# Nathaniel Imel

## EDUCATION

University of California, Irvine	Irvine, CA
Ph.D. in Language Science	2023-now
Ph.D. Program in Logic and Philosophy of Science	2022–2023
University of Washington	Seattle, WA
M.S. in Computational Linguistics	2020-2022
University of California, San Diego	La Jolla, CA
B.A. in Philosophy	2016–2020
Summer Programs	
Santa Fe Institute International Summer School (Complexity-GAINS)	Cambridge, 2023
North American Summer School for Logic, Language and Information (NASSLLI)	USC, 2022
Summer School in Logic and Formal Epistemology (LFE)	CMU, 2021

## **PUBLICATIONS**

- [1] **N. Imel**, The evolution of efficient compression in signaling games, in *Proceedings of the Annual Meeting of the Cognitive Science Society (Cogsci 32)*, to appear, 2023.
- [2] S. Steinert-Threlkeld, **N. Imel**, and Q. Guo, A semantic universal for modality. *Semantics and Pragmatics*, 2023.
- [3] Q. Guo, **N. Imel**, and S. Steinert-Threlkeld, A database for modal semantic typology, in *Proceedings of the 4th Workshop on Research in Computational Linguistic Typology and Multilingual NLP*, Seattle, Washington: Association for Computational Linguistics, Jul. 2022, pp. 42–51.
- [4] **N. Imel** and S. Steinert-Threlkeld, Modals in natural language optimize the simplicity/informativeness trade-off, in *Proceedings of Semantics and Linguistic Theory (SALT 32)*, 2022.

# Talks and Presentations

Modals in natural language optimize the simplicity/informativeness trade	-off
Semantics and Linguistic Theory (Mexico City)	6/08/22
Experiments in Linguistic Meaning (Philadelphia )	5/18/22
The evolution of efficient compression in signaling games	
Department of Linguistics Colloquium (University of Tübingen, virtual)	7/04/23
CogSci 2023 (Sidney, virtual)	7/26/23

# Works in progress

#### The observed citation-similarity relationship in astrophysics

With Zachary Hafen. (email for a draft)

Evolutionary dynamics lead to the emergence of efficiently compressed meaning systems With Richard Futrell and Michael Franke. (email for a draft)

# An efficient communication analysis of modal typology

With Shane Steinert-Threlkeld. (email for a draft)

## Deontic priority in the lexicalization of impossibility modals

With Anne Mucha, Wataru Uegaki, and Shane Steinert-Threlkeld. (link).

## The artificial language toolkit (ALTK)

With Shane Steinert-Threlkeld. (link).

# AWARDS

Merit Fellowships (UC Irvine School of Social Sciences)

2022

Best paper "Desire Semantics", selected for UC San Diego undergraduate philosophy journal Intuitions

2020

# TEACHING

#### Teaching Assistant

Econ 20A Introduction to Symbolic Logic Spring 2023 Winter 2022

#### GRADUATE COURSEWORK

Experimental Methods
Computability Theory and Incompleteness
Game Theory in the Philosophy of Biology
Information Theory and Language
Mathematical Logic
Set Theory
Social Dynamics
Philosophy of Science Foundations
Deep Learning for NLP
Machine Learning
Advanced Statistical Methods for NLP
NLP Systems and Applications
Deep Processing Techniques For NLP

Shallow Processing Techniques For NLP

Multilingual Grammar Engineering

Syntax for Computational Linguistics

Xin Xie Toby Meadows

Cailin O'Connor

Richard Futrell

Kai Wehmeier Toby Meadows

Brian Skyrms and Simon Huttegger Kyle Stanford

Shane Steinert-Threlkeld Sewoong Oh and Simon Du

Fei Xia
Gina Anne-Levow

Gina Anne-Levow Shane Steinert-Threlkeld

> Fei Xia Emily Bender Emily Bender Toshiyuki Ogihara

Marina Oganyan

#### EXPERIENCE

**Phonetics** 

Posh Technologies NLP Research Intern

Formal Semantics II

Boston, MA

Summer 2021

Performed error analysis experiments of chatbot and presented results to NLP team; wrote unit tests for intent-classification software; curated large datasets and pipelines for ML model evalutaion