

Summary of Session 7 -- Natural Language (Part 2)

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In this session, Ralph Weischedel of BBN reported on work advancing the state of the art in multiple underlying systems, i.e., translating an understood query or command into a program to produce an answer from one or more application systems. This work addresses one of the key bottlenecks to making NL (and speech) systems truly applicable. Systematic translation techniques from logical form of an English input to commands to carry out the request have previously been worked out only for relational databases, but is extended here in both number of underlying systems and their type.

Rebecca Passonneau of UNISYS reported on joint work in interfacing the NL processing and knowledge-based processing of the PUNDIT system. She presented a fundamental trade-off in computational strategies typically used for NL systems (generate-and-test) and those used for knowledge representation and reasoning systems (highly indexed networks), with the goal of creating more intelligent search algorithms and an increased ability to recover from failures in processing.

Yorick Wilks of New Mexico State reported on extensions to the ViewGen system for belief ascription. These extensions allow intensional object identification, and have applications to battle environments, such as a situation in which we believe that enemy radar shows two of our ships to be the same ship. To properly model this kind of situation, it is necessary, in effect, for the system to reason about the hostile agent's beliefs using a single entity, while reasoning about its own beliefs knowing that same entity to be dual.

Robert Wilensky discussed plans to develop a "consultant kit" that would allow one to build an intelligent, NL-capable consultant for any domain by giving the appropriate knowledge and vocabulary to an "empty" version of the UNIC Consultant system. The work also involves a new natural language analyzer (HERMAN) and a new text understanding system (MANDI).

Bonnie Webber described a study of deictic pronouns that refer to the interpretation of one or more clauses, and compared their use in Italian and in English, concluding that their referents come from the right frontier of the discourse model as it evolves.

This session has the particular distinction of including a paper in the proceedings which was not presented at the meeting -- a report by Robert Ingria on the experience of using the output of a linguistic knowledge acquisition system (the Learner) that was intended for one NL system (the BBN Parlance interface, which is ATN based) in another NL system, one which uses a completely different underlying theory (the BBN ACFG system, which has a unification grammar). In an experiment acquiring a domain-specific lexicon of nearly 1500 items, 98% of those lexical items were directly usable by ACFG after being acquired by the Learner; only 2% required hand editing.