The disembodied act: Copresence and indexical symmetry in computer-mediated communication

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Abstract: CSCL has recently begun to consider how shared understanding is achieved in computer-mediated interactional environments. In this paper, we explore how actors produce and maintain indexical symmetry and reciprocity of perspectives in online chat by establishing reciprocal fields of copresence. We use ethnomethodologically informed analysis to describe the interactional methods by which actors establish indexical symmetry and reciprocal fields of copresence.

Introduction

Web-based technologies support fundamental features of social interaction. Suitable platforms now exist that exploit the production of reciprocal perspectives through the performance of disembodied actions. These technologies offer different affordances for the display of actions, the practices of reference and representation, and the achievement and maintenance of presence, copresence and indexical symmetry which account for the significant differences between interactions based on disembodied action and those based on embodied action.

Social interaction arises when actors act in coordinated ways through mutual engagement with respect to recognizable and meaningful activities and shared-in-common and mutually recognizable orientations to 1) each other, 2) their actions and 3) features of the scene in which these activities are occurring. Social interaction requires more than reciprocal contact, it requires a reciprocity of perspectives. According to Hanks (2000, p. 7), reciprocity of perspective is "neither similarity ("sharedness"), nor congruence per se, but the idea that interactants' perspectives are opposite, complimentary parts of a single whole, with each oriented to the other." This reciprocity of perspectives establishes a sense of copresence in which the experiences and perceptions of the actors in a scene become practically available to each other. In this research, we demonstrate how shared understanding and group cognition (Stahl, 2006) are achieved through the coordinated exchange of postings, the display of whiteboard objects and the indexical symmetries these exchanges and postings both display and achieve.

Analysis

We examined recorded logs from student interactions using the VMT Chat System. The data consist of time-stamped chat logs and whiteboard displays of math problem solving sessions among middle school students. The chats were sponsored and conducted by the Math Forum of Drexel University as part of its participation in the Virtual Math Teams (VMT) research project, an NSF funded project..

One of the features of systems that use chat and virtual whiteboards is that actors are never actually present to others in an embodied sense. Their presence is established and inferred from actions originating from their "node" that change the system in ways that are observable to others. However, presence is not sufficient to achieve social interaction. Copresence is a condition of and for social interaction. According to Zhao, "Copresence as mode of being with others is a form of human colocation in which individuals become "accessible, available, and subject to one another" (Goffman, 1963, p. 22). More specifically, it is a set of spatio-temporal conditions in which instant two-way interactions can take place. *Instant* human interaction refers to real-time or near real-time human communication, which excludes diachronic exchanges like postal correspondence, and *two-way* human interaction refers to reciprocal or feedback-based human communication…. Copresence in this sense is thus a form of human colocation in space-time that allows for instantaneous and reciprocal human contact" (Zhao, 2003, p. 446).

Chat properly consists of a series of labeled, time-stamped text postings that are treated as accountably authored actions. These actions are 1) prospectively implicative with respect to the appearance of possible next authored postings and 2) retrospectively implicative with respect to the intelligibility of prior postings. The reciprocal nature of these postings demonstrates participant's perspectives in ways that allow for mutual orientation. There is, built into them, the assumption that a reader will be able to occupy to some degree the perspective of the author of the posted text.

As an example, the text posting, "hi." is readable as an authored social action, a greeting that calls on others to respond. It is a textual artifact the sense of which is determined by the recipients' work of reading (Livingston, 1995). In online chats, *the actors' work of posting and reading text messages is how they organize, constitute and participate in chats*(1). Readers are capable of assuming the perspective that this posting represents and thus know how to read it as a greeting. It is the recognizable design of the postings achieved through the work of reading in the chat environment that allows recipients to regard this posting as a social action. That the recipients recognize this posting as a social action is evidenced by subsequent postings that serve as in-kind responses, thus displaying that the initial posting was recognizable and treated as a greeting.

Each posting is assigned "authorship" by the system based on login information provided to the system. System-documented authorship is part of the way that the system itself facilitates and organizes the presentation of postings as the copresence of the author and recipients. Furthermore, each posting is displayed sequentially in a stream of postings with an appropriate time stamp. The appearance of sequential postings allows for recipients to treat the appearance of postings as an orderly affair, making the "readability" of a posting unproblematic(2). Each posting is available as both authored, sequenced and addressed, thus serving as a method of displaying a mutual orientation to other actors, since postings are texts that others are expected to read and to which one, some or any may respond.

The intelligibility of chat postings occasionally requires that readers refer to and inspect the virtual whiteboard. Consider the following chat postings, "How long is that line?" followed by "Line AB." No other markers or referential indicators are used. The intelligibility of these posts relies on the presumption that there actually are inspectable referents for recipients to inspect and makes relevant recipients' inspection of the virtual whiteboard for the referent to which these indexical expressions refer.

The achievement and management of indexical symmetry includes matters conventionally considered conceptual or cognitive in nature. Various conceptual objects are represented in the chat and on the virtual whiteboard as relevant matters about which inquiry can be made, for which there are shared-in-common practices by which reference can be made and about which mutually relevant responses can be produced. Consider the following postings:

"Im (8:35:12 PM EDT): How long is that line?"
"Im (8:35:21 PM EDT): Line AB".
"F (8:35:25 PM EDT): 10"

This invokes an organization of conceptual features, such as the various properties (length, "How long…") of recognizable and identifiable geometric objects ("that line," "Line AB"). The response to the query is "10". This is produced without embellishment or elaboration, affirming that the referenced feature (length) of the conceptual object (the line) is both intelligible and practically describable, and that such a description can properly consist of a numerical representation. Thus the response, "10," is presented as and is seen to be a candidate value for the line's length.

The production and maintenance of indexical symmetry in VMT chat with respect to conceptual objects and their features thus involves:

- displaying authored text postings for other participants to read,
- displaying conceptual objects using textual references, graphical displays, deictic references, etc., for others to inspect
- providing participants with ways of locating and identifying displayed conceptual objects, and
- using these text postings and object displays according to recognized and proper practices of use that demonstrate that actors are copresent and share a mutual and symmetric orientation to each other and the referential objects and resources of their interaction.

Discussion

Indexical symmetry is the ground upon which shared understandings are established and maintained. In face-to-face interaction, indexical symmetry is achieved, demonstrated and maintained through the embodied actions of indexical reference. These actions, which are the observable and reportable organization of actors' participation in their interaction, constitute their shared understanding. Shared understanding thus is an interactional matter. In chat, the procedures by which users "use" the system, and the ways that the chat system responds to that use, is treated by users as interaction. This kind of interaction is distinguished from other forms of interaction by virtue of the fact that actors are not actually present to each other, at least not in any embodied sense. The disembodied nature of chat interaction presents challenges and opportunities to users (Garcia and Jacobs 1999).

Part of the practical achievement of interaction therefore involves establishing and maintaining presence, copresence and mutually sustainable recognition of features of their interactional space. In other words, actors must be recognizable as actors in the scene. They must be recognized as actors in the ways they participate, in ways that are intelligible to themselves, other actors in the scene, in ways that display that they are participants. While Hanks (1992, 1996, 2000), Goodwin (2000, 2003), Hindmarsh and Heath (2000) and others have explored these issues in face-to-face interactions, we propose to examine these issues in an online environment in which actors interact by posting text messages to a chat system and posting objects and text documents to a linked virtual whiteboard.

Endnotes

(1) According to Livingston (1995), "The work of reading is the work of finding the organization of that work that a text describes. The contextual clues in a text offer the grounds, from within the active participatory work of reading, for finding how those clues provide an adequate account of how the text should be read." (p. 14).

(2) Readability is different from intelligibility. While chat postings may have identical time stamps, there is no possibility of "overlap" in any conventional face-to-face conversational sense since the system automatically assures the sequential display of all postings.

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