

CoNLL 2023

**The 27th Conference on  
Computational Natural Language Learning**

**Proceedings of the Conference**

December 6 - 7, 2023

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[acl@aclweb.org](mailto:acl@aclweb.org)

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## Introduction

CoNLL is a conference organized yearly by SIGNLL (ACL’s Special Interest Group on Natural Language Learning), focusing on theoretically, cognitively and scientifically motivated approaches to computational linguistics. This year, CoNLL was held alongside EMNLP 2023.

The program of CoNLL 2023 comprises 40 papers. This was the result of a careful selection process. Reviewing 143 received submissions resulted in a 28% acceptance rate.

Reviewing was organized into 10 tracks, each of them headed by one or two area chairs:

- Computational Psycholinguistics, Cognition and Linguistics (Mary Kelly)
- Computational Social Science (Jana Diesner, Wei Gao)
- Interaction and Grounded Language Learning (Hao Tan)
- Lexical, Compositional and Discourse Semantics (Shane Steinert-Threlkeld)
- Multilingual Work and Translation (Maja Popović)
- Natural Language Generation (Fei Liu)
- Resources and Tools for Scientifically Motivated Research (Sebastian Gehrmann)
- Speech and Phonology (Kyle Gorman)
- Syntax and Morphology (Ryan Cotterell)
- Theoretical Analysis and Interpretation of ML Models for NLP (Dieuwke Hupkes, Kevin Small)

We thank our reviewers and area chairs for curating the program. The conference also invited Mohit Bansal and Preslav Nakov to present keynotes, and included a session of 18 additional papers on the BabyLM Challenge, a shared task that challenges community members to train a language model from scratch on the same amount of linguistic data available to a child.

We would like to acknowledge support from our sponsor, Google.

*Jing Jiang* (Singapore Management University)

*David Reitter* (Google DeepMind)

CoNLL 2023 conference co-chairs

# Organizing Committee

## Conference Chairs

Jing Jiang, Singapore Management University, Singapore

David Reitter, Google DeepMind, New York City

## Publication Chair

Shumin Deng, National University of Singapore, Singapore

## Areas and Area Chairs

Computational Psycholinguistics, Cognition and Linguistics: Mary A. Kelly

Computational Social Science: Wei Gao, Jana Diesner

Interaction and Grounded Language Learning: Hao Tan

Lexical, Compositional and Discourse Semantics: Shane Steinert-Threlkeld

Multilingual Work and Translation: Maja Popović

Natural Language Generation: Fei Liu

Resources and Tools for Scientifically Motivated Research: Sebastian Gehrmann

Speech and Phonology: Kyle Gorman

Syntax and Morphology: Ryan Cotterell

Theoretical Analysis and Interpretation of ML Models for NLP: Dieuwke Hupkes, Kevin Small

## Invited Speakers

Preslav Nakov, Mohamed Bin Zayed University of Artificial Intelligence, UAE

Mohit Bansal, University of North Carolina, USA

## Program Committee

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## Table of Contents

<i>Can Language Models Be Tricked by Language Illusions? Easier with Syntax, Harder with Semantics</i> Yuhan Zhang, Edward Gibson and Forrest Davis .....	1
<i>ToMChallenges: A Principle-Guided Dataset and Diverse Evaluation Tasks for Exploring Theory of Mind</i> Xiaomeng Ma, Lingyu Gao and Qihui Xu .....	15
<i>The Zipfian Challenge: Learning the statistical fingerprint of natural languages</i> Christian Bentz .....	27
<i>On the Effects of Structural Modeling for Neural Semantic Parsing</i> Xiang Zhang, Shizhu He, Kang Liu and Jun Zhao .....	38
<i>Humans and language models diverge when predicting repeating text</i> Aditya Vaidya, Javier Turek and Alexander Huth .....	58
<i>Investigating the Nature of Disagreements on Mid-Scale Ratings: A Case Study on the Abstractness-Concreteness Continuum</i> Urban Knuples, Diego Frassinelli and Sabine Schulte im Walde .....	70
<i>ArchBERT: Bi-Modal Understanding of Neural Architectures and Natural Languages</i> Mohammad Akbari, Saeed Ranjbar Alvar, Behnam Kamranian, Amin Banitalebi-Dehkordi and Yong Zhang .....	87
<i>A Comparative Study on Textual Saliency of Styles from Eye Tracking, Annotations, and Language Models</i> Karin de Langis and Dongyeop Kang .....	108
<i>PROPRES: Investigating the Projectivity of Presupposition with Various Triggers and Environments</i> Daiki Asami and Saku Sugawara .....	122
<i>A Minimal Approach for Natural Language Action Space in Text-based Games</i> Dongwon Ryu, Meng Fang, Gholamreza Haffari, Shirui Pan and Ehsan Shareghi .....	138
<i>Structural Ambiguity and its Disambiguation in Language Model Based Parsers: the Case of Dutch Clause Relativization</i> Gijs Wijnholds and Michael Moortgat .....	155
<i>On the utility of enhancing BERT syntactic bias with Token Reordering Pretraining</i> Yassir El Mesbahi, Atif Mahmud, Abbas Ghaddar, Mehdi Rezagholizadeh, Phillippe Langlais and Prasanna Parthasarathi .....	165
<i>Quirk or Palmer: A Comparative Study of Modal Verb Frameworks with Annotated Datasets</i> Risako Owan, Maria Gini and Dongyeop Kang .....	183
<i>Quantifying Information of Tokens for Simple and Flexible Simultaneous Machine Translation</i> DongHyun Lee, Minkyung Park and Byung-Jun Lee .....	200
<i>Enhancing Code-mixed Text Generation Using Synthetic Data Filtering in Neural Machine Translation</i> Dama Sravani and Radhika Mamidi .....	211

<i>Towards Better Evaluation of Instruction-Following: A Case-Study in Summarization</i> Ondrej Skopec, Rahul Aralikatte, Sian Gooding and Victor Carbune .....	221
<i>Syntactic Inductive Bias in Transformer Language Models: Especially Helpful for Low-Resource Languages?</i> Luke Gessler and Nathan Schneider .....	238
<i>Attribution and Alignment: Effects of Local Context Repetition on Utterance Production and Comprehension in Dialogue</i> Aron Molnar, Jaap Jumelet, Mario Giulianelli and Arabella Sinclair .....	254
<i>The Validity of Evaluation Results: Assessing Concurrence Across Compositionality Benchmarks</i> Kaiser Sun, Adina Williams and Dieuwke Hupkes .....	274
<i>Mind the instructions: a holistic evaluation of consistency and interactions in prompt-based learning</i> Lucas Weber, Elia Bruni and Dieuwke Hupkes .....	294
<i>Med-HALT: Medical Domain Hallucination Test for Large Language Models</i> Ankit pal, Logesh Kumar Umapathi and Malaikannan Sankarasubbu .....	314
<i>Revising with a Backward Glance: Regressions and Skips during Reading as Cognitive Signals for Revision Policies in Incremental Processing</i> Brielen Madureira, Pelin Çelikkol and David Schlangen .....	335
<i>ChiSCor: A Corpus of Freely-Told Fantasy Stories by Dutch Children for Computational Linguistics and Cognitive Science</i> Bram van Dijk, Max van Duijn, Suzan Verberne and Marco Spruit .....	352
<i>HNC: Leveraging Hard Negative Captions towards Models with Fine-Grained Visual-Linguistic Comprehension Capabilities</i> Esra Dönmez, Pascal Tilli, Hsiu-Yu Yang, Ngoc Thang Vu and Carina Silberer .....	364
<i>Theory of Mind in Large Language Models: Examining Performance of 11 State-of-the-Art models vs. Children Aged 7-10 on Advanced Tests</i> Max van Duijn, Bram van Dijk, Tom Kouwenhoven, Werner de Valk, Marco Spruit and Peter vanderPutten .....	389
<i>A Block Metropolis-Hastings Sampler for Controllable Energy-based Text Generation</i> Jarad Forristal, Fatemehsadat Mireshghallah, Greg Durrett and Taylor Berg-Kirkpatrick .....	403
<i>How Fragile is Relation Extraction under Entity Replacements?</i> Yiwei Wang, Bryan Hooi, Fei Wang, Yujun Cai, Yuxuan Liang, Wenxuan Zhou, Jing Tang, Manjuan Duan and Muhao Chen .....	414
<i>JaSPICE: Automatic Evaluation Metric Using Predicate-Argument Structures for Image Captioning Models</i> Yuiga Wada, Kanta Kaneda and Komei Sugiura .....	424
<i>MuLER: Detailed and Scalable Reference-based Evaluation</i> Taelin Karidi, Leshem Choshen, Gal Patel and Omri Abend .....	436
<i>The Impact of Familiarity on Naming Variation: A Study on Object Naming in Mandarin Chinese</i> Yunke He, Xixian Liao, Jialing Liang and Gemma Boleda .....	456



<i>PSST! Prosodic Speech Segmentation with Transformers</i> Nathan Roll, Calbert Graham and Simon Todd.....	476
<i>Alignment via Mutual Information</i> Shinjini Ghosh, Yoon Kim, Ramon Fernandez Astudillo, Tahira Naseem and Jacob Andreas ..	488
<i>Challenging the "One Single Vector per Token" Assumption</i> Mathieu Dehouck.....	498
<i>Strategies to Improve Low-Resource Agglutinative Languages Morphological Inflection</i> Gulinigeer Abudouwaili, Wayit Ablez, Kahaerjiang Abiderexiti, Aishan Wumaier and Nian Yi	508
<i>Exploring Transformers as Compact, Data-efficient Language Models</i> Clayton Fields and Casey Kennington .....	521
<i>Tree-shape Uncertainty for Analyzing the Inherent Branching Bias of Unsupervised Parsing Models</i> Taiga Ishii and Yusuke Miyao.....	532
<i>Future Lens: Anticipating Subsequent Tokens from a Single Hidden State</i> Koyena Pal, Jiuding Sun, Andrew Yuan, Byron Wallace and David Bau .....	548
<i>Cross-Document Event Coreference Resolution: Instruct Humans or Instruct GPT?</i> Jin Zhao, Nianwen Xue and Bonan Min.....	561
<i>Implications of Annotation Artifacts in Edge Probing Test Datasets</i> Sagnik Ray Choudhury and Jushaan Kalra .....	575
<i>REFER: An End-to-end Rationale Extraction Framework for Explanation Regularization</i> Mohammad Reza Ghasemi Madani and Pasquale Minervini.....	587

# Conference Program

Wednesday, December 6, 2023

**9:00–9:10**     *Opening*

9:10–10:30     *Keynote 1*  
Preslav Nakov

**10:30–11:00**     *Coffee Break*

**11:00–12:30**     **Oral Session 1**

*Can Language Models Be Tricked by Language Illusions? Easier with Syntax, Harder with Semantics*

Yuhan Zhang, Edward Gibson and Forrest Davis

*ToMChallenges: A Principle-Guided Dataset and Diverse Evaluation Tasks for Exploring Theory of Mind*

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*The Zipfian Challenge: Learning the statistical fingerprint of natural languages*

Christian Bentz

*On the Effects of Structural Modeling for Neural Semantic Parsing*

Xiang Zhang, Shizhu He, Kang Liu and Jun Zhao

**12:30–13:45**     *Lunch*

Wednesday, December 6, 2023 (continued)

13:45–15:15 Poster Session 1

*Humans and language models diverge when predicting repeating text*

Aditya Vaidya, Javier Turek and Alexander Huth

*Investigating the Nature of Disagreements on Mid-Scale Ratings: A Case Study on the Abstractness-Concreteness Continuum*

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*Attribution and Alignment: Effects of Local Context Repetition on Utterance Production and Comprehension in Dialogue*

Aron Molnar, Jaap Jumelet, Mario Giulianelli and Arabella Sinclair

*[BabyLM Challenge] Baby Llama: knowledge distillation from an ensemble of teachers trained on a small dataset with no performance penalty*

Inar Timiryasov, Jean-Loup Tastet

*[BabyLM Challenge] BabyLM Challenge: Curriculum learning based on sentence complexity approximating language acquisition*

Miyu Oba, Akari Haga, Akiyo Fukatsu, Yohei Oseki

*[BabyLM Challenge] Can training neural language models on a curriculum with developmentally plausible data improve alignment with human reading behavior?*

Aryaman Chobey, Oliver Smith, Anzi Wang, Grusha Prasad

*[BabyLM Challenge] CogMemLM: Human-Like Memory Mechanisms Improve Performance and Cognitive Plausibility of LLMs*

Lukas Thoma, Ivonne Weyers, Erion Çano, Stefan Schweter, Jutta L Mueller, Benjamin Roth

*[BabyLM Challenge] McGill BabyLM Shared Task Submission: The Effects of Data Formatting and Structural Biases*

Ziling Cheng, Rahul Aralikkatte, Ian Porada, Cesare Spinoso-Di Piano, Jackie CK Cheung

*[BabyLM Challenge] On the effect of curriculum learning with developmental data for grammar acquisition*

Mattia Opper, J Morrison, Siddharth N

*[BabyLM Challenge] ToddlerBERTa: Exploiting BabyBERTa for Grammar Learning and Language Understanding*

Ömer Veysel Çağatan

**15:15–15:30** *Coffee Break*

**Wednesday, December 6, 2023 (continued)**

**15:30–17:00 Oral Session 2**

*The Validity of Evaluation Results: Assessing Concurrence Across Compositionality Benchmarks*

Kaiser Sun, Adina Williams and Dieuwke Hupkes

*Mind the instructions: a holistic evaluation of consistency and interactions in prompt-based learning*

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**Thursday, December 7, 2023**

9:10–10:30 *Keynote 2*

Mohit Bansal

**10:30–11:00 *Coffee Break***

**11:00–12:30 Oral Session 3**

*ChiSCor: A Corpus of Freely-Told Fantasy Stories by Dutch Children for Computational Linguistics and Cognitive Science*

Bram van Dijk, Max van Duijn, Suzan Verberne and Marco Spruit

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Thursday, December 7, 2023 (continued)

12:30–13:45 *Lunch*

13:45–15:15 **Poster Session 2**

*How Fragile is Relation Extraction under Entity Replacements?*

Yiwei Wang, Bryan Hooi, Fei Wang, Yujun Cai, Yuxuan Liang, Wenxuan Zhou, Jing Tang, Manjuan Duan and Muhao Chen

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Koyena Pal, Jiuding Sun, Andrew Yuan, Byron Wallace and David Bau

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Sagnik Ray Choudhury and Jushaan Kalra

*REFER: An End-to-end Rationale Extraction Framework for Explanation Regularization*

Mohammad Reza Ghasemi Madani and Pasquale Minervini

*[BabyLM Challenge] A surprisal oracle for active curriculum language modeling*

Xudong Hong, Sharid Loáiciga, Asad B. Sayeed

*[BabyLM Challenge] Baby's CoThought: Leveraging Large Language Models for Enhanced Reasoning in Compact Models*

Zheyu Zhang, Han Yang, Bolei Ma, David Rügamer, Ercong Nie

*[BabyLM Challenge] Byte-ranked Curriculum Learning for BabyLM Strict-small Shared Task 2023*

Justin DeBenedetto

*[BabyLM Challenge] ChapGTP, ILLC's Attempt at Raising a BabyLM: Improving Data Efficiency by Automatic Task Formation*

Jaap Jumelet, Michael Hanna, Marianne De Heer Kloots, Anna Langedijk, Charlotte Pouw, Oskar van der Wal

*[BabyLM Challenge] GPT-wee: How Small Can a Small Language Model Really Get?*

Bastian Bunzeck, Sina Zarrieß

*[BabyLM Challenge] Mean BERTs make erratic language teachers: the effectiveness of latent bootstrapping in low-resource settings*

David Samuel

*[BabyLM Challenge] Tiny Language Models Enriched with Multimodal Knowledge from Multiplex Networks*

Clayton Fields, Osama Natouf, Andrew McMains, Catherine Henry, Casey Kennington

**15:15–15:30** *Coffee Break*

**Thursday, December 7, 2023 (continued)**

**15:30–17:20 BabyLM Challenge (Oral Session)**

15:30–15:50 *Welcome and Findings Overview*

Alex Warstadt, Leshem Chosen, Ethan Wilcox, Aaron Mueller

15:50–16:10 *Strict / Strict-Small Track Winner: Not all layers are equally as important: Every Layer Counts BERT*

Lucas Georges Gabriel Charpentier, David Samuel

16:10–16:30 *Loose Track Winner: Towards more Human-like Language Models based on Contextualizer Pretraining Strategy*

Chenghao Xiao, G Thomas Hudson, Noura Al Moubayed

16:30–16:50 *Outstanding Paper Award 1: Large GPT-like Models are Bad Babies: A Closer Look at the Relationship between Linguistic Competence and Psycholinguistic Measures*

Julius Steuer, Marius Mosbach, Dietrich Klakow

16:50–17:10 *Outstanding Paper Award 2: CLIMB – Curriculum Learning for Infant-inspired Model Building*

Richard Diehl Martinez, Hope McGovern, Zebulon Goriely, Christopher Davis, Andrew Caines, Paula Buttery, Lisa Beinborn

17:10–17:20 *Closing Remarks*

Alex Warstadt, Leshem Chosen, Ethan Wilcox, Aaron Mueller

**17:20–17:35 Best Paper Awards and Closing**