Discourse Architectures: Designing and Visualizing Computer Mediated Conversation*

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THE TOPIC

Conversation is an essential component of our daily work, social and intellectual lives. We use it as a means for decision making and conducting business. It is a vital component of our educational, legal and governmental systems. It is through conversation that we create, develop, validate, and share knowledge.

Each new media technology potentially changes conversation. The telegraph, telephone, radio, television and tape recorder each made new sorts of long-distance conversation possible, with profound and far reaching effects. Starting in the late twentieth century we have been confronted with a virtual explosion of new, computer-based, technologies of conversation. Today we have a wide variety of forms of computer mediated conversation (hereafter CMC) including, to name only a few, chat, instant messaging, email, web pages, newsgroups, 3D virtual worlds, and media spaces.

Despite the overall popularity of CMC technologies, and their near ubiquitous use in the workplaces of the western world, relatively little work has been done to understand how they influence existing patterns of conversation or facilitate new patterns. Furthermore, the work that has been done is spread across a wide array of disciplines such as anthropology, communications, computer science, information science, linguistics, literature, political science, psychology, rhetoric, and sociology, and draws upon diverse theories and methods.

As researchers who study CMC, and as designers who create new forms of CMC, we have an intense interest in improving our understanding of mediated conversation, and in the different approaches and methods that can be turned to this end. This workshop will investigate the relationship between conversation and the design of CMC systems. Specifically, we propose to examine conversational coherence from the perspective of graphical interfaces.

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Discourse Architectures[1]

We use the phrase 'Discourse Architectures' to highlight the relationship between online conversation and structure. The phrase has two meanings, both of them relevant to our concerns.

One meaning has to do with the structure of conversation itself, that is, with the ways in which the utterances which form a conversation interrelate and build upon one another. What makes a set of utterances or messages a coherent conversation? And, of course, one might ask such questions about larger units of conversation (even entire conversations), and how they relate to the larger discourses of which they are a part. We are interested in analytical techniques for identifying conversational structure and explicating the forces which shape it.

The second meaning has to do with architectures *for* discourse, with the ways in which the design of CMC systems shapes the conversation that takes place within them. That is, just as physical architecture facilitates certain activities and inhibits others, so do CMC system architectures facilitate certain types of conversations. For example, interfaces may convey more or less detailed information about which users are online at any given moment, and what kinds of activity they are engaged in. How does the availability (or lack) of such information affect the way users of the system converse? Thus, we are interested how designers create systems intended to support particular sorts of conversation.

Each of these meanings raises a set of issues that is described in further detail below.

Coherence and Visualization in CMC

Coherence is an aspect of communication that is addressed in most, if not all, theories of discourse. It is a sociotechnical force that has been explained in various theories with the help of, for example, scripts, plans, goals, frames, metaphors, games, rules, social networks,

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turn-taking, co-citation, co-occurrence of words, cohesion, speech acts, implicature, presupposition, or actor-network theories. Coherence, broadly defined, is that which in a discourse connects statements with statements, statements with people, and people with other people. It is, in short, the "glue" of text and conversation.

Moreover, many approaches to discourse analysis make use of some form of graphical or diagrammatic representation in order to illustrate patterns of connections among utterances, meanings, and people in conversations. Within some disciplinary boundaries (e.g., linguistics), these graphical representations are primarily intended to address specific research questions or support theoretical models. In other areas (e.g., for certain projects done for Computer-Supported Cooperative Work environments, or involving innovative forms of graphical chat), the purpose of the representations is more pragmatic: they are actual graphical interfaces that users can manipulate. We are interested in both kinds of representations, especially in the ways in which diagrams based on conversation research and/or theory might, suitably modified, be useful as interface designs, and interface designs might usefully provide information to researchers about the nature of conversation. More generally, it is our hope that by bringing together diverse graphical representations of computer mediated conversational structure, we might provide researchers from different disciplinary backgrounds with a "neutral space" where otherwise disparate theories of coherence can be fruitfully compared, and new graphical interfaces for supporting coherence in conversation can be proposed.

Approaches to CMC System Design

Designers also approach their task in different ways, depending on their theoretical background assumptions. For some designers (and CMC researchers), face to face conversation is the standard against which other forms of conversation are measured. After all, there is ample evidence that our sensory and cognitive systems are tuned to face to face, oral conversations; all other modalities of 'conversation' are, in evolutionary terms, extremely recent. From this perspective, it makes sense to focus on understanding how CMC differs from face-to-face interaction, and to explore ways of using new technologies to bridge the gap. For example, since most forms of mediated conversation are missing the hand and face gestures that accompany face-to-face interaction, it makes sense to design new conversational technologies that provide users with virtual bodies via which they might gesture and emote (e.g., 3D avatars or two-way video). This approach can be seen as an effort to create technology that supports the full range of features of face-to-face conversation, complete with complex visual and audio cues. As such, it can be considered 'mimetic', in that it aims for a high degree of realism, or mimicry of face-to-face communication.

Other designers (and researchers) take the view that differences between face to face conversation and various forms of CMC are not necessarily problematic. They observe that although mediated forms of conversation lose some features of face-to-face conversation, they also add new features. For example, while text-based CMC takes place without gestures and facial expressions, at the same time its embodiment as text means that the conversation remains visible on the screen, or can be stored and retrieved for later display, in contrast to the ephemeral nature of speech. In other words, online conversation is persistent, and with persistence comes an array of new features such as the ability to search, annotate, and replay conversations (Erickson and Herring, 1999). From this perspective, it makes sense to optimize the advantages of the medium, even if it means leaving behind face-to-face communication as an ideal — indeed, it may be possible to make CMC better than face to face conversation. This approach to system design can be considered 'evolutionary', in that it aims to produce new forms of conversation suited to the media within which they occur.

Both of these approaches require that designers draw on theories of conversation and methods for studying it. Theories and methods for analyzing face-to-face conversation necessarily inform the design of mimetic systems, and can shed light on the ways in which evolutionary systems differ from face-to-face communication. In addition, the evolutionary approach must remain open and sensitive to new possibilities, leading perhaps to the need for new methods and theories of computer-mediated conversation which take into account media constraints and affordances.

Approach

In general, we propose to invite researchers and designers of CMC systems to submit position papers that address how they deal with the issue of conversational coherence in their work. For researchers this might involve theories of coherence, or it might involve analytical methods (grounded in some theoretical perspective) for examining ways in which coherence is achieved. For designers this might involve approaches to designing systems that foster or encourage some form of coherence, or it might involve analyzing the ways in which coherence is achieved (or not) in existing systems. In both cases, we are particularly interested in the role played by graphical representations, either in support or illustrating analysis, or, in the context of CMC, in the way it serves as a resource for the production and maintenance of coherence.

Because we hope to draw participants from a very wide range of disciplines, we are concerned with making sure the conversation in the workshop itself is coherent! Our principle strategy for achieving this is that, as a precursor to the workshop, we will ask all accepted members to access an existing CMC system, and to use it to illustrate how their theories, analytical techniques, or design approaches would apply to it. We will then all share a concrete common ground, and hopefully, in the course of the workshop, will be able to better understand some of the strengths and weaknesses of various approaches, and, in particular, perhaps gain some insights into how different approaches complement one another.

FORMAT OF THE WORKSHOP

Participation Solicitation and Selection

We will solicit participants from a number of mailing lists, including lists for disciplines that don't typically attend CHI (e.g. linguistics, rhetoric, sociology).

Potential participants will be asked to submit position papers, which will be used as a basis of selection. Assuming a sufficient pool of strong applicants, we will also aim to balance the workshop in terms of disciplinary orientation, and position on the analysis-design spectrum.

Method of Interaction

Because we are aiming for a single-day workshop, we will design sessions based around themes that emerge from the accepted position papers. Each session will have a moderator (possibly one of the organizers, possibly a participant), and will explicitly foreground a subset of the position papers.

As noted above, we will ask participants to prepare for the workshop by visiting a to-be-selected public or semi-public CMC system. The purpose is to provide participants with a concrete common ground, to which they may apply their theories, analytical techniques, and design approaches. At this point, we are not sure whether we want everyone to look at the same site, or whether we will select two or three different sites. The latter approach might be preferable if we find some very strong subgroups among participants (for example, a group of people studying USENET, another group focused on CMC for education, and a third group oriented towards 3D virtual environments). In either case, each session's presentation and discussion will refer to the (a) site and the conversations and associated practices that occur within it. Thus, we hope to have a computer projector and a live connection to the internet.

Workshop Schedule

The nature of the sessions is dependent upon the position papers, so it is difficult to be specific. In the first session, we will introduce the workshop, the CMC site(s), and do round-the-table 5-minute introductions. The other three sessions will consist of: introduction by moderator; discussion; capture. ('Capture' is a 10 minute discussion aimed at summarizing key ideas; participants will also write capture key ideas on post-its for later display).

Pre-Workshop Activities

We will ask potential participants to prepare position papers. Accepted participants will be expected to read the position papers of others, and have visited the CMC site.

Plan for Dissemination

We will write a workshop report to be published in the bulletin of an appropriate ACM SIG.

Special Requests to the Workshop Chairs

We would like a computer projector, and an analog phone line so that we can access our CMC site(s). We also expect to show interactive systems for doing or analyzing CMC, something that also requires projection.

In view of our interest in recruiting participants who would not normally attend CHI, we hope that it might be possible to allow people to attend the workshop even though they have not registered for CHI.

ORGANIZERS' BACKGROUNDS

Thomas Erickson is a Research Staff Member at the IBM T.J. Watson Research Center in New York where he works on designing systems which support network mediated group interaction. An interaction designer and researcher, his approach to systems design is shaped by work in sociology, rhetoric, architecture and urban design. He has contributed to the design of many products, and authored about 40 publications. In the area of conversation, his work includes the design of new CMC systems using social proxies, graphical representations of people and their activities online. Tom is an experienced workshopper, having participated in many CHI workshops, and having co-organized the CHI '97 Workshop on Pattern Languages, the CHI '00 Workshop on Community Data, and workshops in other venues.

Susan Herring is Associate Professor of Information Science and Adjunct Associate Professor of Linguistics at Indiana University Bloomington. One of the first scholars to conduct research on computer-mediated discourse, she has published and presented extensively on such topics as coherence, complexity, politeness, gender differences, and change over time in Internet communication. Her current interests include developing methods for analyzing multimedia discourse in new and experimental CMC systems. She has co-organized a series of annual workshops and minitracks on Persistent Conversation (with Tom Erickson) at HICSS, now in its fourth year.

Warren Sack is Assistant Professor and head of the Social Technologies Group at UC Berkeley, SIMS. His research focus is on the role technology plays in the creation, reproduction and transformation of the network society. He designs, implements, theorizes and analyzes new media technologies. Of particular relevance to the workshop is his work on the Conversation Map a prototype system that automatically generates graphical summaries of email-based Very Large Scale Conversations. Before coming to Berkeley, he was a research scientist at the MIT Media Laboratory and a research collaborator in the Interrogative Design Group at the MIT Center for Advanced Visual Studies.

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250 WORD ABSTRACT FOR THE CALL

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This workshop will investigate the relationship between the structure of conversation and the design of CMC systems. Specifically, we propose to examine conversational coherence from the perspective of graphical interfaces.

Many approaches to discourse analysis make use of some form of graphical or diagrammatic representation in order to illustrate patterns of connections among utterances, meanings, and people in conversations. Within some disciplines (e.g., linguistics), these graphical representations are primarily intended to address specific research questions or support theoretical models. In other areas (e.g., CSCW), the purpose of the representations is more pragmatic: they are actual graphical interfaces that users can manipulate. We are interested in both kinds of representations, especially in the ways in which diagrams based on conversation research and/or theory might, suitably modified, be useful as interface designs, and the ways in which interface designs might usefully provide information to researchers about the nature of conversation.

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The Workshop

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