

Marianne Azar

New York University

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CURRICULUM VITAE

Education

2021-present: **PhD in Cognition and Perception** | Neuroscience of Language Lab, Psychology Department, New York University | Advisor: Alec Marantz

Defense date: July 24, 2026.

2019-2020: **Master of Science in Psychology of Language** *cum laude* | School of Philosophy, Psychology, and Language Sciences, The University of Edinburgh | Advisor: Antonella Sorace

Dissertation: Affective Norms for Lebanese Arabic and Lebanese English Words: A cross-cultural and cross-linguistic investigation.

2016-2019: **Bachelor of Arts in Psychology** *summa cum laude; best thesis* | Lebanese American University.

Publications

Azar, Marianne & Marantz, Alec (2026) Productivity matters for the neural processing of novel words, but not existing ones *Cognition*, Volume 274, 2026, 106593, ISSN 0010-0277

- This output investigates the neural basis of the productivity of affixes by using them in novel words in line with its definition. Previously, productivity had only been studied in existing words. In our study, we compared the processing existing words (“*driver, guitarist*”) and novel words (“*berater, collagist*”) with word structures of different productivities.
- Within the novel words, the most productive combination was processed significantly differently from the two less productive combinations, although their existing counterparts were processed all the same.
- In this study, we called for a re-evaluation of our current understanding of lexicality to instead focus on how composable a word’s subparts are instead of viewing a word as lexical / not lexical.

Azar, Marianne, & Marantz, Alec (2025) Semantic Typicality of Affixes Facilitates Word Processing: MEG Evidence from Arabic. *Neurobiology of Language*. NoL-a 6.

- This output was the first empirical study to investigate the semantic role of affixes in the processing of words, asking at which point the brain derives semantic information from affixes, and if so, if it differentiates between majority-meanings and minority-meanings of an affix.
- We make a theoretical argument for the study of affix semantics and the use of Arabic, since it offers a natural paradigm where affixes, like roots, are both necessary for word formation. Previous arguments had posited that roots were necessary for word formation and had overlooked the semantics of affixes.
- Using a double dissociation paradigm, we found robust differences between majority and minority affix meanings that could not be explained by form, semantic category (places or things), or frequency in the ventral processing stream.
- To emphasize ecological validity, this study was conducted in Levantine Arabic, which is particularly understudied, hence contributing to the advancement in the research of an under-resourced language. This research precipitated the organization of the Arabic Linguistics Symposium in New York in 2023.

Manuscripts

Azar, Marianne, & Marantz, Alec (2025) The neural basis of semantic generalization under uncertainty (*in preparation, MEG data in final analysis stages and manuscript being written. (Presented at SNL 2025)*
Data, code, and online experiment available publicly online (respectively):

<https://osf.io/svgfm/>

<https://github.com/marianneazar/Artificial-Grammar-Learning>

<https://marianneazar.github.io/Artificial-Grammar-Learning/>

- In this current project, we investigate how learners generalize the meaning of an affix when it has distinct meanings (polysemy), a phenomenon that occurs across virtually all languages.
- This study innovatively conducts a language learning study with simultaneous brain-recording, allowing us to track the neural signature of morpholexical learning in real-time.
- We ask about the effect of learning on the morphological decomposition of newly acquired affixes, and how that changes after memory consolidation (sleep).
- We ask how, over the experiment's learning trajectory, the semantic representations of (1) majority-meaning vs. minority-meaning words differ, and how (2) trained words and untrained novel words (whose meaning learners must generalize) differ.
- So far, we find that as the experiment progresses, activity in the precentral gyrus associated with phonological processing reduces and increases in the STG associated with semantic processing. Meanwhile, as the experiment progresses, the pars opercularis shows increasing heightened activation for minority-meaning words over majority ones, especially the most common types. An RSA shows that in the beginning of the experiment, in the temporal pole, the neural signature between comprehension and generalization is observable, but disappears by the late stage of experiment, consistent with learning.
- Our questions are based on our previous findings of (1) finding a difference between familiar majority-meaning and minority-meaning words in Arabic sharing a form, and (2) there being no difference in the processing between existing and novel words. In this paradigm, however, long-term memory effects cannot explain possible findings, and the polysemy of affixes make the novel words semantically uncertain.

Academic Honors, Awards, and Grants

2026: University of Birmingham Marie Skłodowska Curie Fellowship Writing Travel Grant (£1000)

2025: Society for Neurobiology of Language Travel Award (\$500)

2021--: New York University GSAS MacCracken Fellowship

2020: *cum laude* graduation from University of Edinburgh

2019: *summa cum laude* graduation from Lebanese American University

2019: Torch Award from Lebanese American University (\$3,000)

2019: President's Award from Lebanese American University (\$3,000)

2019: Best Senior Thesis Award – Department of Psychology, Lebanese American University

2019: Oxford Rhodes Scholarship Finalist Award (Rhodes for Syria, Jordan, Lebanon, and Palestine)

2017: Erasmus Mundus Scholarship – University of Tampere (€10,000)

2016-2019: Honors Scholarship - Lebanese American University (50% of tuition)

2016-2019: Model Arab League Scholarship - Lebanese American University (25% of tuition)

Collaborations

2022-- A comparative study of crowding in the naturalistic reading of Arabic and English - with Denis Pelli, Alec Marantz, Najib Majaj, Dustin Chacón (order of contributions TBD).

Invited Talks

11/8/2025 (originally 11/2024 – postponed due to war): *From Stories to Morphemes, Narrative to Brain: Studying Arabic in the Mind* - Lebanese American University Research Symposium (Hybrid: Online-Beirut)

6/2025: Middlebury College Language Access Summer Program: *Underrepresented languages in society: from policy to neuroscientific research*.

2/2024: Invited panelist in *Arabic Morphology as a Window into How the Brain Processes Language* - 37th Annual Symposium on Arabic Linguistics (ASAL; New York)

3/2023: Invited speaker with author of “Stories of your Life and Others” Ted (role of Language Scientist) – *The Science and Fiction of Language and Thought*.

Azar, M. & Abi Habib, R. Emotional interference effects across languages in multilingual Lebanese code-switchers. *Groupe de Mémoire et de Recherches Cliniques du Liban – 3rd Annual Congress, March 2018*.

Conference Poster Presentations:

Poster Presentations:

Azar, M., & Marantz, A. The neural basis of derivational morpheme acquisition under semantic uncertainty: An artificial grammar learning MEG Study. *Society for Neurobiology of Language 17th Annual Meeting, Washington, D.C., 12-14 September 2025*.

Azar, M., & Marantz, A. The roles of suffix ambiguity and productivity in word comprehension. *NYU Minds, Brains, and Machines Poster conference, October 21st, 2024*.

Azar, M., & Marantz, A. The roles of suffix ambiguity and productivity in word comprehension. *30th Architectures and Mechanism of Language Processing (AMLaP) conference, 5-7 September 2024, Edinburgh, UK*

Azar, M., & Marantz, A. Affix semantic typicality facilitates word processing: MEG evidence from Arabic *Society for Neurobiology of Language 15th Annual Meeting, 24-26 October 2023, Marseille, France*.

Azar, M., & Marantz, A. The role of affix semantic typicality in word processing: MEG evidence from Arabic *28th Architectures and Mechanism of Language Processing (AMLaP) conference, 7-9 September 2024, York, UK*

Azar, M., & Sorace, A. Affective Norms for Lebanese Arabic and English Words (ANLAW): a Cross-linguistic and Cross-cultural investigation. *Bilingualism Matters Research Symposium, 25-26 October 2021. Virtual Conference*.

Azar, M., & Sorace, A. Affective Norms for Lebanese Arabic and English Words (ANLAW): a Cross-linguistic and Cross-cultural investigation. *27th Architectures and Mechanism of Language Processing (AMLaP) conference. September 2-4, 2021. Virtual Conference*.

Academic Teaching

New York University

Fall 2024: Language and Mind, Linguistics Department

In this mixed, recommended junior-level class, I taught students a mix of theoretical linguistics, psycholinguistics, and neurolinguistics for all levels of language (phonetics to pragmatics) as well as language acquisition. They learned how to implement its analysis in different ways (behaviorally, neuroanatomically, computationally). We focused on cross-linguistic insight throughout the class given that a class in New York offers much linguistic diversity to pull from.

Fall 2023: Lab in Cognition and Perception, Psychology Department.

In this advanced senior-level class, I taught students the rationale behind different psychological experimental paradigms, and how to choose the right one for their question. They learned how to apply that by writing code to execute those experiments using Python. They learned the statistical foundations of the different types of data, and how to analyze them using python and R. Additionally, students designed their own experiments, coded and analyzed them, and presented them to the class at the end of the semester. The class was divided between a theoretical hour and a lab hour, where they were split into working groups.

Fall 2022: Introduction to Psychology, Psychology Department

This introductory class was a survey of psychology, discussing its history, its branches, how experiments are conducted, cognition, perception, child psychology, and social psychology.

University of Edinburgh

2020-2021 Academic Year: Statistics and R for Environmental Valuation.

In this introductory masters' level class, I taught students the foundations of statistical analysis to answer their different questions, and how to implement them using R. Students learned the foundations of how to implement statistics in R and how to use RMarkdown, with an emphasis on clean and reproducible code. Students read papers or discussed data from their field work and had to identify the statistics used/ to be used then replicate/ apply the method.

2019-2021: Levantine Arabic tutor –grammar, conversation, and songs

Lebanese American University

2016-2019: Research skills, public presentation, and debate.

In this senior high-school level class, students were taught research skills, including how to identify credible research sources, writing in MLA format and UN format, writing and improvising speeches, the foundations and practice of debate and diplomacy (Model UN-style), and how to present complex information accessibly.

Reviewer

2025-2026: Cognitive Neuroscience Society conference proceedings reviewer

2025: SYNC 2025 conference abstract reviewer.

2024: 37th Annual Symposium for Arabic Linguistics Society paper submission reviewer

Mentorship

April 2025: Mentor for a group of undergraduate women from the global south in STEM

2023: Mentor for Undergraduate Research Assistant Ariel Stein

Service

2025--: Secretary for the Psychology undergraduate and master's programs advisory board - Lebanese American University

2025: Academic Writing Group Organizer for Linguistics Department (PhD students and faculty)

2021-2025: Judge for the NYU Annual MA in Psychology Research Conference

2024: 37th Annual Symposium for Arabic Linguistics Society, New York –conference co-organizer

2024: Neuroscience of Language Lab Methods Meeting – organized weekly methods meeting for knowledge transfer and discussion among lab members.

2022-2023: Student Social Chair for Cognition and Perception Program

May 2023: Judge for the CLaME (Center for Language, Music and Emotion) 2nd Annual High School Conference. *Grace Church High School*

2019-2021: Science communication, public impact, and research volunteer; liaison person with Edinburgh Syrian refugee community; and web conference moderator for refugee week conference on refugee languages. *Bilingualism Matters, University of Edinburgh*

Research and Technical Skills

Programming and experiment implementation: Python, R, JavaScript, HTML; web-based behavioral experiment implementation

Neurophysiological data analysis: MEG data preprocessing and analysis using MNE-Python and Eelbrain; source-space analysis; spatiotemporal cluster-based statistics; representational similarity analysis; linear regression and linear mixed-effects modeling

High-performance computing: Experience running large-scale analyses on NYU Torch high-performance computing cluster

Behavioral and cognitive data analysis: Behavioral experiment design and analysis; eye-tracking for reading; in-person and online data collection using GitHub Pages, Prolific, Gorilla, and Qualtrics

Statistical and computational methods: Structural equation modeling, confirmatory factor analysis, exploratory factor analysis, word embedding models, and machine learning approaches to cognitive and linguistic data

Neuropsychological research methods: Experimental design and analysis with patient populations, including aphasia and dysgraphia

Community Teaching and educational initiatives:

Bushwick Public Library

2023-2024: English as a second language (French- and Arabic-medium) for West African migrants.

Saïda Cultural Center

2016-2017: English as a second language (Arabic-medium) for child refugees and children facing adversity.

Lebanese Red Cross:

2018: Book drive, library establishment, and reading clubs for schools without libraries.

I initiated this grass-roots project which was very well-received. We expanded it beyond our catchment area and were able to help over 5 schools in less than 6 months, involving more affluent schools, bookstores, community workers, churches, youth groups, etc.

2016: Various series on women's and general health, psychological well-being, and self-defense at *Martha & Mariam* rehabilitation home.

2018: Sex education for public schools in Antelias, Lebanon.

Lebanese American University Human Rights Society:

2016: English, hygiene, sex education, and human rights classes for refugee camp schools in Bekaa valley and Beirut.

Language Skills

Arabic (Levantine and Modern Standard) – fluent & bidirectional interpreter

English – fluent & bidirectional interpreter

French – fluent & bidirectional interpreter

Spanish – intermediate (B2)

Finnish – beginner (A1) (inactive)

Song and poetry translation/adaptation: Arabic – English – French (tridirectional)

Other:

Certificate in Psychoanalytic Psychotherapy – William Alanson White Institute

Essays, songwriting, and poetry: <https://duri.substack.com>
