

To Send or Not to Send: Turn Construction in Computer-Mediated Chat

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1. Introduction

As new communication technologies have become increasingly integrated into our everyday lives, researchers have begun to explore the various ways we use these technologies for social interaction. Much of this scholarly focus has been on the kinds of activities that people engage in on the Internet, including examinations of community building (Jones, 1998; Rheingold, 2000), identity construction and performance (Bechar-Israeli, 1995; Nakamura, 2002), and social networks (Wellman et al., 1996). This work is often characterized by ethnographies of specific online fora, such as chat rooms, electronic discussion lists, bulletin boards, and Multi-User Domains. However, recently researchers have begun to look beyond the *content* of online interactions, into the *structure* of computer-mediated communication (CMC), in order to describe how people make sense of conversation in this new medium.

One emerging approach to this problem is to employ methods derived from Conversation Analysis (CA). Although the interactions that take place through computer networks are predominantly textual rather than oral, the research thus far indicates that participants in electronic communication fora rely to some degree on their experiences from spoken conversation when adapting to this new environment. Therefore, it is logical that methods derived from those designed to study spoken conversation would be useful to study participants' strategies for achieving intersubjectivity in online communication situations. Researchers have used CA-derived methods to examine phenomena such as interaction management and coherence (Herring, 1999; Rintel & Pittam, 1997), turn-taking (Garcia & Jacobs, 1998, 1999; Panyametheekul & Herring, 2003), repair (Schonfeldt & Golato, 2003) and openings and closings (ten Have, 2000; Rintel, Mulholland, & Pittam, 2001). However, most of this research has been conducted by analyzing the end result of chat interactions, i.e. the final chat logs or transcripts. Thus, the conclusions that are drawn are based largely on the analyst's inferences of how interaction in the chat unfolded. A more accurate CA analysis can only be undertaken if each chat participant's actions are available to the researcher. To my knowledge, this type of analysis, undertaken through video recording each participant's computer screen, has only been done by Garcia and Jacobs. This paper will take the same approach in order to add to this line of research by investigating the turn construction process in a computer-mediated chat environment. I will begin by briefly summarizing the research on turn taking in face-to-

face conversation, and then explore how the computer chat environment alters the turn construction and turn taking processes. Finally, I will present some results from a pilot study on virtual teams to illustrate some phenomena that arise when constructing turns in computer chat. It should be stated at the outset that this study was exploratory, and that I will end with more questions than hard conclusions.

2. Turn Taking and Turn Construction in Face-to-Face Conversation

Sacks, Schegloff and Jefferson (1974) provided the foundation for our understanding of how turns are ordered in interaction. Sacks et al. noted that overwhelmingly in spoken conversation, one party talks at a time, and speaker transitions with no gap or only brief overlap are common. Turns themselves may be constructed from units of varying sizes, and there is no set pattern or preference to how long or short a turn should be. Sacks et al. also laid out the pattern by which speakers are selected in conversation. Generally speaking, the default is for the current speaker to select the next one, but failing that other speakers may self-select, or the current speaker may continue. It is important to remember that oral conversation occurs in real time and access to turns is immediate. Listeners in conversation are also analysts who monitor a speaker's talk as it unfolds for transition relevance points, points in the conversation where a turn could possibly end and speaker transition occur (Schegloff, 1996). Evidence for this claim is provided by analysis of overlap in spoken conversation; more often than not the overlap occurs as a consequence of a listener projecting the possible end of a turn by the speaker (Schegloff, 2000). Finally, because turns can be constructed from multiple turn-construction units, compound turns provide the opportunity for the joint construction of a turn between a speaker and a recipient (Lerner, 1996). Although this is just a brief overview of the most basic aspects of the turn taking system, they are the ones most relevant to an examination of turn taking in CMC.

3. Turn Taking in Quasi-Synchronous Environments: Computer Chat

The communication interfaces referred to as computer-mediated chat, or more usually just chat, can be understood as a quasi-synchronous communication environment (Garcia & Jacobs, 1999). What this means is that while all participants are logged in to the chat room at the same time, turns are constructed in isolation from other participants; they only become accessible once posted to the main chat. Thus there is a semblance of synchronicity, but it is not the same immediate access to turns under construction as is characteristic of face-to-face interaction. This is the most obvious and important distinction between chat and spoken interaction, and it is the foundation for a number of other differences. Thus, for example, in computer chat, turn construction and turn taking are really two separate processes; turn construction begins when a participant starts to type and continues until "enter" or "send" is pressed. At that point, the message is sent to the server and posted as a complete unit to the main chat area. It is only when an individual participant's message appears in the window and is thereby accessible to the other participants that a turn has been taken. The computer chat environment reverses the traditional order: first a turn is constructed, and then the floor is claimed. The nature of computer chat means that turns arrive complete, and thus the transition relevance point occurs once a post appears in the chat window. There is no opportunity for overlap in the traditional sense, and no opportunity for recipients to project the end of a turn or to join in the turn construction process.

In addition to these differences, the computer environment also disrupts the one speaker at-a-time rule, since it is possible for any participant to begin constructing a turn at any time. However, there is a *semblance* of one speaker at-a-time, because the server will only post messages one at a time, in the exact order they were received. Herring (1999) notes that in CMC there are frequent violations of the principle of no gap/brief overlap between turns; pauses are common and problematic because the sender has no access to the recipient's actions until a reply is posted, and therefore must guess if there is a problem, and if the problem is recipient-based (i.e. slow typing, away from computer) or system-based (i.e. a network lag) (Rintel, Pittam, & Mulholland, 2003). Additionally, in chat rooms with a large number of participants, the sequentiality of turns is frequently disrupted, and there may be many irrelevant posts between two parts of an adjacency pair. Finally, the fact that speakers can self-select at any time and cannot monitor the turn construction efforts of others can result in turns which overlap in meaning or in turns which appear to be adjacent but in fact are not. Given the significant differences between turn taking options in oral and computer conversation, I will now turn to some data from computer chat in order to examine what choices are made given the technological constraints and affordances of the medium.

4. Data

The data for this study was drawn from a pilot study on virtual team interaction. The participants are a group of six undergraduate students enrolled in a team communication course. Each team works together on a multi-part, semester-long project, and one of the requirements is that each team must hold a minimum of four meetings using some form of communication technology (usually computers) to mediate their interaction. In this instance, the students were seated together in a conference room, each with a laptop with wireless Internet access (see Figure 1). They communicated using the Virtual Classroom feature of the Blackboard course management software system¹. The Virtual Classroom interface includes a chat feature, as well as an electronic whiteboard for notes, drawings, and Internet browsing. Data were gathered from three sources. Each student's computer had software running which captured the screen activity as a movie file, giving me access to each person's turn construction process as well as other screen activities. Additionally, two video cameras were set up in the room to capture the students' physical activities and any talk. Finally, the end-result log of the chat was saved for reference purposes.

(1) Figure 1 Meeting Room Layout



For the analysis, I chose to focus on how one member of the team, the person identified in the transcript as KEM18 (far right in Figure 1), constructed her turns. It is

¹ <http://www.blackboard.com>

useful to look at one participant at a time because, as previously noted, in computer chat individual participants do not have access to the turn construction process of others, and they have only the chat window to react to. This particular participant was chosen for several reasons, including the fact that she was the most prolific poster, and because with her posts she performed number of roles that were interesting from a team communication standpoint, including gatekeeping and leadership functions.

In order to analyze KEM18's turn construction process, her screen recording was synchronized with the video recording, and her screen actions were transcribed moment-by-moment. The transcript includes three columns (see example one below); the leftmost column shows the time in minutes and seconds that the action occurred. The middle column represents KEM18's message entry window, which is accessible only to her. Each character is displayed exactly as it was typed; deleted characters are indicated by the use of double strikethrough (~~h~~), and the character ↵ is used to indicate the action of pressing "enter" and sending the message to the server. Pauses in typing, measured in tenths of a second, are indicated by numbers in parentheses. Analyst's comments are enclosed within double parentheses. The right column displays the posts as they appeared in the main chat window, which is accessible to all participants. Pauses between posts are also indicated with numbers in parentheses.

5. Analysis

5.1. False Adjacency Pairs

One of the most common phenomena that arises from the technological constraints of computer chat is what I have called a false adjacency pair (cf. phantom adjacency pair, Garcia & Jacobs, 1999). The false adjacency pair results from posts that are displayed in sequential order by the computer, but were begun by their respective authors independently of each other. Because of the serendipitous nature of chat servers, two posts appear to relate to each other in an adjacency pair; however the analysis of their creation shows this is a false relationship.

This first example occurs early in the meeting. The team has been having a discussion about whether to use Word or PowerPoint for one part of their assignment. This debate gets interrupted by some technical problems, which have to be resolved by oral discussion. When the talk concludes, KEM18 resumes typing. As we can see in the transcript below, nothing has changed in the main chat window during the oral digression, and there are no new posts when KEM18 begins constructing her turn.

(2) KEM18-1A1

	KEM18	
Time	message entry	Chat Window
03:33		KEM18 > which do you prefer and why?
03:34		(41.0) ((talk outside chat))

→ 04:10	they bot	
04:11	h need	
04:12	(0.7) m	
04:13	ore inf	

	KEM18	
	Time	message entry
		Chat Window
→	04:14	SES22 > what is the advantage to a ppt and to a word
	04:14	
→	04:14	KEM18 > they both need more info

KEM18 last posted a question to the group at 3:33, and since no one has answered it in the intervening time, KEM18 takes the opportunity to continue as first speaker, and begins to type an elaboration at 4:10. However, as she types the last letter of her turn at 4:14, SES22 posts a new question, and the timing is such that KEM18's turn gets posted to the chat window within the same second, but just after, SES22's post. Thus the chat window, which represents the conversational "space", displays the following exchange:

KEM18 > which do you prefer and why?
SES22 > what is the advantage to a ppt and to a word
KEM18 > they both need more info

The chat window gives no indication of the amount of time that has passed between each post, and the serendipity of SES22's post gives the reader the sense that, although it does not answer the question completely, "they both need more info" functions as a response from KEM18 to SES22's question. Thus, a false adjacency pair is created. What is interesting is that in this and in the other cases of false adjacency pairs in this data set, because the meanings of each pair-part are compatible, KEM18 does not treat the phenomenon as problematic, and she makes no attempt to indicate that her post was not meant to respond to the sequentially prior post.

In the next example, the team has just come to the conclusion that they need one more visual aid for their presentation, and after about a nine second pause where no new messages are posted to the chat window, KEM18 begins to type the line posted at 20:48; she has made a suggestion that they use something called an "ELM."

(3) KEM18-2B2

	Time	KEM18 message entry	Chat Window
	20:48		KEM18 > what about the elm
	(6.0)		
→	20:54	from the l	
→	20:55	i	SES22 > what elm?
→	20:55	t	JLC21> what about it
	20:56	review	
	20:57	?↵	CLC24 > printed words don't count as a visual,
→	20:58		KEM18 > from the lit review?
	20:59		TSR23> want to try and illustrate that out?
	21:00	no... (1.2)	
	21:02	we could make a	

One characteristic of KEM18's turn construction process is that she often seems to still be oriented to spoken conversation's low tolerance for long pauses. She waits only six seconds from the time she sends her post at 20:48 to the time she begins typing again.

While six seconds is quite long for a gap in spoken conversation, in terms of computer chat it is not very long at all, because recipients must read and then compose a full response before it appears. However, KEM18 seems to have judged that the silence indicates a need for clarification or more information, and she begins to provide this at 20:54. However, just as she is about to complete her turn, two different participants (SES22 and JLC21) post responses to her question, both coming in at 20:55. The timing here is too swift for KEM18 to notice and change her turn, and she completes her message and hits "send" at 20:57, at the same time that an irrelevant post from CLC24 (referring to an earlier post) appears in the chat window. The end result is that, although they are sequentially separated, KEM18's post at 20:58 has the force of a reply to both SES22 and JLC21's questions, thus once again creating a false adjacency pair. Because KEM18 seems to have correctly predicted the need for more information, the false relationship is again let pass unproblematically.

Although the false adjacency pairs in this data set do not pose problems for the participants' achievement of intersubjective understanding, the possibility for misunderstanding in such cases does exist. In the cases described above, KEM18 has accurately predicted (intentionally or unintentionally) the content of future posts, and thus problems in understanding were avoided. However, there is no guarantee that this will happen, and it is far more likely that with more participants in the chat, there will be more misses than hits. To more fully understand when and how these false adjacency pairs are created, and how they are dealt with by participants, we need to collect data that show the turn construction process, because this phenomenon cannot be accurately analyzed from chat transcripts themselves.

5.2. *Conversational Monitoring and Self-Repair*

As argued by Schegloff (1992), repair phenomena can be understood as providing evidence for the achievement of intersubjectivity in interaction. The process of repair allows participants in an interaction to monitor each other for understanding. In oral conversation, repair can be initiated by the speaker during the course of an unfolding turn, in a subsequent turn, or by the recipient in a subsequent turn. However, in computer chat true interactionally relevant repair can only be initiated (by sender or recipient) in subsequent turns, once again because the turn under construction is not available to recipients (Schonfeldt & Golato, 2003). However, contrary to what Schonfeldt and Golato argue, I would assert that the reformulation choices made by chat participants are analytically interesting, not as instances of self-repair, but rather as indicators of conversational monitoring. By examining how chat participants reformulate turns we can gain understanding into how they assign relevancy to posts that appear in the chat window while the turn construction process is still underway. In computer chat there is a competition for turns that is not present in most face-to-face encounters; in highly populated chat rooms it is especially difficult to ensure that your post will be placed near, much less adjacent to, the post you are replying to. Thus decisions about how long to make a post and how much time to take to construct it have a direct effect on how much floor time a participant can gain. If a participant continually reformulates a post in response to new messages in the chat window, it is possible that he or she may never actually get to post at all.

Because the data in this study represent a somewhat different scenario than most Internet chat rooms, with only six participants in the chat and a highly task-focused discussion, it might be reasonable to expect a higher degree of conversational monitoring

and corresponding reformulation of turns in progress. Interestingly, however, my analysis of KEM18's interaction revealed very few instances of turn reformulation that was attributable to conversational monitoring. I will now turn to two examples that illustrate slightly different instances of conversational monitoring.

Excerpt four takes place about one and one-half minutes after excerpt two (above). The team is still debating the use of PowerPoint or Word, and at 5:04, KEM18 asks the group to "please give reasons" for their preferences. Following a 16 second pause during which no new messages are posted, SES22 offers a vote for PowerPoint ("the ppt should be our slide show"), which is followed three seconds later by a post from TSR23, who says, "i dont like word, i think its not original and mundane...i think the ppt gives our pres. something new". Again, after a pause that is short by chat standards (11 seconds), KEM18 begins typing at 5:34.

(4) KEM18-1A3

	Time	KEM18 message entry	Chat Window
	05:34	ever	
	05:35	yon	
	05:35	e (0.7)	
	05:35	eee	SES22 > because it looks more finished as a product
→	05:36	e (0.3) ↵	
	05:37	(1.5)	
		yone	
→	05:38	(1.6)	
	05:39	needs to	
→	05:40	contribuet,	
	05:40	tete	
	05:42		
	05:45		
	05:46		LLO20 > i feel in word you can read it easier and it makes it look different from our pp
	05:46	, p	
	05:47	leas	
	05:48	e↵	
	05:48		KEM18 > everyone needs to contribute, please

As noted earlier, one of the characteristics that made KEM18 interesting to study was that she tends to do gatekeeping, monitoring the flow of the discussion and attempting to elicit contributions from all members. In example four we see that she has judged the participation from two of the five other team members to be inadequate, showing that she is actively monitoring the conversation as a whole. She types "everyone" and, as she finishes the word, SES22's post comes in at 5:35. From the video recording we see KEM18 pause her typing and move her head in closer to the computer screen to read SES22's post. At 5:36, she begins to delete her turn, but then after a short pause she retypes what she has deleted, and then pauses again for a little less than two seconds before continuing what we can guess was her original turn. During this time, no other new posts appear in the chat window. She is almost finished when, at 5:46, LLO20's post appears, but KEM does not acknowledge it by pausing, and it is possible that she does not see it at all. KEM18 finishes and sends her post, which arrives in the chat window at 5:48.

In this example, KEM18 displays an orientation to the possibility that her original turn might be made moot, as she reacts to SES22's post by beginning to delete her turn. However, possibly because more posts were not quickly forthcoming, she makes the decision to not to reformulate, but instead to continue her turn. That one more person does, in fact, contribute in the meantime does not appear to be problematic to KEM18 or the other participants, because there are still two team members who have yet to weigh in. In this instance we see that chat participants can and sometimes do monitor the ongoing conversation for turn relevancy, but that this monitoring may not lead them to reformulate their turns. In the next example we will look at what happens when a participant does decide to change a turn in response to other posts.

The final example is a continuation of the same exchange in example four, beginning approximately 20 seconds later.

(5) KEM18-1A4

	KEM18	Chat Window
Time	message entry	
06:08		TSR23 > and easy to follow b/c it is similar to our ppt (6.0)
06:13	my	
→ 06:14	hon	
06:14		SES22 > i agree
06:14	neh	
→ 06:14	(3 . 2)	
06:15		CLC24 > yes
→ 06:18	my why	
06:19	?	
06:20	↵	
06:20		KEM18 > why?

At 6:13, KEM18 begins to type "my hon", which, in the context of the discussion, can be read as being the beginning of a post offering her opinion on the matter at hand. However, almost immediately after typing "hon" she begins to delete it, and as she does so, SES22's post appears in the chat window. However, because her right hand had moved to the delete key moments before his post appeared, we can infer that her decision to delete "hon" was not related. KEM18 does not continue to delete her turn, but instead leans her head in closer to the screen moments before CLC24's post arrives at 6:15. She returns her right hand to the keyboard, possibly to continue typing after "my", and at this point we might argue that she still intends to complete a version of the turn under construction. However, at 6:17 KEM18 moves her right hand back to the delete key and at 6:18 she deletes "my" and types "why?", which gets posted at 6:20 as her next turn and will be shown to be in direct response to SES22 and CLC24. Therefore, we see that conversational monitoring has in this case led KEM18 to change her previously planned turn completely; rather than adding her opinion to the discussion she requests clarification on the opinions of two other team members. Interestingly, this reformulation also leads to a certain amount of ambiguity. At 6:26 TSR23 posts "why what?" to which KEM18 replies "why do the boys agree?" (the boys being SES22 and CLC24).

As previously noted, instances of direct reformulation based on conversational monitoring were rare in this data set. Indeed, in at least one case, KEM18's decisions not

to reformulate her turns led to several turns which parroted posts by other participants. KEM18's general tendency was to choose to continue with her previously planned turns even when new posts have appeared in the chat, and clarify any resulting misunderstandings in later turns. While this type of orientation is understandable in a large chat room where there is competition to gain the floor, it is less clear why she chooses to construct her turns this way in this environment. It may be that while monitoring unfolding turns is natural and in fact necessary in spoken conversation, there is something about the computer chat interface and the activity of typing that makes such monitoring more burdensome, even for skilled touch typists such as KEM18. Future research on the turn construction process can be expected to reveal more about how and when monitoring leads to reformulation of turns.

6. Conclusion

In this paper, I have looked at some phenomena arising from the turn construction process in quasi-synchronous computer chat. The technical constraints of the computer setting result in a separation and reversal of the turn construction and turn taking processes. Chat participants construct their turns in isolation, and have a limited ability to adapt their turns-in-progress to the unfolding chat conversation. By focusing on the turn construction of one member of a six-person team, I was able to examine the ways in which conversational monitoring can take place, and show what happens when turns are not reconstructed in response to the chat. One additional phenomenon that was discussed was the false adjacency pair, where two unrelated turns are placed by the server in close proximity, causing them to appear to be related.

Although the findings in this study are tentative and are in no way meant to be generalized to other computer chat situations, the study does make an important contribution to the method of studying computer chat. By recording data from participants' computer screens and physical locations, we as analysts have access to the complete record of the interaction. This is in sharp contrast to studying chat by the end transcripts alone, which, although they can give hints, can never provide conclusive evidence as to what process participants undergo *before* they press "send". Future research on computer chat should focus on collecting data in this manner, and developing transcription techniques that can integrate participants' individual turn construction processes with the resulting chat log, with the goal of developing a language to talk about what is an emerging system of turn taking in CMC.

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