

# Laura E. Gwilliams

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*<http://lauragwilliams.github.io>*

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## Education

Ph.D. 2015 - Present

Cognition and Perception

New York University, USA

Supervisors: Dr. Alec Marantz & Dr. David Poeppel

M.Sc. 2012 - 2013

Cognitive Neuroscience of Language

Basque Center on Cognition, Brain and Language (BCBL), Spain

Grade: *Excellent*

Supervisors: Dr. Arthur Samuel & Dr. Philip Monahan

B.A. 2009 - 2012

Linguistics

Cardiff University, UK

Grade: *1<sup>st</sup> Class with honours*

Supervisor: Dr. Lise Fontaine

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## Awards and Scholarships

**2016** *Dean's Travel Grant, New York University*

**2016** *Travel Award, Society for the Neurobiology of Language Conference*

**2016** *Helmsley Fellowship, Cold Springs Harbor*

*(Genetics and Neurobiology of Language Course attendance fee)*

**2015** *Henry M. MacCracken Fellowship, New York University*

(Full funding of PhD tuition and maintenance)

**2012** *Dell Hymes Commendation for Academic Achievement*, Cardiff University

(Awarded to the top graduating student within the department)

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## Publications

**Gwilliams, L.**, Lewis, G. & Marantz, A. (2016). Functional characterisation of letter-specific responses in time, space and current polarity using magneto-encephalography. *NeuroImage*. [PDF].

Brodbeck, C., **Gwilliams, L.** & Pyllkkänen, L. (2015). EEG can track the time course of reference resolution in small visual worlds. *Frontiers in Psychology*. [PDF].

**Gwilliams, L.** & Marantz, A. (2015). Tracking non-linear prediction in a linear speech stream: Influence of morphological structure on spoken word recognition. *Brain and Language*. [PDF].

**Gwilliams, L.**, Monahan, P., & Samuel, A. (2015). Sensitivity to morphological composition: Evidence from grammatical and lexical decision tasks. *Journal of Experimental Psychology: Language, Memory and Cognition*. [PDF].

**Gwilliams, L.** & Fontaine, L. (2015). Indeterminacy in process type classification. *Functions of Language*. [PDF].

Politzer-Ahles, S., & **Gwilliams, L.** (2015). Involvement of prefrontal cortex in scalar implicatures: Evidence from magnetoencephalography. *Language and Cognitive Neuroscience*. [PDF].

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## Manuscripts

**Gwilliams, L.** & Marantz, A. (Submitted). Recognising unseen stems: How extrapolation of grammatical rules dictates morphological processing.

Brodbeck, C., **Gwilliams, L.** & Pyllkkanen, L. (Submitted). Language in context: MEG evidence for modality general and specific responses to reference resolution.

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## Invited Talks

**Gwilliams, L.** & Marantz, A. (2016, February). Taking Morphology Seriously: MEG Studies of Morphological Representations. Presentation at 17th International Morphology Meeting, Vienna, Austria

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## Oral Presentations

**Gwilliams, L.** Linzen, T., Neophytou, K., Poeppel, D. & Marantz, A. (2016, September). *Phonological commitment and sensitivity to subphonemic detail are independent*. Presentation at AMLAP, Bilbao, Basque Country.

Stockall, L., Manouilidou, C., **Gwilliams, L.** & Marantz, A. (2016, February). Un/Re-packing argument and event structure restrictions on prefixation: MEG evidence. Workshop on the syntax of argument structure: empirical advancements and theoretical relevance. Leipzig, Germany.

**Gwilliams, L.** & Marantz, A. (2015, June). *Abstract representation of the root morpheme: A magnetoencephalography study of spoken Arabic*. Presentation at the 9th Morphological Processing Conference, Potsdam, Germany.

**Gwilliams, L.** & Marantz, A. (2015, March). *Decomposition of spoken Arabic words into root morphemes during processing: Evidence from magnetoencephalography*. Presentation at the Linguistics in the Gulf 5 Conference, Doha, Qatar

**Gwilliams, L.** (2015, March). *Letter specific sensitivities in the brain: located in time, space and current direction*. Presentation at the Neuroscience of Language Workshop 2015, Abu Dhabi, UAE

**Gwilliams, L.,** & Marantz, A. (2015, February). *Non-linear processing of a linear speech stream*. Presentation at the NYUAD Annual Research Conference 2015, Abu Dhabi, UAE.

**Gwilliams, L.** & Fontaine, L. (2014, July). *Ambiguity in process type selection in systemic functional linguistics*. Presentation at the 25th European Systemic Functional Linguistics Conference, Paris, France.

Brodbeck, C., **Gwilliams, L.** & Pylkkänen, L. (2014, February). *Reference resolution and prediction in a visual world: MEG evidence from English and Arabic*. Presentation at the NYUAD Annual Research Conference 2014, Abu Dhabi, UAE.

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## Poster Presentations

**Gwilliams, L.** Linzen, T., Neophytou, K., Poeppel, D. & Marantz, A. (2016, September). *Phonological commitment and sensitivity to subphonemic detail are independent* Presentation at the Society for the Neurobiology of Language. London, UK.

Mow, J., **Gwilliams, L.**, Khalighinsjad, B., Mesgarani, N. & Marantz, A. (2016, September). *Encoding and organisation of phonemes by feature in STG*. Poster presentation at the Society for the Neurobiology of Language. London, UK.

**Gwilliams, L.**, Linzen, T., Neophytou, K., Warnke, L., Poeppel, D & Marantz, A. (2016, April). *Early and asymmetric sensitivity to phonological boundaries and within-category variation across hemispheres*. Poster presented at the 2016 CNS Annual meeting, New York, USA

Brodbeck, C., **Gwilliams, L.** & Pyllkanen, L. (2016, April). *Amodal reference resolution in medial parietal cortex*. Poster presented at the 2016 CNS Annual meeting, New York, USA

**Gwilliams, L.**, Linzen, T., Neophytou, K., Warnke, L., Poeppel, D & Marantz, A. (2016, March). *Phoneme ambiguity is reflected very early in primary auditory cortex*. Poster presented at the 29th Annual CUNY Conference on Human Sentence Processing, Florida, USA

Brodbeck, C., **Gwilliams, L.** & Pyllkanen, L. (2016, March). *Modality general and specific brain responses during reference resolution*. Poster presented at the 29th Annual CUNY Conference on Human Sentence Processing, Florida, USA

**Gwilliams, L.** & Marantz, A. (2015, October). *Representations stems you can't see: An MEG study of morphological decomposition*. Poster presented at the Society for the Neurobiology of Language Conference, Chicago, USA

Stockall, L., **Gwilliams, L.**, Manouilidou, C. & Marantz, A. (2015, October). *Access to lexical category and verb argument structure in the early stages of processing morphologically complex words: MEG investigations of prefixation*. Poster presented at the Society for the Neurobiology of Language Conference, Chicago, USA

Gaston, P., **Gwilliams, L.** & Marantz, A. (2015, October). *The time-course of cohort restriction in syntactic context: MEG evidence for a single auditory word-form*. Poster presented at the Society for the Neurobiology of Language Conference, Chicago, USA

Oseki, Y., **Gwilliams, L.**, Blanco-Elorrieta, E., Gaston, P., Pyllkanen, L. & Marantz, A. (2015, October). *Neural Dynamics of Morphological and Phrasal Composition*. Poster presented at the Society for the Neurobiology of Language Conference, Chicago, USA

Brodbeck, C., **Gwilliams, L.** & Pyllkanen, L. (2015, October). *EEG can track the time course of successful reference resolution in small visual worlds*. Poster presented at the Society for the Neurobiology of Language Conference, Chicago, USA

**Gwilliams, L.**, Lewis, G., & Marantz, A. (2014, August). *Revealing the cortical dynamics of letter string perception*. Poster presented at the Society for the Neurobiology of Language Conference, Amsterdam, Netherlands. **[PDF]**.

Linzen, T., Gaston, P., **Gwilliams, L.** & Marantz, A. (2014, August). *Competition and prediction in the auditory processing of morphologically complex words*. Poster presented at the Society for the Neurobiology of Language Conference, Amsterdam, Netherlands. **[PDF]**.

**Gwilliams, L.**, Monahan, P, & Samuel, A. (2013, June). *Why an Avalanche is faster than an Explosion*. Poster presented at The 8th International Morphological Processing Conference, Cambridge, UK. **[PDF]**.

**Gwilliams, L.**, Monahan, P, & Samuel, A. (2013, March). *Decompositional processing of nominalisations*. Poster presented at the Basque Center on Cognition, Brain and Language (BCBL), San Sebastian, Spain.

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## Programming Skills

### *Python & MATLAB*

- Visual and auditory stimuli creation
- Linguistic corpus parsing
- MEG & EEG data acquisition (PsychoPy, PsychToolbox)
- MEG & EEG data preprocessing [[github](#)]
- Analysis
  - Categorical analyses (e.g., *t*-test, ANOVA)
  - Time-frequency decomposition
  - Mass univariate linear & logistic regression [[paper](#)]
  - Dimensionality reduction (e.g., PCA) [[github](#)]
  - Supervised learning (e.g., multivariate regression, SVM) [[github](#)]
  - Unsupervised learning (e.g., K-Means clustering)
  - Data visualisation (e.g., using MDS) [[github](#)]

### *R*

- Categorical analyses
- Linear and logistic regression analysis
- Data visualisation

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## Research Positions

Aug 2013 - Aug 2015	<i>Research Assistant, New York University Abu Dhabi</i> <i>Supervisors: Dr. Alec Marantz and Dr. Liina Pylkkänen</i>
July 2012 - Jan 2014	<i>Research Assistant, Cardiff University</i> <i>Supervisor: Dr. Lise Fontaine</i>
Sept 2011 - June 2012	<i>Graduate Research Team, Cardiff University</i>

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## Mentoring

**Fall 2015:** Supervised an undergraduate intern

**Spring 2016:** Supervised an undergraduate independent study student

Project title: *Unconscious, arbitrary visual symbols as a cue for phoneme identification*

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## Reviewer for

- *NeuroImage*
- *Psychonomic Bulletin & Review*
- *Brain & Language*