

MoL 13

**The 13th Meeting on the Mathematics of Language**

**Proceedings**

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## Introduction

The Mathematics of Language (MoL) special interest group traces its origins to a meeting held in October 1984 at Ann Arbor, Michigan. While MoL is among the oldest SIGs of the ACL, it is the first time that the proceedings are produced by our parent organization. The first volume was published by Benjamins, later ones became special issues of the *Annals of Mathematics and Artificial Intelligence* and *Linguistics and Philosophy*, and for the last three occasions (really six years, since MoL only meets every second year) we relied on the Springer LNCS series. Perhaps the main reason for this aloofness was that the past three decades have brought the ascendancy of statistical methods in computational linguistics, with the formal, grammar-based methods that were the mainstay of mathematical linguistics viewed with increasing suspicion.

To make matters worse, the harsh anti-formal rhetoric of leading linguists relegated important attempts at formalizing Government-Binding and later Minimalist theory to the fringes of syntax. Were it not for phonology and morphology, where the incredibly efficient finite state methods pioneered by Kimmo Koskenniemi managed to bridge the gap between computational practice and linguistic theory, and were it not for the realization that the mathematical approach has no alternative in machine learning, MoL could have easily disappeared from the frontier of research.

The current volume marks a time when we can begin to see the computational and the theoretical linguistics camps together again. The selection of papers, while still strong on phonology (Heinz and Lai, Heinz and Rogers) and morphology (Kornai et al.), extends well to syntax (Hunter and Dyer, Fowlie) and semantics (Clark et al., Fernando). Direct computational concerns such as machine translation (Martzoukos et al.), decoding (Corlett and Penn), and complexity (Berglund et al.) are now clearly seen as belonging to the core focus of the field.

The 10 papers presented in this volume were selected by the Program Committee from 16 submissions. We would like to thank the authors, the members of the Program Committee, and our invited speaker for their contributions to the planning and execution of the workshop, and the ACL conference organizers, especially Aoife Cahill and Qun Liu (workshops), and Roberto Navigli and Jing-Shin Chang (publications) for their significant contributions to the overall management of the workshop and their direction in preparing the publication of the proceedings.

Andras Kornai and Marco Kuhlmann (editors)  
June 2013



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**Invited Speaker:**

Mark Johnson (Macquarie University, Australia)



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# Program

## Friday, August 9

### Session 1

- 09:00–09:30 *Distributions on Minimalist Grammar Derivations*  
Tim Hunter and Chris Dyer
- 09:30–10:00 *Order and Optionality: Minimalist Grammars with Adjunction*  
Meaghan Fowlie
- 10:00–10:30 *On the Parameterized Complexity of Linear Context-Free Rewriting Systems*  
Martin Berglund, Henrik Björklund and Frank Drewes
- 10:30–11:00 Coffee Break

### Session 2

- 11:00–11:30 *Segmenting Temporal Intervals for Tense and Aspect*  
Tim Fernando
- 11:30–12:00 *The Frobenius Anatomy of Relative Pronouns*  
Stephen Clark, Bob Coecke and Mehrnoosh Sadrzadeh
- 12:00–12:30 *Vowel Harmony and Subsequentiality*  
Jeffrey Heinz and Regine Lai
- 12:30–14:00 Lunch Break

**Friday, August 9 (continued)**

**Session 3**

14:00–14:30 *Learning Subregular Classes of Languages with Factored Deterministic Automata*  
Jeffrey Heinz and Jim Rogers

14:30–15:00 *Structure Learning in Weighted Languages*  
Andras Kornai, Attila Zséder and Gábor Recski

15:00–15:30 *Why Letter Substitution Puzzles are Not Hard to Solve: A Case Study in Entropy and Probabilistic Search-Complexity*  
Eric Corlett and Gerald Penn

15:30–16:00 Coffee Break

**Session 4**

16:00–16:30 *Investigating Connectivity and Consistency Criteria for Phrase Pair Extraction in Statistical Machine Translation*  
Spyros Martzoukos, Christophe Costa Florêncio and Christof Monz

16:30–17:30 *Grammars and Topic Models*  
Mark Johnson