

concentrated on the role of prior discourse, and has developed a procedure *that* handles a wide variety of noun phrase types, including pronouns and missing noun phrases, using a focusing algorithm based on surface syntactic structure (Dahl, submitted for publication). NYU, as part of its work on the domain model, has developed a procedure *that* can identify a component in the model from any of the noun phrases *that* can name that component (Ksiezzyk and Grishman, submitted for publication). After further development, these procedures will be integrated into a comprehensive noun phrase semantic analyzer.

4.5.3. TIME ANALYSIS (SDC)

SDC has started to develop a module to process time information. Sources of time information include verb tense, adverbial time expressions, prepositional phrases, co-ordinate and subordinate conjunctions. These are all mapped into a small set of predicates expressing a partial time ordering among the states and events in the message.

4.6. DOMAIN MODEL (NYU)

The domain model captures the detailed information about the general class of equipment, and about the specific pieces of equipment involved in the messages; this information is needed in order to fully understand the messages. The model integrates part/whole information, type/instance links, and functional information about the various components (Ksiezzyk and Grishman, submitted for publication).

The knowledge base performs several functions:

- It provides the domain-specific constraints needed for the semantics to select the correct arguments for a predicate, so that modifiers are correctly attached to noun phrases.
- It enables noun phrase semantics to identify the correct referent for a phrase.
- It provides the prototype information structures which are instantiated in order to record the information in a particular message.
- It provides the information on equipment structure and function used by the discourse rules in establishing probable causal links between the sentences. And finally, associated with the components in the knowledge base are procedures for graphically displaying the status of the equipment as the message is interpreted.

These functions are performed by a large network of frames implemented using the Symbolics Zetalisp flavors system.

4.7. DISCOURSE ANALYSIS (NYU)

The semantic analyzer generates separate semantic representations for the individual sentences of the message. For many applications it is important to establish the (normally implicit) intersentential relationships between the sentences. This is performed by a set of inference rules *that* (using the domain model) identify

plausible causal and enabling relationships among the sentences. These relationships, once established, can serve to resolve some semantic ambiguities. They can also supplement the time information extracted during semantic analysis and thus clarify temporal relations among the sentences.

4.8. DIAGNOSTICS (NYU)

The diagnostic procedures are intended to localize the cause of failure of the analysis and provide meaningful feedback when some domain-specific constraint has been violated. We are initially concentrating on violations of local (selectional) constraints, and have built a small component for diagnosing such violations and suggesting acceptable sentence forms; later work will study more global discourse constraints.

REFERENCES

- Dahl, Deborah A. (submitted for publication) Focusing and Reference Resolution in PUNDIT.
- Grishman, Ralph; Ksiezzyk, Tomasz, and Nhan, Ngo Thanh (submitted for publication) Model-based Analysis of Messages about Equipment.
- Hirschman, Lynette and Puder, Karl 1986 Restriction Grammar: A PROLOG Implementation. In Warren, D.H.D. and Van Caneghem, M., Eds., *Logic Programming and its Applications*. Ablex Publishing Company, Norwood, New Jersey: 244-261.
- Hirschman, Lynette (in press) "Conjunction in Meta-Restriction Grammar." *Journal of Logic Programming*.
- Ksiezzyk, Tomasz and Grishman, Ralph (submitted for publication) An Equipment Model and its Role in the Interpretation of Nominal Compounds.
- Palmer, Martha S. 1985 Driving Semantics for a Limited Domain. Ph.D. thesis. University of Edinburgh.
- Palmer, Martha; Dahl, Deborah; Schiffman, Rebecca; Hirschman, Lynette; Linebarger, Marcia; and Dowding, John 1986 Recovering Implicit Information. To appear in *Proceedings of the 24th Annual Meeting of the Association for Computational Linguistics*.
- Sager, Naomi and Grishman, Ralph 1975 The Restriction Language for Computer Grammars of Natural Language. *Communications of the ACM* 18: 390-400.
- Sager, Naomi 1981 *Natural Language Information Processing: A Computer Grammar of English and its Applications*. Addison-Wesley, Reading, Massachusetts.

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ANNOUNCEMENTS**COMPUTER SPEECH AND LANGUAGE**

Academic Press has announced this new journal, which commenced publication in March 1986. The purpose of the journal is to publish reports of original research related to quantitative descriptions of the recognition, understanding, production, and coding of speech by humans and/or machines.

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The Trustees of the International Joint Conferences on Artificial Intelligence, Inc. are pleased to announce that IJCAI-89 will be held 20-26 August 1989 in Detroit, Michigan, USA. Wolfgang Bibel, Technical University of Munich, has been elected Conference Chair; Sri Sridharan, BBN Laboratories, has been elected Program Chair; and Sam Uthurusamy of General Motors Research Laboratories has been appointed to chair the Local Arrangements Committee. Don Walker, Bell Communications Research, the IJCAI Secretary-Treasurer, will also serve as Secretary-Treasurer for the conference.

IJCAI-89 will be cosponsored by the American Association for Artificial Intelligence. All conference activities will be coordinated through the AAAI Office by Claudia