**Sean T. Trott**

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Large Language Models | Cognitive Science | Psycholinguistics

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**PROFESSIONAL EXPERIENCE**

**Assistant Teaching Professor** *2022-Present*

Department of Cognitive Science, University of California, San Diego

Joint Appointment in *Computational Social Science*

**EDUCATION**

**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**

*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: Sidney Ma (Honors student), 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**

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

**HONORS AND AWARDS**

**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**

**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[[1]](#footnote-1)**

## 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).

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., & 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 59th Annual Meeting of the Association for Computational Linguistics and the 11th 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 58th Annual Meeting of the Association for Computational Linguistics.* (Acceptance rate: 25.2%)

Liebscher, A., **Trott, S.**, & Bergen, B. (2020). Effects of Battle and Journey Metaphors on Charitable Donations for Cancer Patients. In *CogSci*. (Acceptance rate: ~20.4%)

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

**Pending Articles**

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**

**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 59th Annual Meeting of the Association for Computational Linguistics and the 11th 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 58th Annual Meeting of the Association for Computational Linguistics.* (Acceptance rate: 25.2%)

**Select Posters**

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**

**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**

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**

**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).

1. In computational research (e.g., computational linguistics), conferences are the highest-impact venue for cutting-edge work. [↑](#footnote-ref-1)