

**26th  
Annual Meeting  
of the  
Association for  
Computational Linguistics**

**Proceedings of the Conference**

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## PREFACE

This volume is comprised of the papers presented at the Twenty-Sixth Annual Meeting of the Association for Computational Linguistics. Over the years, this meeting has come to be the forum at which some of the newest and most exciting work is first presented, and this year is no exception.

It is, of course, the authors of the papers who are most responsible for this and who ensure the success of the meeting. We all owe them our gratitude, as we do to all those who submitted papers which unfortunately could not be included in the program. I am personally very pleased at the high quality of the papers we had to choose among.

We are also indebted to the members of the Program Committee, who devoted a great deal of time and effort to coming to these difficult decisions. They are Jared Bernstein, SRI International; Roy Byrd, IBM T.J. Watson Research Center; Sandra Carberry, University of Delaware; Eugene Charniak, Brown University; Raymonde Guindon, MCC; Lynette Hirschmann, Unisys; Karen Jensen, IBM T.J. Watson Research Center; Lauri Karttunen, Xerox PARC; William Rounds, University of Michigan; Ralph Weischedel, BBN Laboratories; and Robert Wilensky, University of California at Berkeley.

In addition much credit goes to William J. Rapaport who has been in charge of the huge task of local arrangements, to Lynda Spahr who organized the demonstrations and exhibits as well as providing major support for local arrangements, to Ralph Grishman who organized the tutorial sessions, and to Mae Jones for her extensive secretarial help. I would also like to thank Dedre Gentner who agreed to give the invited lecture.

Perhaps most of all I would like to express my gratitude to Don Walker, who published the Call for Papers and this Proceedings, sent out the advertisements and registration packets, and in general, this year as in past years, has kept the Association for Computational Linguistics together and operational. We owe our gratitude as well to Betty Walker, who does more for the organization and its meetings than any of us know.

Jerry Hobbs, *SRI International*  
Chair, Program Committee

## ACKNOWLEDGEMENTS

The organizations listed below have contributed to conference in a variety of ways; the ACL is particularly indebted to Bill Rapaport for the effectiveness of his elicitations. Barrister Information Systems Corporation; Calspan Corporation; Calspan-UB Research Center; Erie Community College, City Campus; IBM Corporation; Northeast Artificial Intelligence Consortium; SUNY Buffalo Conferences in the Disciplines; SUNY Buffalo Department of Computer Science; SUNY Buffalo Department of Linguistics; SUNY Buffalo Faculty of Natural Sciences and Mathematics; SUNY Buffalo Faculty of Social Sciences; SUNY Buffalo Graduate & Research Initiative in Cognitive and Linguistic Sciences; SUNY Buffalo Graduate Group in Cognitive Science.

# CONFERENCE PROGRAM

## TUESDAY, 7 JUNE

- 9:00–12:15    **MORNING TUTORIALS**
- Contemporary Syntactic Theories*  
Peter Sells
- Text Processing Systems*  
Martha Palmer, Lynette Hirschman, and Deborah Dahl
- 1:45–5:00    **AFTERNOON TUTORIALS**
- Natural Language Generation*  
David McDonald
- Efficient Parsing Algorithms*  
Masaru Tomita

## WEDNESDAY, 8 JUNE

- 9:00–9:15    **Opening remarks and announcements**
- 9:15–9:45    *Adapting an English Morphological Analyzer for French*  
Roy J. Byrd and Evelyne Tzoukermann
- 9:45–10:15    *Sentence Fragments Regular Structures*  
Marcia C. Linebarger, Deborah A. Dahl, Lynette Hirschman, and Rebecca J. Passonneau
- 10:45–11:10    *Multi-Level Plurals and Distributivity*  
Remko Scha and David Stallard
- 11:10–11:35    *The Interpretation of Relational Nouns*  
Jos de Bruin and Remko Scha
- 11:35–12:00    *Quantifier Scoping in the SRI Core Language Engine*  
Douglas B. Moran
- 1:30–1:55    *A General Computational Treatment of Comparatives for Natural Language Question Answering*  
Bruce W. Ballard
- 1:55–2:20    *Parsing and Interpreting Comparatives*  
Manny Rayner and Amelie Banks
- 2:20–2:45    *Defining the Semantics of Verbal Modifiers in the Domain of Cooking Tasks*  
Robin F. Karlin
- 2:45–3:10    *The Interpretation of Tense and Aspect in English*  
Mary Dalrymple
- 3:40–4:05    *An Integrated Framework for Semantic and Pragmatic Interpretation*  
Martha E. Pollack and Fernando C. N. Pereira
- 4:05–4:30    *A Logic for Semantic Interpretation*  
Eugene Charniak and Robert Goldman
- 4:30–4:55    *Interpretation as Abduction*  
Jerry R. Hobbs, Mark Stickel, Paul Martin, and Douglas Edwards
- 4:55–5:20    *Project APRIL: A Progress Report*  
Robin Haigh, Geoffrey Sampson, and Eric Atwell

7:00-9:00 Visit to Albright-Knox Art Gallery

### THURSDAY, 9 JUNE

- 9:00-9:25 *Discourse Deixis: Reference to Discourse Segments*  
Bonnie Lynn Webber
- 9:25-9:50 *Cues and Control in Expert-Client Dialogues*  
Steve Whittaker and Phil Stenton
- 9:50-10:15 *A Computational Theory of Perspective and Reference in Narrative*  
Janyce M. Wiebe and William J. Rapaport
- 10:45-11:10 *Parsing Japanese Honorifics in Unification-Based Grammar*  
Hiroyuki Maeda, Susumu Kato, Kiyoshi Kogure and Hitoshi Iida
- 11:10-11:35 *Aspects of Clause Politeness in Japanese: An Extended Inquiry Semantics Treatment*  
John Bateman
- 11:35-12:00 *Experiences with an On-Line Translating Dialogue System*  
Seiji Miike, Koichi Hasebe, Harold Somers, and Shin-ya Amano
- 1:30-2:30 **Analogy and the Interpretation of Metaphor**  
Dedre Gentner, **INVITED TALK**
- 2:30-2:55 *Planning Coherent Multisentential Text*  
Eduard H. Hovy
- 3:25-3:50 *A Practical Nonmonotonic Theory for Reasoning about Speech Acts*  
Douglas Appelt and Kurt Konolige
- 3:50-4:15 *Two Types of Planning in Language Generation*  
Eduard H. Hovy
- 4:15-4:40 *Assigning Intonational Features in Synthesized Spoken Directions*  
James Raymond Davis and Julia Hirschberg
- 4:40-5:05 *Atomization in Grammar Sharing*  
Megumi Kameyama
- 7:00-8:00 **RECEPTION**  
Erie Community College, City Campus
- 8:00-10:00 **BANQUET**  
Erie Community College, City Campus  
Co-sponsored by Erie Community College and Barrister  
Information Systems Corporation  
*Presidential Address: Alan Biermann*

### FRIDAY, 10 JUNE

- 9:00-9:25 *Syntactic Approaches to Automatic Book Indexing*  
Gerard Salton
- 9:25-9:50 *Lexicon and Grammar in Probabilistic Tagging of Written English*  
Andrew David Beale
- 9:50-10:15 *Parsing vs. Text Processing in the Analysis of Dictionary Definitions*  
Thomas Ahlswede and Martha Evens
- 10:45-11:10 *Polynomial Learnability and Locality of Formal Grammars*  
Naoki Abe

- 11:10–12:00    **BUSINESS MEETING & ELECTIONS**  
**Nominations for ACL Offices for 1989**  
*President:* Candy Sidner, BBN Laboratories  
*Vice President:* Jerry Hobbs, SRI International  
*Secretary-Treasurer:* Don Walker, Bellcore  
*Executive Committee (1989-1991):* Ralph Grishman, NYU  
*Nominating Committee (1989-1991):* Alan Biermann, Duke University
- 1:30–1:55      *Conditional Descriptions in Functional Unification Grammar*  
Robert T. Kasper
- 1:55–2:20      *Deductive Parsing with Multiple Levels of Representation*  
Mark Johnson
- 2:20–2:45      *Graph-Structured Stack and Natural Language Parsing*  
Masaru Tomita
- 2:45–3:10      *An Earley-Type Parsing Algorithm for Tree Adjoining Grammars*  
Yves Schabes and Aravind K. Joshi
- 3:40–4:05      *A Definite Clause Version of Categorical Grammar*  
Remo Pareschi
- 4:05–4:30      *Combinatory Categorical Grammars: Generative Power and Relationship to Linear Context-Free  
Rewriting Systems*  
David J. Weir and Aravind K. Joshi
- 4:30–4:55      *Unification of Disjunctive Feature Descriptions Structures*  
Andreas Eisele and Jochen Doerre

## TUTORIAL ABSTRACTS

### **Contemporary Syntactic Theories**

Peter Sells

*University of California, Santa Cruz*

This tutorial will examine some recent developments in theoretical syntax centered in, or stemming from, work in Government-Binding Theory, Generalized Phrase Structure Grammar, and Lexical-Functional Grammar. I will try to explain the linguistic motivations for the proposals I will discuss, and also convergences among the theories. Little in the way of background will be assumed, beyond a rudimentary knowledge of phrase structure grammars and basic transformational mechanisms (movement, deletion, etc.).

### **Text Processing Systems**

Martha Palmer, Lynette Hirschman, and

Deborah Dahl

*Unisys Defense Systems*

This tutorial will cover issues in text processing, focusing on the current state-of-the-art in text processing, the applications of text processing, the architecture of a text-processing system (using the Unisys PUNDIT system as an example), issues of portability and extensibility, and issues relating to large-scale computational linguistics projects. The section on system architecture will describe a modular architecture, with components that handle syntax, semantics and pragmatics, emphasizing the importance of segregating domain-specific and domain-independent data. We will then discuss, in the context of recent experiences with the PUNDIT system, the issue of portability across domains and the tools that support bringing up an application in a new domain. We will also look at the problems associated with building a large natural language processing system: how to integrate people with a variety of backgrounds (computer science, linguistics), how to manage and maintain a large system, and how to do development in multiple domains simultaneously. We will conclude with a survey of text-processing systems, comparing their strengths and weaknesses as related to their particular goals.

### **Natural Language Generation**

David McDonald

*Brattle Research Corporation*

This tutorial will take participants through the workings of a complete, albeit very simple, generation system from the underlying conceptual representation to the surface morphology. This mini-system, which uses a "direct replacement" algorithm, would be quite satisfactory for the demands of most present expert systems; its weaknesses will be used to motivate the research that is going on in generation today. The major themes of that research will be surveyed, concentrating on the rationales behind the adoption of specific frameworks, such as systemic, unification, or tree adjoining grammar. Illustrations will be taken from current and historically important systems. Emphasis will be on generation as a planning and construction process which has markedly different concerns and issues from language understanding, and on how this has led to the approaches generation researchers are taking today.

### **Efficient Parsing Algorithms**

Masaru Tomita

*Carnegie-Mellon University*

Parsing efficiency is crucial when building practical natural language systems. This is especially the case for interactive applications such as natural language database access, interfaces to expert systems and interactive machine translation. This tutorial covers several efficient context-free parsing algorithms, including chart parsing, Earley's algorithm, LR parsing and the generalized LR algorithm. Augmentation to the context-free parsing algorithms is also discussed, to handle unification-based grammar formalisms such as Lexical-Functional Grammar, Functional Unification Grammar, and Generalized Phrase Structure Grammar.

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