LOL, what a tangled Web we weave: Strategies for coherence in instant messaging discourse

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1. Introduction¹

Instant messaging (IM), a form of quasi-synchronous communication over the Internet, is a popular medium, with over 69 million reported users in the US, and over 82 million in Europe (Mondok, 2006). In classification of online discourse genres, IM is most clearly related to Internet chat, in which multiple users send messages in real time to a central location, where they are displayed for all those 'logged in' to see. IM, however, differs in several important ways from the chatroom: IM is generally bilateral, involving no more than two users, while chatrooms can have any number of conversational participants engaged in conversation, and secondly, IM is often conducted between people who are friends or acquaintances in real life, or long-term online contacts, whereas public chatrooms are, generally speaking, anonymous, featuring a transient cast of temporary and infrequent visitors along with chatroom regulars.²

One of the most striking features of computer-mediated communication (CMC) more generally is what Herring (1999) has called "interactional incoherence" (p. 1). CMC is portrayed as "fragmented, agrammatical, and interactionally disjointed" (Herring, 1999, p. 1), and while this incoherence is the result of multiple factors, two come immediately to the foreground: lack of paralinguistic signals (such as facial expressions, gestures, and intonation), and the quasi-synchronous (rather than fully synchronous) nature of the technology. This conversational incoherence is characterized by overlap³ of adjacent exchanges and the simultaneous existence of multiple topics in chat discourse (Herring,

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² For a more in-depth analysis of chatroom ecology, on the other hand, see Paolillo's (2001) social network treatment.

³ I refer to this overlap as 'tangling' to prevent terminological confusion with the term 'overlap' as it is used in the conversation-analytic framework.

1999, p. 3). It should be noted from the outset that the notion of conversational topic is notoriously slippery (Schegloff, 1990; Clark, 1996). For this reason, in Section 2, I progress from the notion of topic to the concept of the adjacency pair (Schegloff, 1990), which more reliably captures textual coherence in IM, allowing for more precise characterization of interaction in the genre.

This paper is primarily concerned with the strategies IM users employ in order to maintain comprehensibility when incoherence occurs due to the limitations of the medium. Through an adjacency pair-based analysis of data collected from ten 20-minute IM conversations between interlocutors of varying experience with the IM medium as well as varying levels of interpersonal familiarity, this study will evaluate claims regarding the conversational coherence of IM, identify and evaluate strategies for mitigating incoherence, and discover the effects of IM experience and interpersonal familiarity on the organization of this medium.

2. Previous Work

In this section, I present previous work on topic-tracking in CMC, discuss the (often problematic) notion of topic as it is treated in the field of conversation analysis, and discuss the alternative to topic used in this study.

2.1. Turn-taking and Topic-Tracking in CMC

Herring (1999), in a survey of a number of CMC studies, discusses topic transition and turn-taking within the context of interactional incoherence, finding CMC media to be subject to "processes of turn-taking and topic maintenance [being] subject to disruption and breakdown" (1999, pp. 1-2). Herring finds that this incoherence is commonly attributed to two primary factors: the non-simultaneous nature of CMC, which involves the lack of paralinguistic signals and the absence of instant feedback, and disrupted turn adjacency, which involves the context-ignorant organization of messages by the system. Herring (1999) further notes that:

...spoken conversation, especially dyadic interaction, exhibits a high degree of turn adjacency; that is, relevant responses tend to occur temporally adjacent to initiating turns. [...] Such "adjacency pairs" (and adjacency sequences) structure conversation and facilitate referential coherence. Conversely, when adjacency is disrupted, users may experience difficulty in tracking sequential exchanges, and interaction may become fragmented as a result. (p. 2)

After characterizing the disrupted adjacency of CMC at a turn-by-turn level, Herring (1999) frames the problem engaged in the present study succinctly:

The problem of keeping track of topically-related "threads", or sequences of exchanges on a particular topic, is similar to that confronted by the user in tracking single exchanges, only more cognitively challenging. Multiple threads may become entangled, and individual threads are rarely free of disruption by irrelevant messages. In addition, keeping track of longer sequences places a greater burden on users' memories. Perhaps for these reasons, topics decay quickly in computer-mediated

discussions, hastened along by off-topic digressions and tangential observations which move the discussion away from its original focus. (p. 6)

Relying on the notion of topic when addressing the organization of conversation is problematic for several reasons discussed in Section 2.2. However, given an alternative to topic, claims like the preceding one can be reliably evaluated.

After defining incoherence in terms of topic decay and disrupted turn adjacency, Herring (1999) concludes that while CMC is often incoherent, its users employ numerous strategies to offset this incoherence, and additionally exploit instances of incoherence for playful exchanges. In the present study, I continue this line of research in the specific CMC genre of IM by evaluating the relationship between coherence and comprehensibility, thereby identifying strategies for coherence applicable to IM.

2.2. (Re)defining Topic: The Concepts of Joint Project and Adjacency Pair

Topic is a key notion in Herring's (1999) survey. However, topic is a problematic notion for studies involving coherence because it is exceedingly difficult to define consistently. This problem, and a possible solution, are set forth in Schegloff (1990). Schegloff begins by listing five problems with topic as a concept used in accounts of coherence: the problem of topic determination, stepwise shifts in topic which allow coherence despite topic changes, the difficulty of discretely characterizing a topic, the complexity of topic identification by a third party, and the pitfall of treating talk as 'talk-about' rather than 'talk-that-does' (1990, pp. 51-52). He then proposes adopting the notion of structuring in terms of *sequences* and *adjacency pairs* in accounts of topic. At first blush, this circumvents many (but not all) of the above problems.

An *adjacency pair* involves two parts, which are produced by different speakers and ordered as a *first and second pair part*. These pair parts have specific types—a first pair part can constitute an offer, a request, a greeting, and so forth, and a second pair part constitutes an appropriate response to the previous turn. While the point is not explicitly made, it seems that Schegloff takes a *sequence* of talk to minimally constitute a completed adjacency pair. In addition, a sequence can include inserted sub-sequences made up of adjacency pairs which can serve the function of disambiguating the first pair part or gathering additional information for selection of an appropriate second pair part. Additionally, relevant material can be pre-inserted, as in the case of a question like 'Can I ask you something?' preceding a request.

A development of Schegloff's sequence-adjacency pair framework is found in Clark's (1996) discussion of *joint projects*. Clark's *joint project* is roughly equivalent to Schegloff's sequence: it minimally consists of a complete adjacency pair, and can involve additional sub-projects before or within it. In addition, Clark's discussion clears up several points regarding the adjacency pair: A second pair part often serves as a first pair part for the next project, thereby chaining joint projects/sequences. Clark also succinctly problematizes the notion of topic:

The notion of topic is notoriously vague, with little consensus on how it is to be defined and applied. [...] Essays and speeches can be divided into topics, then,

because they are (1) highly planned, (2) under unilateral control, and (3) comprised mostly of assertions. Conversations, in contrast, are (1) opportunistic, (2) under joint control, and (3) comprised of much more than assertions. (1996, pp. 341-2)

Clark's conclusion is that the concept of joint project is far more useful for treating dynamic interactions like conversation. As Clark's label, *joint project*, is perhaps more descriptive and less opaque than Schegloff's, *sequence*, I adopt *joint project* in my own analysis.

To return to the advantages of a joint project-adjacency pair framework over the use of topic, it is relevant to discuss Schegloff's (1968) notion of *conditional relevance*. It is important to note here that the definition of an adjacency pair involves the identification of the first pair part's type and the identification of an appropriate second pair part. Schegloff (1968) offers:

By conditional relevance of one item on another we mean: given the first, the second is expectable; upon its occurrence it can be seen to be a second item to the first; upon its nonoccurrence it can be seen to be officially absent—all this provided by the occurrence of the first item. (p. 1083)

Determining this conditional relevance obviously must rely on the proper identification of the first pair part's type, so the relevant question in this case is whether the typing of the first pair part is a foolproof process. When the type of the first pair part is ambiguous or not immediately obvious, a third-party annotator might assign it a type based on its response, which at least indicates what kind of first pair part the addressee understood it as. Without recourse to additional information, this is one of the only means of determination available: the problem is that this circularly defines the relevance of the second pair part. There is one other option for the annotator unsure of what a first pair part's purpose is, and this involves a recourse to what it regards. This option nullifies Schegloff's (1990) reason for a shift to adjacency pair: "talk-that-does" being a more productive notion than "talkabout", and becomes a resort to the general understanding of topic. However, it is important to consider the following points: the identification of topic draws information only from compositional semantics, whereas the identification of an adjacency pair draws information both from the compositional semantics of its contents and from knowledge of what type of exchanges are expected, i.e. from canonical exchanges for a certain context. The fact that identification of the adjacency pair draws on two sources of information justifies the adjacency pair as a more empirically robust notion than topic, and for this reason, I adopt the adjacency pair, along with the extended notion of the joint project, as basic organizational units of conversation.

3. The Data

3.1. Experimental Considerations

The data used in this study consist of ten 20-minute IM transcripts involving sixteen participants (four participants were used twice). The subjects were undergraduate students, graduate students, and professors at the University of Illinois. Five participants were male,

and eleven were female. Participants' ages ranged from 18-35. The participants' demographic data were collected by means of a one-page survey.

Two independent variables were manipulated. The first, IM experience, was taken to vary on a three-point scale: participants were placed into the categories of Novice (NOV), Intermediate (INT), and Expert (EXP) based on frequency of use and length of IM experience. The participants self-reported each of these factors, which translate to categories based on estimates—roughly speaking, those likely to have used IM less than 50 times were classified as NOV, those likely to have used it 500 or more times as EXP, and those in-between as INT. Because most IM users (especially those who use it more frequently) have no way of knowing the exact number of times they have used IM, this approximation was necessary.

The second variable, familiarity with conversational partner, refers specifically to familiarity in real life, though this is not exclusive of online familiarity—some expertlevel participants frequently conversed with their partners over IM. This was again determined by participants' self-reporting, and varied between two values: A) Close Friends/Frequent conversants, and B) Acquaintances/Never met. In one instance, the conversational partners disagreed in their surveys. Because unanimity is taken to be a necessary prerequisite for membership in category A, this conversation was placed in category B.

The aim of the project was to collect one conversation in every combination of the IM experience variable (NOV/NOV, NOV/INT, NOV/EXP, INT/INT, INT/EXP, and EXP/EXP) in each familiarity category. However, given the constraints of the project (participation was voluntary, no compensation was offered), all but two combinations of variables were collected: no subjects meeting the conditions INT-INT A and NOV-INT B were available. All subjects agreed to have their IM data collected.

3.2. Technical Considerations

The IM software used was Trillian Basic 3 by Cerulean Studios. Trillian is a free multi-platform instant messaging client which works with accounts on several major IM protocols and automatically collects log-files of IM sessions, including time-stamps, if configured to do so. For this study, the AOL Instant Messenger (AIM) IM protocol was used, owing to its popularity for instant messaging. Accounts were registered using AIM's online registration tool, with screennames being a combination of two words (such as AlarmRequest or CrossroadRacing) from a random word generator⁴. Each participant was allocated one of these screen names.

3.3. Collection Procedure

Two participants at a time met in person at a specified location, and were introduced, if necessary. The participants were placed in front of computers in different rooms, far enough distant that all but the loudest screaming would be inaudible from one to the other. This separation was necessary to ensure a complete unavailability of paralinguistic gesture, audible laughter, facial expressions, etc. thereby faithfully re-creating online

⁴ http://watchout4snakes.com/creativitytools/RandomWord/RandomWordPlus.aspx

circumstances. The participants were asked to chat with each other using the IM software for a 20-minute span. No topic was given, as this would interfere with the purpose of the experiment. After each session, the USB flash memory drive containing the automaticallysaved chat logs was collected. The experimenter was occasionally present in one of the rooms, but usually read or used another computer for unrelated purposes, and was not in a position to see the participants' screens.

4. Analysis

I will begin with a note on conventions and terminology used in this analysis. In general, I will use the term 'contribution' to refer to a single message submitted to the chat window. An important note is that multiple contributions may jointly constitute a single turn in the traditional Conversation Analysis sense. I will take the contribution as defined above to be the basic unit of IM organization. For the textual analysis in this study, I adopt a modified version of the conversation-analytic framework of Schegloff (1990) and Clark (1996), with the basic notion of adjacency pair as referring to two contributions made by different conversational participants. While my analysis will not identify types of adjacency pair parts, establishing that a relationship between pair parts exists is key. It is important to keep in mind the relationship between the adjacency pair (indicated with a solid bracket), but A2+ is additional information added to A2, and is included as part of project A. The first pair part of project B (B1) intervenes as well, and is resolved later in the text.

Figure 1. An excerpt from the NOV-NOV A conversation displaying a turn divided into multiple contributions (A2) and (A2+)

	A1	1 V:	What's the grossest thing you ever ate? (35 seconds)
	A2	2 H:	bundegi. ask [NAME1] or [NAME2] what it is. it was kinda chalky but good. i'eat the hell out of it when drunk. (29)
	B1	3 V:	Is there a fascinating animal involved? I ate tongue once. I thought it was just an expression. (6)
↓ :	A2+	4 H:	i had it with rice wine at a friend's place

With regard to further terminological clarification, a continuation of a first or second pair part (e.g. A2+ in figure 1, line 4) will be referred to as an increment, and a contribution anticipating a first or second pair part will be referred to as a pre-increment. The annotation scheme used is laid out in detail in the next section. While this annotation scheme is perhaps not as rich as standard conversation-analytic practices, it suffices for the purpose of discovering basic textual organization, and can be considered a streamlined version suitable for automatically-collected online discourse.

4.1. Textual analysis

The chat logs were examined and annotated, identifying joint projects, subprojects, and adjacency pairs. The text is annotated as follows: joint projects are indicated with capital letters (A, B, C, ...); subprojects are indicated with lowercase letters (Cd is the fourth subproject within joint project C); adjacency pairs are indicated with the numbers 1 and 2 appended to the project label (A1, A2, Cd1, Cd2, ...); increments are indicated with the plus (+) symbol; pre-increments are indicated with the ampersand (&) symbol; and dual-role pair parts, which are contributions serving as the second pair part of the preceding joint project, and the first pair part of the following joint project, are indicated with an equals (=) sign. In the case of these dual-role pair parts, which chain projects together, A2=B1 would indicate that a contribution serves as both the second pair part of joint project A and the first pair part of joint project B.

Increments and pre-increments can be thought of as byproducts of the definition of contribution: several contributions can occur within a single turn, and increments and pre-increments represent a user's decision to break a turn up over several contributions. The annotation of increments and pre-increments as separate is justified: the figures in this paper contain multiple instances where increments and pre-increments belonging to a joint project are textually separated from the adjacency pair of that project.

When two adjacency pairs (or their attendant additional material) overlap such that one pair is not completely contained within the first and second pair parts of another pair, this creates what I will refer to as 'tangling'. I will tentatively posit, following Herring (1999), that these tangles identify instances of conversational incoherence. Tangles in the examples given are indicated with a small star, as seen in figure 1.

After annotation, the incidence of several structural phenomena was tallied. For the quantitative approach, the following data were collected for each text: the length of the conversation in minutes and seconds, the total number of words, the total number of contributions, the number of joint projects initiated and completed, the number of increments and pre-increments, the number of dual-role pair parts (used to chain joint projects together), and the number of tangles. For the qualitative approach, obvious instances where confusion arose as a result of project tangling and overt strategies used to resolve these were noted in the text. For each instance, I describe the strategy in question or account for the confusion. Several of these excerpts are discussed following the quantitative analysis.

5. Results

5.1. Quantitative analysis

The following results are presented in table format, representing the ten 20-minute texts collected in terms of the two variables. Table 1 presents the number of contributions in each conversation. Overall, two trends are evident: more contributions were made in higher-familiarity conversations than in lower-familiarity conversations, and in general, a higher level of experience with IM correlates with an increase in contributions. However, it must be noted that this trend is disrupted in both conditions of familiarity by a spike in

contributions in the INT-EXP condition and a subsequent drop in the EXP-EXP conditions, an anomaly for which I have no concrete explanation.

Table	1. I	Number	of	contributions	per	conversation

	Familiar	Unfamiliar
NOV-NOV	99	62
NOV-INT	125	
NOV-EXP	151	133
INT-INT		136
INT-EXP	210	164
EXP-EXP	173	135

The incidence of tangling in the texts in table 2 shows, surprisingly, that tangles seem to be occurring for experts with roughly the same frequency as the other participants. The only anomaly arises with respect to the unfamiliar novices, whose low number of tangles indicates that these participants were being extremely careful.

Table 2	. Bare	number	of tang	les

	. 0	
	Familiar	Unfamiliar
NOV-NOV	23	5
NOV-INT	19	
NOV-EXP	38	30
INT-INT		25
INT-EXP	45	29
EXP-EXP	34	20

Table 3. Number of tangles per joint project

	Familiar	Unfamiliar
NOV-NOV	0.40	0.14
NOV-INT	0.31	
NOV-EXP	0.49	0.52
INT-INT		0.40
INT-EXP	0.54	0.40
EXP-EXP	0.44	0.32

A central point in the analysis is the following: when the total word count of each text is divided by the number of contributions, this yields the mean length of contribution (in words) for the text (see figure 2). These follow a downward slope in the data collected. With respect to IM experience, mean length of contribution is highest for novices, lowest for experts. Familiarity with the conversational partner plays a role as well: in 3 of 4 cases where a comparison can be made, familiarity lowers the mean length of contribution.



Figure 2. Mean length of contribution (word count/number of contributions)

This essentially suggests that both experience with IM and familiarity with one's conversational partner have an effect on how long or short the messages one sends are. Sending shorter messages allows a participant to send messages more often, and these more frequent messages serve as updates on conversational traffic; the information that this gives to one's interlocutor assists in determining whose turn it is to make the next contribution.

Out of the three other types of structural information noted for the data collected, increments, pre-increments, and dual-role pairs, only pre-increments displayed a strong pattern of incidence. Pre-increments in these texts primarily serve as placeholders in the discourse, expressing the speaker's intent to produce a longer contribution. While the total number of pre-increments found in the texts was low, they are hardly ever used by novices, and far more frequently by experts, with intermediates falling in the middle (see figure 3). I argue that the use of pre-increments to mark one's place in the discourse is one of several strategies acquired by frequent users of IM to 'hold the floor', giving the conversational partipant the right-of-way in the following discourse, and marking the utterance as salient.



Figure 3. Mean length of contribution (word count/number of contributions)

Figures 2 and 3 represent the two major strategies found to promote discourse coherence in IM in the quantitative analysis: mean length of contribution and the use of preincrements. Expert IM conversants, in general, make shorter and more frequent contributions and adopt the use of pre-increments in order to structure conversation. Additionally, tables 2 and 3 show a surprising result: the incidence of tangling, hypothesized to reflect conversational incoherence, does not appear to vary significantly over the variables manipulated here. I propose on the basis of these data that these strategies do not directly reduce tangling, but instead compensate for the negative effects of tangling on comprehensibility.

5.2. Qualitative analysis

Two excerpts from the data are presented and discussed here: the first is from the conversation between unfamiliar experts (see figure 4 on the following page). Items in brackets have been replaced to protect the confidentiality of the subjects.

		(co	ontinuing a previous conversation about the date of P's birthday)
╽┍─╈└└─	A2= B1	1 C:	[NAME1's] doing the Thursday talk, and I thought it was the [X]th
	C 2	2 P:	(1 second) haven't exactly been checking the calendar like i did when I was wee
	D 1	3 C:	How is the Wii?
	Ba1	4 P:	no kidding, what's he presenting?
	D2	5 P:	Wii're great (2)
	Ba2	6 C:	[SUBJECT OF TALK] (16)
	Bb1	7 P:	I'm trying to guess what that might be (1)
	Ba2+	8 C:	He just sent [NAME2] the abstract, so I don't know if it's up yet. (12)
	Bb1+	9 P:	I'm shamefully ignorant of this sort of thing (7)
	El	10 P:	do you like bowling, by any chance? (33)
	E2	11 C:	Bowl (12)
i	E2+	12 C:	My friend's a bowling DJ in [CITY] (8)
	F 1	13 P:	some friends of mine in the physics department are giving a talk on the physics of bowling, last friday of the November, in the Illini Union bowling alley (13)
	Fa1	14 C:	Oh, that sounds really painful (6)
	B 2	15 P:	sounds like [NAME1's] research is pretty interesting, I'll make sure I go to that (6)
	Fa2	16 P:	I think it'll be pretty amusing (22)
	F2= G1	17 C:	That would be fun. It = [NAME1] or bowling? Either works.

Figure 4. Excerpt from the Familiar Novice-Expert Conversation

This excerpt involves an instance of overt confusion found in the text (line 17), where conversational participant C indicates his/her inability to resolve the reference of *it* in line 16, which is ambiguous to participant C: *it* could refer to *the Thursday talk* in line 1, or the *talk on the physics of bowling* in line 13. Line 16, then, could serve as the second pair part for Fa (as P intended it, clarified later on in the text), or as a continuation of line 15, B2. It is worth noting that the confusion takes place on the part of the novice in the conversation

(C), and that a 22 second gap precedes the novice's admission of confusion, which may indicate the novice looking back through the text for a possible anaphor for *it* in line 16. I argue that in this case, the novice, not accustomed to the tangled discourse characteristic of IM, is unused to treating two consecutive contributions as the second pair parts of two different projects, and for this reason considers the unlikely possibility that participant P would repeat him/herself in a way (*sounds like* [...] is pretty interesting / I think it'll be amusing. Also of interest is the fact that C completes two adjacency pairs in one contribution in line 11, which is a strategy for coherence found in several of the texts. However, this strategy is liable to backfire, as it lengthens response time (note 33 seconds of downtime between lines 10 and 11). The next figure involves two expert IM users:

Figure 5. Excerpt from the Familiar Expert-Expert conversation.

	A2= B1 B2 C1	1 A: 2 J: 3 A:	i'm cheap when it comes to clothes (3 seconds) me too (15) i think [NAME] and I are going to hit petsmart this afternoon then (1)
	B2+= D1	4 J:	(1)i had to beg my mama for some money(4)
	C1+	5 A:	[NAME OF PET] is sick (3)
	Da1	6 A:	beg? (1)
★ 🏝	C2= E1	7 J:	oh no (10)
	Da2	8 J:	well no, i just asked her nicely (5)
	C2+= F1	9 J:	sick with what? (7)
	E2	10 A:	yeah, we think he's unhappy with his litter box (7)
*	F2= G1	11 A:	um, he's not 'passing' correctly (14)
· · · · · ·	F2+= H1	12 A:	and not always in his litter box (4)
	Ga1	13 J:	i don't even really know what you mean by that
▎▕ <mark>└╈</mark> ──	H2	14 J:	(+) oh no (1)
	Ga2	15 A:	(1) he's got the runs (8)
	G2	16 J:	oh haha

The excerpt in figure 5, which contains 8 instances of tangling, is one of the most structurally incoherent pieces of text collected in the study. Adjacency of relevant contributions is nearly non-existent, but no misunderstandings occur. While J's contribution in line 13 expresses an indirect request for clarification, this is due to A's use of a euphemism to describe an unpleasant condition in line 11, and does not stem from the conversational structure. Lines 7, 9, 10, and 11 exemplify a new strategy: faced with open first pair parts E1 and F1 uttered by J, participant A prefaces each response with a marker making explicit the type of first pair part it is responding to. The markers um and yeah which preface each second pair part clearly belong to a certain type of first pair part. *um* is best construed as a hesitation marker indicating that A is searching for the appropriate format for the information s/he is about to provide, thereby indicating that A has understood 9 as a request for information. yeah, on the other hand, confirms a previous statement, and prefaces an offer of additional information. These markers relate directly to the notion of conditional relevance, and this contrast indicates an active strategy whereby the respondent exploits canonical adjacency pair types. Even in this drastically incoherent conversation, expert users are able to maintain comprehensibility among their contributions by overtly typing their contributions through the use of discourse markers such as *um* and *yeah*.

6. Conclusions

In this study, I investigate the organization of IM conversation, evaluating the notion of conversational incoherence and identifying strategies used to compensate for this incoherence. A corpus of ten IM conversations of approximately 20 minutes in length was tested, each conversation representing a different combination of two variables: experience with IM and (offline) familiarity with conversational partner. Through the quantitative and qualitative analysis of these data, I have confirmed that in terms of tangling, structural incoherence occurs in all but the most cautious IM conversations, regardless of the expertise or familiarity of the users. This analysis provides evidence that advanced users of IM do use a greater range of strategies than novice users, and that these strategies can overcome the negative effects of incoherence on comprehensibility. In addition, the study confirms the usefulness of conversation-analytic methodology adapted to the analysis of this medium. By discarding the notion of topic in favor of a methodology based on adjacency pairs and joint projects, this study enjoys a greater degree of rigor in its application to text. The primary strategies used to overcome the negative effects of incoherence on comprehensibility identified in this analysis are the following:

1) Shortening mean length of contribution in order to more closely approximate realtime interaction

2) The use of pre-increments in order to make new information salient and indicate intent to make a larger contribution

3) Including information from multiple joint projects in a single contribution (cf. figure 4, line 11; this strategy in particular may be misguided due to its conflict with strategy 1).

4) Marking response contributions with a canonical indication (e.g. use of an appropriate discourse marker) of what first pair part type the response is relevant to (cf. figure 5, lines 7, 9-11)

Interestingly, despite the use of these strategies by more advanced users of IM, incoherence as defined by tangling and lack of adjacency occurs at largely the same rate between novice and experienced users. Taking incoherence to be a purely structural phenomenon which may, but need not, cause incomprehensibility, these strategies do not deal directly with incoherence, but increase comprehensibility directly without reducing the incidence of tangling. It is also important to note that strategies 1 and 2, the only ones used commonly enough to be identifiable in the quantitative analysis, approximate certain properties of synchronous face-to-face conversation through speech.

Comprehensibility, which is the concept at stake, does not rely on successful strategy implementation alone. In distinguishing IM from chatroom discourse in the introduction, I noted that IM is generally conducted between real-life friends or long-term online contacts, as opposed to anonymous strangers, which can be the norm in chatroom situations. Good friends and frequent conversants, identified as category A in the present study, have a shared background—a reserve of knowledge about the other and about shared experiences from which to draw. I argue that the quantitative effects of the familiarity variable are a direct result of this background knowledge: between familiar users, not everything has to be spelled out, and understanding without textual coherence is more easily accomplished.

7. Directions for further research

In future experimentation, it is hoped that a more rigorous system of annotation can be devised for application to electronic texts. While the adjacency pair-joint project system adapted in this study is a vast improvement over a topic-based system, I believe further refinements will produce a more rigorous, robust system which minimizes the subjectivity of the annotator, testable through the use of inter-annotator agreement. Extensions of this study might focus more heavily on matched pairs of novices, intermediate users, and expert users, as the asymmetric pairings (necessary in this case in order to get a reasonable amount of data) complicated the quantitative analysis. Multiple conversations in each experimental condition would allow for use of advanced statistical methods and statistical significance tests based on arithmetic means. In addition, conversations between people familiar with one another should be in focus-this is, after all, the norm in instant messaging. Finally, it would be ideal to find computational methods for annotating this sort of text. While conversation-analytic approaches are often too complex to be feasibly accomplished by machine, a stripped-down version such as that presented here (or a further refined version) might not be. The terminology and methodology used in the current project may be considered a tentative step in this direction.

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