Nicholas Tomlin

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Education

Brown University, Class of 2019

- Sc.B. in Mathematics & Computer Science
- A.B. in Linguistics, Honors Candidate

Teaching Assistantship

CSCI 1570	Design and Analysis of Algorithms (Fall 2018; UTA; 135 students)
CLPS 0300	Introduction to Linguistic Theory (Fall 2018; UTA; 83 students)
MATH 1530	Abstract Algebra (Fall 2017; HTA; 35 students)
MATH 1040	Point-Set Topology (Spring 2017; Grader; 8 students)

Ongoing Research

Planning, Reasoning, and Emergent Communication

- Studying how communicative and information theoretic constraints result in particular linguistic design features through a series of computer simulations and psycholinguistic experiments. Current work focuses on how noisy-channel models and incremental pragmatic reasoning may determine how language is grounded by reinforcement learning agents. Advised by Ellie Pavlick.
- Work done in completion of Brown University honors thesis.

Pragmatic Dialogue Agents for Negotiation

- Building conversational agents that behave pragmatically based on an extension of the Rational Speech Acts (RSA) framework. The core contribution of this work is a computationally feasible variant of RSA for reasoning over large state spaces. Advised by Chris Potts.
- Work done at Stanford CSLI's NSF REU *Language, Cognition and Computation.*

LingView: A Web Interface for Language Documentation

- Built a data pipeline and web interface for viewing FLEx and ELAN files generated as part of the A'ingae Language Documentation initiative at Brown University. Currently extending the project to include search and other features relevant to a large Yucatec Maya corpus.
- Initial work funded under Brown University's I-TEAM UTRA grant.

Publications & Conference Presentations

submitted	**LingView: a web interface for viewing FLEx and ELAN files**. Submitted to *Language Documentation & Conservation.* [with Kalinda Pride and Scott Anderbois]
2018	**Incremental Pragmatics and Emergent Communication**. To be presented at *Neural Information Processing Systems Workshop on Emergent Communication* in Montreal. [with Ellie Pavlick]
—	**Pragmatic Dialogue Agents for Negotiation**. Presented at *2018 CUR REU Symposium*. Alexandria, VA.
2017	**Finding Case Constructions: Topological Data Analysis of Very Large Corpora**. Accepted to *International Cognitive Linguistics Conference (ICLC-14)*. University of Tartu, Estonia. [with Stephen Clancy, Sara Kalisnik, Quang Nhat Le, and Joseph Borkowski]
—	**Yucatec Maya: A Fragment**. Presented at *International Conference on Head Phrase Structure Grammar*. University of Kentucky, Lexington. [with Maksymilian Dabkowski, Kalinda Pride, and Justin Bai]
2016	**Rotor Routing on 2-Manifolds**. Presented at *Symposium for Undergraduates in Mathematics (SUMS)*. Brown University, Providence, Rhode Island. [with Taro Shima]

Technical Skills

Coding	C/C++, JavaScript, Julia, MATLAB, Python
ML/Data	Dynet, NumPy, Pandas, PyTorch, SciPy, Tensorflow
Graphics	Adobe Creative Suite, Autodesk Maya, OpenGL, Sketch
Web Tools	Drupal, Flask, HTML/CSS, jQuery, MongoDB, NodeJS, PHP
Other	Bash, Docker, Git/GitHub, LaTeX, Jupyter, MTurk API, Slurm, Vagrant