

# Daniel Mirman

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## Interests

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### Research

- Language processing and impairments
- Semantic memory
- Functional communication
- Metaphor and poetry

### Teaching

- Cognitive Neuroscience
- Computational Modeling
- Psychology of Language
- Statistics and Research Methods

## Employment

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**Senior Lecturer** 2019–Present  
*Department of Psychology, University of Edinburgh, Edinburgh, Scotland, UK*

**Associate Professor** 2016–2019  
*Department of Psychology, University of Alabama at Birmingham, Birmingham, AL*

**Assistant Professor** 2013–2016  
*Department of Psychology, Drexel University, Philadelphia, PA*

**Affiliated Scientist** 2014–Present  
*Moss Rehabilitation Research Institute, Elkins Park, PA*

**Institute Scientist** 2009–2013  
*Moss Rehabilitation Research Institute, Elkins Park, PA*

**Postdoctoral Fellow** 2005–2008  
*University of Connecticut, Storrs, CT and Haskins Laboratories, New Haven, CT*

## Education

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**Ph.D., Psychology (Cognitive Neuroscience)** 2000–2005  
*Carnegie Mellon University and Center for the Neural Basis of Cognition, Pittsburgh, PA*

**B.A., Magna Cum Laude** 1996–2000  
*Cornell University, Ithaca, NY*  
Majors: Psychology, Chemistry. Concentration: Cognitive Science

## Teaching and Mentoring Experience

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**Courses:** Cognitive Neuroscience, Cognitive Psychology, Computational Modeling, Multilevel Re-

gression, Perception, Psychology of Language.

**Tutorials:** Growth Curve Analysis, R, Matlab for Behavioral Sciences, Computational Modeling of Spoken Language Processing.

**Mentoring and Co-Mentoring:** 6 post-doctoral fellows, 5 PhD students, 3 post-baccalaureate research assistants, 10 MSc students, 25 undergraduate students.

## Funding

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### Current.....

**Functional Communication Deficits in Post-Stroke Aphasia** 09/2019 – 08/2024  
*NIDCD (R01DC017137)*

Role: Co-Principal Investigator (Co-PI: Jerzy Szaflarski)

**God and Human Speech: Comparative Science-Engaged Theology** 09/2022 – 12/2023  
*John Templeton Foundation*

Role: Co-Investigator (PI: Joanna Leidenhag)

**Counterfactual Analysis of Reading for Pleasure on Mental Health** 09/2022 – 08/2023  
*Wellcome Trust Mental Health Data Prize*

Role: Co-Investigator (PI: Aja Murray)

### Consulting.....

**Identifying contributors to racial and ethnic disparities in child occupant safety (K99HD105921):**  
PI: Emma Sartin (2022 – 2024)

**Early Detection and Treatment of Emerging Cognitive-Linguistic Impairment in Minority Cognitive Aging and Primary Progressive Aphasia (R01DC013063):** PI: Jamie Reilly (2019 – 2024)

**Retrieval Practice Principles: A Theory of Learning for Aphasia Rehabilitation (R01DC015516):**  
PI: Erica Middleton (2017 – 2028)

### Completed.....

**An informatics approach to distracted driving** 09/2017 – 08/2019  
*CDC (R44CE002753)*

Role: Co-Investigator (PI: Sara Seifert)

**TMS as a biomarker of plasticity in aphasia recovery** 09/2013 – 08/2018  
*NIDCD (R01DC012780)*

Role: Consultant/Co-Investigator (PI: Roy Hamilton)

**Dynamics of spoken word comprehension in aphasia** 06/2010 – 11/2016  
*NIDCD (R01DC010805)*

Role: Principal Investigator

**Effect of brain damage on oculomotor and cognitive dynamics** 01/2010 – 07/2011  
*Albert Einstein Society (Research Grant #09-13)*

Role: Principal Investigator

**Access of semantic knowledge during speech perception** 2006–2008  
*National Institute of Child Health and Human Development*

Postdoctoral NRSA Fellowship (F32HD052364)

**Interactive processing in speech perception** 2004–2005  
*National Institute on Deafness and Other Communication Disorders*

Predocctoral NRSA Fellowship (F31DC006791)

## Publications

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‡ co-author was a post-doctoral fellow working in my laboratory

§ co-author was a student or research assistant working in my laboratory

### Books.....

Pustina, D. and Mirman, D. (Eds.) (2022). *Lesion-to-symptom mapping: Principles and tools*. Springer: Neuromethods.

Papafragou, A., Grodner, D., Mirman, D., and Trueswell, J. (Eds.) (2016). *Proceedings of the 38th Annual Meeting of the Cognitive Science Society*. Austin, TX: Cognitive Science Society. Available at <https://mindmodeling.org/cogsci2016/>.

Mirman, D. (2014). *Growth Curve Analysis and Visualization Using R*. Chapman & Hall/CRC Press.

### Peer-Reviewed Journal Articles.....

Thye<sup>§</sup>, M., Hoffman, P., and Mirman, D. (in-principle accepted). The neural basis of naturalistic semantic and social cognition. *Scientific Reports*. Registration: <https://osf.io/acwqy>

Thye<sup>§</sup>, M., Hoffman, P., and Mirman, D. (in press). The words that little by little revealed everything: Neural response to lexical-semantic content during narrative comprehension. *NeuroImage*.

Zhang, Y., Mirman, D., and Hoffman, P. (in press). Taxonomic and thematic relations rely on different types of semantic features: Evidence from an fMRI meta-analysis and a semantic priming study. *Brain and Language*.

Zevgolatakou<sup>§</sup>, E., Thye<sup>§</sup>, M., and Mirman, D. (2023). Behavioural and neural structure of fluent speech production deficits in aphasia. *Brain Communications*, 5(1):fcac327, 1-16. <https://doi.org/10.1093/braincomms/fcac327>.

Middleton, E.L., Duquette, K.L., Rawson, K.A., and Mirman, D. (2022). An examination of retrieval practice and production training in the treatment of lexical-semantic comprehension deficits in aphasia. *Neuropsychology*, 36(8), 730–752. <https://doi.org/10.1037/neu0000848>.

Murray, A.L., Hall, H.A., Speyer, L.G., Carter, L., Mirman, D., Caye, A., and Rohde, L. (2022). Developmental trajectories of ADHD symptoms in a large population-representative longitudinal study. *Psychological Medicine*, 52(15), 3590-3596. DOI: 10.1017/S0033291721000349.

Gilmore, N., Mirman, D. & Kiran, S. (2022). Young Adults with Acquired Brain Injury Show Longitudinal Improvements in Cognition After Intensive Cognitive Rehabilitation. *Journal of Speech, Language, and Hearing Research*, 65(4), 1494-1520. DOI: 10.1044/2021\_JSLHR-21-00324.

Errington, P.J., Thye<sup>§</sup>, M., and Mirman, D. (2022). Difficulty and pleasure in the comprehension of verb-based metaphor sentences: A behavioral study. *PLoS ONE* 17(2): e0263781. DOI: 10.1371/journal.pone.0263781.

Adezati<sup>§</sup>, E., Thye<sup>§</sup>, M., Edmondson-Stait<sup>§</sup>, A., Szaflarski, J.P., and Mirman, D. (2022). Lesion Correlates of Auditory Sentence Comprehension Deficits in Post-Stroke Aphasia. *NeuroImage: Reports*, 2(1), 100076. DOI: 10.1016/j.ynirp.2021.100076

Murray, A.L., Nivette, A., Obsuth, I., Hafetz Mirman, J., Mirman, D., Ribeaud, D., Eisner, M. (2022). Gender differences in cross-informant discrepancies in aggressive and prosocial behaviour: A latent difference score analysis. *Psychological Assessment*, 34(5), 409-418.

- DOI: 10.1037/pas0001091. Preprint: <https://psyarxiv.com/dzk48>
- Landrigan<sup>§</sup>, J.-F., Zhang, F., and Mirman, D. (2021). A Data-Driven Approach to Post-Stroke Aphasia Classification and Lesion-Based Prediction. *Brain*, *144*(5), 1372-1383. DOI: 10.1093/brain/awab010.
- Thye<sup>§</sup>, M., Geller<sup>‡</sup>, J., Szaflarski, J.P., and Mirman, D. (2021). Intracranial EEG evidence of functional specialization for taxonomic and thematic relations. *Cortex*, *140*, 40-50. DOI: 10.1016/j.cortex.2021.03.018. <https://osf.io/xtfah/>
- Thye<sup>§</sup>, M., Szaflarski, J.P., and Mirman, D. (2021). Shared Lesion Correlates of Semantic and Letter Fluency in Post-Stroke Aphasia. *Journal of Neuropsychology*, *15*(1), 143-150. DOI: 10.1111/jnp.12211. <https://osf.io/crv4f/>.
- Mirman, J.H., Murray, A., Mirman, D., and Adams, S.A. (2021). Advancing our understanding of cognitive development and motor vehicle crash risk: A multiverse representation analysis *Cortex*, *138*, 90-100. DOI: 10.1016/j.cortex.2021.01.017. [https://github.com/dmirman/wm\\_mvc](https://github.com/dmirman/wm_mvc)
- Geller<sup>‡</sup>, J., Winn, M.B., Mahr, T., and Mirman, D. (2020). GazeR: A Package for Processing Gaze Position and Pupil Size Data. *Behavior Research Methods*, *52*, 2232–2255. DOI: 10.3758/s13428-020-01374-8. <https://github.com/dmirman/gazer/>
- Landrigan<sup>§</sup>, J.-F., Bell, T., Crowe, M., Clay, O.J., and Mirman, D. (2020). Lifting Cognition: A meta-analysis of effects of resistance exercise on cognition. *Psychological Research*, *84*, 1167–1183. DOI: 10.1007/s00426-019-01145-x.
- Ungrady, M.B., Flurie, M., Zuckerman, B., Mirman, D., and Reilly, J. (2019). Naming and Knowing Revisited: Eyetracking Correlates of Anomia in Progressive Aphasia. *Frontiers in Human Neuroscience*, *13*, 354. DOI: 10.3389/fnhum.2019.00354.
- Nair, S., Nenert, R.E., Allendorfer, J.B., Goodman, A.M., Vannest, J., Mirman, D., and Szaflarski, J.P. (2019). Sex, age, and handedness modulate the neural correlates of active learning. *Frontiers in Neuroscience*, *13*, 961. DOI: 10.3389/fnins.2019.00961.
- Mirman, D., Kraft<sup>§</sup>, A.E., Harvey, D.Y., Brecher, A.R., and Schwartz, M.F. (2019). Mapping articulatory and grammatical sub-components of fluency deficits in post-stroke aphasia. *Cognitive, Affective, and Behavioral Neuroscience*, *19*, 1286-1298. DOI: 10.3758/s13415-019-00729-9
- Chen<sup>‡</sup>, Q., Middleton, E., and Mirman, D. (2019). Words fail: Lesion-symptom mapping of errors of omission in post-stroke aphasia. *Journal of Neuropsychology*, *13*, 183-197. DOI: 10.1111/jnp.12148.
- Botezatu<sup>‡</sup>, M.R., and Mirman, D. (2019). Impaired Lexical Selection and Fluency in Post-Stroke Aphasia. *Aphasiology*, *33*(6). 667-688. DOI: 10.1080/02687038.2018.1508637.
- Geller<sup>‡</sup>, J., Landrigan<sup>§</sup>, J.-F., and Mirman, D. (2019). A Pupillometric Examination of Cognitive Control in Taxonomic and Thematic Semantic Memory. *Journal of Cognition*, *2*(1), 6. DOI: <http://doi.org/10.5334/joc.56>.
- Mirman, J.H., Curry, A., and Mirman, D. (2019). Learning-to-drive: A reconceptualization. *Transportation Research Part F: Psychology and Behaviour*, *62*, 316-326. DOI: 10.1016/j.trf.2019.01.010.
- Geller<sup>‡</sup>, J., Thye<sup>§</sup>, M., and Mirman, D. (2019). Estimating effects of graded white matter damage and binary tract disconnection on post-stroke language impairment. *NeuroImage*, *189*, 248-257. DOI: 10.1016/j.neuroimage.2019.01.020.
- Mirman, D. and Thye<sup>§</sup>, M. (2018). Uncovering the Neuroanatomy of Core Language Systems Using Lesion-Symptom Mapping. *Current Directions in Psychological Science*, *27*(6), 455-461.

DOI: 10.1177/0963721418787486.

- Thye<sup>§</sup>, M. and Mirman, D. (2018). Relative contributions of lesion location and lesion size to predictions of varied language deficits in post-stroke aphasia. *NeuroImage: Clinical*, 20, 1129-1138. DOI: 10.1016/j.nicl.2018.10.017.
- Mirman, D., Landrigan<sup>§</sup>, J.-F., Kokolis, S.<sup>§</sup>, Verillo, S.<sup>§</sup>, Ferrara, C.<sup>§</sup>, and Pustina, D. (2018). Corrections for multiple comparisons in voxel-based lesion-symptom mapping. *Neuropsychologia*, 115, 112-123. DOI: 10.1016/j.neuropsychologia.2017.08.025.
- Magnuson, J., Mirman, D., Luthra, S., Strauss, T., and Harris, H. (2018). Interaction in spoken word recognition models: Feedback helps. *Frontiers in Psychology*, 9(369), 1-18. DOI: 10.3389/fpsyg.2018.00369.
- Landrigan<sup>§</sup>, J.-F. and Mirman, D. (2018). The Cost of Switching Between Taxonomic and Thematic Semantics. *Memory & Cognition*, 46(2), 191-203. DOI: 10.3758/s13421-017-0757-5.
- Mirman, D., Landrigan<sup>§</sup>, J.-F., and Britt<sup>§</sup>, A.E. (2017). Taxonomic and Thematic Semantic Systems. *Psychological Bulletin*, 143(5), 499-520. DOI: 10.1037/bul0000092.
- Peñaloza, C., Mirman, D., Cardona, P., Juncadella, M., Martin, N., Laine, M., and Rodríguez-Fornells, A. (2017). Cross-situational word learning in aphasia. *Cortex*, 93, 12-27. DOI: 10.1016/j.cortex.2017.04.020.
- Rosen, D.S., Kim, Y.E., Mirman, D., and Kounios, J. (2017). All you need to do is ask?: The exhortation to be creative improves creative performance more for non-expert than expert jazz musicians. *Psychology of Aesthetics, Creativity, and the Arts*, 11(4), 420-427. DOI: 10.1037/aca0000087.
- Schuh, J.M., Eigsti, I.-M., and Mirman, D. (2016). Discourse comprehension in autism spectrum disorder: Effects of working memory load and common ground. *Autism Research*, 9(12), 1340-1352. DOI: 10.1002/aur.1632.
- Rosen, D. S., Erickson, B., Kim, Y.E., Mirman, D., Hamilton, R. H., and Kounios, J. (2016). Anodal tDCS to right dorsolateral prefrontal cortex facilitates performance for novice jazz improvisers but hinders experts. *Frontiers in Human Neuroscience*, 10(579), 1-12. DOI: 10.3389/fnhum.2016.00579.
- Britt<sup>§</sup>, A.E., Ferrara<sup>§</sup>, C., and Mirman, D. (2016). Distinct effects of lexical and semantic competition during picture naming in younger adults, older adults, and people with aphasia. *Frontiers in Psychology*, 7(813), 1-17. DOI: 10.3389/fpsyg.2016.00813.
- Nozari, N., Mirman, D., and Thompson-Schill, S.L. (2016). The ventrolateral prefrontal cortex facilitates processing of sentential context to locate referents. *Brain and Language*, 157-158, 1-13. DOI: 10.1016/j.bandl.2016.04.006.
- Peñaloza, C., Mirman, D., Tuomiranta, D., Benetello, A., Heikius, I.-M., Järvinen, S., Cardona, P., Juncadella, M., Laine, M., Martin, N., and Rodríguez-Fornells, A. (2016). Novel word acquisition in aphasia: Facing the word-referent ambiguity of natural language learning contexts. *Cortex*, 79, 14-31. DOI: 10.1016/j.cortex.2016.03.009.
- Landrigan<sup>§</sup>, J.-F. and Mirman, D. (2016). Taxonomic and thematic relatedness ratings for 659 word pairs. *Journal of Open Psychology Data*, 4, e2. DOI: <http://doi.org/10.5334/jopd.24>. Data available at <http://dx.doi.org/10.7910/DVN/FKTQ4C>.
- Mirman, D., Zhang, Y., Wang, Z., Coslett, H.B., and Schwartz, M.F. (2015). The ins and outs of meaning: Behavioral and neuroanatomical dissociation of semantically-driven word retrieval and multimodal semantic recognition in aphasia. *Neuropsychologia*, 76, 208-219. DOI: 10.1016/j.neuropsychologia.2015.02.014

- Skipper-Kallal<sup>§</sup>, L.M., Mirman, D., and Olson, I.R. (2015). Converging evidence from fMRI and aphasia that the left temporoparietal cortex has an essential role in representing abstract semantic knowledge. *Cortex*, 69, 104-120. DOI: 10.1016/j.cortex.2015.04.021
- Mirman, D., Chen<sup>‡</sup>, Q., Zhang, Y., Wang, Z., Faseyitan, O.K., Coslett, H.B., and Schwartz, M.F. (2015). Neural organization of spoken language revealed by lesion-symptom mapping. *Nature Communications*, 6(6762), 1-9. DOI: 10.1038/ncomms7762.
- Chen<sup>‡</sup>, Q., and Mirman, D. (2015). Interaction between phonological and semantic representations: Time matters. *Cognitive Science*, 39(3), 538-558. DOI: 10.1111/cogs.12156.
- McClelland, J.L., Mirman, D., Bolger, D.J., and Khaitan, P. (2014). Interactive activation and mutual constraint satisfaction in perception and cognition. *Cognitive Science*, 38(6), 1139-1189. DOI: 10.1111/cogs.12146.
- Lee<sup>‡</sup>, C.-L., Mirman, D., and Buxbaum, L.J. (2014). Abnormal dynamics of activation of object use information in apraxia: Evidence from eyetracking. *Neuropsychologia*, 59, 13-26. DOI: 10.1016/j.neuropsychologia.2014.04.004.
- Britt<sup>§</sup>, A.E., Mirman, D., Kornilov, S.A., and Magnuson, J.S. (2014). Effect of repetition proportion on language-driven anticipatory eye movements. *Acta Psychologica*, 145(1), 128-138. DOI: 10.1016/j.actpsy.2013.10.004.
- Mirman, D., and Britt<sup>§</sup>, A.E. (2014). What we talk about when we talk about access deficits. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 369(1634). DOI: 10.1098/rstb.2012.0388.
- Mirman, D. and Graziano<sup>§</sup>, K.M. (2013). The neural basis of inhibitory effects of semantic and phonological neighbors in spoken word production. *Journal of Cognitive Neuroscience*, 25(9), 1504-1516. DOI: 10.1162/jocn\_a\_00408.
- Mirman, D., Britt<sup>§</sup>, A.E., and Chen<sup>‡</sup>, Q. (2013). Effects of phonological and semantic deficits on facilitative and inhibitory consequences of item repetition in spoken word comprehension. *Neuropsychologia*, 51(10), 1848-1856. DOI: 10.1016/j.neuropsychologia.2013.06.005.
- Lupyan, G. and Mirman, D. (2013). Linking language and categorization: Evidence from aphasia. *Cortex*, 49(5), 1187-1194. DOI: 10.1016/j.cortex.2012.06.006.
- Lee<sup>‡</sup>, C.-L., Middleton, E. L., Mirman, D., Kalénine<sup>‡</sup>, S., and Buxbaum, L. J. (2013). Incidental and context-responsive activation of structure- and function-based action features during object identification. *Journal of Experimental Psychology: Human Perception and Performance*, 39(1), 257-270. DOI: 10.1037/a0027533.
- Mirman, D. and Graziano<sup>§</sup>, K.M. (2012). Individual differences in strength of taxonomic versus thematic relations. *Journal of Experimental Psychology: General*, 141(4), 601-609. DOI: 10.1037/a0026451.
- Mirman, D. and Graziano<sup>§</sup>, K.M. (2012). Damage to temporo-parietal cortex decreases incidental activation of thematic relations during spoken word comprehension. *Neuropsychologia*, 50(8), 1990-1997. DOI: 10.1016/j.neuropsychologia.2012.04.024.
- Lupyan, G., Mirman, D., Hamilton, R., and Thompson-Schill, S.L. (2012). Categorization is modulated by transcranial direct current stimulation over left prefrontal cortex. *Cognition*, 124(1), 36-49. DOI: 10.1016/j.cognition.2012.04.002
- Kalénine<sup>‡</sup>, S., Mirman, D., Middleton, E. L., and Buxbaum, L. J. (2012). Temporal dynamics of activation of thematic and functional knowledge during conceptual processing of manipulable artifacts. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 38(5), 1274-1295. DOI: 10.1037/a0027626.

- Kalénine<sup>‡</sup>, S., Mirman, D., and Buxbaum, L. J. (2012). A combination of thematic and similarity-based semantic processes confers resistance to deficit following left hemisphere stroke. *Frontiers in Human Neuroscience*, 6(106), 1-12. DOI: 10.3389/fnhum.2012.00106
- Chen<sup>‡</sup>, Q. and Mirman, D. (2012). Competition and cooperation among similar representations: Toward a unified account of facilitative and inhibitory effects of lexical neighbors. *Psychological Review*, 119(2), 417-430. DOI: 10.1037/a0027175.
- Dixon, J.A., Holden, J.G., Mirman, D., and Stephen, D.G. (2012). Development of cognition from the multifractality of perception-action. *Topics in Cognitive Science*, 4(1), 51-62. DOI: 10.1111/j.1756-8765.2011.01162.x.
- Mirman, D., Irwin, J.R., and Stephen, D.G. (2012). Eye movement dynamics and cognitive self-organization in typical and atypical development. *Cognitive Neurodynamics*, 6(1), 61-73. DOI 10.1007/s11571-011-9180-y.
- Schwartz, M.F., Kimberg, D.Y., Walker, G.M., Brecher, A., Faseyitan, O., Dell, G.S., Mirman, D., and Coslett, H.B. (2011). A neuroanatomical dissociation for taxonomic and thematic knowledge in the human brain. *Proceedings of the National Academy of Sciences*, 108(20), 8520-8524. DOI: 10.1073/pnas.1014935108.
- Mirman, D.\*, Yee, E.\*, Blumstein, S., and Magnuson, J.S. (2011). Theories of spoken word recognition deficits in aphasia: Evidence from eye-tracking and computational modeling. *Brain & Language*, 117(2), 53-68. DOI: 10.1016/j.bandl.2011.01.004. (\* The two first authors contributed equally.)
- Mirman, D. (2011). Effects of near and distant semantic neighbors on word production. *Cognitive, Affective, and Behavioral Neuroscience*, 11(1), 32-43. DOI: 10.3758/s13415-010-0009-7.
- Mirman, D., Strauss, T.J., Brecher, A., Walker, G.M., Sobel, P., Dell, G.S., and Schwartz, M.F. (2010). A large, searchable, web-based database of aphasic performance on picture naming and other tests of cognitive function. *Cognitive Neuropsychology*, 27(6), 495-504. DOI: 10.1080/02643294.2011.574112.
- Mirman, D., Graf Estes, K., and Magnuson, J.S. (2010). Computational modeling of statistical learning: Effects of transitional probability vs. frequency and links to word learning. *Infancy*, 15(5), 471-486. DOI: 10.1111/j.1532-7078.2009.00023.x.
- Stephen, D. G. and Mirman, D. (2010). Interactions dominate the dynamics of visual cognition. *Cognition*, 115(1), 154-165. DOI: 10.1016/j.cognition.2009.12.010.
- Mirman, D., Strauss, T.J., Dixon, J.A., and Magnuson, J.S. (2010). Effect of representational distance between meanings on recognition of ambiguous spoken words. *Cognitive Science*, 34(1), 161-173. DOI: 10.1111/j.1551-6709.2009.01069.x.
- Mirman, D. and Magnuson, J.S. (2009). Dynamics of activation of semantically similar concepts during spoken word recognition. *Memory & Cognition*, 37(7), 1026-1039. DOI: 10.3758/MC.37.7.1026.
- Mirman, D. and Magnuson, J.S. (2009). The effect of frequency of shared features on judgments of semantic similarity. *Psychonomic Bulletin & Review*, 16(4), 671-677. DOI: 10.3758/PBR.16.4.671.
- Stephen, D. G., Mirman, D., Magnuson, J. S., and Dixon, J. A. (2009). Lévy-like diffusion in spoken-language comprehension. *Physical Review E*, 79, 056114. DOI: 10.1103/PhysRevE.79.056114.
- Mirman, D. (2008). Mechanisms of semantic ambiguity resolution: Insights from speech perception. *Research on Language and Computation*, 6(3-4), 293-309. DOI: 10.1007/s11168-008-9055-5.

- Mirman, D., Dixon, J.A., and Magnuson, J.S. (2008). Statistical and computational models of the visual world paradigm: Growth curves and individual differences. *Journal of Memory and Language*, 59(4), 475-494. DOI: 10.1016/j.jml.2007.11.006.
- Mirman, D., Magnuson, J.S., Graf Estes, K., and Dixon, J.A. (2008). The link between statistical segmentation and word learning in adults. *Cognition*, 108(1), 271-280. DOI: 10.1016/j.cognition.2008.02.003.
- Mirman, D., McClelland, J.L., Holt, L.L., and Magnuson, J.S. (2008). Effects of attention on the strength of lexical influences on speech perception: Behavioral experiments and computational mechanisms. *Cognitive Science*, 32(2), 398-417. DOI: 10.1080/03640210701864063.
- Mirman, D. and Magnuson, J.S. (2008). Attractor dynamics and semantic neighborhood density: Processing is slowed by near neighbors and speeded by distant neighbors. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 34(1), 65-79. DOI: 10.1037/0278-7393.34.1.65.
- Mirman, D., McClelland, J.L., and Holt, L.L. (2006). An interactive Hebbian account of lexically guided tuning of speech perception. *Psychonomic Bulletin & Review*, 13(6), 958-965. DOI: 10.3758/BF03213909.
- McClelland, J.L., Mirman, D., and Holt, L.L. (2006). Are there interactive processes in speech perception? *Trends in Cognitive Sciences*, 10(8), 363-369. DOI: 10.1016/j.tics.2006.06.007.
- Mirman, D., McClelland, J.L., and Holt, L.L. (2005). Computational and behavioral investigations of lexically induced delays in phoneme recognition. *Journal of Memory and Language*, 52(3), 424-443. DOI: 10.1016/j.jml.2005.01.006.
- Mirman, D., Holt, L.L., and McClelland, J.L. (2004). Categorization and discrimination of non-speech sounds: Differences between steady-state and rapidly-changing acoustic cues. *Journal of the Acoustical Society of America*, 116(2), 1198-1207. DOI: 10.1121/1.1766020.
- Mirman, D. and Spivey, M. (2001). Retroactive interference in neural networks and in humans: The effect of pattern-based learning. *Connection Science*, 13(3), 257-275. DOI: 10.1080/09540090110091830.

#### **Peer-Reviewed Conference Proceedings**.....

- Landrigan<sup>§</sup>, J.-F. and Mirman, D. (2017). Reassessing Aphasic Classifications with Community Detection Analysis. In *Proceedings of the Academy of Aphasia 55th Annual Meeting*. DOI: 10.3389/conf.fnhum.2017.223.00032
- Nozari, N. and Mirman, D. (2016). Using determiners as contextual cues in sentence comprehension: A comparison between younger and older adults. In A. Papafragou, D. Grodner, D. Mirman, & J. Trueswell (Eds.) *Proceedings of the 38th Annual Cognitive Science Society Meeting* (pp. 1193-1198). Austin, TX: Cognitive Science Society.
- Botezatu<sup>‡</sup>, M.R., Landrigan<sup>§</sup>, J.-F., Chen<sup>‡</sup>, Q., and Mirman, D. (2015). Phonological Neighborhood Density Modulates Errors In Spoken Word Recognition. In Noelle, D. C., Dale, R., Warlaumont, A. S., Yoshimi, J., Matlock, T., Jennings, C. D., & Maglio, P. P. (Eds.) *Proceedings of the 37th Annual Cognitive Science Society Meeting* (pp. 250-255). Austin, TX: Cognitive Science Society.
- Botezatu<sup>‡</sup>, M.R., and Mirman, D. (2014). A Link Between Lexical Competition and Fluency in Aphasia. *Proceedings of the Academy of Aphasia 52nd Annual Meeting*. DOI: 10.3389/conf.fpsyg.2014.64.00022.
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- Mirman, D., Walker, G.M., and Graziano<sup>§</sup>, K.M. (2011). A tale of two semantic systems: Taxonomic and thematic knowledge. In L. Carlson, C. Hoelscher, & T.F. Shipley (Eds), *Proceedings of the 33rd Annual Conference of the Cognitive Science Society*, (pp. 2211-2216). Austin, TX: Cognitive Science Society.
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- Mirman, D., Kittredge, A.K., and Dell, G.S. (2010). Effects of near and distant phonological neighbors on picture naming. In S. Ohlsson & R. Catrambone (Eds), *Proceedings of the 32nd Annual Conference of the Cognitive Science Society*, (pp. 1447-1452). Austin, TX: Cognitive Science Society.
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### **Book Chapters**.....

- Mirman, D. and Thye<sup>§</sup>, M. (2022). Prediction and Predictive Inference. In D. Pustina and D. Mirman (Eds) *Lesion-to-symptom mapping: Principles and tools*. Springer: Neuromethods.
- Mirman, D. and Middleton, E.L. (2022). Disorders of lexical access and production. In L. Gleitman, A. Papafragou, and J. Trueswell (Eds) *The Oxford Handbook of the Mental Lexicon* (pp. 615-628). Oxford University Press. DOI: 10.1093/oxfordhb/9780198845003.013.28
- Mirman, D. (2021). Aphasia: Acquired Language and Speech Disorder. In S. Della Sala (Ed), *Encyclopedia of Behavioural Neuroscience* (vol. 3), (pp. 81-87). Elsevier.  
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- Mirman, D. (2020). Language. In F. Amthor, A. Theibert, D. Standaert, & E. Roberson (Eds), *Essentials of Modern Neuroscience* (pp. 341-350). McGraw-Hill.
- Mirman, D. (2016). Zones of proximal development for models of spoken word recognition. In T. Harley (Series Ed.) & G.M. Gaskell & J. Mirković (Vol. Eds.), *Current Issues in the*

*Psychology of Language: Speech Perception and Spoken Word Recognition* (pp. 97-115). New York, USA: Routledge, Psychology Press.

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Magnuson, J.S., Mirman, D., and Harris, H.D. (2012). Computational models of spoken word recognition. In M. Spivey, M. Joanisse, & K. McRae (Eds), *The Cambridge Handbook of Psycholinguistics* (pp. 76-103). Cambridge: Cambridge University Press.

### **Comments, Replies, and Technical Reports**.....

Mirman, D., Scheel, A. M., Schubert, A. L., and McIntosh, R. D. (2022). Strengthening derivation chains in cognitive neuroscience: A special issue of *Cortex*. *Cortex*, 146, A1-A4. <https://doi.org/10.1016/j.cortex.2021.12.002>

Mirman, D., Landrigan, J.-F., Kokolis, S., Verillo, S., Ferrara, C., and Pustina, D. (2016, Dec. 14). Corrections for multiple comparisons in voxel-based lesion-symptom mapping. arXiv:1612.04345 [stat.AP]. Available at <http://arxiv.org/abs/1612.04345>.

Mirman, D., Landrigan, J.-F., Kokolis, S., Verillo, S., and Ferrara, C. (2016, June 1). Permutation-based cluster size correction for voxel-based lesion-symptom mapping. arXiv:1606.00475 [stat.AP]. Available at <http://arxiv.org/abs/1606.00475>.

Kelty-Stephen, D. G. and Mirman, D. (2013). Gaze fluctuations are not additively decomposable: Reply to Bogartz and Staub. *Cognition*, 126(1), 128-134. DOI: 10.1016/j.cognition.2012.09.002.

Mirman, D., McClelland, J.L., and Holt, L.L. (2006). Reply to McQueen et al.: Theoretical and empirical arguments support interactive processing. *Trends in Cognitive Sciences*, 10(12), 534.

## **Presentations**

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### **Invited**.....

Mirman, D. (February, 2023). *Everything Everywhere All at Once: Why and How to Use Multiverse Analysis*. Princeton University Seminar in Advanced Research Methods. Princeton, NJ, USA.

Mirman, D. (November, 2022). *Aligning lesion-based prediction with primary systems in post-stroke aphasia*. Autumn 2022 Meeting of the British Neuropsychological Society, London, UK.

Mirman, D. (September, 2022). *Components of Fluency and their Lesion Correlates in Post-Stroke Aphasia*. Invited presentation at *National Stroke Session*. Cerebrovascular Research Group, University of Edinburgh, Edinburgh, UK.

Mirman, D. (September, 2022). *Growth Curve Analysis for Eye-Tracking Data*. Invited presentation at *CLaS Eye-tracking Workshop 2: Data analysis and statistical approaches*. Macquarie University, Sydney, Australia.

Mirman, D. (May, 2022). *Categories and Events: Complementary Taxonomic and Thematic Semantic Systems*. Invited colloquium presented at University College London, London, UK.

Mirman, D. (May, 2022). *Statistical Analysis Strategies for Eye-Tracking Data*. Invited presentation at *Eye tracking technology: A training workshop on methods for psychological and educational research*. University of Oslo, Oslo, Norway.

Mirman, D. (May, 2021). *Dissociation and Functional Specialization for Taxonomic and Thematic Relations*. Invited Psychology Seminar presented at York University, York, UK.

- Mirman, D. (February, 2020). *Rigour, Reproducibility, and Transparency: Why we should care, What we can do, and How we can do it*. Invited talk for Data Stewardship Interest Group at Center for Injury Research and Prevention, Children's Hospital of Philadelphia, USA.
- Mirman, D. (November, 2019). *Complementary Semantic Systems*. Invited Psychology Seminar presented at Bangor University, Bangor, Wales, UK.
- Mirman, D. (August, 2019). *Modeling the time course of fixation in the visual world paradigm*. Invited keynote at joint conference on Embodied and Situated Language Processing (ESLP) and the Attentive Listener in the Visual World (AttLis). Berlin, Germany.
- Mirman, D. (April, 2019). *Complementary Semantic Systems*. Invited Educational Psychology colloquium presented at the University of Alabama, Tuscaloosa, AL.
- Mirman, D. (January, 2019). *Data-driven mapping of the cognitive and neural basis of language deficits in post-stroke aphasia*. Invited colloquium, San Diego State University, San Diego, CA.
- Mirman, D. (September, 2018). *Competition and Cooperation in Lexical Neighborhoods*. Invited presentation in *Parallel Distributed Processing and the Emergence of an Understanding of Mind: A Symposium in honor of James L. McClelland*. Princeton University, Princeton, NJ.
- Mirman, D. (April, 2018). *Neuroanatomy of Core Language Systems: A Data-Driven Journey*. Invited colloquium, Cognitive Science Program, University of Arizona, Tucson, AZ.
- Mirman, D. (December, 2017). *Neuroanatomy of Core Language Systems*. Invited colloquium, Department of Psychology and Center for Cognitive and Psycholinguistic Sciences, Binghamton University - State University of New York, Binghamton, NY.
- Mirman, D. (February, 2017). *Complementary Semantic Systems*. Invited colloquium presented at the Institute of Cognitive and Brain Sciences, University of California - Berkeley, Berkeley, CA.
- Mirman, D. (November, 2016). *Mapping spoken language impairments following left hemisphere stroke*. Invited research presentation at the 2016 American Speech-Language-Hearing Association (ASHA) Convention, Philadelphia, PA.
- Mirman, D. (May, 2016). Word selection in aphasia. Invited paper presented in C. Tomkins & S. Kiran (Chairs), *2016 Research Symposium in Clinical Aphasiology*. Symposium at the 2016 Clinical Aphasiology Conference, Charlottesville, VA.
- Mirman, D. (March, 2016). *Spoken Language Deficits and Systems*. Invited colloquium presented at Tufts University, Medford, MA.
- Mirman, D. (September, 2015). *Organization of Spoken Language*. Invited colloquium presented at the Department of Psychology, Rutgers University, Newark, NJ.
- Mirman, D. (January, 2015). Mapping Word Recognition and Production in Aphasia. *Topics in Rehabilitation Science*, Moss Rehabilitation Research Institute, Elkins Park, PA.
- Mirman, D. (October, 2014). The Ins and Outs of Spoken Language: Functional and neural organization of word processing. Invited talk in *Brain and Cognitive Sciences Seminar*, Department of Psychology, Temple University, Philadelphia, PA.
- Mirman, D. (January, 2014). Functional and neural organization of word processing. Invited talk in *Neuropsychology and Neuroscience Seminar*, University of Pennsylvania Medical Center, Philadelphia, PA.
- Mirman, D. (October, 2013). Angular gyrus involvement in thematic semantics: Evidence and a computational proposal. Invited paper presented in M. Rugg & S. Thompson-Schill (Chairs), *The roles of the angular gyrus in semantic and episodic memory*. Symposium at

the Memory Disorders Research Society Meeting, Toronto, Canada.

- Mirman, D. and Britt, A.E. (June, 2013). What we talk about when we talk about lexical access deficits. Invited paper presented in D. Bishop, K. Nation, & K. Patterson (Chairs), *Language in developmental and acquired disorders: Converging evidence for models of language representation in the brain*. Scientific Discussion Meeting at The Royal Society, London, UK.
- Mirman, D. (October, 2012). *The functional and neuroanatomical dissociation between taxonomic and thematic semantics*. Invited colloquium at University of California - Merced.
- Mirman, D. (April, 2010). *Interactive processing in speech perception: The facts of feedback*. Invited paper presented at the 159th meeting of the Acoustical Society of America, Baltimore, MD.
- Mirman, D. (November, 2009). *Contrasting effects of near and distant semantic neighbors on word processing in aphasia*. Invited paper presented at the 39th Annual Meeting of the Society for Computers in Psychology, Boston, MA.
- Mirman, D. (June, 2008). *Attractor dynamics account for contrasting effects of near and distant semantic neighbors*. Invited paper presented at the 18th Annual Meeting of the Canadian Society for Brain, Behaviour and Cognitive Science, London, Ontario, Canada.
- Mirman, D., Magnuson, J.S., Graf Estes, K., and Dixon, J.A. (June, 2007). *Linking statistical learning to language processing*. Invited paper presented at the Workshop on Current Issues in Language Acquisition: Artificial Languages and Statistical Learning, Calgary, Alberta, Canada.
- McClelland, J.L., Mirman, D., and Holt L.L. (April, 2003). *Is there still a trace of TRACE?* Invited paper presented at the 145th meeting of the Acoustical Society of America, Nashville, TN.

#### **Submitted (Selected, Recent)**.....

- Thye<sup>§</sup>, M., Hoffman, P., and Mirman, D. (June, 2022). *Activation of Semantic and Social Brain Networks During Auditory Story Comprehension*. Poster presented at the Organization for Human Brain Mapping Annual Meeting, Glasgow, UK.
- Ding<sup>‡</sup>, J., Thye<sup>§</sup>, M., Edmondson-Stait<sup>§</sup>, A., Szaflarski, J.P., and Mirman, D. (June, 2022). *A Multivariate Evaluation of Connectomebased Lesion-symptom Mapping in Post-stroke Aphasia*. Poster presented at the Organization for Human Brain Mapping Annual Meeting, Glasgow, UK.
- Zevgolatakou<sup>§</sup>, E., Thye<sup>§</sup>, M., and Mirman, D. (October, 2021). *A multivariate behavioural and lesion-symptom mapping investigation of the core aspects of fluent speech production*. Platform presentation at the Academy of Aphasia 59th Annual Meeting.  
<https://easychair.org/publications/preprint/ZBq1>
- Mirman, D., Adezati<sup>§</sup>, E., Thye<sup>§</sup>, M., and Szaflarski, J.P. (October, 2021). *Lesion Correlates of Auditory Sentence Comprehension Deficits in Post-Stroke Aphasia*. Slide Slam presentation at the Thirteenth Meeting of the Society for the Neurobiology of Language.  
<https://2021.neurolang.org/?p=H4>
- Thye<sup>§</sup>, M., Geller<sup>‡</sup>, J., Pizarro, D., Szaflarski, J.P., and Mirman, D. (March, 2019). *An Intracranial EEG Study of Taxonomic and Thematic Relations*. Poster presented at the 26th Annual Meeting of the Cognitive Neuroscience Society. San Francisco, CA, USA.
- Thye<sup>§</sup>, M., Geller<sup>‡</sup>, J., Pizarro, D., Szaflarski, J.P., and Mirman, D. (November, 2018). *An intracranial EEG Study of Semantic Cognition*. Poster presented at the 59th Psychonomic Society Annual Meeting. New Orleans, LA, USA.

- Geller<sup>‡</sup>, J., Landrigan<sup>§</sup>, J.-F., and Mirman, D. (November, 2018). *A Pupillometric Examination of Cognitive Control in Taxonomic and Thematic Semantic Memory*. Poster presented at the 59th Psychonomic Society Annual Meeting. New Orleans, LA, USA.
- Geller<sup>‡</sup>, J., Winn, M., Mahr, T.J., and Mirman, D. (November, 2018). *GazeR: A package to analyze gaze position and pupil size data*. Poster presented at the 2018 Annual Meeting of the Society for Computers in Psychology. New Orleans, LA, USA.
- Landrigan<sup>§</sup>, J.-F. and Mirman, D. (August, 2018). *Data-driven Aphasia Sub-Typing using Lesion-Symptom Mapping and Community Detection Analysis*. Poster presented at the Tenth Annual Meeting of the Society for the Neurobiology of Language. Quebec City, Canada.
- Geller<sup>‡</sup>, J., Thye<sup>§</sup>, M. and Mirman, D. (August, 2018). *Rethinking Effects of White Matter Tract Disconnection on Post-Stroke Language Impairment*. Poster presented at the Tenth Annual Meeting of the Society for the Neurobiology of Language. Quebec City, Canada.
- Thye<sup>§</sup>, M. and Mirman, D. (August, 2018). *Relative Contributions of Lesion Location and Lesion Size to Predictions of Varied Language Deficits in Post-Stroke Aphasia*. Poster presented at the Tenth Annual Meeting of the Society for the Neurobiology of Language. Quebec City, Canada.
- Nair, S., Allendorfer, J.B., Nenert, R., Martin, A.N., Mirman, D., Vannest, J., Szaflarski, J.P. (March, 2018). *Neural correlates of self-generation and verbal memory performance during paired-associate learning*. Poster presented at the American Academy of Neurology 70th Annual Meeting. Los Angeles, CA, USA.

## Professional Activities

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**Associate Editor:** *Cognitive Science* (2019-Present), *Cortex* (2021-Present), *PLOS ONE* (2018-Present), *PeerJ - Life and Environment* (2021-Present)

**Psychonomic Society Review Committee:** (2018-2020)

**Research Topic Editor, *Frontiers in Psychology*:** *Contemporary Neural Network Modeling in Cognitive Science* (2017)

**Program Committee:** Annual Meeting of the Cognitive Science Society (2017-2018)

**Organizing Committee:** 38th Annual Meeting of the Cognitive Science Society (2016)

**Organizing Committee:** 15th Neural Computation and Psychology Workshop (2016)

**Reviewing**.....

**Manuscripts:** *Brain*; *Cortex*; *Cognition*; *Human Brain Mapping*; *Journal of Cognitive Neuroscience*; *Journal of Experimental Psychology: Learning, Memory, and Cognition*; *NeuroImage: Clinical*; *Neurobiology of Language*; *Psychonomic Bulletin & Review*. (approx. 20 manuscripts/year)

**Conference proceedings:** Proceedings of the Cognitive Science Society Meeting (2005-2018); Neurobiology of Language Conference (2011-2014)

**Grant proposals:** National Institutes of Health (NIDCD: 2012-Present; NINDS: 2016); National Science Foundation (2015); Medical Research Council (2009, 2017, 2021, 2022); Agence Nationale de la Recherche (2016); Wellcome Trust (2015); Canada Foundation for Innovation (2014); Netherlands Organisation for Scientific Research (2011)

**Book proposals:** Cambridge University Press; Oxford University Press; Routledge; Taylor & Francis

**Other service**.....

**IRB Member:** Albert Einstein Healthcare Network (2009-2013)

**Invited Panel Participant:** *Methods for Parsing Sound Size Effects*. The Ohio State University (June, 2012).

**Symposium Organizer and Chair:** *Theoretical perspectives on impairments in spoken language processing*, 31st Annual Cognitive Science Society Meeting (2009).

**Graduate Student Member:** CNBC Education Committee (2003).

**Organizer:** 20th Annual CMU-Pitt Graduate Student Psychology Conference (2002).

**Coordinator:** CNBC Methods Workshop Series (2001-2003).

## **Professional Memberships**

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o Academy of Aphasia

o Cognitive Science Society

o Psychonomic Society

o Society for the Neurobiology of Language