

PANEL ON APPLICATION OF LANGUAGE PROCESSING SYSTEMS

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Natural language is a powerful tool for communication among human beings. It has the flexibility for expressing information about any specifiable situation to any degree of precision required, while at the same time it also allows substantial amounts of ambiguity to be expressed. Natural language works well when the sender (speaker, writer) and the receiver (hearer, reader) are humans with similar backgrounds who are communicating in a well-defined, mutually understood context. When one of the participants is a machine, serious problems may arise.

Various attempts have been made since the early days of computing to give the machine a portion of the flexibility characteristic of the human interpretation of natural language. Procedures have been developed to provide syntactic analysis, semantic interpretation, discourse analysis, and learning, and these efforts have required representations for the different kinds of knowledge entailed and complex mechanisms to activate and control the components to yield the best interpretation possible for a given system configuration. Applications of these capabilities have been made to produce question-answering systems, natural language access to data bases, machine translation and computer aids for translators, and automated office environments. However, all of these applications are still in the experimental stage and not in actual use in a practical setting.

This panel deals with some of the problems associated with the application of language processing systems. In particular, it will address:

- (1) What are the major obstacles to the realization of practical natural language processing systems in view of the accomplishments of recent research?
- (2) What will be the promising areas of application in the next few years?
- (3) What approaches should be taken to ensure that these predictions will be satisfied?

In addition, we want to discuss:

- (4) What are the essential differences between Indo-European languages and Japanese for the construction of language processing systems: considering the characteristic forms of writing and speaking, grammatical structures, discourse, and even intrinsic patterns of thinking and knowledge representation?
- (5) How can we break through the computer natural language barrier, and how will artificial intelligence contribute to that accomplishment?