

**Proceedings of the Workshop on
Incremental Parsing:
Bringing Engineering and Cognition Together**

Held in cooperation with ACL-2004

Edited by Frank Keller, Stephen Clark,
Matthew Crocker and Mark Steedman

**25 July 2004
Barcelona, Spain**

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INTRODUCTION

The papers in these proceedings were presented at the ACL-2004 workshop *Incremental Parsing: Bringing Engineering and Cognition Together*, held in Barcelona on July 25.

Incremental processing is crucial for many NLP tasks. Language modelling, for instance, typically requires that probabilities are assigned incrementally as more and more of the speech stream becomes available. Also, there is substantial evidence showing that humans process language in an incremental fashion, and thus any cognitively plausible model of human parsing must take incrementality into account.

The aim of the workshop was to address the dual challenge of defining incremental parsing models that are useful for engineering tasks such as language modelling, while also contributing to our understanding and modelling of the human parsing mechanism.

We were pleased to receive 20 submissions, of which we accepted 8 papers for presentation and 3 as reserve papers. Both elements of the workshop theme are well-represented in the proceedings, with roughly 6 of the papers relating to NLP/language engineering, and 5 relating to cognitive modelling. We would like to thank the program committee for the excellent job they did in reviewing the submissions.

As well as 8 paper presentations, we also had talks from two keynote speakers: Brian Roark, from the Oregon Graduate Institute, Oregon Health and Science University, and Patrick Sturt, from the Department of Psychology, University of Glasgow. The proceedings include extended abstracts for these talks.

Frank Keller
Stephen Clark
Matthew Crocker
Mark Steedman
July 2004

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Technical Program Schedule

25 July 2004

- 09:00-09:10 Welcome
- 09:10-09:35 *Competence and Performance Grammar in Incremental Processing*
Vincenzo Lombardo, Alessandro Mazzei and Patrick Sturt
- 09:35-10:00 *Stochastically Evaluating the Validity of Partial Parse Trees in Incremental Parsing*
Yoshihide Kato, Shigeki Matsubara and Yasuyoshi Inagaki
- 10:00-10:30 Coffee break
- 10:30-11:20 **Keynote talk:** *Efficient Incremental Beam-Search Parsing with Generative and Discriminative Models*
Brian Roark
- 11:20-11:45 *Incremental Parsing with Reference Interaction*
Scott C. Stoness, Joel Tetreault and James Allen
- 11:45-12:10 *Lookahead in Deterministic Left-Corner Parsing*
James Henderson
- 12:10-13:40 Lunch break
- 13:40-14:05 *An Efficient Algorithm to Induce Minimum Average Lookahead Grammars for Incremental LR Parsing*
Dekai Wu and Yihai Shen
- 14:05-14:30 *A Statistical Constraint Dependency Grammar (CDG) Parser*
Wen Wang and Mary P. Harper
- 14:30-14:55 *Incrementality in Deterministic Dependency Parsing*
Joakim Nivre
- 14:55-15:20 *The Information-Processing Difficulty of Incremental Parsing*
John Hale
- 15:20-15:50 Coffee break
- 15:50-16:40 **Keynote talk:** *Incrementality in Syntactic Processing: Computational Models and Experimental Evidence*
Patrick Sturt
- 16:40-17:15 Summary and discussion

Reserve papers

Dynamic Dependency Parsing

Michael Daum

Incremental Parsing, or Incremental Grammar?

Matthew Purver and Ruth Kempson

Modeling Sentence Processing in ACT-R

Shravan Vasishth and Richard L. Lewis

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