WHAT TYPE OF INTERACTION IS IT TO BE

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For one, like myself, who knows something about human interaction, but next to nothing about computers and human/machine interaction, the most useful role at a meeting such as this is to listen, to hear the troubles of those who work actively in the area, and to respond when some problem comes up for whose solution the practices of human interactants seems relevant. Here, therefore, I will merely mention some areas in which such exchanges may be useful.

There appear to be two sorts of status for machine/technology under consideration here. In one, the interactants themselves are humans, but the interaction between them is carried by some technology. We have had the telephone for about 100 years now, and letter writing much longer, so there is a history here; to it are to be added video technology, as in some of the work reported by John Carey, or computers, as in the "computer conferencing" work reported by Hiltz and her colleagues, among others. In the other sort of concern, one or more of the participants in an interaction is to be a computer. Here the issues seem to be: should this participant be designed to approximate a human interactant? What is required to do this? Is what is required possible?

1) If we take as a tentative starting point that person-person interaction should tell us what machine-person interaction should be like (as Jerry Hobbs suggests in a useful orienting set of questions he circulated to us), we still need to determine what type of person-person interaction we should consult. It is common to suppose that ordinary conversation is, or should be, the model. But that is but one of a number of "speech-exchange systems" persons use to organize interaction, or to be organized by in it. "Meetings," "debates," "interviews," and "ceremonies" are vernacular names for other technically specifiable, speech-exchange systems orgainzing person-person interaction. Different types of turn-taking organization are involved in each, and differences in turn-taking organization can have extensive ramifications for the conduct of the interaction, and the sorts of capacities required of the interactants. In the design of computer interactants, and in the introduction of technological intermediaries in human-human interaction, the issue remains which type of person-person interaction is aimed for or achieved. For example, in the Pennsylvania video link-up of senior citizen homes, John Carey asks whether the results look more like conversation or like commercial television. But many of details he reports suggests that the form of technological intervention has made what resulted most like a "meeting" speech exchange system.

2) The term "interactive" in "interactive program" or in "person/machine interaction" seems to refer to no more than that provision is made for participation by more than one participant. "Interactive" in this sense is not necessarily "interactional," i.e., the determination of at least some aspects of each party's participation by collaboration of the parties. For the "talk" part of person-person interaction, a/the major vehicle for this "interactionality" is the sequential organization of the talk; that is, the construction of units of participation with specific respect to the details of what has preceded, and thereby the sequential position in which a current bit of talk is being done. Included among the relevant aspects of "what has preceded" and "current sequential position" is "temporality," or "real time," though not necessarily measured by conventional chronometry. What are, by commonsense standards, quite tiny bits of silence -- two tenths of a second, or less

(what we call micro-pauses) -- can, and regularly do, have substantial sequential and interactional consequences. The character of the talk after them is regularly different, or is subject to different analysis, interpretation or inference.

Although the telephone deprives interactants of visual access to each other, it leaves this "real time" temporality largely unaffected, and with it the integrity of sequential organization. Nearly all the technological interventions I have heard about -- whether replacing an interactant, or inserted as a medium between interactants -- impacts on this aspect of the exchange of talk. It is one reason for wondering whether retention of ordinary conversation as the target of this enterprise is appropriate. For some of the contemplated innovations, like computer conferencing, exchanges of letters may be a more appropriate past model to study, for there too more than one may "speak" at a time, long lapses may intervene between messages, sequential ordering may be puzzling (as in "Did the letters cross in the mail?") etc.

3) Sequential organization has a direct bearing on an issue which must be of continuing concern to workers in this area -- that of understanding and misunderstanding. It is the sequential (including temporal) organization of the talk which, in ordinary conversation, provides running evidence to participants that, and how, they have been understood. The devices by which troubles of understanding are addressed (what we call "repair," discussed for computers by Phil Hayes in a recent paper) -- requests for repetition or clarification and the like -- are only one part of the machinery which is at work. Regularly, in ordinary conversation, a speaker can detect from the produced-to-be-responsive next turn of another s/he has or has been, misunderstood, and can immediately intervene to set matters right. This is a major safeguard of "intersubjectivity," a retention of a sense that the "same thing" is being understood as what is being spoken of. The requirements on interactants to make this work are substantial, but in ordinary conversation, much of the work is carried as a by-product of ordinary sequential organization. The anecodotes I have heard about misunderstandings going undetected for long stretches when computers are the medium, and leading to, or past, the verge of nastiness, suggest that these are real problems to be faced.

4) In all the business of person-person interaction there operates what we call "recipient-design" -- the design of the participation by each party by reference to the features (personal and idiosyncratic, or categorial) of the recipient or co-participant. The formal machineries of turn-taking, sequential organization, repair, etc. are always conditioned in their realization on particular occasions and moments by this consideration. I don't know how this enters into plans for computerized interactants, and it remains to be seen how it will enter into the participation of humans dealing with computers. Persons make all sorts of allowances for children, non-native speakers, animals, the handicapped, etc. But there are other allowances they do not make, indeed that don't present themselves as allowances or allowables. What is involved here is a determination of where the robustness is and where the brittleness, in interacting with persons by computers, for in the areas of robustness it may be that many of the issues I've mentioned may be safely ignored; the people "will understand."

Throughout these notes, we are at a very general level of discourse. The real pay-offs, however, will come from discussing specifics. For that, interaction will be needed, rather than position papers.