other forms of elicitation such as facial electromyography and skin conductance responses [50] might provide a more accurate measure of emotion and intensity. While looking at only one

emotion, we indirectly subscribed to the Discrete Emotion Theory [41, 42]. However, it is entirely possible that participants may be experiencing a range of emotions, as proposed by the Dimensional model of emotion [43–45].

References

1. Sinaceur, M., Kopelman, S., Vasiljevic, D., Haag, C.: Weep and get more: when and why sadness expression is effective in negotiations. J. Appl. Psychol. **100**(6), 1847–1871 (2015)
2. Van Kleef, G.A., De Dreu, C.K.W., Manstead, A.S.R.: Supplication and appeasement in conflict and negotiation: the interpersonal effects of disappointment, worry, guilt, and regret. J. Pers. Soc. Psychol. **91**(1), 124–142 (2006)
3. Van Kleef, G.A., De Dreu, C.K., Manstead, A.S.: The interpersonal effects of anger and happiness in negotiations. J. Pers. Soc. Psychol. **86**(1), 57–76 (2004)
4. Van Kleef, G.A., De Dreu, C.K.W., Pietroni, D., Manstead, A.S.R.: Power and emotion in negotiation: power moderates the interpersonal effects of anger and happiness on concession making. Eur. J. Soc. Psychol. **36**(4), 557–581 (2006)
5. Steinel, W., Van Kleef, G.A., Harinck, F.: Are you talking to me?! Separating the people from the problem when expressing emotions in negotiation. J. Exp. Soc. Psychol. **44**(2), 362–369 (2008)
6. Adam, H., Shirako, A., Maddux, W.W.: Cultural variance in the interpersonal effects of anger in negotiations. Psychol. Sci. **21**(6), 882–889 (2010)
7. Sinaceur, M., Van Kleef, G.A., Neale, M.A., Adam, H., Haag, C.: Hot or cold: is communicating anger or threats more effective in negotiation? J. Appl. Psychol. **96**(5), 1018–1032 (2011)
8. Johnson, N.A., Cooper, R.B., Chin, W.W.: Anger and flaming in computer-mediated negotiation among strangers. Decis. Support Syst. **46**(3), 660–672 (2009)
9. Reinig, B.A., Briggs, R.O., Nunamaker, J.F.: Flaming in the electronic classroom. J. Manag. Inf. Syst. **14**(3), 45–59 (1998)
10. Johnson, N.A., Cooper, R.B., Chin, W.W.: The effect of flaming on computer-mediated negotiations. Eur. J. Inf. Syst. **17**(4), 417–434 (2008)
11. Sinaceur, M., Tiedens, L.Z.: Get mad and get more than even: when and why anger expression is effective in negotiations. J. Exp. Soc. Psychol. **42**(3), 314–322 (2006)
12. Van Kleef, G.A., De Dreu, C.K., Manstead, A.S.: The interpersonal effects of emotions in negotiations: a motivated information processing approach. J. Pers. Soc. Psychol. **87**(4), 510–528 (2004)
13. Scherer, K.R.: Vocal communication of emotion: a review of research paradigms. Speech Commun. **40**(1), 227–256 (2003)
14. Coulson, M.: Attributing emotion to static body postures: recognition accuracy, con-fusions, and viewpoint dependence. J. Nonverbal Behav. **28**(2), 117–139 (2004)
15. Danet, B., Ruedenberg-Wright, L., Rosenbaum-Tamari, Y.: Hmmm… where's that smoke coming from? J. Comput.-Mediated Commun. **2**(4), JCMC246 (1997)
16. Walther, J.B., Parks, M.R.: Cues filtered out, cues filtered. In: Handbook of Interpersonal Communication, pp. 529–563 (2002)
17. Hiltz, S.R., Turoff, M., Johnson, K.: Experiments in group decision making, 3: disinhibition, deindividuation, and group process in pen name and real name computer conferences. Decis. Support Syst. **5**(2), 217–232 (1989)
18. Sproull, L., Kiesler, S.: Reducing social context cues: electronic mail in organizational communication. Manag. Sci. **32**(11), 1492–1512 (1986)

19. Walther, J.B., Loh, T., Granka, L.: Let me count the ways. J. Lang. Soc. Psychol. **24**(1), 36–65 (2005)
20. Moore, D.A., Kurtzberg, T.R., Thompson, L.L., Morris, M.W.: Long and short routes to success in electronically mediated negotiations: group affiliations and good vibrations. Organ. Behav. Hum. Decis. Process. **77**(1), 22–43 (1999)
21. Carey, J.: Paralanguage in computer mediated communication. In: Proceedings of the 18th Annual Meeting on Association for Computational Linguistics, pp. 67–69. (1980)
22. Spitzer, M.: Writing style in computer conferences. IEEE Trans. Prof. Commun. **29**(1), 19–22 (1986)
23. Crystal, D.: Language and the Internet. Cambridge University Press, Port Chester (2001)
24. Fox, A.B., Bukatko, D., Hallahan, M., Crawford, M.: The medium makes a difference: gender similarities and differences in instant messaging. J. Lang. Soc. Psychol. **26**(4), 389–397 (2007)
25. Danesi, M.: Dictionary of Media and Communication. Routledge, New York (2009)
26. Thompson, P.A., Foulger, D.A.: Effects of pictographs and quoting on flaming in electronic mail. Comput. Hum. Behav. **12**(2), 225–243 (1996)
27. Luor, T.T., Wu, L.L., Lu, H.P., Tao, Y.H.: The effect of emoticons in simplex and complex task-oriented communication: an empirical study of instant messaging. Comput. Hum. Behav. **26**(5), 889–895 (2010)
28. Hancock, J.T., Landrigan, C., Silver, C.: Expressing emotion in text-based communication. In: Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2007), pp. 929–932 (2007)
29. Byron, K., Baldridge, D.: Toward a model of nonverbal cues and emotion in email. In: Academy of Management Proceedings, vol. 1 (2005)
30. Utz, S.: Social information processing in MUDs: the development of friendships in virtual worlds. J. Online Behav. **1**(1) (2000)
31. Riordan, M.A., Kreuz, R.J.: Cues in computer-mediated communication: a corpus analysis. Comput. Hum. Behav. **26**(6), 1806–1817 (2010)
32. Pennebaker, J.W., Chung, C.K., Ireland, M., Gonzales, A., Booth, R.J.: The development and psychometric properties of LIWC2007. LIWC.net, Austin (2007)
33. Harris, R.B., Paradice, D.: An investigation of the computer-mediated communication of emotions. J. Appl. Sci. Res. **3**(12), 2081–2090 (2007)
34. Derks, D., Bos, A.E., Von Grumbkow, J.: Emoticons in computer-mediated communication: social motives and social context. CyberPsychol. Behav. **11**(1), 99–101 (2008)
35. Gajadhar, J., Green, J.: The importance of nonverbal elements in online chat. Educause Q. **28**(4), 63–64 (2005)
36. Gettinger, J., Koeszegi, S.T.: More than words: the effect of emoticons in electronic negotiations. In: Kamiński, B., Kersten, G.E., Szapiro, T. (eds.) GDN 2015. LNBIP, vol. 218, pp. 289–305. Springer, Cham (2015). https://doi.org/10.1007/978-3-319-19515-5_23
37. Hancock, J.T., Gee, K., Ciaccio, K., Lin, J.M.H.: I'm sad you're sad: emotional contagion in CMC. In: Proceedings of the 2008 ACM Conference on Computer Supported Cooperative Work (CSCW 2008), pp. 295–298. ACM, New York (2008)
38. Bagchi, R., Koukova, N.T., Gurnani, H., Nagarajan, M., Oza, S.S.: Walking in my shoes: how expectations of role reversal in future negotiations affect present behaviors. J. Mark. Res. **53**(3), 381–395 (2016)
39. Venkiteswaran, S., Sundarraj, R.P.: Perceived anger intensity in electronic negotiation. In: Proceedings of the 17th International Conference on Group Decision and Negotiation (2016)
40. Beck, A.T., Deffenbacher, L.J.: Prisoners of hate: the cognitive basis of anger, hostility and violence. J. Cogn. Psychother. **14**(2), 201–203 (2000)
41. Ekman, P.: An argument for basic emotions. Cogn. Emot. **6**(3-4), 169–200 (1992)

42. Colombetti, G.: From affect programs to dynamical discrete emotions. Philos. Psychol. **22** (4), 407–425 (2009)
43. Posner, J., Russell, J.A., Peterson, B.S.: The circumplex model of affect: an integrative approach to affective neuroscience, cognitive development, and psychopathology. Dev. Psychopathol. **17**(3), 715–734 (2005)
44. Rubin, D.C., Talarico, J.M.: A comparison of dimensional models of emotion: evidence from emotions, prototypical events, autobiographical memories, and words. Memory **17**(8), 802–808 (2009)
45. Watson, D., Tellegen, A.: Toward a consensual structure of mood. Psychol. Bull. **98**(2), 219–235 (1985)
46. Derks, D., Fischer, A.H., Bos, A.E.R.: The role of emotion in computer-mediated communication: a review. Comput. Hum. Behav. **24**(3), 766–785 (2008)
47. Daft, R.L., Lengel, R.H.: Organizational information requirements, media richness and structural design. Manag. Sci. **32**(5), 554–571 (1986)
48. Van Kleef, G., De Dreu, C., Manstead, A.: An interpersonal approach to emotion in social decision making: the emotions as social information model. Adv. Exp. Soc. Psychol. **42**, 45–96 (2010)
49. Van Kleef, G.A.: How emotions regulate social life: the emotions as social information (EASI) model. Curr. Dir. Psychol. Sci. **18**(3), 184–188 (2009)
50. Leppänen, I., Hämäläinen, R.P., Saarinen, E., Viinikainen, M.: Intrapersonal emotional responses to the inquiry and advocacy modes of interaction: a psychophysiological study. Group Decis. Negot. **27**(6), 933–948 (2018)
51. Martinovsky, B. (ed.): Emotion in Group Decision and Negotiation, vol. 7. Springer, Dordrecht (2015). https://doi.org/10.1007/978-94-017-9963-8