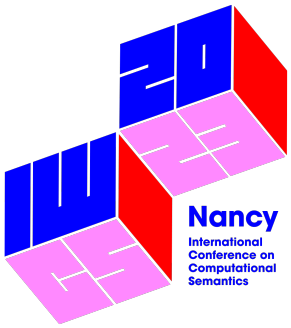
IWCS 2023

The 15th International Conference on Computational Semantics

Proceedings of the Conference



June 21 - 23, 2023
Nancy, France

©2023 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 978-1-959429-74-6

Message from the Organizers

These are the conference proceedings of IWCS 2023, the 15th edition of the International Conference on Computational Semantics. This conference is supported by the Laboratoire Lorrain de recherche en informatique et ses applications (LORIA), the Institut des Sciences du Digital Management et Cognition (IDMC), the CNRS, Inria, Université de Lorraine, Göteborgs universitet, the Métropole du Grand Nancy, the Atelier du vélo de Maxéville, and Erdil.

This edition of IWCS takes place after a fully remote edition of the conference in Groningen 2021. In order to promote the community getting together IRL after the pandemic IWCS 2023 is held in an in-person format. However, recordings of all talks are available on the iwcs2023.loria.fr `http://iwcs2023.loria.fr/` website. IWCS 2023 spans three days – 21 - 23 June – with an additional day of satellite workshops before the conference:

- **DMR 2023**: The Fourth International Workshop on Designing Meaning Representation
- **InqBnB4**: Inquisitiveness Below and Beyond the Sentence Boundary
- **ISA-19**: 19th Joint ACL – ISO Workshop on Interoperable Semantic Annotation
- **NALOMA'23**: Natural Logic meets Machine Learning 2023

55 submissions were made to the main conference (31 long and 24 short). Each paper was reviewed by three reviewers. 20 long papers were accepted, one of which was withdrawn. This results in 19 long and 14 short papers with a final acceptance rate of 60 % (61 % for long and 58 % for short papers). The final programme is diverse with topics ranging from semantic parsing, question answering, knowledge extraction, semantics representation and Large Language Models. The programme also features two keynotes given by Rachel Fernandez (University of Amsterdam) and Lucia Donatelli (Vrije Universiteit in Amsterdam). We thank them for participating in IWCS 2023! Abstracts of their contributions are available in this volume.

In keeping with IWCS tradition, an unconference event was also organised, to provide an opportunity for open discussion on subjects proposed by conference participants. It's a vital time to take stock of the issues facing the community and to structure ourselves better. Among the topics were ethical issues, compositionality and shared tasks, and closed-source models in NLP. Once again, the discussions proved to be extremely interesting and opened up new avenues for future developments.

We take the opportunity to congratulate the best paper awards:

- Best short paper award goes to Dmitry Nikolaev and Sebastian Padó for their article and poster "The Universe of Utterances According to BERT".
- Best long paper award goes to Jonghyuk Park, Alex Lascarides and Subramanian Ramamoorthy for their article "Interactive Acquisition of Fine-grained Visual Concepts by Exploiting Semantics of Generic Characterizations in Discourse".

Don't hesitate to watch the recordings of their presentations!

This edition of IWCS, which brought participants together in the Octroi hall for the social event, could not have been held without the unfailing help of the local team known as the red t-shirts team. They did an incredible job to make sure everything was ready and running smoothly. We'd like to thank them for their time and energy. We would also like to thank our Programme Committee members for their detailed and helpful reviews.

We hope that IWCS2023 has been an exciting edition of the conference series that will have inspired the computational semantics community to continue discussions while integrating many new themes.

Maxime Amblard and Ellen Breitholtz

Organizing Committee

Organisers:

Local Chair: Maxime Amblard
Program Chairs: Maxime Amblard and Ellen Breitholtz

Program Commitee:

- Rodrigo Agerri
- Alexander Berman
- Jean-Philippe Bernardy
- Yuri Bizzoni
- Moritz Blum
- Maria Boritchev
- António Branco
- Paul Buitelaar
- Harry Bunt
- Aljoscha Burchardt
- Stergios Chatzikyriakidis
- Rui Chaves
- Philipp Cimiano
- Robin Cooper
- Paula Czarnowska
- Philippe de Groote
- Markus Egg
- Guy Emerson
- Katrin Erk
- Arash Eshghi
- Kilian Evang
- Meaghan Fowlie
- Diego Frassinelli
- André Freitas
- Jonathan Ginzburg
- Eleni Gregoromichelaki
- Christine Howes
- Elisabetta Jezek
- Rohit Kate
- Gene Kim
- Ralf Klabunde
- Pavel Kovalev
- Nikhil Krishnaswamy
- Staffan Larsson
- Alex Lascarides
- Alessandro Lenci
- Chuyuan Li
- Vladislav Maraev
- Aleksandre Maskharashvili
- Louise McNally
- Koji Mineshima
- Pascale Moreira
- Larry Moss
- Bill Noble
- Sebastian Padó
- Siyana Pavlova
- Sandro Pezzelle
- Manfred Pinkal
- Paul Piwek
- Violaine Prince
- Stephen Pulman
- Allan Ramsay
- Christian Retoré
- Valentin Richard
- German Rigau
- Mats Rooth
- Mehrnoosh Sadrzadeh
- Asad Sayeed
- Nathan Schneider
- Sabine Schulte im Walde
- Tim Van de Cruys
- Christian Wartena
- Matthijs Westera
- Gijs Wijnholds
- Hitomi Yanaka
- Roberto Zamparelli
- Elena Zotova

Local Staff:

- Marie Cousin
- Valentin Richard
- Siyana Pavlova
- Amandine Lecomte
- Amandine Decker
- Chuyuan Li
- Hee-Soo Choi
- Vincent Tourneur
- Khensa Daoudi
- Bruno Guillaume
- Julie Halbout
- Fanny Ducel
- Laura Masson-Grehaigne
- Nathalie Fritz
- Delphine Hubert
- Anne-Marie Messaoui
- Marie Baron
- Mariana Diaz
- Marie Buchheit
- Marie-Luce Boulet

Invited Speakers

Raquel Fernandez, Institute for Logic, Language & Computation, University of Amsterdam

Common Ground and Audience Design in Referential Games

In conversation, we decide what to say and how to say it on the basis of what we share with our dialogue partner. Yet, it is an open question how such accommodation can be modelled in computational agents. Taking a visually grounded referential game as test bed, in this talk I will present recent work where we use computational methods to analyse repeated references exhibiting lexical entrainment and model audience-aware adaptation between agents with asymmetric knowledge.

Lucia Donatelli, Computational Linguistics and Text Mining Lab (CLTL), Vrije Universiteit

Compositionality and Its Discontents

How do we bridge the gap between compositional semantics and broader notions ofmeaning in computational linguistics? In this talk, I will address this question from several angles. First, I will look at the challenge of adequately representing semantic structure when designing meaning representations, given distinct theoretical and practical considerations. I will present a semantic parsing methodology for normalizing discrepancies between representations at the compositional level to better understand which design differences are semantically rooted and which are superficial. Next, I will present work discussing how representting compositional structure helps on tasks such as cross-lingual parsing and compositional generalization. Finally, I will discuss implications of structured representations and models for generalizing to applications such as situated dialogue and interaction, where compositional semantics alone seems insufficient for robust performance.

Table of Contents

Can current NLI systems handle German word order? Investigating language model performance on a new German challenge set of minimal pairs
Ines Reinig and Katja Markert 1

Contextual Variability depends on Categorical Specificity rather than Conceptual Concreteness: A Distributional Investigation on Italian data
Giulia Rambelli and Marianna Bolognesi 16

Probing BERT's ability to encode sentence modality and modal verb sense across varieties of English
Jonas Wagner and Sina Zarrieß 28

Dense Paraphrasing for Textual Enrichment
Jingxuan Tu, Kyeongmin Rim, Eben Holderness, Bingyang Ye and James Pustejovsky 39

Towards Unsupervised Compositional Entailment with Multi-Graph Embedding Models
Lorenzo Bertolini, Julie Weeds and David Weir 50

Gender-tailored Semantic Role Profiling for German
Manfred Klenner, Anne Göhring, Alison Kim and Dylan Massey 62

Implicit causality in GPT-2: a case study
Minh Hien Huynh, Tomas Lentz and Emiel van Miltenburg 67

Multi-purpose neural network for French categorial grammars
Gaëtan Margueritte, Daisuke Bekki and Koji Mineshima 78

Experiments in training transformer sequence-to-sequence DRS parsers
Ahmet Yildirim and Dag Haug 83

Unsupervised Semantic Frame Induction Revisited
Younes Samih and Laura Kallmeyer 89

Towards Ontologically Grounded and Language-Agnostic Knowledge Graphs
Walid Saba 94

The Universe of Utterances According to BERT
Dmitry Nikolaev and Sebastian Padó 99

Sparser is better: one step closer to word embedding interpretability
Simon Guillot, Thibault Prouteau and Nicolas Dugue 106

Semantically Informed Data Augmentation for Unscoped Episodic Logical Forms
Mandar Juvekar, Gene Kim and Lenhart Schubert 116

Meaning-Text Theory within Abstract Categorial Grammars: Toward Paraphrase and Lexical Function Modeling for Text Generation
Marie Cousin 134

Measuring Fine-Grained Semantic Equivalence with Abstract Meaning Representation
Shira Wein, Zhuxin Wang and Nathan Schneider 144

The Importance of Context in the Evaluation of Word Embeddings: The Effects of Antonymy and Polysemy
James Fodor, Simon De Deyne and Shinsuke Suzuki 155

RaTE: a Reproducible automatic Taxonomy Evaluation by Filling the Gap
Phillippe Langlais and Tianjian Lucas Gao 173

The Universal Anaphora Scorer 2.0
Juntao Yu, Michal Novák, Abdulrahman Aloraini, Nafise Sadat Moosavi, Silviu Paun, Sameer Pradhan and Massimo Poesio 183

The Sequence Notation: Catching Complex Meanings in Simple Graphs
Johan Bos 195

Bridging Semantic Frameworks: mapping DRS onto AMR
Siyana Pavlova, Maxime Amblard and Bruno Guillaume 209

Data-Driven Frame-Semantic Parsing with Tree Wrapping Grammar
Tatiana Bladier, Laura Kallmeyer and Kilian Evang 223

The argument–adjunct distinction in BERT: A FrameNet-based investigation
Dmitry Nikolaev and Sebastian Padó 233

Collecting and Predicting Neurocognitive Norms for Mandarin Chinese
Le Qiu, Yu-Yin Hsu and Emmanuele Chersoni 240

Error Exploration for Automatic Abstract Meaning Representation Parsing
Maria Boritchev and Johannes Heinecke 246

Unsupervised Methods for Domain Specific Ambiguity Detection. The Case of German Physics Language
Vitor Fontanella, Christian Wartena and Gunnar Friege 252

Definition Modeling : To model definitions. Generating Definitions With Little to No Semantics
Vincent Segonne and Timothee Mickus 258

SMARAGD: Learning SMatch for Accurate and Rapid Approximate Graph Distance
Juri Opitz, Philipp Meier and Anette Frank 267

AMR4NLI: Interpretable and robust NLI measures from semantic graph
Juri Opitz, Shira Wein, Julius Steen, Anette Frank and Nathan Schneider 275

Use Defines Possibilities: Reasoning about Object Function to Interpret and Execute Robot Instructions
Mollie Shichman, Claire Bonial, Austin Blodgett, Taylor Hudson, Francis Ferraro and Rachel Rudinger 284

SimpleMTOD: A Simple Language Model for Multimodal Task-Oriented Dialogue with Symbolic Scene Representation
Bhathiya Hemanthage, Christian Dondrup, Phil Bartie and Oliver Lemon 293

Grounding and Distinguishing Conceptual Vocabulary Through Similarity Learning in Embodied Simulations
Sadaf Ghaffari and Nikhil Krishnaswamy 305

Interactive Acquisition of Fine-grained Visual Concepts by Exploiting Semantics of Generic Characterizations in Discourse
Jonghyuk Park, Alex Lascarides and Subramanian Ramamoorthy 318

Conference Program

Wednesday, June 21, 2023

10:00–11:00 **Invited speaker: Raquel Fernandez**
Common Ground and Audience Design in Referential Games

11:00–12:30 **Main session 1**
Chair: James Pustejovsky

11:00–11:30 *Can current NLI systems handle German word order? Investigating language model performance on a new German challenge set of minimal pairs*
Ines Reinig and Katja Markert

11:30–12:00 *Contextual Variability depends on Categorical Specificity rather than Conceptual Concreteness: A Distributional Investigation on Italian data*
Giulia Rambelli and Marianna Bolognesi

12:00–12:30 *Probing BERT's ability to encode sentence modality and modal verb sense across varieties of English*
Jonas Wagner and Sina Zarrieß

14:00–15:00 **Main session 2**
Chair: Raquel Fernandez

14:00–14:30 *Dense Paraphrasing for Textual Enrichment*
Jingxuan Tu, Kyeongmin Rim, Eben Holderness, Bingyang Ye and James Pustejovsky

14:30–15:00 *Towards Unsupervised Compositional Entailment with Multi-Graph Embedding Models*
Lorenzo Bertolini, Julie Weeds and David Weir

Wednesday, June 21, 2023 (continued)

15:00–16:00 Poster session 1

Gender-tailored Semantic Role Profiling for German
Manfred Klenner, Anne Göhring, Alison Kim and Dylan Massey

Implicit causality in GPT-2: a case study
Minh Hien Huynh, Tomas Lentz and Emiel van Miltenburg

Multi-purpose neural network for French categorial grammars
Gaëtan Margueritte, Daisuke Bekki and Koji Mineshima

Experiments in training transformer sequence-to-sequence DRS parsers
Ahmet Yildirim and Dag Haug

Unsupervised Semantic Frame Induction Revisited
Younes Samih and Laura Kallmeyer

Towards Ontologically Grounded and Language-Agnostic Knowledge Graphs
Walid Saba

The Universe of Utterances According to BERT
Dmitry Nikolaev and Sebastian Padó

Wednesday, June 21, 2023 (continued)

16:30–17:30 **Main session 3**
Chair: Daisuke Bekki

16:30–17:00 *Sparser is better: one step closer to word embedding interpretability*
Simon Guillot, Thibault Prouteau and Nicolas Dugue

17:00–17:30 *Semantically Informed Data Augmentation for Unscoped Episodic Logical Forms*
Mandar Juvekar, Gene Kim and Lenhart Schubert

Thursday, June 22, 2023

09:30–10:30 **Main session 4**
Chair: Ellen Breitholtz

09:30–10:00 *Meaning-Text Theory within Abstract Categorial Grammars: Toward Paraphrase and Lexical Function Modeling for Text Generation*
Marie Cousin

10:00–10:30 *Measuring Fine-Grained Semantic Equivalence with Abstract Meaning Representation*
Shira Wein, Zhuxin Wang and Nathan Schneider

11:00–12:30 **Main session 5**
Chair: Lucia Donatelli

11:00–11:30 *The Importance of Context in the Evaluation of Word Embeddings: The Effects of Antonymy and Polysemy*
James Fodor, Simon De Deyne and Shinsuke Suzuki

11:30–12:00 *RaTE: a Reproducible automatic Taxonomy Evaluation by Filling the Gap*
Phillippe Langlais and Tianjian Lucas Gao

12:00–12:30 *The Universal Anaphora Scorer 2.0*
Juntao Yu, Michal Novák, Abdulrahman Aloraini, Nafise Sadat Moosavi, Silviu Paun, Sameer Pradhan and Massimo Poesio

Thursday, June 22, 2023 (continued)

14:00–15:30 **Main session 6**
Chair: Lasha Abzianidze

14:00–14:30 *The Sequence Notation: Catching Complex Meanings in Simple Graphs*
Johan Bos

14:30–15:00 *Bridging Semantic Frameworks: mapping DRS onto AMR*
Siyana Pavlova, Maxime Amblard and Bruno Guillaume

15:00–15:30 *Data-Driven Frame-Semantic Parsing with Tree Wrapping Grammar*
Tatiana Bladier, Laura Kallmeyer and Kilian Evang

Friday, June 23, 2023

10:00–11:00 **Invited speaker: Lucia Donatelli**
Compositionality and Its Discontents

11:00–12:30 **Poster session 2**

The argument–adjunct distinction in BERT: A FrameNet-based investigation
Dmitry Nikolaev and Sebastian Padó

Collecting and Predicting Neurocognitive Norms for Mandarin Chinese
Le Qiu, Yu-Yin Hsu and Emmanuele Chersoni

Error Exploration for Automatic Abstract Meaning Representation Parsing
Maria Boritchev and Johannes Heinecke

Unsupervised Methods for Domain Specific Ambiguity Detection. The Case of German Physics Language
Vitor Fontanella, Christian Wartena and Gunnar Friege

Definition Modeling : To model definitions. Generating Definitions With Little to No Semantics
Vincent Segonne and Timothee Mickus

SMARAGD: Learning SMatch for Accurate and Rapid Approximate Graph Distance
Juri Opitz, Philipp Meier and Anette Frank

AMR4NLI: Interpretable and robust NLI measures from semantic graph
Juri Opitz, Shira Wein, Julius Steen, Anette Frank and Nathan Schneider

14:00–16:00 **Main session 7**
Chair: Stergios Chatzikyriakidis

14:00–14:30 *Use Defines Possibilities: Reasoning about Object Function to Interpret and Execute Robot Instructions*
Mollie Shichman, Claire Bonial, Austin Blodgett, Taylor Hudson, Francis Ferraro and Rachel Rudinger

14:30–15:00 *SimpleMTOD: A Simple Language Model for Multimodal Task-Oriented Dialogue with Symbolic Scene Representation*
Bhathiya Hemanthage, Christian Dondrup, Phil Bartie and Oliver Lemon

15:00–15:30 *Grounding and Distinguishing Conceptual Vocabulary Through Similarity Learning in Embodied Simulations*
Sadaf Ghaffari and Nikhil Krishnaswamy

15:30–16:00 *Interactive Acquisition of Fine-grained Visual Concepts by Exploiting Semantics of Generic Characterizations in Discourse*
Jonghyuk Park, Alex Lascarides and Subramanian Ramamoorthy