Sarah Brogden Payne

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Education

PhD – Stony Brook University **2022-present**

Doctor of Philosophy in Linguistics
Institute for Advanced Computational Science Graduate Research Fellow
Co-Advisors: Dr. Jordan Kodner & Dr. Jeffrey Heinz

BA – University of Pennsylvania **May 2022**

Bachelor of Arts in Linguistics & Computer and Information Science, *summa cum laude*
Minor: Cognitive Science
Thesis: "When Collisions are a Good Thing: The Acquisition of Morphological Marking"
Advisor: Dr. Charles Yang

Non-Degree-Seeking Programs

Dual Enrollment – Indiana University Bloomington **2017-18**

Mathematics & Computational Linguistics

Employment

Research Positions

Summer Research Fellow – MIT Center for Brains, Minds and Machines **2021**

Modeled working memory limitations on incremental processing of garden-path sentences with surprisal.
Advisor: Dr. Roger Levy

Research Assistant Intern – Information Sciences Institute (USC) **2020**

Helped develop a cognitively-plausible learner that learns from concrete situations and syntactic bootstrapping and implemented this model in Mandarin Chinese.
Advisors: Dr. Ryan Gabbard & Dr. Marjorie Freedman

Visiting Research Assistant – University of Maryland College Park **2020**

Used bottleneck features in Kaldi to develop phone embeddings that can be tested against human judgements.
Advisors: Dr. Dan Swingley (Penn), Dr. Thomas Schatz, & Dr. Naomi Feldman

Research Assistant – University of Pennsylvania Infant Language Center **2019-20**

Created phoneme embeddings using Bottleneck Features that are optimized to mimic the perception of an infant.
Advisor: Dr. Dan Swingley

Research Assistant – Penn Undergraduate Research Mentoring Program **2019**

Developed multimodal phrase embeddings by incorporating visual and syntactic information for a 20% improvement on test accuracy.
Advisor: Dr. Chris Callison-Burch

Research Assistant – University of Pennsylvania Natural Language Processing Group **2018-19**

Created multi-modal word embeddings by imagining mappings from words to images.
Advisor: Dr. Chris Callison-Burch

Other Relevant Employment

Teaching Assistant Trainer – University of Pennsylvania School of Engineering **2021-22**

Nominated to lead training sessions for new teaching assistants with other experienced TAs.

Peer Writing Tutor – University of Pennsylvania Marks Family Writing Center **2019-20**

Nominated position based on performance in Penn's writing seminar; helped students grow as writers by holding weekly appointments and offering drop-in assistance.

Cloud Technology Support Intern – Indiana University Bloomington **2017-18**

Planned and helped execute the rollout of Adobe Sign for secure, campus-wide E-signature services; created training materials and trained users on AWS, Box, and Adobe products to help improve user experience.

Awards & Fellowships

Fellow – National Science Foundation Graduate Research Fellowship Program (GRFP) **2022-25**

3-year fellowship providing full financial support ($37,000/year stipend and $4,000/year research allowance), approximately 15% award rate.

Fellow – Institute for Advanced Computational Science Graduate Research Fellow **2022-27**

5-year fellowship providing full financial support at NSF GRFP rate.

Graduate Research Empowering and Accelerating Talent (GREAT) Award **2023**

$5,000 in flexible funding for winners and honorable mentions of the National Science Foundation's Graduate Research Fellowship Program award, provided by the State University of New York.

Paula Menyuk Travel Award **2022**

$350 in travel funding provided to student authors with top-rated abstracts by the Boston University Conference on Language Development.

Honorable Mention – National Defense Science & Engineering Graduate Fellowship (NDSEG) **2022**

U.S. Dept of Defense (Army Research Office) fellowship for basic research.

University of Pennsylvania Dean's Scholar **2022**

One of 9 students from Penn's College of Arts and Sciences recognized annually for academic achievement.

Henry Hoenigswald Thesis Prize in Linguistics **2022**

Annual award of $150 given to a Linguistics major at the University of Pennsylvania whose thesis is deemed to have made a significant scientific contribution to the field.

Phi Beta Kappa **2021**

Delta Chapter, University of Pennsylvania.

University of Pennsylvania Dean's List **2018-19,**
Temporarily discontinued due to COVID-19. **2021-22**

Publications

Note: Proceedings in the Association for Computational Linguistics Anthologies (ACL, NAACL, EMNLP, SCiL) are peer-reviewed and archival. Proceedings in CogSci are peer-reviewed but non-archival. Proceedings in other venues are abstract-reviewed and non-archival.

Note: {Brackets indicate equal contribution and alphabetical author ordering}.

Articles & Book Chapters

Payne, S. and Kodner, J. (*in press*). Some Innate Characteristics of Neural Models of Morphological Inflection. In *Linguistics Vanguard*. De Gruyter.

Kodner, J., **Payne, S.**, Khalifa, S., and Liu, Z. (*in press*). Evaluating Learning Trajectories of Neural Morphology Acquisition Models. In *Linguistics Vanguard*. De Gruyter.

Dressler, W. U. and **Payne, S.** (*to appear*). Self-Organization in Acquisition. In *Cambridge Handbook of Natural Linguistics*. Cambridge University Press.

Payne, S. and Yang, C. (2023). Making Good on BADs. *Italian Journal of Linguistics*, 35(1):215–230.

Conference & Workshop Proceedings

Payne, S. and Kodner, J. (2025). Lemmas Matter, But Not Like That: Predictors of Lemma-Based Generalization in Morphological Inflection. In Che, W., Nabende, J., Shutova, E., and Pilehvar, M. T., editors, *Findings of the Association for Computational Linguistics: ACL 2025*, pages 25270–25286.

Payne, S. (2024). A Generalized Algorithm for Learning Positive and Negative Grammars with Unconventional String Models. *Proceedings of the Society for Computation in Linguistics (SCiL)*, pages 75–85.

Payne, S. (2024). Root Infinitives and the Acquisition of Morphological Marking. In *Penn Working Papers in Linguistics*, 30(1):117–126.

Kodner, J. and {Khalifa, S. and **Payne, S.**} (2023). Exploring Linguistic Probes for Morphological Generalization. In Bouamor, H., Pino, J., and Bali, K., editors, *Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing*, pages 8933–8941.

Kodner, J., {**Payne, S.** and Khalifa, S.}, and Liu, Z. (2023). Morphological Inflection: A Reality Check. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL; Volume 1: Long Papers)*, pages 6082–6101.

Khalifa, S., **Payne, S.**, Kodner, J., Broselow, E., and Rambow, O. (2023). A Cautious Generalization Goes a Long Way: Learning Morphophonological Rules. In *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL; Volume 1: Long Papers)*, pages 1793–1805.

Kodner, J., {Khalifa, S. and **Payne, S.**}, and Liu, Z. (2023). Re-Evaluating the Evaluation of Neural Morphological Inflection Models. In *Proceedings of the 45th Annual Meeting of the Cognitive Science Society (CogSci)*, 45:3259–3267.

Payne, S. (2023). Contrast, Sufficiency, and the Acquisition of Morphological Marking. In *Proceedings of the 47th Boston University Conference on Language Development*, 47(1):604–617.

Belth, C., **Payne, S.**, Beser, D., Kodner, J., and Yang, C. (2021). The Greedy and Recursive Search for Morphological Productivity. In *Proceedings of the 43rd Annual Meeting of the Cognitive Science Society (CogSci)*, 43:2869–2875.

Beser, D., Cecil, J., Freedman, M., Lichtefeld, J., Marcus, M., **Payne, S.**, and Yang, C. (2021). A Grounded Approach to Modeling Generic Knowledge Acquisition. 42(1):2450–2456.

Payne, S., Kodner, J., and Yang, C. (2021). Learning Morphological Productivity as Meaning-Form Mappings. In *Proceedings of the Society for Computation in Linguistics 2021 (SCiL)*, pages 177–187.

Manuscripts

Kodner, J., **Payne, S.**, and Heinz, J. (2023). Why Linguistics Will Thrive in the 21st Century: A Reply to Piantadosi (2023). *Preprint on Lingbuzz*.

Payne, S. (2022). When Collisions are a Good Thing: the Acquisition of Morphological Marking. Bachelor's thesis, University of Pennsylvania.

Gabbard, R., Beser, D., Lichtefeld, J., Cecil, J., Marcus, M., **Payne, S.**, Yang, C., and Freedman, M. (2021). ADAM: A Sandbox for Implementing Language Learning.

Presentations

Invited Talks

Payne, S. (2025). Are Neural Networks Good Linguistic Models? Then and Now. Teen Academic Linguistics Conference.

Payne, S. (2024). Marginal Sequences as a Window into Phonotactic Acquisition. LingLunch, MIT.

Payne, S. (2024). Morphological Generalization by Children & Computers. Department of Brain & Cognitive Sciences, MIT.

Payne, S. (2023). Possible and Probable Errors in Child Language. 52nd Annual Poznań Linguistics Meeting.

Payne, S. (2023). Getting the Right Stuff Wrong: Modeling the Acquisition of Inflectional Morphology. Computational Linguistics Speaker Series, City University of New York.

Payne, S. (2022). Contrast, Sufficiency, and the Acquisition of Morphological Marking. Berwick Lab, MIT.

Conference & Workshop Presentations

Payne, S. and Kodner, J. (2025). Some Innate Characteristics of Neural Models of Morphological Inflection. Poster presented at the 47th Annual Meeting of the Cognitive Science Society.

Payne, S. (2025). An Adequate Theory of Morphological Blind Alley Developments. Talk given at the 2025 Meeting of the Linguistic Society of America.

Kodner, J. and **Payne, S.** (2025). Formally Defining the Learning Setting for Child Language Acquisition. Talk given at the "Computational Models of Learnability and Acquisition of Morphology and Phonology" special session at the 2025 Meeting of the Linguistic Society of America.

Payne, S. (2024). A Generalized Algorithm for Learning Positive and Negative Grammars with Unconventional String Models. Talk given at the 2024 Meeting of the Society for Computation in Linguistics.

Payne, S. (2024). Marginal Sequences are Licit but Unproductive. Poster presented at the 2024 Meeting of the Linguistic Society of America.

Payne, S. (2023). Marginal Sequences are Licit but Unproductive. Poster presented at the 2023 Annual Meeting of Phonology.

Payne, S. (2023). Licit and Marginal Phonotactics: A Difference in Productivity. Poster presented at the Morris Halle Centenary Conference.

Kodner, J., {Khalifa, S. and **Payne, S.**}, and Liu, Z. (2023). Re-Evaluating Neural Models of Morphological Inflection. Poster presented at the 45th Annual Meeting of the Cognitive Science Society.

Payne, S. (2023). Root Infinitives and the Acquisition of Morphological Marking. Talk given at the 47th Penn Linguistics Conference.

Payne, S. (2023). Spheres and Spaghetti: Generalization and Exceptionality in Phonotactic Acquisition. Talk given at the 23rd Stony Brook, Yale, NYU, and CUNY Linguistics Conference.

Payne, S. (2022). Contrast, Sufficiency, and the Acquisition of Morphological Marking. Talk given at the 47th Boston University Conference on Language Development.

Payne, S., Belth, C., Kodner, J., and Yang, C. (2022). Searching for Morphological Productivity. Talk given at the 2022 Meeting of the Linguistic Society of America.

{Belth, C. and **Payne, S.**}, Kodner, J., and Yang, C. (2021). Searching for Morphological Productivity. Talk given at the 46th annual Boston University Conference on Language Development.

{**Payne, S.** and Belth, C.}, Kodner, J., and Yang, C. (2021). The Recursive Search for Morphological Productivity. Poster presented at the 5th Annual American International Morphological Meeting.

Belth, C., **Payne, S.**, Beser, D., and Yang, C. (2021). The Greedy and Recursive Search for Morphological Productivity. Poster presented at the 43rd Annual Meeting of the Cognitive Science Society.

Gabbard, R., Lichtefeld, J., Beser, D., Cecil, J., Marcus, M., **Payne, S.**, Yang, C., and Freedman, M. (2021). Grounding Word Learning Across Situations. Poster presented at the 43rd Annual Meeting of the Cognitive Science Society.

Payne, S., Kodner, J., and Yang, C. (2021). Learning Morphological Productivity as Meaning-Form Mappings. Talk given at the Annual Meeting of the Society for Computation in Linguistics.

Payne, S. (2019). Categorization of novel referents by a seeing eye dog. Talk given at the University of California Berkeley Undergraduate Linguistics Symposium.

Internal Presentations

Payne, S. (2024). A learning-theoretic account of blind alley developments. Lightning Talk, Institute for Advanced Computational Science Research Day.

Payne, S. (2024). Licit and marginal phonotactics: A difference in productivity. Poster presented at the Institute for Advanced Computational Science Advisory Board Meeting.

{**Payne, S.** and Khalifa, Salam}, Kodner, J., and Liu, Z. (2023). Re-Evaluating the Evaluation of Neural Morphological Inflection Models. Poster presented at the Institute for Advanced Computational Science Research Day.

Kodner, J., Khalifa, S., **Payne, S.**, and Liu, Z. (2023). The Language or the Task Design? Re-Evaluating Morphological Inflection Tasks. All Things Language and Computation Seminar, Stony Brook University.

Payne, S. (2022). Contrast, Sufficiency, and the Acquisition of Morphological Marking. Brown Bag Presentation, Stony Brook Department of Linguistics.

Payne, S., Qian, P., Wilcox, E., and Levy, R. (2021). Particle Filtering with Neural Language Models: Modelling the Effects of Memory on Incremental Sentence Processing. Poster presented at the MIT Center for Brains, Minds and Machines Summer Research Poster Session.

Payne, S. and Callison-Burch, C. (2019). From word meaning to phrase meaning: Compositionality. Poster presented at the University of Pennsylvania Center for Undergraduate Research Poster Session.

Teaching

Invited Guest Lectures

Child Errors as a Window into Morphological Acquisition *University of Delaware* Fall 2024
LIN 444: Child Language Development (instructor: Dr. Andrea Beltrama)

Morphological Inflection: A Reality Check (with Salam Khalifa) *University of Utah* Fall 2024
LING 5981/6080: Topics in Computational Linguistics (instructor: Dr. Caleb Belth)

Stony Brook University

Summer Youth Camp in Computational Linguistics *Lead Instructor* Summer 2025
LIN 201: Phonetics *Teaching Assistant with Recitations* Spring 2025
Summer Youth Camp in Computational Linguistics *Lead Instructor* Summer 2024
Summer Youth Camp in Computational Linguistics *Student Instructor* Summer 2023
North American Computational Linguistics Open Practice Session *Student Instructor* 2022

University of Pennsylvania

CIS 380: Operating Systems *Teaching Assistant* Fall 2021
CIS 240: Introduction to Computer Architecture *Teaching Assistant* Spring 2021
NETS 212: Scalable and Cloud Computing *Teaching Assistant* Fall 2020
CIS 192: Introduction to Python *Teaching Assistant* Spring 2019

Service, Conference Reviewing & Outreach

Conference Reviewing

Cognitive Science Conference 2021-present
Association of Computational Linguistics Conference (ACL) 2022-present
Conference on Empirical Methods in Natural Language Processing (EMNLP) 2023-present
Asia-Pacific Association of Computational Linguistics Conference (AACL) 2022
European Association of Computational Linguistics Conference (EACL) 2022

Conference Session Chair

Workshop on Model-Theoretic Representations in Phonology 2022

Service – Stony Brook University Department of Linguistics

Student Representative 2024-25
Justice, Equity, Diversity and Inclusion Committee Member 2022-present
Colloquium Series Student Organizer 2022-23

Service – Institute for Advanced Computational Science

Student Association Social Media Manager 2022-2024

Service – University of Pennsylvania

Alumna Interviewer Suffolk County, NY 2022-present
University Council Elected member 2021-22
Chair Abuse and Sexual Assault Prevention Group 2021-22

Invited Panels

University of Pennsylvania: Journey Through Graduate Admissions 2023
Arizona State University: Navigating the Grad School Application Process 2022