

ACL 2007



ACL 2007

Proceedings of the Workshop on Cognitive Aspects of Computational Language Acquisition

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Preface

This volume contains the papers accepted for presentation at the ACL 2007 Workshop on Cognitive Aspects of Computational Language Acquisition, held in Prague, Czech Republic on the 29th of June, 2007.

The past decades have seen a massive expansion in the application of statistical and machine learning methods to natural language processing (NLP). This work has yielded impressive results in numerous speech and language processing tasks including speech recognition, morphological analysis, parsing, lexical acquisition, semantic interpretation, and dialogue management.

Advances in these areas are generally viewed as engineering achievements but recently researchers have begun to investigate the relevance of computational learning techniques to research on human language acquisition. These investigations could have double significance since an improved understanding of human language acquisition will not only benefit cognitive sciences in general but may also feed back to the NLP community, placing researchers in a better position to develop new language models and/or techniques.

Success in this type of research requires close collaboration between NLP and cognitive scientists. The aim of this workshop is thus to bring together researchers from the diverse fields of NLP, machine learning, artificial intelligence, linguistics, psycho-linguistics, etc. who are interested in the relevance of computational techniques for understanding human language learning. The workshop is intended to bridge the gap between the computational and cognitive communities, promote knowledge and resource sharing, and help initiate interdisciplinary research projects.

In the call for papers we solicited papers describing cognitive aspects of computational language acquisition including:

- Computational learning theory and analysis of language learning
- Computational models of human (first, second and bilingual) language acquisition
- Computational models of various components of the language faculty and their impact on the acquisition task
- Computational models of the evolution of language
- Data resources and tools for investigating computational models of human language acquisition
- Empirical and theoretical comparisons of the learning environment and its impact on the acquisition task
- Computational methods for acquiring various linguistic information (related to e.g. speech, morphology, lexicon, syntax, semantics, and discourse) and their relevance to research on human language acquisition
- Investigations and comparisons of supervised, unsupervised and weakly-supervised methods for learning (e.g. machine learning, statistical, symbolic, biologically-inspired, active learning, various hybrid models) from the cognitive aspect

Of the 22 papers submitted, the programme committee selected 12 papers for publication that are representative of the state-of-the-art in this interdisciplinary area. Each full-length submission was independently reviewed by three members of the program committee, who then collectively faced the difficult task of selecting a subset of papers for publication from a very strong field. Among the accepted papers we see proposed techniques for creating, analysing and annotating data resources for research on language acquisition. We also see presentations of computational models for first and second language acquisition. These models investigate the acquisition of both syntactic and semantic phenomena, adopting different linguistic theories and formalisms, using varying levels of supervision.

We would like to thank all the authors who submitted papers, as well as the members of the programme committee for the time and effort they contributed in reviewing the papers. Our thanks go also to the organisers of the main conference, the publication chairs, and the conference workshop committee headed by Simone Teufel.

Paula Buttery, Aline Villavicencio, Anna Korhonen

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Table of Contents

<i>A Linguistic Investigation into Unsupervised DOP</i> Rens Bod	1
<i>Using Classifier Features for Studying the Effect of Native Language on the Choice of Written Second Language Words</i> Oren Tsur and Ari Rappoport	9
<i>Phon 1.2: A Computational Basis for Phonological Database Elaboration and Model Testing</i> Yvan Rose, Gregory Hedlund, Rod Byrne, Todd Wareham and Brian MacWhinney	17
<i>High-accuracy Annotation and Parsing of CHILDES Transcripts</i> Kenji Sagae, Eric Davis, Alon Lavie, Brian MacWhinney and Shuly Wintner	25
<i>I will shoot your shopping down and you can shoot all my tins—Automatic Lexical Acquisition from the CHILDES Database</i> Paula Buttery and Anna Korhonen	33
<i>A Cognitive Model for the Representation and Acquisition of Verb Selectional Preferences</i> Afra Alishahi and Suzanne Stevenson	41
<i>ISA meets Lara: An incremental word space model for cognitively plausible simulations of semantic learning</i> Marco Baroni, Alessandro Lenci and Luca Onnis	49
<i>Simulating the acquisition of object names</i> Alessio Plebe, Vivian De La Cruz and Marco Mazzone	57
<i>Rethinking the syntactic burst in young children</i> Christophe Parrisé	65
<i>The Topology of Synonymy and Homonymy Networks</i> James Gorman and James Curran	73
<i>The Benefits of Errors: Learning an OT Grammar with a Structured Candidate Set</i> Tamas Biro	81
<i>Learning to interpret novel noun-noun compounds: evidence from a category learning experiment</i> Barry Devereux and Fintan Costello	89

Conference Program

Friday, June 29, 2007

8:55–9:00 Opening Remarks

9:00–9:45 Invited Talk by Suzanne Stevenson

9.45–10:15 *A Linguistic Investigation into Unsupervised DOP*
Rens Bod

10:15–10:45 *Using Classifier Features for Studying the Effect of Native Language on the Choice of Written Second Language Words*
Oren Tsur and Ari Rappoport

Morning Coffee Break

11.15–11.45 *Phon 1.2: A Computational Basis for Phonological Database Elaboration and Model Testing*
Yvan Rose, Gregory Hedlund, Rod Byrne, Todd Wareham and Brian MacWhinney

11.45–12.15 *High-accuracy Annotation and Parsing of CHILDES Transcripts*
Kenji Sagae, Eric Davis, Alon Lavie, Brian MacWhinney and Shuly Wintner

12.15–12.45 *I will shoot your shopping down and you can shoot all my tins—Automatic Lexical Acquisition from the CHILDES Database*
Paula Buttery and Anna Korhonen

Lunch

14.15–14.45 *A Cognitive Model for the Representation and Acquisition of Verb Selectional Preferences*
Afra Alishahi and Suzanne Stevenson

14.45–15.15 *ISA meets Lara: An incremental word space model for cognitively plausible simulations of semantic learning*
Marco Baroni, Alessandro Lenci and Luca Onnis

15.15–15.45 *Simulating the acquisition of object names*
Alessio Plebe, Vivian De La Cruz and Marco Mazzone

Afternoon Break

Friday, June 29, 2007 (continued)

- 16:15–16:45 *Rethinking the syntactic burst in young children*
Christophe Parisse
- 16:45–17:15 *The Topology of Synonymy and Homonymy Networks*
James Gorman and James Curran
- 17:15–17:45 *The Benefits of Errors: Learning an OT Grammar with a Structured Candidate Set*
Tamas Biro
- 17:45–18:15 *Learning to interpret novel noun-noun compounds: evidence from a category learning experiment*
Barry Devereux and Fintan Costello
- 18:15–18.20 Closing Remarks