

## Sean T. Trott

Assistant Teaching Professor | University of California, San Diego

Cognitive Science | Psycholinguistics | Large Language Models

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## PROFESSIONAL EXPERIENCE

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### Assistant Teaching Professor

2022-Present

Department of Cognitive Science, University of California, San Diego

Joint Appointment in *Computational Social Science*

## EDUCATION

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### Ph.D. Student in Cognitive Science

2016-2022

University of California, San Diego

Advisor: Benjamin Bergen

### B.A. in Cognitive Science, High Honors

2010-2014

University of California, Berkeley

Thesis advisor: Terry Regier

## TEACHING AND MENTORSHIP

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*Note: although I develop material for all courses I teach, the “\*” means that a course design was either entirely re-envisioned or created from scratch.*

### Primary Instructor

2020-Present

CSS 100\*: Advanced Programming for Computational Social Science [Spring, 2024]

COGS 101C: Language [Spring, 2024]

COGS 150\*: Large Language Models and Cognitive Science [Winter, 2024]

CSS 2\*: Data and Model Programming for Computational Social Science [Winter, 2024]

COGS 153\*: Language Comprehension [Fall, 2023]

CSS 1\*: Introductory Programming for Computational Social Science [Fall, 2023]

COGS 14A: Introduction to Research Methods [Spring, 2023]  
COGS 101C: Language [Winter, 2023]  
CSS 2\*: Data and Model Programming for Computational Social Science [Winter, 2023]  
CSS 1\*: Introductory Programming for Computational Social Science [Fall, 2022]  
COGS 101C: Language [Spring, 2022]  
COGS 14B: Introduction to Statistical Analysis [Summer 2021]  
COGS 14B: Introduction to Statistical Analysis [Summer 2020]

### **Teaching Assistant**

2016-2022

COGS 101C: Language [Winter, 2022]  
COGS 137: Practical Data Science in R [Fall 2021]  
COGS 101B: Learning, Memory, and Attention [Winter 2021]  
COGS 109: Data Analysis and Modeling [Spring 2021]  
COGS 153: Language Comprehension [Spring 2021]  
COGS 14B: Introduction to Statistical Analysis [Fall 2020]  
COGS 14B: Introduction to Statistical Analysis [Winter 2020]  
COGS 14A: Introduction to Research Methods [Winter 2018]  
COGS 100: Cyborgs Now and in the Future [Fall 2017]  
COGS 101C: Language [Spring 2017]  
COGS 3: Introduction to Computing [Winter 2017]

### **Mentorship**

2023-2024: Yuhan Fu (Honors student), Kai Bian (Faculty Mentor Program), Alice Li (Faculty Mentor Program), Sydney Taylor (Faculty Mentor Program)  
2022-2023: Owen Pi  
2021-2022: Monica Van (Honors student), Dan Kaliblotzky  
2020-2021: Alex Liebscher (Honors student)  
2019-2020: Stefanie Reed

### **Mentee-led Presentations and Publications**

Liebscher, A., Trott, S., & Bergen, B. (2020). Effects of Battle and Journey Metaphors on Charitable Donations for Cancer Patients. In *Proceedings of the Cognitive Science Society*.

## **ADDITIONAL TRAINING**

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2020: **Course Design Workshop:** Teaching and Learning Hub, UC San Diego

## HONORS AND AWARDS

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**Chancellor's Research Excellence Scholarship (CRES)** 2018-2019

*Why are some people better at inferring what others mean?*

*Mentors:* Benjamin Bergen (Cognitive Science); James Hollan (Cognitive Science, CSE)

**UC San Diego Teaching Awards (Nominated by department)** 2021

## PEER-REVIEWED PUBLICATIONS

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### Journal Articles

Jones, C., Bergen, B., & **Trott, S.** (2024). Do Multimodal Large Language Models and Humans Ground Language Similarly? *Computational Linguistics*, 1-25.

Jones, C., **Trott, S.**, & Bergen, B. (2024). Comparing Humans and Large Language Models on an Experimental Protocol Inventory for Theory of Mind Evaluation (EPITOME). *Transactions of the Association for Computational Linguistics (TACL)*.

**Trott, S.** (2024). Large Language Models and the Wisdom of Small Crowds. *Open Mind*, 8, 723-738.

**Trott, S.** (2024). Can large language models help augment English psycholinguistic datasets? *Behavior Research Methods*, 1-19.

**Trott, S.**, Jones, C., Chang, T., Michaelov, J., & Bergen, B. (2023). Do Large Language Models know what humans know? *Cognitive Science*, 47(7), e13309.

**Trott, S.**, & Bergen, B. (2023). Word meaning is both categorical and continuous. *Psychological Review*.

Ruytenbeek, N., Bergen, B., & **Trott, S.** (2023). Prosody and speech act interpretation: The case of French indirect requests. *Journal of French Language Studies*.

DeLong, K., **Trott, S.**, Kutas, M. (2022). Offline dominance and zeugmatic similarity normings of variably ambiguous words assessed against a neural language model (BERT). *Behavior Research Methods*.

**Trott, S.**, Bergen, B., & Wittenberg, E. (2022). Spontaneous, controlled acts of reference between friends and strangers. *Language Resources and Evaluation*, 1-25.

Morey, R. D., Kaschak, M. P., Díez-Álamo, A. M., Glenberg, A. M., Zwaan, R. A., Lakens, D., ... **Trott, S.** ... & Ziv-Crispel, N. (2022). A pre-registered, multi-lab non-replication of the action-sentence compatibility effect (ACE). *Psychonomic bulletin & review*, 29(2), 613-626.

**Trott, S.**, Reed, S., Kaliblotzky, D., Ferreira, V., & Bergen, B. (2022). The Role of Prosody in Disambiguating English Indirect Requests. *Language and Speech*, 00238309221087715.

**Trott, S.**, & Bergen, B. (2022). Languages are efficient, but for whom? *Cognition*, 225, 105094.

**Trott, S., & Bergen, B. (2020).** Why do human languages have homophones? *Cognition*, 205, 104449.

**Trott, S., & Bergen, B. (2020).** When Do Comprehenders Mentalize for Pragmatic Inference?. *Discourse Processes*, 1-21.

**Trott, S., & Rossano, F. (2020).** The Role of Entitlement in Formatting Preferences Across Requesters and Recipients. *Discourse Processes*, 1-22.

**Trott, S., & Bergen, B. (2018).** Individual Differences in Mentalizing Capacity Predict Indirect Request Comprehension. *Discourse Processes*, 1-33.

## High-Impact Conference Proceedings<sup>1</sup>

Shin, H., & **Trott, S.** (2024, June). Do language models capture implied discourse meanings? *The 2024 Meeting of the Society for Computation in Linguistics (SCiL)*.

Jones, C., **Trott, S.**, & Bergen, B. (2024). Does Reading Words Help You Read Minds? In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 46, No. 46).

Yadav, H., **Trott, S.**, & Coulson, S. (2024) Effects of Distributional and Sensorimotor Distance Measures on the EEG during Property Verification. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 46, No. 46).

Jones, C., & **Trott, S.** (2024, May). Multimodal Large Language Models Show Evidence of Embodied Simulation. *The 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation*. Torino, Italy. (Acceptance rate: ~33%)

Jones, C. R., Chang, T. A., Coulson, S., Michaelov, J. A., **Trott, S.**, & Bergen, B. (2022). Distributional Semantics Still Can't Account for Affordances. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 44, No. 44). (Acceptance rate: 20.4%)

**Trott, S.**, & Bergen, B. (2022). Can a pressure against homophones explain phonological neighborhoods?. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 44, No. 44). (Acceptance rate: 20.4%)

**Trott, S.**, & Bergen, B. (2021). RAW-C: Relatedness of Ambiguous Words—in Context (A New Lexical Resource for English). *Proceedings of the 59<sup>th</sup> Annual Meeting of the Association for Computational Linguistics and the 11<sup>th</sup> Joint International Conference on Natural Language Processing*. (Acceptance rate: 21.3%)

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<sup>1</sup> In computational research (e.g., computational linguistics), conferences are the highest-impact venue for cutting-edge work.

**Trott, S.**, Torrent, T. T., Chang, N., & Schneider, N. (2020). (Re) construing Meaning in NLP. *Proceedings of the 58<sup>th</sup> Annual Meeting of the Association for Computational Linguistics*. (Acceptance rate: 25.2%)

**Trott, S.**, Reed, S., Ferreira, V., Bergen, B. (2019). Prosodic cues signal the intent of potential indirect requests. *Proceedings of the 41<sup>st</sup> annual meeting of the Cognitive Science Society*. Montreal, Cognitive Science Society. (Acceptance rate: 18.2%)

## Pending Articles

Schoenegger, P., Park, P. S., Karger, E., **Trott, S.**, & Tetlock, P. E. (Under Review). AI-Augmented Predictions: LLM Assistants Improve Human Forecasting Accuracy. *arXiv preprint arXiv:2402.07862*.

Rivière, P. D., Beatty-Martínez, A. L., & **Trott, S.** (Under Review). Bidirectional Transformer Representations of (Spanish) Ambiguous Words in Context: A New Lexical Resource and Empirical Analysis. *arXiv preprint arXiv:2406.14678*.

Ruytenbeek, N. & **Trott, S.** (Under Review). Do prosodic cues convey intent directly or through contrastive marking? A study on French indirect requests.

**Trott, S.**, Walker, D. E., & Coulson, S. (Under Review). Turing Jest: Do Large Language Models have a Sense of Humor?

## PRESENTATIONS AND PANELS

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### Invited Talks

**Trott, S. (2024).** Large Language Models as Model Organisms—Opportunities and Challenges. *BetterUp Invited Speaker*. (April 2, 2024.)

**Trott, S. (2024).** Using Large Language Models to understand human cognition. *Weinberg Institute for Cognitive Science, University of Michigan*. (February 19, 2024).

**Trott, S. (2024).** Do Large Language Models Know What We Know? *COGS 1, Winter 2024*. (January, 2024).

**Trott, S. (2023).** Word meaning is both categorical and continuous. *Department of Cognitive Science, UC San Diego* (April, 2023).

**Trott, S. (2023).** Using Large Language Models to understand human cognition. *COGS 1, Winter 2023*. (February, 2023).

## Conference Presentations

**Trott, S., & Bergen, B. (2022).** Can a pressure against homophones explain phonological neighborhoods?. In *Proceedings of the Annual Meeting of the Cognitive Science Society* (Vol. 44, No. 44). (Acceptance rate: 20.4%)

**Trott, S., & Bergen, B. (2021).** RAW-C: Relatedness of Ambiguous Words—in Context (A New Lexical Resource for English). *Proceedings of the 59<sup>th</sup> Annual Meeting of the Association for Computational Linguistics and the 11<sup>th</sup> Joint International Conference on Natural Language Processing*. (Acceptance rate: 21.3%)

**Trott, S., Torrent, T. T., Chang, N., & Schneider, N. (2020).** (Re) construing Meaning in NLP. *Proceedings of the 58<sup>th</sup> Annual Meeting of the Association for Computational Linguistics*. (Acceptance rate: 25.2%)

## Select Posters and Workshop Presentations

Arnett, C., Rivière, P., Chang, T., & **Trott, S. (2024).** Different Tokenization Schemes Lead to Comparable Performance in Spanish Number Agreement. In *Special Interest Group on Computational Morphology and Phonology (SIGMORPHON), North American Association for Computational Linguistics (NAACL)*.

Jones, C. R., **Trott, S., & Bergen, B. (2023, June).** EPITOME: Experimental Protocol Inventory for Theory Of Mind Evaluation. In *First Workshop on Theory of Mind in Communicating Agents*.

**Trott, S., Walker, D. (2023).** Do Large Language Models Display the Fundamental Attribution Error? Presented at *Society for Judgment and Decision-Making (SJDM) 2023, in San Francisco, California*.

**Trott, S., Semenuks, A., & Bergen, B. (2019).** Sub-morphemic form-meaning systematicity: the impact of onset phones on word concreteness. In *The Annual Meeting of the Cognitive Science Society, 2019, Montreal, Canada*.

**Trott, S., Rossano, F. (2017).** Theoretical Concerns for the Integration of Repair. *AAAI Fall Symposia Series: AI for Human-Robot Interaction. Arlington, Virginia*.

**Trott, S., Bergen, B. (2017).** A Theoretical Model of Indirect Request Comprehension. *AAAI Fall Symposia Series: AI for Human-Robot Interaction. Arlington, Virginia*.

Dodge, E., **Trott, S., Gilardi, L., & Stickles, E. (2017).** *Grammar Scaling: Leveraging FrameNet Data to Increase Embodied Construction Grammar Coverage*. Technical report, AAAI SS-17-02.

**Trott, S., Eppe, M., & Feldman, J. (2016).** Recognizing Intention from Natural Language : Clarification Dialog and Construction Grammar. *Workshop on Communicating Intentions in Human-Robot Interaction*. Columbia University, New York University.

**Trott, S., Appriou, A., Feldman, J., & Janin, A. (2015).** Natural Language Understanding and Communication for Multi-Agent Systems. *AAAI Fall Symposium*, 137–141. Arlington, 2017.

## SERVICE AND PROFESSIONAL ACTIVITIES

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### Department Service:

CSS Academic Support Lead [Fall, 2023 - *Present*]

CSS Hiring Committee [Fall, 2023]

CSS M.S. Admissions Committee [Winter, 2023; Winter, 2024]

Statistics Training Assistant [2019 – 2021]

Co-organizer of COGS 200 seminar [Spring, 2019]

### Journal Reviewer

Empirical Methods in Natural Language Processing (EMNLP)

Computational Linguistics

Natural Language Engineering

Proceedings of the National Academy of Sciences

Cognitive Science

Mind and Language

Linguistics Vanguard

Behavior Research Methods

Frontiers in Communication

## OTHER WORK EXPERIENCE

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### Google

*Research Intern* (6/10/2019 – 9/10/2019)

- Proposed and implemented a system to analyze non-literal language use (e.g., metaphor, construal).
- Probed state-of-the-art language models (BERT) for evidence of construal.
- Wrote a paper for eventual publication in *ACL* (Trott et al, 2020).

**Classy**

*Data Science Intern* (6/20/2018 – 9/15/2019)

- Constructed a feature extraction pipeline (e.g., sentiment analysis, topic modeling) for charity campaigns.
- Conducted statistical analyses to predict measures of campaign success.

**International Computer Science Institute**

*Research Assistant* (6/2/2014 – 7/16/2016)

- Built an end-to-end system for Natural Language Understanding in a restricted domain.
- Created documentation and published papers about the NLU system in academic conferences (e.g., Trott et al., 2016).