Starts, Stops, Grunts and Giggles – The anatomy of Instant Messaging

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Instant Messaging as a medium of communication has become nearly ubiquitous on college campuses and amongst high school and middle school youth yet this medium has been explored in relatively little depth linguistically. Many linguistic texts that explore COMPUTER MEDIATED COMMUNICATION tend to focus on the linguistic features of Internet Chat, which, though very similar to IM, is a medium primarily from large group interaction where IM is far more intimate. Through analyzing the logs of a frequent user of AOL Instant Messenger, American Online's free IM service, this paper will examine the language used in IM conversations and make a case for its status as a medium worth of its own research.
The primary focuses of analysis will be in the timing and vocabulary common in IM discourse. Phenomena such as extended pauses in conversation, taking multiple consecutive turns are likely to be specific to IM. Other phenomena like emoticons and other paralinguistic cues which compensate for gesture and intonation in present in speech are not themselves unique to IM but appear in such frequency that it becomes useful to explore when and how they are used in the corpus. In addition, by analyzing the conversations of single user, one can more easily identify the patterns and contexts within which both types of phenomena are present.

1 Introduction

Over the last ten years, Instant Messaging or IM has emerged as a powerful medium for online communication. IM is Often compared to Internet chat, known for its expressive use of abbreviation and punctuation to create a truly unique form of discourse (Werry 1996:53), involving many people communicating with one another in the same ROOM. However, IM distinguishes itself from Internet chat and as being primarily a one-on-one form of communication. It shares many of the spatial and temporal constraints of a multi-user chat environment but lacks the sense of anonymity or competition for attention found in other chat environments (Werry 1996:53).

Since conversations through IM are often between people who know each other, the sense of community found in INTERNET RELAY CHAT or IRC, one of the most common Internet chat services, and similar chat environments does not exist in the same way for IM (Voida et al 2002:193). The conventions used are possibly slower to form but quite possibly more stable as well. Some of the same linguistic constraints that shape discourse in IRC can also shape discourse in IM. In addition new constraints arise when taking into account the ability for users to engage in multiple conversations at once. Issues of turn-taking (Voida et al 2002:190) and synchronicity (Voida et al 2002:189) become more prevalent. This general lack of the sense of anonymity found in IRC-like chat environments also implies there would be less willingness to play with language (Werry 1996:59).

While Internet chat and IRC in particular has been heavily researched since its rise to popularity, IM has been more or less overlooked. Through examining IM text used by college students, this thesis will explore the linguistic conventions common in IM. College-aged IM users are particularly useful groups to study due to the near ubiquity of IM on college campuses. College students also tend to have been exposed to the medium for a relatively long time. Some may have started using IM since as far back as junior high school. Thus, IM is less likely to seem like a new medium for them and whatever conventions exist are likely to be fairly stable. In addition, IM is an attractive medium for maintaining relationships with family and friends who may be geographically separated.

Extended pauses in IM conversations and the implications of such pauses on the flow of IM conversation will be explored. In addition, conventions around turn-taking will be explored. Given the ability for users of IM clients to be able to know when their

partner is typing, the tensions discussed by Voida et al (2002:190) may not be as obvious. However, this raises the question of what it means when turn-taking issues still arise when both parties are aware when the other is typing. Specifically, how do attempts to control conversation present themselves within the context to turn-taking? One act that has been known to happen during IM conversations is one user dividing a long or complex message into several smaller ones sent in consecutive turns. What would this imply within the context of heated discussion? Without the ability to raise one's voice, in what ways do users attempt to assert control in IM discourse?

While there have been studies of Linguistics features of different forms of COMPUTER MEDIATED COMMUNICATION or CMC such as IRC, there have been relatively few relating to Instant Messaging itself. Many studies of Instant Messaging focus on its effects on workplace efficiency or ways in which to improve the Human Computer Interface. This thesis will attempt to fill the gap in research on IM conversations patterns.

1.1 Previous work on Linguistic and Interactional Features of Internet Relay Chat:

Werry (1996) examines a ten minute block of conversation in an English-speaking IRC chat room and a French-speaking IRC chat room to illustrate the communication restraints that separate it from written and spoken communication.

The first and second sections introduce IRC and make a case for the examination of this type of Computer Mediated Communication. He outlines IRC's major features as well and gives general demographics for its users. The focus of the article is in the third section, which discusses the discursive properties of IRC.

The first and most visible aspect that Werry mentions is that conversational exchanges do not overlap. That means that messages are displayed in the order that the

IRC servers receive them. This combined with the fact that there are multiple participants involved in these chats results in multiple conversations being interwoven in the chat window.

In the subsection entitled Adressivity, Werry goes on to discuss the act of addressing an individual chat participant bay affixing his or her name the beginning of an utterance. He claims addressing participants in this manner is compensates for the pauses, eye contacts and gestures used in spoken conversation.

The second subsection deals with abbreviation. It is here that Werry (1996:53) makes reference to "spatial, temporal and social constraints" that limit and shape chat discourse in ways that spoken and written communication are not limited. This concept presents itself throughout this chapter and seems to be the closest Werry comes to forming a thesis statement. He lists these constraints as including screen size, average typing speed, response time and competition for attention.

The subsection continues with an explanation of the average message length of six words per turn. Werry explains this as being the point where the desire for brevity and expressiveness balance, allowing for conversations to flow at a speed similar to spoken communication. Werry closes the subsection by giving extensive examples of the widespread use of abbreviation, which can take the form of subject deletion, acronyms as well as simply shortening words.

The final two subsections address gestures and paralinguistic cues that further compensate for the lack of intonation or physical gestures. The many examples given include the use of multiple periods and hyphenation to illustrate tempo, reduplication of

letters (ex. 'hiiiiiiiii') and the use of emoticons (ex. ':)') and the statement of a gesture within asterisks (ex. *hugs*).

1.2 When conventions collide: the tensions of instant messaging attributed:

When Conventions Collide (Voida, Newsetter and Mynatt 2002) discusses Instant Messaging conversations within the context of tensions between spoken and written communication. Though the goal of the paper is to discuss possible ways to design IM clients to avoid these tensions, in listing and giving examples of such tensions the authors were able to illustrate some of the major characteristics of IM conversations that are not shared by other mediums of Computer Mediated Communication such as IRC.

Their focus in design issues around these tensions seemed to result in a lack of depth in explaining the tensions. Data gathering focused on observations with the collection of actual IM text being a tertiary element. When text was collected, the collection process relied on participants remembering to save their conversations. Some conversations were accidentally ended before being saved. The conversations that were saved lacked time stamping. The name of the IM client that was used was not shared but by 2002 there were free IM clients available capable of automatically logging conversations with timestamp information. There was no explanation given for why such software was not used.

Despite these issues, the examples given were capable of illustrating the types of tensions that were discussed. There were five tensions identified by the paper: Persistence and Articulateness Tensions, Synchronicity Tensions, Turn-taking and Syntax Tensions, Attention and Context Tensions, Availability and Context Tensions.

Of the five listed three were particularly worth mentioning. Persistence and Articulateness tensions were explained as being a conflict between the informal, verbal–like nature of IM conversations with the desire to produce error free text. Turn-Taking and Syntax Tensions refer to the lack of a clear queues for turn-taking. Neither of the turn-taking mechanisms that are present in written and spoken communication applies in an IM context. Finally attention and Context Tensions referred to the effect of disruptive influences on IM conversations such as holding real world conversations at the same time, The often result in long pauses between exchanges and the breakdown in IM communication.

1.3 Use and Adaptation of Written Language to the Conditions of Computer Mediated Communication:

Hård af Segerstad (2003) analyses four forms of Computer Mediated Communication with the goal of determining the ways in which written language is adapted to them. Specifically, he analyses and compares email messages, web chat, instant messages, and SMS.

In his chapter on Instant Messaging, Hård af Segerstad looks at messages sent using a service at Götberg University in Sweden called WebWho. WebWho is described as a service that displays a schematic of the University's computer labs and identifies the users on each computer. Instant messages can be sent to individual computer lab users, anonymously if desired, from other users in the same lab, in a different lab within the same building or outside of the University network through what was assumed to be a dial-up connection.

Though WebWho is an instant messaging system, it is very different than services such as AIM or MSN Messenger where interactions are not tied to physical location and do not have the option of anonymous messaging.

The messages, which were written mostly in Swedish, were separated into categories depending on whether they originated in the same lab as the recipient, whether they originated in the same building as the recipient or whether they originated from outside of campus. Within each category messages were further divided between messages that were sent anonymously and messages that were made by users who allowed themselves to be identified. Finally, the content or purpose of the individual messages was determined. Messages were further divided in one of several subject categories including mischief, social coordination, greetings and encouragements.

With this chapter Hård af Segerstad was interested in the level to which the awareness of one's presence influenced the content of Instant Messages sent within WebWho. It was concluded that there was some correlation between the kinds of messages sent and the location of the users involved. What is most applicable to instant messaging environments outside of WebWho though, received the least amount of attention.

Hård af Segerstad included a comparative chart (2003:169) of the ten most commonly used terms in her IM, written letter (snail mail), email, Web Chat and SMS corpuses. IM had the distinction of being the only medium to include emoticons as a most common term. Emoticons placed 461st in the web chat corpus (2003:170).

2 Analysis of a student's IM logs

From this point on, this paper will analyze the logs of a college student collected and analyzed by the author for the purpose of demonstrating the unique linguistic characteristics of Instant Messaging.

2.1 Methods

Data was collected by the author from a college student who for the purposes of this paper will be referred to as Alex. Alex volunteered his logs from January 2003 through August 2005. These logs were all collected using the automatic logging feature of the DeadAIM instant messaging client for the AOL Instant Messenger Service (AIM). The corpus was narrowed down to include conversations with Alex's the 23 users with whom Alex logged the most online interactions. The total corpus includes 1,189,134 words spread over 29,334 individual log files representing anywhere between 1 and approximately 5 conversations each. All the data used in this thesis comes from Alex's logs.

The reliance on log files as a sole from a data presents its own benefits and limitations. The most important strength of using log files is they typically include every exchange as written with timestamps on every line. Additionally, many IM clients automatically log conversations and save them on the user's hard drive. As was the case with Alex, a very extensive and uncensored dataset can essentially build itself with little to no intervention by the user.

However some aspects of AIM conversations are not recorded in log files. One recent feature present in AIM is the ability to be notified when a user one is communicating with is in the process of typing a message. This feature has the potential

of clearing up ambiguities in turn taking that can present themselves in IM dialogue (Voida et al 2002:190). This feature does not have a representation in text so it cannot be clear when it affects an IM exchange. Additionally is cannot be made clear via logs whether such both parties are using an IM client that supports such a feature.

With a corpus this size, the first obstacle was to figure out a means of processing the data in a way that would most efficiently yield results. The log files for DeadAIM are encoded in HTML and are easily viewable within DeadAIM's own log browser, which allows for log viewing and limited searches, as well as most web browsers. Though easily readable from a web browser, it is very easy to ignore the significance of the timestamps printed on each line and in so doing, ignore the rhythm of the discourse. Unfortunately, the DeadAIM log browser was not designed with data mining in mind.

In order to facilitate data mining, a parser was written in the Perl programming language to extract useful information from Alex's logs. The first job of this parser was to reformat the DeadAIM logs into something that could be more easily mined. Much of the difficulty of writing such a log came in performing this task. There is no standard between IM clients for formatting logs. Logs are typically formatted with a particular log viewer in mind. In this case DeadAIM logs are rather difficult to mine. Though HTML tags are used in formatting, the code does not seem to conform to any HTML design standards and is often inconsistently used. Timestamps may or may not be tagged in the same way as usernames. The same kinds of text may be represented using a formatting scheme that may vary from file to file or even line to line. As a result, it has taken some time for an accurate parser to be written.

2.1.1 Corpus Annotation

Once formatting difficulties were dealt with, the next task was to annotate the text in such a manner that would make identifying patterns in conversation easier. One annotation was the insertion of a blank line between two turns that occur more than 60 seconds apart. This is for the purpose of visually making pauses, to be here on referred to as IM LULLS. Along with inserting additional space where a lull occurs, the duration of the lull is also displayed. A second feature of the parser identifies when a user makes three more turns in a row and displays the average time between those turns immediately under that sequence.

In addition, this parser also compiles statistics data on the conversations themselves. For each user Alex communicates with as well as for the corpus as whole, the total number of turns, lulls and words used is recorded as well as the average amount of time the passes between turns[1] and finally the average number of turns taken between lulls. Finally the body of each of each turn in the corpus was saved in separate file in order to better support additional data mining.

In order to better understand specialized vocabulary used the parser identified and saved single word turns in separate files grouped by user. This facilitates the identification of non-standard IM specific vocabulary or non-verbal utterances that may be more prevalent in single word turns than embedded within longer strings of text.

2.1.2 Frequency Analysis

After reviewing the single turn data a second parser was written using the output of the first. This parser was specifically designed with potential differences between

[1] Lulls are not included in the average time between turns.

single and multiword turns in mind. It functions by counting the frequency or each word[2] in the corpus. The first file the frequency of each word that appears in single utterance turns. The second list the frequency of each word that appears in multi utterance turns. Comparing these two lists can provide some basic insight on the ways in which specialized vocabulary is used.

In order to illustrate these data, the examples used will come from the output of the log parser. The figures used in this paper will include some metadata from the DeadAIM logs themselves as well as annotations made by the parser. The annotations that come from the parser exist to illustrate the presence of lulls and blocks. They will be visible between turns without the same metadata present in the turns themselves.

IM clients tend to represent conversation in different ways depending on the design aesthetic of the program and the preferences of the individual user. What is generally universal is the presence of a two paned window. The top pane displays all the messages sent in a conversation in chronological order. The bottom pane is where one is able to type new messages to be sent to the other participant and be displayed in the top pane. Font, color and even the means of identifying users in a conversation can vary widely.

For example, the DeadAIM client uses a representation that is rather similar to that of America Online's (AOL) own instant messaging software. Messages displayed in

[2] For the purpose of this parser, words are considered to be any string of text that is surrounded by spaces or comes at the beginning or end of a line. This means that the same word may be counted as a differently based on punctuations. For example, "Hey" and "Hey," would be considered the same because of the presence of a comma. The reason for doing this is that punctuation is often used to alter or create meaning in IM utterances. Some utterances such as emoticons can be entirely made up of punctuation markings. In order be properly represented that punctuation must be kept intact.

the top pane follow a format in which the sender's screenname is displayed followed by a timestamp and the message body. The screenname and timestamp data is typically bold and colored. The color depends on what end of the conversation the sender is on. Apple's iChat software takes an alternate approach in that it encases the messages body in a colored dialog bubble, which extends from an image called a buddy icon. Buddy icons are images that users choose to represent themselves online. Appendix A includes images of both types of IM clients.

When messages are sent, they are typed in the bottom pane then either the return key or a send button is pressed and the message is sent. While one is typing a message, the other user will not see what is being written until the message is sent. Recent versions of the AIM protocol allow a user to be notified when his or her conversation partner is in the process of typing a message as mentioned earlier.

It is also important to note that while messages are being written, new messages can still be received. Depending on the content of the message the participant may edit what he/she was in the process of typing before sending it, if it is sent at all. It isn't possible to know to what extent this may affect the affects discourse, since it isn't directly reflected in the corpus. It is important to keep this in mind when analyzing corpus data.

2.2 Results:

Analysis of this corpus has revealed many different phenomena, some were mentioned in the hypothesis and others were complete surprises.

One phenomena of IM communication that, when taking into account other forms of CMC, is not at all surprising to find is the medium's use of what Werry (1996) refers to as para-lingustic cues. These include but are not limited to emoticons and acronyms.

Many of theses para-linguistic cues come directly from web chat. What makes them interesting for IM is the way in which they are used.

The Oxford English Dictionary (2001) defines an emoticon as: "A representation of a facial expression formed by a short sequence of keyboard characters (usually to be viewed sideways) and used in electronic mail, etc., to convey the sender's feelings or intended tone." A web search can provide websites with lists of different emoticons and their meanings, some which are pages long. Though emoticons are present in IM conversation with incredible frequency (Hård af Segerstad, pp 169-170), the corpus doesn't seem to support a very wide variety of emoticons. Twenty-two appear more than ten times in the single word turn corpus and of those that appear, only sixteen are actually unique and not different forms of the same emoticon (See Table 1).

Emoticons used by frequency in Single word turns.			
2168	:-)	*31	:/
*933	:)	25	:0
376	:-P	24	8-)
354	:-(	*20	:D
*166	:(	16	=(
140	:P	15	;)
125	;-)	14	^_^
88	:-D	14	=P
65	=)	*13	(:
51	:-*	11	:'(
48	:-\	*10	:-/

Table 1: List of emoticons used more that five times along with frequency. Emoticons with stars next to the frequency carry the same meaning as a previous emoticon.

This could be due to the fact that emoticons in IM are often displayed graphically. Instead of being represented though different groupings of punctuation marks, a small image or SMILEY is displayed that represents the emoticon. AIM limits the number of smileys it supports to sixteen. Emoticons that don't fall within this list of sixteen are displayed as text. Emoticons that are supported are displayed in a pull-down list with the

AIM client itself, presenting an easy means for users new to AIM to become acquainted with the use of emoticons.

This corpus is exclusively made up of conversations made using the AOL Instant Messenger service. Other services may not have had similar restrictions in their support for smileys and thus may promote more creative and varied usage of emoticons.

Additionally, one could guess that because of the one-on-one nature of the medium, linguistic improvisation may require a level of transparency that may be lost in more complex emoticons. The most frequently used emoticon in this corpus was a simple smile (":-)"). The other frequently used emoticons were similarly transparent.

There seems to be a fairly common set of acronyms that are used in IM conversations. They tend to originate from Web chat environments. Only a few specific acronyms seem to be used in this corpus though they are used frequently. The acronyms lol (laughing out loud), ttyl (talk to you later) and brb (be right back) were the most prevalent acronyms in the single word per turn corpus (see Appendix B).

2.2.1 Sound-words

A third type of utterance that would be difficult to describe as a word but more a SOUND-WORD allows for the most creativity in IM expression. There are some sound-words that are found throughout the corpus and seem to be more or less standard. One example is the sound-word *hehe,* which represents laughter. Intensity is represented by reduplicating *he* or just *h.* Common variations include *hehehe* for something very funny and *heh* for something mildly amusing.

A very non-standard example may be the sound-word *waaaa* and variations related to it. This term and all the variations associated with it is used only fourteen times

in the corpus. This is a term that in this corpus only in conversations with Alex's friend Kevin. Each time it was used, only Kevin used it.

Alex (12:26:10 AM): get one witha djustable speeds
Jane (12:26:13 AM): yargh
Jane (12:26:18 AM): I don't like vibrators!
Example 1: yargh

A similar term is *yargh* which appears in the corpus six times. Jane is the only one who uses it.

Even when it is outside of an understood vocabulary set, such utterances share basic characteristics that make their significance clear. Typically such utterances are written in a way that allows them to be pronounced. The sound made when pronouncing such an utterance usually resembles a sound someone would make to represent a specific state. This could be a grunt, hum, giggle or in this case a whine. The intensity of the utterance almost always related to the amount of reduplication involved.

2.2.2 Phrase-words:

Kevin (1:00:02 AM): hey there
Kevin (1:00:13 AM): sorry, I was away
Alex (1:00:13 AM): I just watched Labyrinth
Alex (1:00:16 AM): 'sok.
Example 2: Example of phrase-words in an IM log

In addition to anonyms and emoticons one phenomenon that is also somewhat characteristic of some IM discourse is the use of a single term to represent whole sentences in one or two syllables. Like sound-words, PHRASE-WORDS have verbal equivalents. The above example the phrase-word *'sok* is used. This phrase-word is meant to represent the phrase *It is okay*, shortened in a way that would likely follow verbal conventions. The sounds represented in phrase-words are often more complex than those for sound words and are not spelled to represent intensity.

2.2.3 Single vs. Multi-word turns

	Multi-word Turns	Single-word Turns
Yeah	4175	4139
Hey	6649	3469
Lol	700	2975
Oh	4715	2095
:-)	988	2235
hehe	514	1891
Haha	779	1905
Corpus Total:	1,122,079	67,250

Appendix B includes a table listing the forty most frequently used word as found by the second parser. In the first column are the most frequent words in multi-word turns. In the second column are the most frequent single-word turns. When looking at the first column there isn't anything particularly noteworthy. The importance becomes clearer after comparing the first and second columns.

The list the most common words in single word turns is almost entirely made up of acronyms, emoticons, sound-words, phrase-words, conversation initiators and terminators such as *hi* or *bye* and acknowledgement words such as *oh*, *okay*, and *wow*. The above table compares the total frequencies of seven of the most frequent words in the single-word turn corpus with their total frequencies in the multi-word turn corpus. Of the seven listed only three were more frequently found in the multi-word turn corpus. The emoticon, acronym and sound-word were all most prevalent in the single-word turn corpus. Furthermore, when considering the size of the two corpora, each of these word made a up a considerably larger share of the single-word turn corpus than of the multi-word turn corpus.

2.2.4 Premature response:

Alex (2:18:46 PM): my dad got a wireless keyboard and mouse
Alex (2:18:47 PM): it's nie
Alex (2:18:49 PM): nice
Kevin (2:18:58 PM): out of laziness? geek factoR?
Alex (2:19:08 PM): yeah basically
Alex (2:19:10 PM): geek factor
Example 3: example of premature response

In this exchange Alex has responded to Kevin's question without fully reading what has been asked. This is an occurrence that has been known to happen in spoken conversation. This was somewhat unexpected due to the fact that there is a written record in IM conversations. Outside of a block, participants see statements as being wholly constructed.

2.2.5 Blocking:

Sarah (12:32:05 AM): :-(
Sarah (12:32:08 AM): err
Sarah (12:32:10 AM): boyfriend?
Sarah (12:32:12 AM): when'd that happen?
****4 turn series by Sarah ****
**** ave. time: 1.75 sec/turn ****
Alex (12:32:18 AM): I thought I told you?
Alex (12:32:25 AM): um... thanksgiving, actually.
Example 4: Block example

Blocking refers to a single user taking three or more consecutive turns. One purpose of which may be to express an idea that may take too long to type in one turn. Also, depending on the pace of the conversation blocking may be a means of expressing an idea while still keeping up with the other participant. That is to say, in a fast paced conversation, blocking becomes more useful because it means the conversation will not slow down while one user is typing an exceptionally long message.

Blocking in certain circumstances could possibly also be seen as a means of conversational control. Within an argument one may block in order to fit in one's argument before the other participant is able to respond. These adversarial blocks are often have low average time between turns. In the example below Alex is blocking but is still interrupted by Kevin and then re-blocks in response.

Alex (12:28:06 AM): You are making me really angry now.
Alex (12:28:11 AM): I'm not going to play these games with you.
Alex (12:28:14 AM): Either you believe what i say or you don't.
****4 turn series by Alex ****
**** ave. time: 3.75 sec/turn ****
Kevin (12:28:15 AM): games?
Kevin (12:28:24 AM): it's not like we're in a romantic comedy
Alex (12:28:24 AM): take it or leave it.
Alex (12:28:28 AM): We're not.
Alex (12:28:39 AM): but I'm tired of the shit.
****3 turn series by Alex ****
**** ave. time: 5 sec/turn ****
Example 5

2.2.6 IM Lull

Steve (7:18:58 PM): if you see him, casualy mention the meeting in conversation, but don't direc thte comment towards him
[1 minute 42 sec pause]
Alex (7:20:40 PM): lol
Example 6: Lull example

One could consider timing of dialogue one of the most unique aspects of IM. Turn taking can occur sometimes very quickly and other times very slowly, with IM lulls, extended breaks in dialogue, sometimes lasting minutes. It is not uncommon for an IM conversation to come to a complete standstill for several minutes and then continue without any acknowledgment of a lull in conversation.

The multi-user dynamics (Werry 1996:53) of the other widely popular form of synchronous or near-synchronous CMC, web chat, would not tolerate a lax attitude

toward participation in dialogue. A user who does not keep up with conversation may find himself no longer a participant. Another user would likely fill the missing space with his or her own comments, possibly displacing the participant who hesitates to respond. Similarly a pause like in the example above would simply be considered rude in spoken conversation.

Alex (10:56:09 PM): yeah
Alex (10:56:12 PM): :-)
Keisha (10:56:44 PM): but i can also see how we are not helpful in certain ways because we are blase about it
Keisha (10:56:56 PM): on the other hand, if she wanted to vent or whatever, we can clearly all relate
Alex (10:57:02 PM): yeah
[5 minute 10 second lull]
Keisha (11:02:12 PM): i'm thinking it's bad that i miss swat so much
Keisha (11:02:15 PM): that had nothing to do with anything
Alex (11:02:19 PM): :-)
Alex (11:02:22 PM): it's funny

Example 7: Transitional lull

When studying the corpus, it seems that the extent to which IM lulls are tolerated depends on the user though they usually are. Appendix C includes summary data for some of Alex's most frequent conversation partners as well as for the corpus a whole. Includes is the number of lulls that occur with that user as well as the average number of turns between such lulls. Though most users don't significantly diverge from the corpus average, some users can have fairly divergent statistics. For example, in Alex's conversations with Steve, there is a lull for every 5.61 turns and the average time between turns is 11.66 seconds. However, in Alex's conversations with Jane 7.60 turns are taken on average between lulls and the average time between turns is only 9.71 seconds.

Amongst lulls that occur, there seems to be two different types of IM lulls. The first kind is transitional in nature. It often occurs when the subject of an IM conversation is in the process of changing. When these lulls occur within a conversation, they often

appear fairly regularly throughout the conversation. These lulls tend to establish a pace to dialogues. One may be able to consider them longer versions of pauses in spoken conversation that may only last a few seconds.

Alex (1:43:15 AM): You'll be here, no?
Steve (1:43:45 AM): in the Spring? yeah
Alex (1:44:14 AM): ok
[10 minute 10 second lull]
Alex (1:54:24 AM): I wrote you down
Alex (1:54:27 AM): on my triplicate form
Steve (1:54:32 AM): cool
Steve (1:54:45 AM): I'll make sure to find you a good room
Steve (1:54:49 AM): brb
Alex (1:54:49 AM): yay
Alex (1:54:50 AM): :-)
[16 minute, 46 second lull]
Steve (2:11:26 AM): near all the hot guys
Alex (2:11:34 AM): yes
Alex (2:11:39 AM): who will walk naked from the shower
Steve (2:11:53 AM): right past your door
Polexa (2:12:12 AM): and do a dance
Steve (2:12:20 AM): hehe
Example 8: Both a lull and an expected pause within the conversation

A second type of pause is similar to the example in Example 6. They often take the form of one participant waiting for a response from the other. In the above example, Steve makes a joke and Alex eventually laughs at (lol = "laugh out loud"). One could assume that these lulls are more directly linked to the amount of attention a partner is paying to a conversation. There are many different ways in which an IM participant can be distracted during a conversation. One participant could be on the phone, doing work or even participating in another conversation.

Sometimes a user will alert the other participant of a coming absence, typically through the use of the *brb* (be right back) acronym. However the presence of a long pause does not mean that lulls will not still exist in the same conversation. In Example 5, a lull occurs while Alex and Steve are discussing something. Less than a minute after the first

lull ends, Steve announces that he will be right back and a longer pause follows Alex's response to his statement.

The first pause was certainly long enough to warrant some sort of warning but was more or less unacknowledged. This might be because brb refers to some type of unavailability. Steve signals inability to participate in the conversation when he types brb. The fact that it wasn't typed before the beginning lull implies that both parties were in fact available but just not sending any messages,

Steve (3:14:19 PM): I really like London
Steve (3:14:27 PM): and Porto was beautiful
[25 minute 30 second lull]
Steve (3:39:57 PM): it's getting late and I have ashit load of homework to do ttyl
Alex (3:40:23 PM): vbye!
Example 9: lull before the end of a conversation

One explanation for IM lulls may originate in one of the aspects of IM communication that people find appealing. IM conversations are often rooted within a single window. As long as that window is open, the conversation is still happening. System messages display an alert within the IM window when one has either signed off or closed the IM conversation in some way. Sometimes this happens without statement and sometimes some type of closing is made as Example 6.

Conclusion

This paper initially sought only to explore conversation flow in instant messaging. The hypothesis was that the personal dynamics of IM conversations would spawn linguistic phenomena would differentiate it from other forms of CMC, particularly Internet Chat. It was also hypothesized that it would be closer to speech than other forms of CMC.

It was also assumed that IM vocabulary itself wouldn't figure nearly as prominently in the results as they actually did, that since IM is primarily one-on-one, much of the specialized vocabulary of public IRC channels and other internet communities wouldn't be present in IM in any new ways.

To an extent this was true. Outside of a handful of acronyms there did not seem to be any special terms in that only existed in the IM corpus and could not carry a meaning outside of that medium. Since this is not a direct comparison to Internet Chat phenomena, it can be argued that both Phrase-words and Sound-words could exist or even have originated in some other type of CMC. What is important to note is, though it may not be obvious at first, the Sound-words, Phrase-words and emoticons used in IM are very transparent. With the exception of emoticons and acronyms all one needs to do to is think of how an unfamiliar utterance would sound to understand that it may be a grunt or a giggle. This is because instead of special words IM has noises derived from speech and smiles derived from smiles and this brings it closer to speech.

The phenomena that are far less likely to be seen in other types of CMC are Blocking and IM Lulls, which are both connected to the structure of IM. Lulls in particular not very likely to be very common in other forms of synchronous or near synchronous CMC due to fact that there is a sense of competition in large chat environments to be able to participate (Werry 1996:53) that would make a lull seem more like a sign of conversation death than a simple pause. Similarly, the more participants that are engaged in a conversation, the harder it would be to successfully block.

Blocks however do connect to spoken discourse despite the lack of a direct mapping. In spoken discourse, statements are heard as they are being made as opposed to

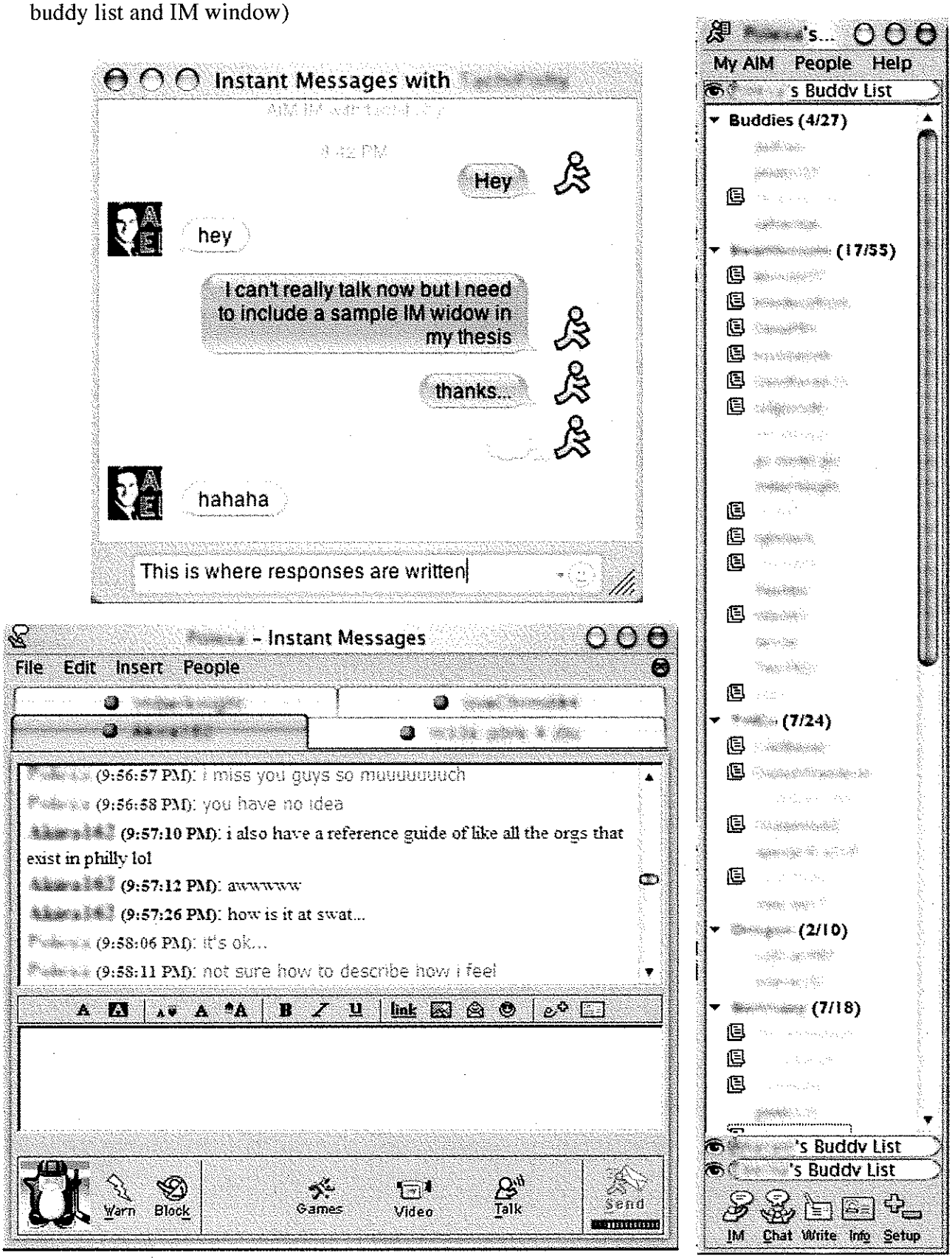
IM where messages are viewable only when they are sent. Though Blocks as an action do not have a particular spoken equivalent some blocks mimic spoken dynamics. Blocks are ways of allowing one to let his or her participant aware of what is being said as it is being said in the event that a thought it being conveyed that would take too long to write. In this sense Blocks manage to connect IM and speech as much as Sound-words and Phrase-words do.

In conclusion, IM is distinct from similar forms of CMC by allowing a more direct mapping of spoken discourse to a written medium.

Though the results of this paper seem to fit within the general idea of the hypothesis, they spawn more questions. Since much of the paper does seem to compare IM and internet Chat, it would be useful to actually perform a definitive comparison between the two, looking for the feature that are unique to each medium.

It would also be useful to examine a more varied corpus. Looking at a single user's logs had many benefits but how do these same phenomena exist when not looking at conversations that mainly take place between college students? To what extent do linguistic markers of race and class present themselves within IM conversations? Neither the race nor class of any of the participants in these conversations was known or recorded. If it were, more insights might be shed on what types of cues are used by members of what communities. Hopefully this will be addressed in future paper.

Appendix A: Sample IM Interfaces (clockwise from top-left Apple iChat DeadAIM buddy list and IM window)



Appendix B: Most commonly used words when used as part of a sentence and when used alone

Multi-word Turns		Single-word Turns	
29828	to	3717	yeah
26956	the	3081	hey
22982	i	2936	lol
21572	I	2168	:-)
20566	you	1598	hehe
19570	a	1501	ok
16435	and	1433	haha
14305	it	1385	hi
12612	of	1266	heh
11660	is	1229	oh
11633	that	961	hm
11329	in	933	:)
9723	have	855	cool
8093	for	787	Hey
7953	was	758	no
7893	but	748	ah
7723	are	574	?
7401	so	567	bye
7321	my	530	yup
7302	not	485	really?
7052	on	466	um
6833	be	453	ttyl
6653	just	442	wow
6536	do	440	nod
5889	like	434	yes
5871	it's	383	what?
5753	with	376	:-P
5731	at	364	okay
5627	what	361	why?
5474	me	354	:-(
5168	about	344	nope
5041	don't	343	thanks
5036	think	327	well
4615	i'm	325	night
4543	this	313	sorry
4526	I'm	305	brb
4486	how	295	sigh
4353	he	279	rofl
4148	know	266	yeah.
4142	or	249	yay

Appendix C: Summary data for conversations with the users with whom Alex most frequently converses.

Summary data for corpus:	
Total Number of Turns:	206,905
Total Number of Words:	1,189,134
Total Number of Lulls:	32,112
Total Number of Blocks:	22,046
Average Turn Length:	5.75
Average time between turns:	9.44
Average time between lulls:	6.44
Summary data for Kevin:	
Total Number of Turns:	16,520
Total Number of Words:	84,452
Total Number of Lulls:	2,347
Total Number of Blocks:	1,886
Average Turn Length:	5.11
Average time between turns:	8.94
Average turns between lulls:	7.04
Summary data for Jane:	
Total Number of Turns:	14,439
Total Number of Words:	90,522
Total Number of Lulls:	1,899
Total Number of Blocks:	1,857
Average Turn Length:	6.27
Average time between turns:	9.71
Average turns between lulls:	7.60
Summary data for Paul:	
Total Number of Turns:	15,369
Total Number of Words:	82,352
Total Number of Lulls:	2,283
Total Number of Blocks:	1,469
Average Turn Length:	5.36
Average time between turns:	9.18
Average turns between lulls:	6.73
Summary data for Steve:	
Total Number of Turns:	11,548
Total Number of Words:	70,114
Total Number of Lulls:	2,058
Total Number of Blocks:	1,176
Average Turn Length:	6.07
Average time between turns:	11.66
Average turns between lulls:	5.61

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