

Personal Information

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Contact Address: Donders Institute for Brain Cognition and Behaviour, P.O. Box 9101,
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Education / Work experience

April 2011 – present Senior researcher Donders Institute for Brain, Cognition and Behaviour,
Nijmegen, The Netherlands

April 2009 – April 2011

Post-Doctoral researcher in Prof. D'Esposito's lab at Helen Wills Neuroscience Institute /
Department of Psychology, University of California Berkeley, USA, funded by Dutch Science
Foundation (NWO) Rubicon grant and the Niels Stensen Foundation

Sept 2007 - April 2009

Post-Doctoral researcher at Donders Institute for Brain, Cognition and Behaviour, Nijmegen, The
Netherlands in project *Neural basis of human communication*, funded by European Union, with
Dr. Toni

Sept 2003 – Sept 2007

PhD studentship (*cum laude*) at F. C. Donders Centre for Cognitive Neuroimaging, Nijmegen,
The Netherlands in project *The neurophysiology of communication: The integration of gesture
and speech*, funded by Dutch Science Foundation (NWO), with Prof. Hagoort and Dr. Özyürek

Sept 1998 – Sept 2003

Psychology with Specialisation in Biological Developmental Psychology, Maastricht University,
The Netherlands with Master's thesis *Neuronal correlates of visibility in early visual areas: A case
study in fMRI* under supervision of Dr. Schwarzbach and Prof. Goebel

Sept 2001 – Febr 2002

Exchange program with Psychology department, Loughborough University, UK, European Union
funded *Erasmus* program

Sept 2000 – Sept 2001

Cultural Sciences, Maastricht University, The Netherlands

Publications

Willems, R. M., Labruna, L., D'Esposito, M., Ivry, R. & Casasanto, D. (2011). A functional role for the motor system in language understanding: Evidence from theta burst TMS *Psychological Science*, 22(7), 849-854

Willems, R. M. & Casasanto, D. (2011). Flexibility in embodied language understanding. *Frontiers in Psychology*, 2, 116

Willems, R. M., Benn, Y., Hagoort, P., Toni, I. & Varley, R. A. (2011). Communicating without a functioning language system: Implications for the role of language in mentalizing. *Neuropsychologia*, 49(11), 3130-3135

Willems, R. M. (2011). Re-appreciating the 'why' of cognition: 35 years after Marr and Poggio. *Frontiers in Psychology*, 2, 224

Ebisch, S. J., Gallese, V., **Willems, R. M.**, Mantini, D., Groen, W. B., Romani, G. L., Buitelaar, J. K., & Bekkering H. (2011). Altered intrinsic functional connectivity of anterior and posterior insular regions in high-functioning participants with autism spectrum disorder. *Human Brain Mapping*, 32(7), 1013-1028

Willems, R.M., Clevis, K. & Hagoort, P. (2011). Add a picture for suspense: Neural correlates of the interaction between language and visual information in the perception of fear. *Social, Cognitive and Affective Neuroscience*, 6(4), 404-416

Willems, R. M., & Varley, R. A. (2010). Neural insights into the relation between language and communication. *Frontiers in Human Neuroscience*, 4, 203

Willems, R. M., Peelen, M. V. & Hagoort, P. (2010). Cerebral lateralization of face-selective and body-selective visual areas depends on handedness. *Cerebral Cortex*, 20(7), 1719-1725

Willems, R. M., Toni, I., Hagoort, P. & Casasanto, D. (2010). Neural dissociations between action verb understanding and motor imagery. *Journal of Cognitive Neuroscience*, 22(10), 2387-2400

Willems, R. M., De Boer, M., De Ruiter, J.P., Noordzij, M. L, Hagoort, P. & Toni, I. (2010). A cerebral dissociation between linguistic and communicative abilities in humans. *Psychological Science*, 21(1), 8-14

Willems, R. M., Hagoort, P. & Casasanto, D. (2010). Body-specific representations of action verbs: Neural evidence from right- and left-handers. *Psychological Science*, 21(1), 67-74

Rueschemeyer, S.-A., van Rooij, D., Lindemann, O., **Willems, R. M.**, & Bekkering, H. (2010). The function of words: Distinct neural correlates for words denoting differently manipulable objects. *Journal of Cognitive Neuroscience*, 22(8), 1844-1851

Willems, R. M., & Hagoort, P. (2010). Cortical motor contributions to language understanding. In Hermer-Vazquez (Ed.) *Reciprocal interactions among early sensory and motor areas and higher cognitive networks*, Research Signpost Press

Willems, R. M., Toni, I., Hagoort, P. & Casasanto, D. (2009). Body-specific motor imagery of hand actions: Neural evidence from right- and left-handers. *Frontiers in Human Neuroscience*, 3, 39

Hagoort, P., Baggio, G., & **Willems, R. M.** (2009). Semantic unification. In Gazzaniga (Ed.) *The cognitive neurosciences IV*, Cambridge, MA: MIT press

Willems, R. M., Özyürek, A., & Hagoort, P. (2009). Differential roles for pSTS and LIFG in neural integration of action and language information. *Neuroimage*, 47, 1992-2004

Willems, R. M., & Hagoort, P. (2009). Hand preference influences neural correlates of action observation. *Brain Research*, 1269, 90-104

de Lange F. P., Spronk M., **Willems R. M.**, Toni I., & Bekkering H. (2008). Complementary systems for understanding action intentions. *Current Biology*, 18(6), 454-457

Willems, R. M., Özyürek, A., & Hagoort, P. (2008). Similar neural correlates for the integration of words and pictures at the sentence level: Evidence from ERPs and fMRI. *Journal of Cognitive Neuroscience*, 20(7), 1235-1249

Willems, R. M., Oostenveld, R., & Hagoort, P. (2008). Early decreases in alpha and gamma band power distinguish linguistic from visual information during spoken sentence comprehension. *Brain Research*, 1219, 78-90

Willems, R. M., Özyürek, A., & Hagoort, P. (2007). When language meets action: The neural integration of gesture and speech. *Cerebral Cortex*, 17(10), 2322-2333

Özyürek, A., **Willems, R. M.**, Kita, S., & Hagoort, P. (2007). On-line integration of semantic information from speech and gesture: Insights from event-related brain potentials. *Journal of Cognitive Neuroscience* 19(4), 605-616

Willems, R. M., & Hagoort, P. (2007). Neural evidence for the interplay between language, gesture and action: A review. *Brain and Language*, 101(3), 278-298

Willems, R. M. (2007). The neural construction of a Tinkertoy. *Journal of Neuroscience* 27(7), 1509-1510 [*'Journal club' review*]

Talks

Willems, R. M. (2011). How is language embodied? *Embodied Language symposium, New College, Oxford University, UK*

Willems, R. M. (2011). Embodied language understanding as a three pipe problem. *Linguistics Department, New York University, USA*

Willems, R. M. (2011). Brain & Language. *Graduate school for the Neurosciences, Amsterdam and Rotterdam, Netherlands Institute for Neuroscience, Amsterdam, The Netherlands*

Willems, R. M., Labruna, L., D'Esposito, M., Ivry, R. & Casasanto, D. (2010). A functional role for the motor system in language understanding. *Annual meeting of Society for Neuroscience (SfN), San Diego, USA*

Willems, R. M. (2010). Embodied language? *Department of Psychology Colloquium, UC Davis, USA*

Willems, R.M. (2010). Embodied language understanding. *Caramazza lab Colloquium, Harvard University, Cambridge, MA, USA*

Willems, R. M. (2010). A role for the motor system in action language understanding. But what role? *Joint meeting of embodied and situated language processing workshop (ESLP) and Conceptual, structure discourse and language conference (CSDL), UC San Diego, USA*

Willems, R. M. (2010). Individual differences in fMRI: The end of group analyses? *Neuroimaging Seminar Series, UC Berkeley, USA*

Willems, R. M. (2009). Embodied language understanding. *Ivry lab group meeting, UC Berkeley, USA*

Willems, R.M. (2008). Modulatory and integrative roles for left IFG in integrating language and action information. *Neurocog conference, Gent University, Gent, Belgium*

Willems, R. M. (2008). Simulation in the brain: An empirical perspective. *Workshop 'Low-level simulation', Philosophy Department, Radboud University Nijmegen, The Netherlands*

Willems, R. M. (2008). Integrating meaning from language and action. *Seminar Institute for Cognitive Neuroscience, University College London, UK*

Willems, R. M. & Bekkering, H. (2008). What and when do we simulate? *Workshop The simulating brain, Radboud University Nijmegen, The Netherlands*

Willems, R. M. (2008). Meaning in language and action. *Lab talk D'Esposito lab, UC Berkeley, USA*

Noordzij, M. L. & **Willems, R. M.** (2008). Brain mechanisms underlying human communication. *External Review meeting Joint Action Science and Technology project, Nijmegen, The Netherlands*

Willems, R. M. (2008). Meaning in language, action and vision: Neural perspective on multimodal integration during language comprehension. *External evaluation of MPI Nijmegen, The Netherlands*

Willems, R. M. (2007). Embodied action understanding in the motor system: Evidence from left- and right-handers. *Eleventh Winter Conference of the Dutch Society for Psychonomics (NVP), Egmond aan Zee, The Netherlands*

Özyürek, A. & **Willems, R. M.** (2006). Neural correlates of speech and gesture comprehension: Insights from ERPs and fMRI. Workshop *Neurocognition of Gesture Processing*, Max Planck Institute for Human Cognitive and Brain Sciences Leipzig, Germany

Willems, R. M. (2006). When language meets action: Neural correlates of speech and gesture comprehension. Workshop *Embodied Communication in Humans and Machines*, Centre for Interdisciplinary Research (ZiF) Bielefeld, Germany

Willems, R. M. (2006). Detection power and estimation efficiency in fMRI design. *Advanced Toolkit of Cognitive Neuroscience: fMRI Data Analysis*, F. C. Donders Centre for Cognitive Neuroimaging, Nijmegen, The Netherlands

Willems, R. M. (2006). Semantic information from pictures and words in a sentence context: Combined evidence from ERPs and fMRI. *Fifth Dutch Endo Neuro Psycho (ENP) Meeting*, Doorwerth, The Netherlands

Willems, R. M. (2006). Neural integration of linguistic and action information in language comprehension. *Fifth Dutch Endo Neuro Psycho (ENP) Meeting*, Doorwerth, The Netherlands

Willems, R. M. (2005). Neural integration of semantic information from actions, verbs and pictures in inferior frontal cortex. *Tenth Winter Conference of the Dutch Society for Psychonomics (NVP)*, Egmond aan Zee, The Netherlands

Grants / Prizes

The Netherlands Organisation for Scientific Research (NWO) *Rubicon* grant for post-doctoral research abroad, December 2008

Fellowship *Summer Institute in Cognitive Neuroscience*, June 2009, SAGE Institute, University of California Santa Barbara, USA

Niels Stensen foundation grant for post-doctoral research, November 2008

Symposium grant *The simulating brain* (with Toni, Bekkering, De Lange), March 2008, Nijmegen, The Netherlands, by The Netherlands Organisation for Scientific Research (NWO)

Fellowship grant workshop *Conceptual Neuroscience*, April 2007, Wageningen, The Netherlands, by Para Limes Institute

Travel grant PENS winterschool 2006 *Brain Basis of Social Interaction, from Concepts to Imaging*, December 2006, Kitzbuehl, Austria, by Program of European Neuroscience Schools (PENS) and Hertie Foundation

Travel grant Neurotrain summerschool 2006 *Advanced Technologies in Brain Functions and Dysfunctions*, July 2006, Vienna, Austria, by Federation of European Neuroscience Societies (FENS) and European Commission

Travel grant workshop *Phylogeny and Ontogeny of Human Communication*, June 2005, Ferrara, Italy, by European Science Foundation Eurocores Program

Dutch Science Foundation (NWO) Cognition program poster prize, Den Haag, December 2004

Other / academic service

Discussant *Relations in Relativity* workshop, Max Planck Institute for Psycholinguistics, Nijmegen, 2012

Member Grant committee TopTalent grants, Radboud University Nijmegen, 2012

Masterclass Brain Awareness Week, Almende College Silvolde, 2012

Guest lecture Stedelijk Gymnasium Nijmegen, 2012

Panel member Symposium on *Free Will and the Neurosciences*, Student association Cultural Sciences, Open University, Nijmegen, The Netherlands, 2011

Course Coordinator *Neurobiology and Evolution of Language*, MSc program Cognitive Neuroscience, Radboud University Nijmegen, The Netherlands, 2011

Expert Interviewee *EU report Neurodevices*, Rathenau Institute, Den Haag, The Netherlands, 2011

Committee Member *Data Archiving and Scientific Integrity*, Donders Institute, Nijmegen, 2011

Committee member *Data Archiving and Lab Protocols taskforce*, Max Planck Institute for Psycholinguistics, Nijmegen, 2011

Member *Employee Council* Donders Centre for Cognitive Neuroimaging, Nijmegen, 2011

Guest speaker *Onderzoek doen*, Orion College (high school), Breda, The Netherlands, 2008

Co-organiser symposium *The simulating brain*, Nijmegen, The Netherlands, 2008

Panel member *Philosophy of Science*, St. Ludger College (high school) Doetinchem, The Netherlands, 2007

Organizer symposium *New insights into neural simulation at Eighth Dutch Endo Neuro Psycho (ENP) Meeting*, Doorwerth, The Netherlands, 2008

Organizer symposium *Links between language and action: A multi-disciplinary approach at Fifth Dutch Endo Neuro Psycho (ENP) Meeting*, Doorwerth, The Netherlands, 2005

Speaker *The Neurosciences and Consciousness*, Natural Sciences Faculty, Utrecht University, The Netherlands, 2005

Ad hoc reviewer

Brain and Language, Brain, Brain and Cognition, Brain Research, Cerebral Cortex, Cognition, Cortex, Developmental Science, Experimental Brain Research, Frontiers in Neuroscience, Gesture, Human Brain Mapping, Journal of Cognitive Neuroscience, Journal of Experimental Psychology, Journal of Neuroscience, Language and Cognition, Neuroimage, Neuropsychologia, PLoS ONE

In the media

Pavlov (NTR, national TV science program), on dyslexia (2012)

'De kettlingvraag', HoeZo NTR radio (2012)

Pavlov (NTR, national TV science program), on music and the brain (2012)

'Meten met een badmuts vol gaatjes', Dagblad Trouw on Brain Awareness Week masterclass (2012)

Quest Psychologie (science magazine): Left-handedness (2011)

Het Belang van Limburg (Belgian newspaper): Left-handedness (2011)

Evers staat op (Radio show) on left-handedness (2010)

The Observer: Embodied meaning (2010)

De Volkskrant (national newspaper): Taal en gebaar zijn goede vrienden (2009) [on gesture]

De Pers, de Volkskrant, NRC, de Gelderlander, de Standaard (national newspapers):

'Linkshandigen hebben echt andere hersenen' (2009) [on left-handedness]

Scientific American (science magazine): Language and gestures (2007)

Teleac 'De Kettingvraag' (Radio show) (2007)