Interactive Discourse: Looking to the Future
Panel Chair's Introduction

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In any technological field, both short-term and long-term research can be aided by considering where that technology might be ten, twenty, fifty years down the pike. In the field of natural language interactive systems, a 21 year vision is particularly apt to consider, since it brings us to the year 2001. One well-known vision [1] of 2001 includes the famous computer named Hal - one offspring, so to speak, of the major theoretical and engineering breakthrough in computers that Clarke records as having occurred in the early 1980's. This computer Hal is able to understand and converse in perfect idiomatic English (written and spoken) with the crew of the spacecraft Discovery. And not just task-oriented dialogues, mind you!

Hal is a far cry from today's prototype natural language query systems, intelligent CAI-systems, diagnostic assistance systems, and Kurzweil machines. For one thing, Hal is not just responsive: he takes the initiative. His first documented utterance on board the spacecraft Discovery comes at a time when the crewmen Bowman and Poole are engrossed in a fading vision screen image of Poole's family on Earth, on the occasion of Poole's birthday.

> "Sorrv to interrupt the festivities," said Hal, "but we have a problem."

Not only can Hal converse in perfect idiomatic English, but he is a master of problem context (Panel 1) and social context (Panel 2) as well!

Now Hal is clearly where we currently are not at, and 2001 is clearly only one man's vision (albeit a very special man). Yet Clarke's depiction of Hal raises several issues, which along with other ones, provide a cue for the current panel discussion. The issues include:

1. Where is it that we want to have, must have, can expect to have, or conversely, should not have to have, Natural Language Interactive Systems?

2. Barring Clarke's reliance on the triumph of automatic neural network generation, what are the major hurdles that still need to be overcome before Natural Language Interactive Systems become practical?

3. What effects can we expect, deriving from the availability of, what to me seem, almost magical developments in hardware?

4. Are there practical (and acceptable) alternatives to interacting with machines in natural language in the various situations that provide a positive answer to question 1?

5. Should we be shooting for spoken Natural Language interactions - either input or output or both - or should we not, like Clarke, go the whole way and expect our machines to read lips as well.

REFERENCES

1. Clarke, Arthur C., 2001: A Space Odyssey, New American Library, 1968.