

Curriculum Vitae: David C. Plaut

Personal Information

Birth April 18, 1962. Park Ridge, IL. U.S. citizen

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Work Department of Psychology, Carnegie Mellon University, 5000 Forbes Avenue, Pittsburgh, PA 15213-3890. Phone: +1-412-268-5145, Fax: -2798, Email: plaut@cmu.edu

Major Research Interests

Computational modeling of normal and impaired cognitive processes in reading, language, and semantics.

Degrees

1991 **Ph.D., Computer Science**, Department of Computer Science, Carnegie Mellon University.
Dissertation: *Connectionist Neuropsychology: The Breakdown and Recovery of Behavior in Lesioned Attractor Networks* (supervised by Dr. G. Hinton).

1984 **B.A., Summa Cum Laude, Cognitive Science and Mathematics**, University of Rochester, Rochester, NY.
Graduated with Highest Distinction in Cognitive Science and Distinction in Mathematics.
Senior dissertation: *Visual Recognition of Simple Objects by a Connection Network* (supervised by Dr. J. Feldman).

Positions Held

2003- **Professor**, Department of Psychology and the Center for the Neural Basis of Cognition, Carnegie Mellon University.

2006 **Professor**, Department of Psychology, University of Toronto.

1999-02 **Associate Professor**, Department of Psychology and the Center for the Neural Basis of Cognition, Carnegie Mellon University.

1995- **Secondary appointment**, Department of Computer Science, Carnegie Mellon University.

1994-99 **Assistant Professor**, Department of Psychology and the Center for the Neural Basis of Cognition, Carnegie Mellon University.

1991-94 **Postdoctoral Research Fellow**, Department of Psychology, Carnegie Mellon University.
Worked with Dr. J. McClelland on connectionist modeling of normal and impaired word reading.

1990 **Visiting Researcher**, Departments of Computer Science and Psychology, University of Toronto.
Worked with Prof. T. Shallice developing connectionist models of neuropsychological phenomena.

1984-85 **Churchill Scholar**, Department of Experimental Psychology, University of Cambridge, Cambridge, England.

Worked with Prof. O. Braddick on the psychophysics of low-level motion perception.

Honors and Awards

2003 **Troland Research Award**, National Academy of Sciences.

2000 **Fulbright Scholarship**, Council for International Exchange of Scholars.

Lady Davis Fellowship, Hebrew University (declined).

1997 **FIRST award**, National Institutes of Health.

1985 **R. K. Mellon Fellowship**, Carnegie Mellon University.

1984 **Churchill Scholar**, University of Cambridge and the Winston Churchill Foundation.

1981 **Kodak Scholar**, University of Rochester and Eastman Kodak Company.

1983 **Phi Beta Kappa**, University of Rochester.

1980 **Alumni Regional Scholar**, University of Rochester.

Membership in Professional Societies

Association for Psychological Science

Cognitive Neuroscience Society

Cognitive Science Society

International Association for the Study of Attention and Performance

International Neuropsychology Symposium

Psychonomic Society

Society for Language Development

Phi Beta Kappa

Research Grants

Active

2002-08 *Toward a Neurobiologically Informed Framework for Modeling Human Cognition*
NIH award MH64445, Integrated Behavioral Science Center (J. McClelland, PD).

- Project 1: Functional and Neural Organization of Semantic Memory
PI, 20% effort, Total direct costs: \$753,375
- Project 2: Interactive Processes in Language: Lexical Processing
Co-PI, 10% effort, Total direct costs: \$798,400
- Project 3: Interactive Processes in Language: Sentence Processing
Co-PI, 10% effort, Total direct costs: \$1,060,969

Completed

2002-07 *Modeling Normal and Impaired Lexical Processing*
NIH award MH55628
PI, 35% effort, Total direct costs: \$750,000

- 2000-05 *A Neuropsychological and Computational Investigation of Past Tense Verb Processing*
NSF award BCS-0079044
PI, 10% effort, Total direct costs: \$168,731
- 1999-02 *Research Computing Resource for the CMU/Pitt Center for the Neural Basis of Cognition*
NSF award 9977293
Co-PI, 5% effort, Total direct costs: \$314,779
- 1996-01 *Modeling Normal and Impaired Lexical Semantic Processing*
NIH FIRST award MH55628
PI, 50% effort, Total direct costs: \$347,120
- 1997-02 *Toward a Model of Normal and Disorder Cognition*
NIH Program Project MH47566
- Part 1: Representation and Processing of Words and Sentences
Co-PI, 25% effort, Total direct costs: \$596,650
 - Core: Basic Theoretical Issues, Constraints from Other Approaches, and Computational Resources
Co-Investigator, 8% effort, Total direct costs: \$419,220
- 1997-00 *Intervention Strategies that Promote Learning: Their Basis and Use in Enhancing Literacy*
NSF grant 9720348
Co-PI, 8% effort, Total direct costs: \$846,883
- 1996-97 *Learning in Dynamic Decision-Making Tasks: A Computational and Empirical Study of Credit Collectors at Citicorp*
Citicorp Behavioral Sciences Research Council Grant
Co-PI, 8% effort, Total direct costs: \$90,000
- 1995-96 *Learning in Dynamic Decision-Making Tasks*
Citicorp Behavioral Sciences Research Council Grant
Co-PI, 8% effort, Total direct costs: \$14,200
- 1991-96 *Toward a Model of Normal and Disorder Cognition*
NIH Program Project MH47566
- Part 1: Basic Aspects of Normal Cognition
Co-Investigator, 30% effort, Total direct costs: \$620,000
- 1991-96 *Connectionist Neuropsychology: Acquired Dyslexia in a Dual-Route Model of Reading*
McDonnell-Pew Cognitive Neuroscience Training Grant T89-01245-016
PI, 50% effort, Total direct costs: \$102,500
- 1991-94 *Semantic Representations in Reading*
NSF Training Grant ASC-9109215
PI, 50% effort, Total direct costs: \$36,000

Publications

Journal Articles in Preparation or Submitted

- Gonnerman, L., and **Plaut, D. C.** (in preparation). *Semantic and morphological effects in masked priming.*
- Gotts, S. J., and **Plaut, D. C.** (in preparation). *Neural and cognitive mechanisms underlying positive and negative repetition priming.*
- Kello, C. T., Sibley, D. E., and **Plaut, D. C.** (in preparation). *The junction model of lexical processing.*

- Gotts, S. J., **Plaut, D. C.**, and Cipolotti, L. (submitted). Mechanisms underlying "access/refractory" semantic impairments: Testing predictions of a connectionist model. *Neuropsychologia*.
- Rohde, D. L. T., Gonnerman, L., and **Plaut, D. C.** (submitted). [An improved model of semantic similarity based on lexical co-occurrence](#). *Cognitive Science*.
- Thrush, R. and **Plaut, D. C.** (submitted). What is a working model of attachment? A Parallel Distributed Processing model of attachment representations. *Journal of Personality and Social Psychology*.

Journal Articles

- Dilkina, K., McClelland, J. L., and **Plaut, D. C.** (in press). A single-system account of semantic and lexical deficits in five semantic dementia patients. *Cognitive Neuropsychology*.
- Sibley, D. E., Kello, C. T., **Plaut, D. C.**, and Elman, J. L. (in press). [Learning representations of wordforms](#). *Cognitive Science*.
- Woollams, A., Lambon Ralph, M. A., **Plaut, D. C.**, and Patterson, K. (2007). [SD-squared: On the association between semantic dementia and surface dyslexia](#). *Psychological Review*, 114, 316-339.
- Botvinick, M. and **Plaut, D. C.** (2006). [Such stuff as habits are made on: A reply to Cooper and Shallice \(2006\)](#). *Psychological Review*, 113, 917-928.
- Botvinick, M. and **Plaut, D. C.** (2006). [Short-term memory for serial order: A recurrent neural network model](#). *Psychological Review*, 113, 201-233.
- **Plaut, D. C.** and Booth, J. R. (2006). [More modeling but still no stages: Reply to Borowsky and Besner](#). *Psychological Review*, 113, 196-200.
- Powell, D., **Plaut, D. C.**, and Funnell, E. (2006). [Does the PMSP connectionist model of single word reading learn to read in the same way as a child?](#) *Journal of Research in Reading*, 29, 229-250.
- Kello, C. T., Sibley, D. E., and **Plaut, D. C.** (2005). [Dissociations in performance on novel versus irregular items: Single-route demonstrations with input gain in localist and distributed models](#). *Cognitive Science*, 29, 627-654.
- Velan, H., Frost, R., Deustch, A. and **Plaut, D. C.** (2005). [The processing of root morphemes in Hebrew: Contrasting localist and distributed accounts](#). *Language and Cognitive Processes*, 20, 169-206.
- Botvinick, M. and **Plaut, D. C.** (2004). [Doing without schema hierarchies: A recurrent connectionist approach to normal and impaired routine sequential action](#). *Psychological Review*, 111, 395-429.
- Gotts, S. J., and **Plaut, D. C.** (2004). [Connectionist approaches to understanding aphasic perseveration](#). *Seminars in Speech and Language*, 25, 323-334.
- Kello, C. T., and **Plaut, D. C.** (2004). [A neural network model of the articulatory-acoustic forward mapping trained on recordings of articulatory parameters](#). *Journal of the Acoustical Society of America*, 116, 2354-2364.
- **Plaut, D. C.** (2003). [Interpreting double dissociations in connectionist networks](#). *Cortex*, 39, 138-141.
- Kello, C. T. and **Plaut, D. C.** (2003). [Strategic control over rate of processing in word reading: A computational investigation](#). *Journal of Memory and Language*, 48, 207-232.
- Rohde, D. L. T. and **Plaut, D. C.** (2003). [Connectionist models of language processing](#). *Cognitive Studies*, 10, 10-28.
- Botvinick, M. and **Plaut, D. C.** (2002). [Representing task context: Insights from a connectionist model of action](#). *Psychological Research*, 66, 298-311.
- Gotts, S. J. and **Plaut, D. C.** (2002). [The impact of synaptic depression following brain damage: A connectionist account of "access/refractory" and "degraded-store" semantic](#)

- impairments. *Cognitive, Affective, and Behavioral Neuroscience*, 2, 187-213.
- **Plaut, D. C.** (2002). Graded modality-specific specialization in semantics: A computational account of optic aphasia. *Cognitive Neuropsychology*, 19, 603-639.
 - Behrmann, M. and **Plaut, D. C.** (2001). The interaction of spatial reference frames and hierarchical object representations: Evidence from figure copying in hemispatial neglect. *Cognitive, Affective, & Behavioral Neuroscience*, 1, 307-329.
 - McLeod, P., **Plaut, D.**, and Shallice, T. (2001). Connectionist modelling of word recognition. *Synthese*, 129, 173-183.
 - Kello, C. T. and **Plaut, D. C.** (2000). Strategic control in word reading: Evidence from speeded responding in the tempo naming task. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 26, 719-750.
 - Kello, C. T., **Plaut, D. C.**, and MacWhinney, B. (2000). The task-dependence of staged versus cascaded processing: An empirical and computational study of Stroop interference on speech production. *Journal of Experimental Psychology: General*, 129, 340-360.
 - McLeod, P., Shallice, T., and **Plaut, D. C.** (2000). Visual and semantic influences in word recognition: Converging evidence from acquired dyslexic patients, normal subjects, and a computational model. *Cognition*, 74, 91-114.
 - **Plaut, D. C.** and Booth, J. R. (2000). Individual and developmental differences in semantic priming: Empirical and computational support for a single-mechanism account of lexical processing. *Psychological Review*, 107, 786-823.
 - **Plaut, D. C.** and Gonnerman, L. M. (2000). Are non-semantic morphological effects incompatible with a distributed connectionist approach to lexical processing? *Language and Cognitive Processes*, 15, 445-485.
 - **Plaut, D. C.** (1999). A connectionist approach to word reading and acquired dyslexia: Extension to sequential processing. *Cognitive Science*, 23, 543-568.
 - Rohde, D. L. T., and **Plaut, D. C.** (1999). Language acquisition in the absence of explicit negative evidence: How important is starting small? *Cognition*, 72(1), 67-109.
 - Behrmann, M., **Plaut, D. C.**, and Nelson, J. (1998). A literature review and new data supporting an interactive account of letter-by-letter reading. *Cognitive Neuropsychology*, 15, 7-51.
 - Seidenberg, M., and **Plaut, D. C.** (1998). Evaluating word reading models at the item level: Matching the grain of theory and data. *Psychological Science*, 9, 234-237.
 - Gibson, F., Fichman, M., and **Plaut, D. C.** (1997). Learning in dynamic decision tasks: Computational model and empirical evidence. *Organizational Behavior and Human Decision Processes*, 71, 1-35.
 - **Plaut, D. C.** (1997). Structure and function in the lexical system: Insights from distributed models of word reading and lexical decision. *Language and Cognitive Processes*, 12, 767-808.
 - **Plaut, D. C.** (1996). Relearning after damage in connectionist networks: Toward a theory of rehabilitation. *Brain and Language*, 52, 25-82.
 - **Plaut, D. C.**, McClelland, J. L., Seidenberg, M. S., and Patterson, K. (1996). Understanding normal and impaired word reading: Computational principles in quasi-regular domains. *Psychological Review*, 103, 56-115.
 - Seidenberg, M. S., Petersen, A., MacDonald, M. C., and **Plaut, D. C.** (1996). Pseudohomophone effects and models of word recognition. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 22, 48-62.
 - **Plaut, D. C.** (1995). Double dissociation without modularity: Evidence from connectionist neuropsychology. *Journal of Clinical and Experimental Neuropsychology*, 17, 291-321.
 - Seidenberg, M. S., **Plaut, D. C.**, Petersen, A. S., McClelland, J. L., and McRae, K. (1994). Nonword pronunciation and models of word recognition. *Journal of Experimental Psychology: Human Perception and Performance*, 20, 1177-1196.

- Hinton, G. E., **Plaut, D. C.**, and Shallice, T. (1993). [Simulating brain damage](#). *Scientific American*, 269, 76-82.
- McClelland, J. L. and **Plaut, D. C.** (1993). [Computational approaches to cognition: Top-down approaches](#). *Current Opinion in Neurobiology*, 3, 209-216.
- **Plaut, D. C.** and Shallice, T. (1993). [Deep dyslexia: A case study of connectionist neuropsychology](#). *Cognitive Neuropsychology*, 10, 377-500.
- **Plaut, D. C.** and Shallice, T. (1993). [Perseverative and semantic influences on visual object naming errors in optic aphasia: A connectionist account](#). *Journal of Cognitive Neuroscience*, 5, 89-117.
- **Plaut, D. C.** and Farah, M. J. (1990). [Visual object representation: Interpreting neurophysiological data within a computational framework](#). *Journal of Cognitive Neuroscience*, 2, 320-343.
- **Plaut, D. C.** and Hinton, G. E. (1987). [Learning sets of filters using back propagation](#). *Computer Speech and Language*, 2, 35-61.

Conference Papers

- Kello, C. T. and **Plaut, D. C.** (2003). [The interplay of perception and production in phonological development: Beginnings of a connectionist model trained on real speech](#). 15th International Congress of Phonetic Sciences, Barcelona, Spain.
- McGuire, S. and **Plaut, D. C.** (1997). [Systematicity and specialization in semantics: A computational account of optic aphasia](#). *Proceedings of the 19th Annual Conference of the Cognitive Science Society* (pp. 502-507). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Rohde, D. L. T. and **Plaut, D. C.** (1997). [Simple recurrent networks and natural language: How important is starting small?](#). *Proceedings of the 19th Annual Conference of the Cognitive Science Society* (pp. 656-661). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Gibson, F. P. and **Plaut, D. C.** (1995). [A connectionist formulation of learning in dynamic decision-making tasks](#). *Proceedings of the 17th Annual Conference of the Cognitive Science Society* (pp. 512-517). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Ho, J. B.-H., Behrmann, M., and **Plaut, D. C.** (1995). [The interaction of spatial reference frames and hierarchical object representations: A computational investigation of drawing in hemispatial neglect](#). *Proceedings of the 17th Annual Conference of the Cognitive Science Society* (pp. 148-153). Hillsdale, NJ: Lawrence Erlbaum Associates.
- **Plaut, D. C.** (1995). [Semantic and associative priming in a distributed attractor network](#). *Proceedings of the 17th Annual Conference of the Cognitive Science Society* (pp. 37-42). Hillsdale, NJ: Lawrence Erlbaum Associates.
- **Plaut, D. C.** and McClelland, J. L. (1993). [Generalization with componential attractors: Word and nonword reading in an attractor network](#). *Proceedings of the 15th Annual Conference of the Cognitive Science Society* (pp. 824-829). Hillsdale, NJ: Lawrence Erlbaum Associates.
- **Plaut, D. C.** (1992). [Relearning after damage in connectionist networks: Implications for patient rehabilitation](#). *Proceedings of the 14th Annual Conference of the Cognitive Science Society* (pp. 372-377). Hillsdale, NJ: Lawrence Erlbaum Associates.
- **Plaut, D. C.** and Shallice, T. (1991). [Effects of word abstractness in a connectionist model of deep dyslexia](#). *Proceedings of the 13th Annual Conference of the Cognitive Science Society* (pp. 73-78). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Hinton, G. E. and **Plaut, D. C.** (1987). [Using fast weights to deblur old memories](#). *Proceedings of the 9th Annual Conference of the Cognitive Science Society* (pp. 177-186). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Derthick, M. and **Plaut, D. C.** (1986). [Is distributed connectionism compatible with the Physical Symbol System Hypothesis?](#) *Proceedings of the 8th Annual Conference of the Cognitive Science Society* (pp. 639-644). Hillsdale, NJ: Lawrence Erlbaum Associates.

Books

- **Plaut, D. C.** and Shallice, T. (1994). *Connectionist modeling in cognitive neuropsychology: A case study*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Book Chapters

- Seidenberg, M. S. and **Plaut, D. C.** (2006). [Progress in understanding word reading: Data fitting versus theory building](#). in S. Andrews (Ed.), *From inkmarks to ideas: Current issues in lexical processing*. Psychology Press: Hove, UK.
- **Plaut, D. C.** (2005). [Connectionist approaches to reading](#). In M. J. Snowling and C. Hulme (Eds.), *The science of reading: A handbook* (pp. 24-38) Blackwell: Oxford.
- Botvinick, M. and **Plaut, D. C.** (2003). [Constructive processes in immediate serial recall: A recurrent network model of the bigram frequency effect](#). In B. Kokinov and W. Hirst (Eds.) *Constructive Memory* (pp. 129-137). Sofia: New Bulgarian University.
- **Plaut, D. C.** (2003). [Connectionist modeling of language: Examples and implications](#). In M. T. Banich and M. Mack (Eds.), *Mind, brain, and language: Multidisciplinary perspectives* (pp. 143-167). Mahwah, NJ: Erlbaum.
- Rohde, D. L. T. and **Plaut, D. C.** (2003). [Less is less in language acquisition](#). In P. Quinlan (Ed.), *Connectionist modelling of cognitive development* (pp. 189-231). Hove, UK: Psychology Press.
- Rogers, T. T. and **Plaut, D. C.** (2002). [Connectionist perspectives on category-specific deficits](#). In E. Forde and G. W. Humphreys (Eds.), *Category-specificity in brain and mind* (pp. 251-289). New York: Psychology Press.
- **Plaut, D. C.** (2001). [A connectionist approach to word reading and acquired dyslexia: Extension to sequential processing](#). In M. H. Christiansen and N. Chater (Eds.), *Connectionist psycholinguistics* (pp. 244-278). Norwood, NJ: Ablex.
- **Plaut, D. C.** (2001). [Models of normal cognitive functions and neuropsychological deficits](#). In N. J. Smelser and P. B. Baltes (Eds.), *International Encyclopedia of the Social and Behavioral Sciences* (pp. 2114-2120). Oxford: Pergamon Press.
- **Plaut, D. C.** (2000). [Connectionist modeling](#). In A. E. Kazdin, (Ed.), *Encyclopedia of psychology*. Washington, DC: American Psychological Association.
- **Plaut, D. C.** (2000). [Methodologies for the computer modeling of human cognitive processes](#). In F. Boller, J. Grafman and G. Rizzotti (Eds.), *Handbook of neuropsychology*, 2nd Edition, Volume 1. New York: Elsevier.
- **Plaut, D. C.** (1999). [Computational modeling of word reading, acquired dyslexia, and remediation](#). In R. Klein and P. A. McMullen (Eds.), *Converging methods in reading and dyslexia* (pp. 339-372). Cambridge, MA: MIT Press.
- **Plaut, D. C.** (1999). [Connectionist modeling of relearning and generalization in acquired dyslexic patients](#). In J. Grafman and Y. Christen (Eds.), *Neuronal Plasticity: Building a bridge from the laboratory to the clinic* (pp. 157-168). New York: Springer-Verlag.
- **Plaut, D. C.** (1999). [Systematicity and specialization in semantics](#). In D. Heinke, G. W. Humphreys, and A. Olson (Eds.), *Connectionist models in cognitive neuroscience: Proceedings of the Fifth Annual Neural Computation and Psychology Workshop*. London: Springer-Verlag.
- **Plaut, D. C.** and Kello, C. T. (1999). [The emergence of phonology from the interplay of speech comprehension and production: A distributed connectionist approach](#). In B. MacWhinney (Ed.), *The emergence of language* (pp. 381-415). Mahwah, NJ: Erlbaum.
- Patterson, K., **Plaut, D. C.**, McClelland, J. L., Seidenberg, M. S., Behrmann, M. and Hodges, J. R. (1996). [Connections and disconnections: A connectionist account of surface dyslexia](#). In J. Reggia, R. Berndt and E. Ruppin (Eds.), *Neural modeling of cognitive and brain disorders*

- (pp. 177-199). New York: World Scientific.
- **Plaut, D. C.** (1996). [Connectionist modeling of the breakdown and recovery of reading via meaning](#). In J. Reggia, R. Berndt and E. Ruppin (Eds.), *Neural modeling of cognitive and brain disorders* (pp. 157-176). New York: World Scientific.
 - **Plaut, D. C.** (1995). [Lesioning attractor networks as models of neuropsychological deficits](#). In M. A. Arbib (Ed.), *The handbook of brain theory and neural networks* (pp. 540-543). Cambridge, MA: MIT Press.
 - **Plaut, D. C.**, McClelland, J. L., and Seidenberg, M. S. (1995). [Reading exception words and pseudowords: Are two routes really necessary?](#) In J. P. Levy, D. Bairaktaris, J. Bullinaria, and P. Cairns (Eds.), *Connectionist models of memory and language* (pp. 145-159). London: UCL Press.
 - **Plaut, D. C.** and Shallice, T. (1994). [Word reading in damaged connectionist networks: Computational and neuropsychological implications](#). In R. Mammone (Ed.), *Artificial neural networks for speech and vision* (pp. 294-323). London: Chapman and Hall.
 - Shallice, T. and **Plaut, D. C.** (1992). From connectionism to neuropsychological syndromes. In J. Alegria, D. Holender, J. Junca de Moraes, and M. Radeau (Eds.), *Analytic approaches to human cognition* (pp. 239-258). New York: Elsevier.

Abstracts, Commentaries and Reviews

- Gotts, S. J.. and **Plaut, D. C.** (2005). Positive and negative repetition priming through biased competition and synaptic plasticity [Abstract]. Annual meeting of the Society for Neuroscience.
- Gotts, S. J.. and **Plaut, D. C.** (2005). Neural mechanisms underlying positive and negative repetition priming [Abstract]. *Cognitive Neuroscience Society Annual Meeting Abstract Program* (supplement of the *Journal of Cognitive Neuroscience*).
- Gotts, S. J.. and **Plaut, D. C.** (2004). Neural mechanisms underlying positive and negative repetition priming. *Abstracts of the Psychonomic Society*, 9, 35. Proceedings of the 45th Annual Meeting, Minnesota, MN.
- **Plaut, D. C.** (2004). Models are not answers: Connectionist modeling as theoretical exploration. *Abstracts of the Psychonomic Society*, 9, 6. Proceedings of the 45th Annual Meeting, Minnesota, MN.
- Botvinick, M. and **Plaut, D. C.** (2003). [A recurrent neural network model of immediate serial recall](#). *Abstracts of the Psychonomic Society*, 8, 109. Proceedings of the 44th Annual Meeting, Vancouver, B.C., Canada.
- McClelland, J. L., **Plaut, D. C.**, Gotts, S. J., and Maia, T. V. (2003). [Developing a domain-general framework for cognition: What is the best approach?](#) [Commentary on J. R. Anderson and C. Lebiere, The Newell test for a theory of cognition.] *Behavioral and Brain Sciences*, 26, 611-614.
- Kello, C. T., and **Plaut, D. C.** (2002). [A connectionist approach to phonological development: Learning to map from articulation to acoustics](#)[Abstract]. International Speech Communication Association Workshop on Temporal Integration in the Perception of Speech, Aix-en-Provence, France.
- Rogers, T. T., Lambon Ralph, M. A., **Plaut, D. C.**, Hodges, J. R., and Patterson, K. (2002). [Domain differences in semantic dementia: Implications for theories of category-specific deficits](#) [Abstract]. British/Belgium Experimental Psychological Society Meeting.
- Gotts, S. J. and **Plaut, D. C.** (2001). [The impact of synaptic depression following brain damage: A connectionist account of "access/refractory" and "degraded-store" semantic impairments](#). [Abstract]. Neural Information Processing Systems Workshop on Computational Neuroscience, Whistler, B.C., Canada.
- McClelland, J. L., Vander Wyk, B., and **Plaut, D. C.** (2001). [Differential deficits in reading and](#)

- [inflecting words: Contrasting theoretical perspectives](#). *Abstracts of the Psychonomic Society*, 6. Proceedings of the 42th Annual Meeting, Orlando, FL.
- McClelland, J. L., Vander Wyk, B., and **Plaut, D. C.** (2001). A phonological basis for deficits in regular past tense inflection in dysfluent aphasia. Paper presented at the 2001 meeting of the Experimental Psychology Society, Manchester, England, UK.
 - **Plaut, D. C.** and Frost, R. (2001). [Does morphological structure in Hebrew reduce to surface structure?](#) *Abstracts of the Psychonomic Society*, 6. Proceedings of the 42th Annual Meeting, Orlando, FL.
 - Powell, D., **Plaut, D. C.**, and Funnell, E. (2001). [A developmental evaluation of the Plaut, McClelland, Seidenberg & Patterson \(1996\) connectionist model of single word reading](#). [Abstract]. Meeting of the British Psychological Society, Developmental and Education Sections, Worcester, U.K.
 - Powell, D., **Plaut, D. C.**, and Funnell, E. (2001). [Does the Plaut, McClelland, Seidenberg and Patterson \(1996\) connectionist model of single word reading learn to read in the same way as a child?](#) [Abstract]. Meeting of the British Experimental Psychology Society.
 - Botvinick, M., and **Plaut, D. C.** (2000). [Doing without schema hierarchies: A connectionist approach to routine sequential action and its pathologies](#) [Abstract]. *Cognitive Neuroscience Society Annual Meeting Abstract Program* (supplement of the *Journal of Cognitive Neuroscience*).
 - Gonnerman, L., and **Plaut, D. C.** (2000). [Semantic and morphological effects in masked priming](#) [Abstract]. *Cognitive Neuroscience Society Annual Meeting Abstract Program* (supplement of the *Journal of Cognitive Neuroscience*).
 - **Plaut, D. C.**, and McClelland, J. L. (2000). [Stipulating versus discovering representations](#) [Commentary on M. Page, Connectionist modeling in psychology: A localist manifesto]. *Behavioral and Brain Sciences*, 23, 489-491.
 - Gonnerman, L. M., Andersen, E. S., Seidenberg, M. S., and **Plaut, D. C.** (1999). Graded semantic and phonological effects in lexical processing: Implications for morphology. [Abstract 294]. *Abstracts of the Psychonomic Society*, 4, 44. Proceedings of the 40th Annual Meeting, Los Angeles, CA.
 - Kello, C. T., **Plaut, D. C.**, and MacWhinney, B. (1999). The task-dependence of staged versus cascaded processing in speech production. [Abstract 15]. *Abstracts of the Psychonomic Society*, 4, 3. Proceedings of the 40th Annual Meeting, Los Angeles, CA.
 - **Plaut, D. C.**, and Gonnerman, L. M. (1999). Are nonsemantic morphological effects incompatible with a distributed connectionist approach? [Abstract 360]. *Abstracts of the Psychonomic Society*, 4, 53. Proceedings of the 40th Annual Meeting, Los Angeles, CA.
 - Rohde, D. L. T., and **Plaut, D. C.** (1999). [Simple recurrent networks can distinguish non-occurring from ungrammatical sentences given appropriate task structure: Reply to Marcus](#). *Cognition*, 73, 297-300. [Commentary on Marcus, G. F. (1999). [Language acquisition in the absence of explicit negative evidence: Can simple recurrent networks obviate the need for domain-specific learning devices?](#) *Cognition*, 73, 293-296.]
 - Rohde, D. L. T., and **Plaut, D. C.** (1999). [A connectionist model of sentence comprehension and production](#) [Abstract]. Paper presented at the USC Sentence Production Conference, Los Angeles CA.
 - McClelland, J. L. and **Plaut, D. C.** (1999). [Does generalization in infant learning implicate abstract algebra-like rules?](#) *Trends in Cognitive Sciences*, 3, 166-168. [Commentary on G. F. Marcus, S. Vijayan, S. Bandi Rao, and P. M. Vishton. (1999). Rule learning by seven-month-old infants. *Science*, 283, 77-80.] (Marcus' reply)
 - **Plaut, D. C.**, and Gotts, S. (1999). [Integrating semantic information despite synaptic depression: A connectionist account of "access" and "degraded-store" semantic impairments](#) [Abstract]. *Cognitive Neuroscience Society Annual Meeting Abstract Program*, p. 51 (supplement of the *Journal of Cognitive Neuroscience*).

- Gotts, S., and **Plaut, D. C.** (1998). [A connectionist account of semantic impairments and the access/degraded-store distinction](#) [Abstract 92]. *Abstracts of the Psychonomic Society*, 3, 9. Proceedings of the 39th Annual Meeting, Dallas, TX.
- Kello, C. T., and **Plaut, D. C.** (1998). Modulation of lexical effects in word reading without strategic control of pathways: Evidence from tempo naming [[Abstract 73](#)]. *Abstracts of the Psychonomic Society*, 3, 7. Proceedings of the 39th Annual Meeting, Dallas, TX.
- **Plaut, D. C.**, and Booth, J. R. (1997). Modulation of associative priming effects by age and perceptual ability: Empirical findings and a computational model [[Abstract 383](#)]. *Abstracts of the Psychonomic Society*, 1, 39. Proceedings of the 38th Annual Meeting, Philadelphia, PA.
- McGuire, S., and **Plaut, D. C.** (1996). [Systematicity and specialization in semantics: A computational account of optic aphasia](#) [[Abstract 321](#)]. *Abstracts of the Psychonomic Society*, 2, 32. Proceedings of the 37th Annual Meeting, Washington, D.C.
- **Plaut, D. C.**, and Behrmann, M. (1996). [Spatial reference frames and hierarchical object representations: Evidence from drawing in hemispatial neglect](#) [[Abstract 259](#)]. *Abstracts of the Psychonomic Society*, 2, 26. Proceedings of the 37th Annual Meeting, Washington, D.C.
- Patterson, K., **Plaut, D. C.**, McClelland, J. L., Seidenberg, M. S., and Hodges, J. R. (1995, June). Connections and disconnections: A connectionist account of surface dyslexia [Abstract]. *Proceedings of the Workshop on Neural Modeling of Cognitive and Brain Disorders*. University of Maryland, College Park, MD.
- **Plaut, D. C.** (1995, June). Connectionist modeling of the breakdown and recovery of reading via meaning [[Abstract](#)]. *Proceedings of the Workshop on Neural Modeling of Cognitive and Brain Disorders*. University of Maryland, College Park, MD.
- **Plaut, D. C.** (1994). [Parallel distributed processing challenges the strong modularity hypothesis, not the locality assumption](#) [Commentary on M. J. Farah, Neuropsychological inference with an interactive brain: A critique of the "locality" assumption]. *Behavioral and Brain Sciences*, 17, 77-78.
- **Plaut, D. C.**, Behrmann, M., Patterson, K., and McClelland, J. L. (1993, November). [Impaired oral reading in surface dyslexia: Detailed comparison of a patient and a connectionist network](#) [Abstract]. *Proceedings of the 34th Annual Meeting of the Psychonomic Society* (p. 48). Washington, D.C.
- **Plaut, D. C.**, and Karmiloff-Smith, A. (1993). [Representational development and theory-of-mind computations](#) [Commentary on A. Gopnik, How we know our minds: The illusion of first-person knowledge of intentionality]. *Behavioral and Brain Sciences*, 16, 70-71.
- **Plaut, D. C.**, Seidenberg, M. S., McClelland, J. L., and McRae, K. (1993, November). Nonword pronunciation and models of word recognition [Abstract]. *Proceedings of the 34th Annual Meeting of the Psychonomic Society* (p. 48). Washington, D.C.
- **Plaut, D. C.** (1992). Rehabilitating reading for meaning: Experiments in relearning after damage in connectionist networks [Abstract]. *Journal of Clinical and Experimental Neuropsychology*, 14, 49.
- **Plaut, D. C.**, McClelland, J. L., and Seidenberg, M. S. (1992, November). Reading exception words and pseudowords: Are two routes really necessary? [Abstract]. *Proceedings of the 33rd Annual Meeting of the Psychonomic Society* (p. 2). St. Louis, MO.
- **Plaut, D. C.** (1989). [Neural networks and computational theory: Solving the right problem](#) [Commentary on G. W. Strong and B. A. Whitehead, A solution to the tag-assignment problem for neural networks]. *Behavioral and Brain Sciences*, 12(3), 411-412.

Technical Reports

- **Plaut, D. C.**, McClelland, J. L., Seidenberg, M. S., and Patterson, K. (1994). [Understanding normal and impaired word reading: Computational principles in quasi-regular domains](#) (Technical Report PDP.CNS.94.5). Pittsburgh, PA: Department of Psychology, Carnegie

Mellon University.

- **Plaut, D. C.**, and Shallice, T. (1992). [Perseverative and semantic influences on visual object naming errors in optic aphasia: A connectionist account](#) (Technical Report PDP.CNS.92.1). Pittsburgh, PA: Carnegie Mellon University, Department of Psychology.
- **Plaut, D. C.** (1991). [Connectionist neuropsychology: The breakdown and recovery of behavior in lesioned attractor networks](#) (Technical Report CMU-CS-91-185). PhD thesis, School of Computer Science, Carnegie Mellon University.
- **Plaut, D. C.**, and Shallice, T. (1991). Deep dyslexia: A case study of connectionist neuropsychology (Technical Report CRG-TR-91-3). Toronto, Ontario, Canada: University of Toronto, Department of Computer Science.
- **Plaut, D. C.**, Nowlan, S. J., and Hinton, G. E. (1986). [Experiments on learning by back propagation](#) (Technical Report CMU-CS-86-126). Pittsburgh, PA: Carnegie-Mellon University, Computer Science Department. (NOTE: figures are not included in pdf file but can be found [here](#))
- **Plaut, D. C.** (1984). Visual recognition of simple objects by a connection network (Technical Report TR-143). Rochester, NY: University of Rochester, Computer Science Department.

Invited Presentations

- 2008
 - Keynote Speaker, Cognitive Science Conference, Washington DC. (July)
 - Keynote Speaker, 11th Neural Computation and Psychology Workshop, Oxford, U.K. (June)
 - International Neuropsychology Symposium, Tenerife, Spain. (June)
- 2006
 - Colloquium, Medical College of Wisconsin, Milwaukee WI.
 - Festschrift for Tim Shallice, Institute for Cognitive Neuroscience, University College London.
- 2005
 - Three-day tutorial on connectionist modeling of language, Cognitive Science Program, Northwestern University.
 - Master Seminar on the Foundations of Cognitive Science, University of Arizona.
 - Colloquium, Cognitive Science Program, University of Arizona.
- 2004
 - Research Working Group on Cognitive Rehabilitation, Northeast Cognitive Rehabilitation Research Network (NCRRN), Philadelphia, PA.
- 2003
 - Workshop on morphological processing, Aix-en-Provence, France.
 - Keynote speaker, Clinical Aphasiology Conference, Orcas Island, WA.
 - Department of Cognitive and Linguistic Sciences, Brown University.
 - Department of Psychology, University of Montreal.
- 2002
 - Institute for Research in Cognitive Science, University of Pennsylvania.
 - Brain and Language Group, University of Pennsylvania.
 - Department of Psychological and Brain Sciences, Duke.
 - Department of Brain and Cognitive Sciences, MIT.
 - Keynote speaker, Workshop on "Language and Motor Integration: Neuroimaging and Computational Modelling", Edinburgh, UK.
 - MRC Cognitive and Brain Sciences Unit, Cambridge, UK.
 - Keynote speaker, Conference on "Architectures and Mechanisms for Language

- Processing" (AMLaP), Tenerife, Spain.
 - Keynote speaker, British Neuropsychological Society Spring Meeting, London, U.K.
 - Department of Communication Science and Disorders, University of Pittsburgh.
- 2001
- Center for Language and Speech Processing, Johns Hopkins University.
 - Symposium on "The Neural Basis Of Conceptual Knowledge: Insights from Cognitive Neuroscience," 3rd International Conference on Memory, Valencia, Spain.
 - Symposium on "Localist vs. Distributed Connectionist Modeling", British Experimental Psychology Society Meeting, Manchester, U.K.
 - Conference on "The Neurological Basis of Language," University of Groningen, The Netherlands.
 - Morphology workshop, Nijmegen, The Netherlands.
 - Department of Psychology, Hebrew University, Jerusalem, Israel.
 - Center for Neural Computation, Hebrew University, Jerusalem, Israel.
 - Department of Behavioral Sciences, Ben-Gurion University, Be'er Sheva, Israel.
 - Workshop on "Bilingualism and Brain Plasticity," Scuola Internazionale Superiore di Studi Avanzati (SISSA) [International School for Advanced Studies], Trieste, Italy.
 - Department of Computer Science and Applied Mathematics, Weizmann Institute of Science, Rehovot, Israel.
 - Department of Psychology, Bar-Ilan University, Tel Aviv, Israel
 - Institute of Information Processing and Decision Making, University of Haifa, Israel.
 - Workshop in "Computational/Mathematical Problems (and Solutions?) Arising from Neurophysiology," Rothschild Foundation, University of Haifa.
- 2000
- Department of Psychology, Hebrew University, Jerusalem, Israel.
 - Department of Psychology, University of Haifa, Israel.
 - Max Planck Institute for Psycholinguistics, Nijmegen, The Netherlands.
 - Department of Psychology, Tel Aviv University, Israel.
 - Department of Psychology, University of California at Riverside.
- 1999
- Workshop on "Cross-Linguistic Perspectives on Morphological Processing," Aix-en-Provence, France.
 - Department of Brain and Cognitive Sciences, MIT.
- 1998
- Department of Cognitive and Linguistic Sciences, Brown University.
 - Department of Psychology, Stanford University.
 - Keynote speaker, Fifth Workshop on "Neural Computation and Psychology," University of Birmingham.
 - Second Workshop on "Neural Models of Brain and Cognitive Disorders," University of Maryland, College Park.
 - Conference on "Mind, Brain, and Language," University of Illinois, Urbana-Champaign.
 - Department of Psychology, University of Chicago.
 - Symposium on "Principles of Computation in the Brain," Fifth Annual Meeting of the Cognitive Neuroscience Society.
- 1997
- Five College Cognitive Science Colloquium Series, University of Massachusetts, Amherst.
 - Department of Psychology, Yale University.
 - Department of Psychology, Indiana University of Pennsylvania, Indiana PA.
 - Workshop on "Neuroplasticity: From the Laboratory to the Clinic," Ipsen Foundation,

- Paris, France.
- Carnegie Symposium on "Emergentism in Language," Department of Psychology, Carnegie Mellon University, Pittsburgh, PA.
 - Workshop on "Language Comprehension," Department of Psychology, University of Michigan, Ann Arbor.
 - Workshop on Learning and Memory, CNBC/UCL Joint Meeting on Cognitive Neuroscience, London.
 - Department of Psychology, Carnegie Mellon University, Pittsburgh, PA.
 - Lake Ontario Visionary Establishment Meeting, Niagra Falls, Ontario, Canada.
- 1996
- McDonnell Foundation/NIH Workshop on "Towards a New Science of Cognitive Rehabilitation," St. Louis.
 - Department of Psychology, Washington University, St. Louis.
 - Symposium on "Connectionism and Psychology," International Congress of Psychology, Montreal, Canada.
 - Moss Rehabilitation Institute, Philadelphia, PA.
 - International Neuropsychological Symposium, Santorini, Greece.
 - Department of Brain and Cognitive Sciences, University of Rochester, Rochester, NY.
- 1995
- Annual Retreat, Center for the Neural Basis of Cognition, Pittsburgh, PA.
 - Third Sperlonga Meeting on "Cognitive Models of Speech Processing," Sperlonga, Italy.
 - Symposium on "Computational Approaches to Semantic Effects on Word Recognition," Meeting of the Canadian Brain Behaviour and Cognitive Science Society, Halifax, Canada.
 - Workshop on "Neural Modeling of Cognitive and Brain Disorders," University of Maryland, College Park.
 - School of Computer Science, Carnegie Mellon University, Pittsburgh, PA.
 - Symposium on "Connectionist Models in Cognitive Neuropsychology," Second Annual Meeting of the Cognitive Neuroscience Society.
 - McDonnell-Pew Cognitive Neuroscience Annual Meeting, Tuscon, AZ.
- 1994
- Conference on "Converging Methods in Reading and Dyslexia," Dalhousie University, Halifax, Canada.
- 1993
- Conference on "Basic and Applied Research in Cognitive Neuroscience," American Speech-Language-Hearing Association, Anaheim CA.
 - Symposium on "Cognitive Neuroscience," Fifteenth Annual Meeting of the Cognitive Science Society, Boulder, CO.
 - Fourth Connectionist Models Summer School, University of Colorado at Boulder.
 - Workshop on "Lexical Access Processes and their Disorders," International School for Advanced Studies, Trieste, Italy.
 - Workshop on "Modularity and the Brain," Institute for Advanced Studies, Hebrew University, Jerusalem.
 - Symposium on "Connectionist Modeling of Cognitive Disorders," TENNET Conference on Theoretical and Experimental Neuropsychology, Montreal, Canada.
 - Workshop on "Connectionism, Cognition and the New AI," Ninth Conference on Artificial Intelligence and Simulation of Behaviour, University of Birmingham.
 - Department of Psychology, University of Manchester, Manchester, England.
 - Department of Psychology, University of Sheffield, Sheffield, England.

- British Neuropsychological Society Meeting, London.
- 1992
- Workshop on "Neural Network Applications in Speech and Vision," Center for Computer Aids for Industrial Productivity, Rutgers University.
 - Symposium on "Computational Modeling and Neuropsychology," Twentieth Annual Meeting of the International Neuropsychology Society, San Diego CA.
- 1991
- Conference on "Deep Dyslexia: Twelve Years On," Birkbeck College, University of London.
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Editorial Activities

Grant Initial Review Groups (study sections):

- NIH: Biobehavioral and Behavioral Processes (BBBP-3: Language) (1999-2003)
- NIH: Cognition, Perception, and Language Fellowships (ZRG1 F12A) (2003-2005)
- NIH: Ad hoc Special Emphasis Panels (SEPs) (2003-present)

Associate Editor

- Cognitive Neuropsychology* (1998-2005)
- Journal of Memory and Language* (2005-2007)

Editorial Boards

- Cognition* (1996-2004)
- Cognitive, Affective, and Behavioral Neuroscience* (2000-present)
- Journal of Memory and Language* (2007-present)
- Language and Cognitive Processes* (1993-present)
- Language Learning and Development* (2003-present)
- Psychological Review* (2004-present)
- Psychonomic Bulletin & Review* (2002-2005)

Program Committees

- International Conference on Cognitive Modeling (2004)
- Cognitive Science Society Conference (2002-04)
- International Conference on Development and Learning (2002)
- Conference on Architectures and Mechanisms for Language Processing (2002)

Ad Hoc Research Grant Reviewing

- Gatsby Charitable Foundation
- International Human Frontier Science Program
- Medical Research Council of Canada
- National Science Foundation
- Natural Sciences and Engineering Research Council of Canada
- Wellcome Trust

Ad Hoc Journal Reviewing

- Aphasiology*, *Behavior Research Methods, Instruments, and Computers*, *Brain and Language*, *Cognitive, Affective, and Behavioral Neuroscience*, *Cognitive Brain Research*, *Cognitive Neuropsychology*, *Cognitive Psychology*, *Cognitive Science*, *Cognition*, *Connection Science*, *Journal of Clinical and Experimental Psychology*, *Journal of Experimental*

Psychology: General, Journal of Experimental Psychology: Human Perception and Psychophysics, Journal of Experimental Psychology: Learning, Memory, and Cognition, Journal of Memory and Language, Language and Cognitive Processes, Memory & Cognition, Neural Computation, Neural Networks, Neuropsychologia, Perception and Psychophysics, Psychological Bulletin, Psychological Review, Psychological Science, Psychonomic Bulletin & Review, Quarterly Journal of Experimental Psychology (Section A), Trends in Cognitive Sciences, Cognitive Science Society Conferences

Other Professional Activities

- 1996 • Delivered commencement address to graduates of the University of Rochester Cognitive Science Program, University of Rochester.
 - 1993 • Faculty Member, Fourth Connectionist Models Summer School, University of Colorado at Boulder.
• Faculty Member, Workshop on "Lexical Access Processes and their Disorders," International School for Advanced Studies, Trieste, Italy.
 - 1991 • Co-organized session on "Computational Modeling of Deep Dyslexia" with Prof. T. Shallice, Conference on Deep Dyslexia: Twelve Years On, Birkbeck College, University of London.
 - 1989 • Organized and chaired Symposium on "The Role of Attention in High-Level Vision: Cognitive Neuroscience Perspectives," Eleventh Annual Meeting of the Cognitive Science Society, University of Michigan.
 - 1988 • Participated in First James S. McDonnell Summer Institute in Cognitive Neuroscience, Harvard University.
 - 1987 • Delivered commencement address to graduates of the University of Rochester Cognitive Science Program, University of Rochester.
 - 1986 • Participated in First Connectionist Models Summer School, Carnegie Mellon University.
 - 1984 • Presented the status of the Undergraduate Cognitive Science Program to the University of Rochester Board of Trustees, University of Rochester, 1984.
 - 1983-84 • Member, Committee on the Formation of an Undergraduate Degree in Cognitive Science, University of Rochester.
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Teaching

- 1994- *Introduction to Parallel Distributed Processing*, Department of Psychology, Carnegie Mellon University. Upper-level undergraduate and graduate course.
- 2001 *Foundations of Connectionist Modeling of Cognition*. Department of Psychology, Hebrew University, Jerusalem. Graduate seminar.

- 1997 *The Mind, the Brain, and the Computer*. Department of Psychology, Carnegie Mellon University. Freshman seminar.
- 1995 *Introduction to Cognitive Neuroscience*, Department of Psychology, Carnegie Mellon University. Mid-level undergraduate course.
- 1994 *An Examination of the Relevance of Connectionist Models to Cognitive Neuropsychology* (with Dr. J. McClelland), Department of Psychology, Carnegie Mellon University. Upper-level undergraduate and graduate seminar.
- 1991- Guest lecturer, Departments of Psychology and Computer Science, Carnegie Mellon University.

Advising

Ph.D. Students	<u>Field</u>	<u>Completion</u>	<u>Dissertation Title</u>
Matt Botvinick	Psychology	Aug 2001	<i>The Regulation of Control: Two Computational Studies</i>
Doug Rohde	Computer Science	Feb 2002	<i>A Connectionist Model of Sentence Comprehension and Production</i>
Steve Gotts	Psychology	Aug 2002	<i>Mechanisms Underlying Enhanced Processing Efficiency in Neural Systems</i>
Jennifer Brace	Psychology	exp. May 2008	
Christine Watson	Psychology	exp. May 2009	
Blair Armstrong	Psychology	exp. May 2011	
Post-Doctoral Research Fellows		<u>Dates</u>	<u>Current Position</u>
Chris Kello		1996-98	Assistant Professor, George Masson University
Laura Gonnerman		1999-01	Assistant Professor, McGill University (Sept. 02)
Mike Harm		1999-02	Research Scientist, Stanford Medical School (Sept. 02)
Mark Orr		2002-04	Postdoc, Department of Neuroscience, Albert Einstein College of Medicine
Daisy Powell		2002-04	Research Scientist, Institute of Education, University of London

David Plaut

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