

**Proceedings of the 8th Workshop on Cognitive Modeling and
Computational Linguistics**

(CMCL 2018)

January 7, 2018

Thanks to our generous sponsor:

The Department of Cognitive Science at Johns Hopkins University

©2018 The Association for Computational Linguistics

Order copies of this and other ACL proceedings from:

Association for Computational Linguistics (ACL)
209 N. Eighth Street
Stroudsburg, PA 18360
USA
Tel: +1-570-476-8006
Fax: +1-570-476-0860
acl@aclweb.org

ISBN 978-1-948087-10-0

Introduction

The eighth workshop in Cognitive Modelling and Computational Linguistics (CMCL 2018) was held in Salt Lake City, Utah. This time we decided to do things differently and co-locate our workshop with the first meeting of the Society for Computation in Linguistics (SCiL), which itself was held alongside the annual January meeting of the Linguistics Society of America. We did this instead of the usual workshop arrangement with an Association of Computational Linguistics (ACL) affiliated conference in order to emphasize the interdisciplinary nature of the CMCL “mission” and attract papers and attendees who do not normally attend ACL-related venues. We intend to return to ACL conferences and possibly alternate between ACL and linguistics-focused venues in the future.

We are very pleased to report that our strategy was successful. This year’s proceedings cover a wide gamut of computational models and experimental techniques for linguistic and psycholinguistic phenomena, from fMRI work to language modeling for reading times. As before, we provided a Best Student Paper Award and four travel grants to student authors. Thanks to the generous support of the Department of Cognitive Science at Johns Hopkins University for enabling us to continue that tradition this year.

We received fifteen paper submissions in total, of which six were chosen for oral presentation and two for posters. One paper was chosen as an extended abstract and presented as a poster and does not appear in these proceedings. We would like to give special note to the extremely high quality of submissions relative to the limited time in our schedule; making final acceptance decisions was truly a very difficult process of choosing among excellent and interesting work.

Finally, once again, we would like to thank the authors, reviewers, and attendees for making this workshop a successful endeavour.

Cassandra Jacobs
Tal Linzen
Asad Sayeed
Marten van Schijndel

Organizers

Cassandra Jacobs, University of California at Davis; Stitch Fix
Tal Linzen, Johns Hopkins University
Asad Sayeed, University of Gothenburg
Marten van Schijndel, Johns Hopkins University

Program Committee:

Omri Abend, Hebrew University of Jerusalem
Afra Alishahi, Tilburg University
Fatemeh Torabi Asr, Indiana University
Klinton Bicknell, Northwestern University
Christos Christodoulopoulos, Amazon
Alexander Clark, King's College
Vera Demberg, University of Saarland
Brian Dillon, University of Massachusetts
Micha Elsner, The Ohio State University
Afsaneh Fazly, University of Toronto
Bob Frank, Yale University
Michael C. Frank, Stanford University
Robert Frank, Yale University
Stella Frank, Edinburgh University
Thomas Graf, Stony Brook University
John T. Hale, Cornell University
Jeffrey Heinz, University of Delaware
Tim Hunter, UCLA
Shalom Lappin, King's College
Pavel Logacev, Bogazici University
Emily Morgan, Tufts University
Timothy John O'Donnell, McGill University
Sebastian Padó, University of Stuttgart
Bozena Pajak, Duolingo
Lisa Pearl, UC Irvine
Steven Piantadosi, University of Rochester
Roi Reichart, Technion University
Brian Roark, Google
Ingeborg Roete, Max Planck Institute for Psycholinguistics
William Schuler, The Ohio State University
Cory Shain, The Ohio State University
Suzanne Stevenson, University of Toronto
Titus von der Malsburg, UCSD
Colin Wilson, Johns Hopkins University

Table of Contents

<i>Coreference and Focus in Reading Times</i> Evan Jaffe, Cory Shain and William Schuler	1
<i>Predictive power of word surprisal for reading times is a linear function of language model quality</i> Adam Goodkind and Klinton Bicknell	10
<i>Dynamic encoding of structural uncertainty in gradient symbols</i> Pyeong Whan Cho, Matthew Goldrick, Richard L. Lewis and Paul Smolensky	19
<i>Phonological (un)certainly weights lexical activation</i> Laura Gwilliams, David Poeppel, Alec Marantz and Tal Linzen	29
<i>Predicting and Explaining Human Semantic Search in a Cognitive Model</i> Filip Miscevic, Aida Nematzadeh and Suzanne Stevenson	35
<i>Modeling bilingual word associations as connected monolingual networks</i> Yevgen Matuskevych, Amir Ardalan Kalantari Dehaghi and Suzanne Stevenson	46
<i>Experiential, Distributional and Dependency-based Word Embeddings have Complementary Roles in Decoding Brain Activity</i> Samira Abnar, Rasyan Ahmed, Max Mijnheer and Willem Zuidema	57
<i>Exactly two things to learn from modeling scope ambiguity resolution: Developmental continuity and numeral semantics</i> K.J. Savinelli, Greg Scontras and Lisa Pearl	67

Conference Program

Sunday, January 7, 2018

8:45–9:00 *Opening Remarks*

Oral presentations

9:00–9:30 *Coreference and Focus in Reading Times*
Evan Jaffe, Cory Shain and William Schuler

9:30–10:00 *Predictive power of word surprisal for reading times is a linear function of language model quality*
Adam Goodkind and Klinton Bicknell

10:00–10:30 *Dynamic encoding of structural uncertainty in gradient symbols*
Pyeong Whan Cho, Matthew Goldrick, Richard L. Lewis and Paul Smolensky

10:30–11:00 *Phonological (un)certainly weights lexical activation*
Laura Gwilliams, David Poeppel, Alec Marantz and Tal Linzen

11:00–11:30 *Predicting and Explaining Human Semantic Search in a Cognitive Model*
Filip Miscevic, Aida Nematzadeh and Suzanne Stevenson

11:30–12:00 *Modeling bilingual word associations as connected monolingual networks*
Yevgen Matusevych, Amir Ardalan Kalantari Dehaghi and Suzanne Stevenson

Sunday, January 7, 2018 (continued)

Poster presentations

- 12:00–12:30 *Experiential, Distributional and Dependency-based Word Embeddings have Complementary Roles in Decoding Brain Activity*
Samira Abnar, Rasyan Ahmed, Max Mijnheer and Willem Zuidema
- 12:00–12:30 *Exactly two things to learn from modeling scope ambiguity resolution: Developmental continuity and numeral semantics*
K.J. Savinelli, Greg Scontras and Lisa Pearl
- 12:00–12:30 *Uniform Information Density (UID) Effects on Syntactic Choice in Hindi and English* [extended abstract]
A. Jain, V. Singh, S. Agarwal, R. Rajkumar