

21st
Annual Meeting
of the
Association for
Computational Linguistics

Proceedings of the Conference

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PREFACE

This volume provides a record of the proceedings of the 21st Annual Meeting of the Association for Computational Linguistics, held at the Massachusetts Institute of Technology from 15 to 18 June 1983. It contains both the refereed papers presented at the meeting, and written versions of two of the three invited talks given there.

As a reflection of continuing growth and specialization within computational linguistics, the program committee felt that several intellectual developments of potentially wide interest require some introduction for non-specialists. We invited the authors of submitted papers in two of these areas to give instead more extensive presentations with more tutorial content, and they kindly accepted our invitations. The meeting included an invited talk by David Israel on computational implications of Barwise and Perry's newly emergent theory of situation semantics and a tutorial overview by Mark Liberman on the new round of applications of techniques from artificial intelligence and computational linguistics to low-level speech analysis and phonetically-based speech recognition (not included in the proceedings).

The sole panel discussion at the meeting is closely linked to a set of papers which are part of a new wave of work focusing on the computational complexity of various grammatical formalisms and on the relevance of such analyses. The program committee felt the differing views expressed in these papers strongly invited wider discussion. Ray Perrault organized a panel on these topics, and set the stage with a tutorial presenting relevant formal underpinnings and historical background. Particular thanks are due him for taking on this dual responsibility in addition to his other extensive duties at the meeting.

As chair, I would to thank the rest of the program committee: Phil Cohen (Fairchild), Lauri Karttunen (University of Texas), Bill Mann (USC/ISI), Robert Moore (SRI International), Ann Robinson (Symantec), and Robert Wilensky (University of California, Berkeley). Every member of the committee read and evaluated each of the 64 papers submitted to the conference. The selection of final papers is always difficult; this year was no exception. Thanks to all those who took the time and effort to submit papers to the conference; particular thanks go to those whose submissions could not be accommodated due to the time limits of the meeting.

The support and assistance of a number of people were instrumental in organizing this conference. Don Walker produced the Call for Papers, the Advance Program, and the Proceedings (!), and generally made sure things were on track. Jon Allen, assisted by Judy Sobel, was responsible for local arrangements for the meeting, including coordinating the demonstrations. Ray Perrault provided counsel every step of the way, in addition to his direct contributions to the program. I myself owe special thanks to June Fostik of Bell Labs for secretarial and organizational assistance; her help was invaluable.

Several institutions provided assistance; their contribution should be acknowledged. SRI International's facilities were used to produce the Call for Papers, the Advanced Program, and these Proceedings. Bell Labs provided clerical and secretarial support to the program committee. MIT provided support for local arrangements.

And finally, thanks to the people attending the meeting. Without their presence, much of this effort would lose its meaning.

Mitch Marcus
Chair, Program Committee

CONFERENCE PROGRAM

TUESDAY, 14 JUNE 1983

6:00-10:00 Registration, Reception, and Demonstrations
RLE Conference Room, 36-428

WEDNESDAY, 15 JUNE 1983

9:00-11:00 Computational Complexity and Grammatical Formalisms

Context-Freeness and the Computer Processing of Human Languages

Geoffrey K. Pullum, University of California, Santa Cruz

Factoring Recursion and Dependencies: An Aspect of Tree Adjoining Grammars (TAG) and a Comparison of Some Formal Properties of TAGs, GPSGs, PLGs, and LFGs

Aravind K. Joshi, University of Pennsylvania

Crossed Serial Dependencies: A Low-Power Parseable Extension to GPSG

Henry Thompson, University of Edinburgh

Formal Constraints on Metarules

Stuart M. Shieber, Susan U. Stucky, Hans Uszkoreit, Jane J. Robinson, SRI International

11:30-12:30 Invited Talk

A Prolegomenon To Situation Semantics

David J. Israel, Bolt Beranek and Newman

2:30-5:00 Semantics and Pragmatics

A Modal Temporal Logic for Reasoning About Change

Eric Mays, University of Pennsylvania

Providing A Unified Account of Definite Noun Phrases in Discourse

Barbara J. Grosz, SRI International; Aravind K. Joshi, and Scott Weinstein, University of Pennsylvania

Using Lambda-Calculus to Represent Meanings in Logic Grammars

David S. Warren, SUNY at Stony Brook

An Improper Treatment of Quantification in Ordinary English

Jerry R. Hobbs, SRI International

A Foundation for Semantic Interpretation

Graeme Hirst, Brown University

7:00-10:00 Demonstrations

RLE Conference Room, 36-428

THURSDAY, 16 JUNE 1983

9:00-10:00 Generation

Telegram: A Grammar Formalism for Language Planning

Douglas E. Appelt, SRI International

An Overview of the Nigel Text Generation Grammar
William C. Mann, USC/Information Science Institute

10:30-11:30 Invited Talk

Approaches to Phonetically Based Speech Recognition: A Tutorial
Mark Liberman, Bell Laboratories

11:30-12:30 Speech Analysis

Automatic Recognition of Intonation Patterns
Janet B. Pierrehumbert, Bell Laboratories

A Finite-State Parser for Use in Speech Recognition
Kenneth W. Church, Massachusetts Institute of Technology

2:30-3:30 Invited Talk

On the Mathematical Properties of Linguistic Theories
Ray Perrault, University of Toronto

3:30-5:00 Panel

Generative Capacity and Computational Complexity of Linguistic Theories

Chair: Ray Perrault, University of Toronto

Panelists: Robert Berwick, Massachusetts Institute of Technology

Aravind Joshi, University of Pennsylvania

Ronald Kaplan, Xerox Palo Alto Research Center

Stanley Peters, University of Texas

Geoffrey Pullum, University of California, Santa Cruz

Stuart Shieber, SRI International

Henry Thompson, University of Edinburgh

5:00-6:00 ACL Business Meeting

NOMINATIONS FOR ACL OFFICES FOR 1984

President: Martha W. Evens, Illinois Institute of Technology

Vice President: Lance A. Miller, IBM T.J. Watson Research Center

Secretary-Treasurer: Donald E. Walker, SRI International

Executive Committee (1984-1986): Mitchell Marcus, Bell Laboratories

Nominating Committee (1984-1986): C. Raymond Perrault, University of Toronto

7:00-10:00 Reception and Banquet

Hyatt Regency Hotel, 575 Memorial Drive

Presidential Address

C. Raymond Perrault, University of Toronto

FRIDAY, 17 JUNE 1983

9:00-12:00 Parsing

A Framework for Processing Partially Free Word Order
Hans Uszkoreit, SRI International

Sentence Disambiguation by a Shift-Reduce Parsing Technique

Stuart M. Shieber, SRI International

Syntactic Constraints and Efficient Parsability

Robert C. Berwick, Amy S. Weinberg, Massachusetts Institute of Technology

Deterministic Parsing of Syntactic Non-fluencies

Donald Hindle, Bell Laboratories

D-Theory: Talking about Talking about Trees

Mitchell P. Marcus, Donald Hindle, Margaret Fleck, Bell Laboratories

Parsing as Deduction

Fernando C. N. Pereira, David H. D. Warren, SRI International

2:00-4:00 Applications

Design and Implementation of a Knowledge-Based Report Generator

Karen Kukich, Bell Laboratories

Menu-Based Natural Language Understanding

Harry R. Tennant, Kenneth M. Ross, Richard M. Saenz, Craig W. Thompson and James R. Miller,
Texas Instruments

Knowledge Structures in UC, the UNIX Consultant*

David N. Chin, University of California, Berkeley

Discourse Pragmatics in Task-Oriented Natural Language Interfaces

Jaime G. Carbonell, Carnegie-Mellon University

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