Tyler Zarus Knowlton

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Contact Information

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Research Interests

Broad: psycholinguistics, language acquisition, semantics, the language-thought relationship
Specific: quantification, lexical decomposition, syntactic bootstrapping, argument structure, numerical and event concepts, the language-vision interface

Employment

Postdoctoral Research Fellow   2021-
MindCORE (Center for Outreach, Research, and Education)
University of Pennsylvania, Philadelphia, PA

Education and Training

Ph.D. in Linguistics   2016-21
Thesis: The psycho-logic of universal quantifiers
Advisors: Jeffrey Lidz and Paul Pietroski
University of Maryland, College Park, MD

Lab Manager, Vision and Cognition Lab   2015-16
PI: Justin Halberda
Johns Hopkins University, Baltimore, MD

B.A. in Cognitive Science (with honors)   2011-15
Minors in Linguistics, Philosophy, and Psychology
Johns Hopkins University, Baltimore, MD

Grants, Fellowships, and Awards

NSF Doctoral Dissertation Improvement Grant, "Doctoral Dissertation Research: 2020
The mental representation and acquisition of the universal quantifiers"
(NSF #BCS-2017525) (with Jeffrey Lidz)

Graduate Student Service Award   2020
University of Maryland, College of Arts and Humanities

Howard Lasnik Award for Distinguished Teaching by a Graduate Student   2020
University of Maryland, Linguistics Department

Jerrold J. Katz Young Scholar Award   2019
CUNY Conference on Human Sentence Processing

Jacob K. Goldhaber Travel Grant   2018
University of Maryland

Fellow, NSF-NRT Training Program, "NRT-DESE: Flexibility in Language   2017
Processes and Technology: Human- and Global-Scale" (NRT #1449815)

Phi Beta Kappa   2015
Johns Hopkins University

Provost's Undergraduate Research Award   2014
Johns Hopkins University

Publications

Under Review

Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (under review) *Individuals versus ensembles and "each" versus "every": Linguistic framing affects performance in a change detection task.* Journal of Memory and Language.

Published

Knowlton, T. and Gomes, V. (2022) *Linguistic and non-linguistic cues to acquiring the strong distributivity of "each".* Proceedings of the Linguistic Society of America.

Knowlton, T., Pietroski, P., Halberda, J., and Lidz, J. (2021) *The mental representation of universal quantifiers.* Linguistics and Philosophy.

Knowlton, T., Hunter, T., Odic, D., Wellwood, A., Halberda, J., Pietroski, P., and Lidz, J. (2021) *Linguistic meanings as cognitive instructions.* Annals of the New York Academy of Sciences.

Knowlton, T. and Lidz, J. (2021) *Genericity signals the difference between "each" and "every" in child-directed speech.* Proceedings of the 45th annual Boston University Conference on Language Development.

Knowlton, T., Pietroski, P., Williams, A., Halberda, J., and Lidz, J. (2021) *Determiners are "conservative" because their meanings are not relations: evidence from verification.* Proceedings of Semantics and Linguistic Theory 30.

Presentations

Conference Talks

Cesana-Arlotti, N., Knowlton, T., Lidz, J., and Halberda, J. (2022) *Universal quantification without language? Ten-month-old infants represent the exhaustivity of a relation in visually presented events.* Symposium on The Language of Thought, 3rd Joint Conference of the Society for Philosophy and Psychology and the European Society of Philosophy and Psychology (SPP/ESPP), Milan, Italy.

Knowlton, T., Trueswell, J., and Papafragou, A. (2022) *A mentalistic semantics explains "each" and "every" quantifier use.* 44th Annual Meeting of the Cognitive Science Society (CogSci), Toronto, Canada.

Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2022) *On the origins of universal quantification: 10-month-old infants represent the exhaustivity of multi-agent intentional actions.* XXIII International Congress of Infant Studies (ICIS) Biennial Congress, Ottawa, Canada.

Knowlton, T. and Gomes, V. (2022) *Linguistic and non-linguistic cues to acquiring the strong distributivity of "each".* Linguistic Society of America (LSA) Annual Meeting, Washington, DC.

Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2021) *Evaluating "each"- (but not "every"-) sentences encourages encoding individual properties.* 34th CUNY Conference on Human Sentence Processing, University of Pennsylvania.

Knowlton, T. and Lidz, J. (2021) *Bootstrapping universal quantifiers: the role of genericity.* Linguistic Society of America (LSA) Annual Meeting, San Francisco, CA.

Knowlton, T. and Lidz, J. (2020) *Genericity signals the difference between "each" and "every" in child-directed speech.* Boston University Conference on Language Development (BUCLD) 45, Boston University.

Knowlton, T., Pietroski, P., Williams, A., Halberda, J., and Lidz, J. (2020) *Memory for cardinality supports a non-relational account of conservativity.* Experiments in Linguistic Meaning (ELM) 1, University of Pennsylvania.

Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2020) *An investigation of the origins of logical quantification: infants' (and adults') representations of exhaustivity in collective or individual complex actions.* Symposium on Learning 'hard words', XXII International Congress of Infant Studies (ICIS) Biennial Congress, Glasgow, Scotland.

Knowlton, T., Pietroski, P., Williams, A., Halberda, J., and Lidz, J. (2020) *Conservative meanings with only one set: evidence from verification.* 33rd CUNY Conference on Human Sentence Processing, University of Massachusetts at Amherst.

Knowlton, T., Pietroski, P., Halberda, J., and Lidz, J. (2019) *The mental representation of universal quantifiers: evidence from verification.* 32nd CUNY Conference on Human Sentence Processing, University of Colorado Boulder.

Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2018) *Acquiring the universal quantifiers: every part together or each part on its own?* Boston University Conference on Language Development (BUCLD) 43, Boston University.

Invited Talks

Knowlton, T. (2022) *Every universal is first-orderizable, but only "each" is first-orderized.* Cognitive Semantics and Quantities Workshop, University of Amsterdam.

Knowlton, T. (2021) *The psycho-logic of "each" and "every".* LingLangLunch, Brown University.

Knowlton, T. (2021) *The psycho-logic of universal quantifiers.* Linguistics Colloquium, University of Southern California.

Knowlton, T. (2019) *The psychological treatment of (universal) quantification.* Integrated Language Sciences and Technology Seminar, University of Pennsylvania.

Knowlton, T. (2018) *Are natural language quantifiers first- or second-order?* McDonnell Network Focused Workshop on "The Development of Set and Quantifier Representations", Johns Hopkins University.

Conference Posters

Knowlton, T., Trueswell, J., and Papafragou, A. (2022) *A psycho-semantic explanation of "each" and "every" quantifier use.* Experiments in Linguistic Meaning (ELM) 2, University of Pennsylvania.

Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2022) *Universal quantification without language? Ten-month-old infants represent the universality of visually presented properties.* Experiments in Linguistic Meaning (ELM) 2, University of Pennsylvania.

Knowlton, T., Trueswell, J., and Papafragou, A. (2022) *Psycho-semantic representations explain "each" and "every" quantifier use.* 35th Annual Conference on Human Sentence Processing (HSP), University of California, Santa Cruz.

Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2021) *An investigation of the origins of logical quantification: infants' (and adults') representations of exhaustivity in collective or individual complex actions.* Society for Philosophy and Psychology (SPP) 47th Annual Meeting, Princeton University.

Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2021) *Representing the exhaustivity of collective and individual actions: an investigation of universal quantification in adults and infants.* 12th Dubrovnik Conference on Cognitive Science, Virtual.

Knowlton, T., Pietroski, P., Williams, A., Halberda, J., and Lidz, J. (2020) *Determiners are 'conservative' because their meanings are not relations: evidence from verification.* Semantics and Linguistic Theory (SALT) 30, Cornell University.

Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2020) *An investigation of the origin of logical quantification: infants' and adults' representations of collective and distributive actions in complex visual scenes.* 42nd Annual Meeting of the Cognitive Science Society, Virtual.

Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., and Halberda, J. (2020) *Who's chasing whom? Adults' and infants' engagement of quantificational concepts ("each" and "all") when representing visual chasing events.* Vision Sciences Society (VSS) 20th Annual Meeting, Virtual.

Cesana-Arlotti, N., **Knowlton, T.**, Lidz, J., Pietroski, P., and Halberda, J. (2019) *Concepts of universal quantification ("each" and "all") may support infant and adult understanding of collective and distributive actions.* Cognitive Development Society (CDS) 2019 Biennial Meeting, Louisville, KY.

Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2019) *A novel memory task reveals early understanding of quantifier meanings.* Society for Research in Child Development (SRCD) 2019 Biennial Meeting, Baltimore, MD.

Knowlton, T., Pietroski, P., Halberda, J., and Lidz, J. (2019) *Representational format and universal quantifiers.* Linguistic Society of America (LSA) Annual Meeting, New York, NY.

Perkins, L., **Knowlton, T.**, Williams, A., and Lidz, J. (2018) *Matching number vs. linking roles: using 3-participant scene percepts to understand infants' bootstrapping.* Boston University Conference on Language Development (BUCLD) 43, Boston, MA.

Knowlton, T., Perkins, L., Williams, A., and Lidz, J. (2018) *Getting a grip on infants' event representations: participant number in* TAKE *and* PICK-UP. XXI International Congress of Infant Studies (ICIS) Biennial Congress, Philadelphia, PA.

Knowlton, T., Wong, A., Halberda, J., Pietroski, P., and Lidz, J. (2018) *Different determiners, different algorithms: two majority quantifiers in Cantonese bias distinct verification strategies.* 31st CUNY Conference on Human Sentence Processing, University of California, Davis.

Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2017) *Sentences, centers, and sets: set selection and the meanings of more and most.* Cognitive Development Society (CDS) Biennial Meeting, Portland, OR.

Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2017) *Distinguishing first- from second-order specifications of each, every, and all.* Mid-Atlantic Colloquium of Studies in Meaning (MACSIM) 7, Georgetown University.

Knowlton, T., Halberda, J., Pietroski, P., and Lidz, J. (2017) *Set selection and storage reflect differences in quantifier meanings.* McDonnell Network Plenary Workshop on "The Ontogenetic Origins of Combinatorial Thought", University of California, San Diego.

Perkins, L., **Knowlton, T.**, Hirzel, M., Dudley, R., Williams, A., and Lidz, J. (2017) *Linguistic and conceptual structure in verb learning.* McDonnell Network Plenary Workshop on "The Ontogenetic Origins of Combinatorial Thought", University of California, San Diego.

Teaching and Mentorship

Teaching Experience

University of Maryland

Instructor, Language and Thought (LING449T)   Spring 2020
Designed and taught 11-student seminar

TA, Grammar and Meaning (LING410; Instructor: Valentine Hacquard)   Fall 2019
Duties: grading, office hours, reviewing p-sets in class, once teaching ∼25 student lecture

TA, Child Language Acquisition (LING444; Instructor: Jeffrey Lidz)   Spring 2019
Duties: grading, office hours, helping write exams, once teaching ∼20 student lecture

TA, Language and Mind (LING240; Instructor: Tonia Bleam)   Fall 2018
Duties: grading, office hours, review sessions, twice teaching ∼50 student lecture

TA, Introductory Linguistics (LING200; Instructor: Tonia Bleam)   Spring 2018
Duties: weekly discussion section of ∼30 students, grading, office hours

Mentorship Experience

University of Pennsylvania

MindCORE Step-Ahead Mentorship Program   2021-

University of Maryland

Undergraduate mentor, Project on Children's Language Learning   2018-21
Responsible for mentoring undergraduate research assistants M. Lauchman,
M. Aiyad, D. Lahori, T. Hudson, M. Griffith, S. Deshpande, & A. Boyer
and supervising their end-of-term poster presentations

High school summer intern mentor, Project on Children's Language Learning   2019
Responsible for mentoring high school research assistant S. Chervenak
and supervising his final paper & science fair poster presentation

Johns Hopkins University

Undergraduate mentor, Vision and Cognition Lab   2015-16
Responsible for mentoring undergraduate research assistants A. Wong,

S. Akmal, A. Vadaparty, I. Perone, & L. Grau and supervising their term papers

Academic Activities

Service

University of Pennsylvania

Host, Behind the CV: Stories from Faculty	2022-
Workshop Co-organizer (with V. Gomes), *Language Acquisition in Internalist Semantics: Rethinking What's Learned and What's Observed*	2022-
ELM2 Organizing Committee	2021-
MindCORE Outreach Committee	2021-

University of Maryland

Linguistics Colloquium Committee	2019-21
Mayfest 2020: Hindsight Organizing Committee (postponed due to COVID-19)	2019-20
Developmental Science Workshop Co-organizer (with Z. Ovans & M. Hirzel), *Endless Possibilities: The Development of Possibility and Necessity in Cognition, Language, and Society*	2018-19
Chair, Language Science Outreach Committee	2018-19
Winter Storm 10 Planning Committee	2017-18
Co-chair (with S. Thivierge), Linguistics Graduate Student Association	2017-18
Career fair coordinator, Language Science Outreach Committee	2016-18
Winter Storm 9 Planning Committee	2016-17
SALT27 Organizing Committee	2016-17

Ad Hoc Reviewing

Manuscripts

Cognitive Science
PLOS One
Journal of Memory and Language (x2)
Language Learning and Development

Conference Abstracts/Papers

Penn Linguistics Conference (2022)
Experiments in Linguistic Meaning (2022)
Annual Conference on Human Sentence Processing (2022)
Annual Meeting of the Cognitive Science Society (2020, 2021, 2022)

Professional Memberships

Cognitive Science Society	2020-
Society for Research in Child Development	2019-
International Congress of Infant Studies	2017-
Cognitive Development Society	2017-
Linguistic Society of America	2015-

References

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Professor of Linguistics & Distinguished Scholar-Teacher
University of Maryland
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Paul Pietroski
Distinguished Professor of Philosophy & Cognitive Science
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Justin Halberda
Professor of Psychological and Brain Sciences
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