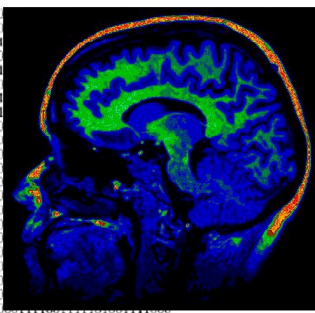


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ASSOCIATION VASCO SANZ

VASCO SANZ FUND PRIZE

novembre 2011

LE PROJET PRIMÉ

Le Lauréat : **Michiel Van Elk**, 31 ans

Formation : psychologie biologique [culture et religion], philosophie

Travaux commencés durant son doctorat à l'Université de Nijmegen, Pays-Bas (2006-2010) et se poursuivant depuis 2010 au laboratoire des neurosciences cognitives (EPFL) sous la direction de O. Blanke (HUG).

Sujet d'étude : **Comment la cognition se manifeste-t-elle dans notre corps ?**

Méthodologie : étude de patients avec déficits moteurs et cognitifs, et sujets sains, par neuroimagerie, neurophysiologie et neuropsychologie comportementale informatisée.

Travail commencé il y a plusieurs années et se poursuivant actuellement, établissant les liens entre la cognition et l'anatomo-physiologie du cerveau, par une approche pluridisciplinaire impliquant la puissance de traitement de données de l'informatique.

Le choix du Conseil scientifique s'est porté sur **Michiel VAN ELK** qui a apprécié l'approche multidisciplinaire de ce candidat. Ses travaux déjà publiés concernent ses travaux réalisés aux Pays-Bas, mais plusieurs publications sont en cours avec O. Blanke, son mentor actuel en Suisse depuis 2010. Il est actuellement en plein développement de son travail post-doc et a publié souvent en premier auteur, ce qui montre son implication centrale dans les études auxquelles il participe.

Son travail s'inscrit donc parfaitement dans le but de l'association qui est de primer « ...un travail de recherche (théorique ou appliqué) ayant trait à la connaissance du cerveau, en particulier celle que permet l'outil informatique".

Résumé

Michiel van Elk a étudié le cerveau humain chez les adultes et les enfants, en utilisant des techniques de neuro-imageries, comme l'IRMf et l'EEG. Le thème central de ses recherches est la notion de «cognition corporelle»: notre corps détermine la façon dont nous percevons et interagissons avec le monde environnant. Par exemple, il a montré que le cerveau d'un bébé ne réagit pas de la même façon si on observe une action dont il a déjà l'habitude (ramper, par exemple) par rapport à une action nouvelle (marcher). Depuis 2010, il travaille à l'École Polytechnique Fédérale de Lausanne avec le professeur Olaf Blanke pour comprendre comment le cerveau se représente le corps humain et comment les outils et prothèses peuvent devenir une extension du corps humain.

Allocution du Dr Michiel Van Elk, lors de la remise du VASCO SANZ FUND AWARD 2011.

7 novembre 2011

Chère famille Sanz, chers chercheurs, chers participants,

C'est avec grand plaisir et honneur que j'ai pris connaissance de l'attribution du Prix Vasco Sanz. Pour moi, ce prix signifie une grande reconnaissance des réalisations scientifiques que j'ai réalisée avec mes collègues aux Pays-Bas et en Suisse.

Le cerveau est un sujet de recherche fascinant qui nous confronte à des questions fondamentales sur la façon dont nous nous percevons nous-mêmes ainsi que les autres. Le fait de reconnaître que « je suis comme vous » et « vous êtes comme moi » est fondamental pour une compréhension mutuelle et le point de départ de la coopération sociale. Dans mes recherches, j'ai toujours utilisé une perspective multidisciplinaire pour aborder ces questions. En commençant par observer les enfants dès le plus jeune stade de développement, nous avons montré comment l'expérience de l'enfant détermine la façon dont il perçoit le monde. Par exemple, les zones dans le cerveau du bébé qui sont impliquées dans le contrôle des mouvements, répondent différemment lorsque l'on observe une action à laquelle le bébé a beaucoup d'expérience (ramper, par exemple) par rapport aux actions relativement nouvelles (marcher). Chez les adultes, nous nous sommes penché sur la question de savoir comment le cerveau nous permet d'interagir avec succès avec le monde environnant. Dans la vie quotidienne, nous utilisons de nombreux objets complexes qui nécessitent des transformations sensori-motrices et des connaissances sémantiques sur la façon dont l'objet doit être utilisé. Nous préparons un dîner, faisons un café, dégustons un bon verre de vin, sans penser aux processus complexes impliqués. Cependant, les patients avec une apraxie ou hémiplégié sont sévèrement limités dans la manière dont ils interagissent avec le monde. Dans ma recherche, j'ai essayé d'identifier les mécanismes neuronaux sous-jacents à ces déficits.

Avec l'aide d'une bourse de recherche européenne, il m'a été possible de poursuivre mes recherches à l'EPFL dans le laboratoire du professeur Olaf Blanke. Nous nous concentrons ici sur les questions relatives au corps humain et les mécanismes neuronaux impliqués dans la conscience des mouvements corporels. Cette recherche fondamentale trouve de plus en plus d'applications dans des situations réelles et elle sert à améliorer progressivement la vie de nombreuses personnes. Par exemple, dans un avenir proche, nous prévoyons de travailler sur l'utilisation de neuroprothèses pour les amputés des membres supérieurs et l'utilisation de la robotique pour la récupération de patients victimes d'AVC. La Suisse offre à bien des égards un environnement de recherche unique, avec des techniques de pointe, d'excellents chercheurs et un esprit ouvert à de nouvelles questions – tout cela dans un très beau pays. Je suis reconnaissant pour les nombreuses occasions uniques qui m'ont été offertes en tant que chercheur. Dans l'avenir proche, j'espère pouvoir continuer mes recherches ici pour apporter une contribution précieuse au monde universitaire suisse ainsi qu'à la société.

La recherche que j'ai menée n'aurait pas été possible sans la contribution de nombreux amis et collègues du monde entier. Je tiens à remercier tout particulièrement mes superviseurs aux Pays-Bas et à Lausanne, qui m'ont donné leur confiance pour travailler de façon autonome et de poursuivre mes propres idées. Je suis reconnaissant à mes parents pour leur soutien et à mon épouse et mes enfants, pour leur amour et leur patience. Je voudrais aussi profiter de cette occasion pour offrir mes remerciements particuliers à la famille Sanz, qui a initié la fondation en commémoration de leur fils. Espérons que, avec ce prix, la précieuse mémoire de leur fils vivra pendant de nombreuses générations de chercheurs à venir. Je remercierai cette récompense généreuse dans les publications à venir.

Pour l'instant, je voudrais conclure avec les paroles célèbres du chercheur neuroscientifique Penfield, qui a dit que: **«Le cerveau est l'organe du destin. Il détient au sein de son mécanisme secret, le bourdonnement qui va déterminer l'avenir de la race humaine.»** Puisse le Vasco Sanz Fondation réaliser ce rêve.

Michiel VAN ELK

RESEARCH TOPIC:(summary)

Introduction

The central theme of my research concerns the question how the body shapes cognition. For instance: how does our body determine the way in which we perceive the world? How are higher-order cognitive processes, such as language comprehension or social cognition related to our own bodily capabilities? I have approached these questions from a multidisciplinary perspective, including developmental, behavioral, neuroimaging and computational methods in infants, clinical populations and healthy volunteers. The main findings of these studies highlight two fundamental principles underlying human cognition: First, according to the 'embodied view of cognition', knowledge is represented in sensorimotor areas of the human brain [1], second according to the 'selection-for-action principle' cognition is used and selected for action [2, 3].

Embodied Cognition

The so-called 'embodied view of cognition' suggests that human cognition is grounded in concrete bodily sensorimotor experiences. Behavioral evidence for this notion is provided by language studies, showing that the reading of words, referring to for instance body parts, results in spatial congruency effects [4, 5]. Furthermore, we found that vestibular information regarding one's own body can disambiguate bistable perception: subjects perceived a bistable avatar relatively longer as rotating in the direction that was congruent to their own body rotation [6]. In addition, it was shown that the observation of pictures representing everyday objects primes the relevant behavioral responses for actually using these objects [7, 8]. Similarly, at a neural level it has been confirmed that the reading of action verbs results in the activation of motor-related brain areas [9] and that conceptual knowledge about the use of objects is stored in motor-related brain regions [8, 10]. Finally, developmental studies have provided evidence for experience-dependent motor activation when infants were observing familiar actions [11, 12] or when hearing the sound of an object that they previously learned to manipulate [13].

Together these studies suggest strong bidirectional associations between cognitive and bodily processes. The functional and clinical significance of these findings is that sub-threshold motor activation allows predicting and anticipating both one's own actions as well as other's actions [14]. For instance, predictive motor resonance in infants [11] helps children to coordinate their own actions with another person in a joint action setting [15].

Furthermore it was found that children with hemiparetic cerebral palsy often have difficulties anticipating the consequences of their own actions, due to a disturbed motor imagery process [16, 17]. As a consequence, motor imagery training has been proposed as a clinical tool to improve the performance of these patients in daily life tasks [18].

Selection-for-Action

According to the 'selection-for-action' principle, one's intention to act determines the way in which one perceives the world [2]. In a recent study we provided neurophysiological evidence for this principle, by showing that early visual evoked potentials were modulated according to whether subjects prepared to grasp or to point towards a target object [19]. Furthermore, we found that the action planning difficulties of participants with hemiparetic cerebral palsy may be specifically related to deficits in selecting relevant visual information [20]. In other studies we showed that the 'selection-for-action' principle can be extended to the selection of semantics as well [4, 21, 22]: when using objects or when reading words we only activate those features that are relevant to the task at hand and prefrontal brain areas likely play an important role in selecting this relevant information. The 'selection-for-action' principle is closely related to the hierarchical view of the motor system, according to which higher-level intentions determine the selection of lower level motor features [23]. In several behavioral and neuroimaging studies we have provided support for the hierarchical view, by showing that action goals play a dominant role in the planning of objectdirected actions [24-26]. Furthermore, we found evidence for the notion that conceptual knowledge about objects is organized hierarchically as well, around the end-goals associated with using objects [8, 10, 27, 28]. Besides the clinical relevance of these findings for patients characterized by ideomotor or ideational apraxia [29], these findings have been implemented in computational models of action control and in robotics, by taking into account the importance of action goals for action planning in an imitative or joint action context [30-32].

Conclusions

In sum, the research that I conducted shows that cognition is intimately linked to the body: our body and our bodily experiences determine the way in which we perceive the world. Vice versa: many cognitive processes are grounded in bodily experiences. These findings have important implications for our thinking about the relation between the brain and the body and how this is implemented in clinical practice and theoretical approaches to modelling the brain

References

1. Gallagher S (2005) How the body shapes the mind. Oxford: Oxford University Press.
 2. Allport A (1987) Selection for action: some behavioral and neurophysiological considerations of attention and action. In: Heuer H, Sanders AF, editors. Perspectives on Perception and Action. Hillsdale, NJ, England: Lawrence Erlbaum Associates. pp. 395-419.
 3. Wheeler M (2005) Reconstructing the Cognitive World: the Next Step. Cambridge: MIT Press.
 4. van Elk M, Blanke O (2011) The relation between body semantics and spatial body representations. *Acta Psychol (Amst)*.
 5. van Elk M, van Schie HT, Bekkering H (2010) From left to right: processing acronyms referring to names of political parties activates spatial associations. *Q J Exp Psychol (Colchester)* 63: 2202-2219.
 6. van Elk M, Blanke O (in preparation) Full body rotation modulates bistable perception.
 7. van Elk M, Blanke O (2011) Manipulable objects facilitate cross-modal integration in peripersonal space. *PLoS One* 6: e24641.
 8. van Elk M, van Schie HT, Bekkering H (2009) Action semantic knowledge about objects is supported by functional motor activation. *J Exp Psychol Hum Percept Perform* 35: 1118-1128.
 9. Stapel JC, Hunnius S, van Elk M, Bekkering H (2010) Motor activation during observation of unusual versus ordinary actions in infancy. *Soc Neurosci* 5: 451-460.
 10. van Elk M, van Schie HT, van den Heuvel R, Bekkering H (2010) Semantics in the motor system: motor-cortical Beta oscillations reflect semantic knowledge of end-postures for object use. *Front Hum Neurosci* 4: 8.
 11. van Elk M, van Schie HT, Hunnius S, Vesper C, Bekkering H (2008) You'll never crawl alone: neurophysiological evidence for experience-dependent motor resonance in infancy. *Neuroimage* 43: 808-814.
 12. Paulus M, Hunnius S, van Elk M, Bekkering H (2011) How learning to shake a rattle affects 8-month-old infants' perception of the rattle's sound: Electrophysiological evidence for action-effect binding in infancy. *Developmental Cognitive Neuroscience*.
 13. Kilner JM, Friston KJ, Frith CD (2007) Predictive coding: an account of the mirror neuron system. *Cogn Process* 8: 159-166.
 14. Meyer M, Hunnius S, van Elk M, van Ede F, Bekkering H (2011) Joint action modulates motor system involvement during action observation in 3-year-olds. *Exp Brain Res* 211: 581-592.
 15. Craje C, van Elk M, Beeren M, van Schie HT, Bekkering H, et al. (2010) Compromised motor planning and Motor Imagery in right Hemiparetic Cerebral Palsy. *Res Dev Disabil* 31: 1313-1322.
 16. van Elk M, Craje C, Beeren ME, Steenbergen B, van Schie HT, et al. (2010) Neural evidence for compromised motor imagery in right hemiparetic cerebral palsy. *Front Neurol* 1: 150.
 17. Steenbergen B, Craje C, Nilsen DM, Gordon AM (2009) Motor imagery training in hemiplegic cerebral palsy: a potentially useful therapeutic tool for rehabilitation. *Dev Med Child Neurol* 51: 690-696.
 18. van Elk M, van Schie HT, Zwaan RA, Bekkering H (2010) The functional role of motor activation in language processing: motor cortical oscillations support lexical-semantic retrieval. *Neuroimage* 50: 665-677.
 19. van Elk M, Craje C, Beeren ME, Steenbergen B, van Schie HT, et al. (2010) Neural evidence for impaired action selection in right hemiparetic cerebral palsy. *Brain Res* 1349: 56-67.
 20. van Elk M, van Schie HT, Bekkering H (2009) Short-term action intentions overrule long-term semantic knowledge. *Cognition* 111: 72-83.
 21. van Elk M, van Schie HT, Bekkering H (2008) Semantics in action: an electrophysiological study on the use of semantic knowledge for action. *J Physiol Paris* 102: 95-100.
 22. Grafton ST, Hamilton AF (2007) Evidence for a distributed hierarchy of action representation in the brain. *Hum Mov Sci* 26: 590-616.
 23. van Elk M, Paulus M, Pfeiffer C, van Schie HT, Bekkering H (2011) Learning to use novel objects: A training study on the acquisition of novel action representations. *Conscious Cogn*.
 24. van Elk M, van Schie HT, Bekkering H (in preparation) What makes a goal a goal? Dominance of goals over grips reflect the importance of spatial features in action planning.
 25. van Elk M, Viswanathan S, van Schie HT, Bekkering H, Grafton ST (submitted) Pouring or chilling a bottle of wine: An fMRI study on the prospective planning of object-directed actions.
 26. van Elk M, Bousardt R, van Schie HT, Bekkering H (submitted) Processing object- and grip-related information during action observation: an ERP study.
 27. van Elk M, van Schie HT, Bekkering H (2008) Conceptual knowledge for understanding other's actions is organized primarily around action goals. *Exp Brain Res* 189: 99-107.
 28. Schwartz MF (2006) The cognitive neuropsychology of everyday action and planning. *Cogn Neuropsychol* 23: 202-221.
 29. Bekkering H, de Bruijn ER, Cuijpers RH, Newman-Norlund RD, van Schie HT, et al. (2009) Joint Action: Neurocognitive Mechanisms Supporting Human Interaction. *Topics Cogn Sci* 1: 340-352.
 30. Cuijpers RH, van Schie HT, Koppen M, Erlhagen W, Bekkering H (2006) Goals and means in action observation: a computational approach. *Neural Netw* 19: 311-322.
 31. Erlhagen W, Mukovskiy A, Bichob G, Panin C, Kiss A, et al. (2006) Goal-directed imitation for robots: A bio-inspired approach to action understanding and skill learning. *Robotics and Autonomous Systems* 54: 353-360.
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Education and academic appointments

École Polytechnique Fédérale de Lausanne, Switzerland Marie Curie Post-doctoral fellow (supervisor: O. Blanke)	2010 - present
University of California Santa Barbara, USA Visiting researcher (supervisor: S. Grafton)	2010
Radboud University Nijmegen, the Netherlands Ph.D. in Cognitive Neuroscience (Cum Laude; supervisor: H. Bekkering) M.Sc. in Psychology of Culture and Religion	2006 - 2010 2002 - 2005
Utrecht University, the Netherlands M.Sc. in Biological Psychology M.A. in Philosophy (Cum Laude)	2004 - 2006 2003 - 2005

Publications

- van Elk, M. &Blanke, O. (2011). The relation between body semantics and spatial body representations. *Acta Psychologica*.
- van Elk, M., van Schie, H.T. &Bekkering, H. (2011). Imitation of hand and tool actions is effector-independent. *Experimental Brain Research* 214(4), 539-547.
- van Elk, M. &Blanke, O. (2011). Manipulable objects facilitate cross-modal integration in peripersonal space. *PLoS ONE* 6 (9), 3-7.
- Paulus, M., Hunnius, S., van Elk, M., &Bekkering, H. (2011). How learning to shake a rattle affects 8-month-old infants' perception of the rattle's sound: Electrophysiological evidence for action-effect binding in infancy. *Developmental Cognitive Neuroscience*.
- van Elk, M., Paulus, M., Pfeiffer, C., van Schie, H.T. &Bekkering (2011). Learning to use novel objects: a training study on the acquisition of novel action representations. *Consciousness and Cognition* 20(4), 1304-14.
- van Elk, M. &Blanke, O. (2011). Bodily self-consciousness and the primacy of self related signals such as the 1st person perspective and self-location. *Cognitive Neuroscience*, 2(2), 123-124.
- Meyer, M., Hunnius, S., van Elk, M., van Eede, F. &Bekkering (2011). Joint action modulates motor system involvement during action observation in 3-year-olds. *Experimental Brain Research*.211, 581-591.

van Elk, M., Slors, M. & Bekkering, H. (2010). Embodied language understanding requires an enactivist paradigm of cognition. *Frontiers in Psychology* 1:234. doi: 10.3389/fpsyg.2010.00234

van Elk, M., Crajé, C., Beeren, M.E.G.V., Steenbergen, B., van Schie, H.T. & Bekkering, H. (2010). Neural evidence for compromised motor imagery in right hemiparetic cerebral palsy. *Frontiers in Neurology* 1:150. doi: 10.3389/fneur.2010.00150

van Elk, M., Crajé, C., Beeren, M.E.G.V., Steenbergen, B., van Schie, H.T. & Bekkering, H. (2010). Neural evidence for impaired action selection in right hemiparetic cerebral palsy. *Brain Research* 1349, 56-67.

Crajé, C., van Elk, M., Beeren, M.E.G.V., van Schie, H.T., Steenbergen, B. & Bekkering, H. (2010). Compromised motor planning and motor imagery in right hemiparetic cerebral palsy. *Research in Developmental Disabilities* 31(6), 1313-22.

van Elk, M., van Schie, H.T., Neggers, B. & Bekkering, H. (2010). Neural and temporal dynamics underlying visual selection for action. *Journal of Neurophysiology* 104(2), 972-83.

van Elk, M., van Schie, H.T. & Bekkering, H. (2010). From left to right: Processing acronyms referring to names of political parties activates spatial associations. *Quarterly Journal of Experimental Psychology* 63(11), 22202-19.

van Elk, M., van Schie, H.T. & Bekkering, H. (2010). The N400-concreteness effect reflects the retrieval of semantic information for action. *Biological Psychology* 85(1), 134-42.

Stapel, J.C., Hunnius, S., van Elk, M. & Bekkering, H. (2010). Motor activation during observation of unusual versus ordinary actions in infancy. *Social Neuroscience* 5, 451-460.

van Elk, M., van Schie, H.T., Zwaan, R.A. & Bekkering, H. (2010). The functional role of motor resonance in language processing: motor-cortical oscillations support lexical-semantic retrieval. *Neuroimage* 50(2), 665-677.

van Elk, M., van Schie, H.T., van den Heuvel, R. & Bekkering, H. (2010). Semantics in the motor system: motor-cortical beta oscillations reflect semantic knowledge of end-postures for object use. *Frontiers in Human Neuroscience* 4:8. doi: 10.3389/neuro.09.008.2010.

van Elk, M., van Schie, H.T. & Bekkering (2010). Dorsal stream areas process action semantics. *Cognitive Neuroscience*, 1(1), 70.

Rueschemeyer, S.-A., Lindemann, O., van Elk, M. & Bekkering, H. (2010). Embodied cognition: The interplay between automatic resonance and selection-for-action mechanisms. *European Journal of Social Psychology* 39(7), 1180-1187.

van Elk, M., van Schie, H.T. & Bekkering, H. (2009). Semantic knowledge about objects is supported by functional motor activation. *Journal of Experimental Psychology: Human Perception and Performance* 35(4), 1118-1128.

van Elk, M., van Schie, H.T. & Bekkering, H. (2009). Short-term action intentions overrule long-term semantic knowledge. *Cognition* 111(1), 72-83.

van Elk, M., van Schie, H.T., Hunnius, H., Vesper, C. & Bekkering, H. (2008). You'll never crawl alone: Neurophysiological evidence for motor resonance in infancy. *Neuroimage* 43(4), 808-814.

van Elk, M., van Schie, H.T. & Bekkering, H. (2008). Semantics in Action: An electrophysiological study on the use of semantic knowledge for action. *Journal of Physiology - Paris* (102), 95-100.

van Elk, M., van Schie, H.T. & Bekkering, H. (2008). Conceptual knowledge for understanding other's actions is organized primarily around action goals. *Experimental Brain Research* 189(1), 99-107.

van Elk, M., van Schie, H.T., Lindemann, O. & Bekkering, H. (2007) Using conceptual knowledge in action and language. In: P. Haggard, Y. Rossetti & M. Kawato (eds.) *Attention and Performance XXII: Sensorimotor foundations of higher cognition*. Oxford: Oxford University Press, pp 575-599.

van Elk, M. (2007) Cognitive science meets the design plan. *South African Journal of Philosophy Vol. 26 (3): pp. 319-328*.

submitted / in preparation:

van Elk, M., Bekkering, H. van Schie, H.T. (submitted). Processing object- and grip-related information during action observation: an ERP study.

van Elk, M. & Blanke, O. (in prep.). Full body rotation modulates bistable perception.

Salomon, R., van Elk, M. Aspell, J. & Blanke (in prep.). Multimodal representation of the self: identity affects visuo-tactile integration.

van Elk, M., Visnawathan, S., van Schie, H.T. , Bekkering, H. & Grafton, S. (submitted). Pouring or chilling a bottle of wine: An fMRI study on the prospective planning of object-directed actions.

van Schie, H.T. van Elk, M. & Bekkering, H.T. (in prep). What makes a goal a goal? Dominance of goals over grips reflect the importance of spatial features in action planning.

de Bruijn, L.C., van Elk, M. & Newen, A. (in prep). Engagement vs. Detachment: implications for social neuroscience.

In Dutch:

van Elk, M. & Hunnius, S. (2010). Het babybrein: over de ontwikkeling van de hersenen bij baby's. *Uitgeverij Bert Bakker / Prometheus*

van Schie, H.T. & van Elk, M. (2009). Het brein als religieus proeftuin. In: *Religieus doen. Religieus praktijken in tijden van individualisering*. Edited by: C. P. M. van Halen, M. H. Prins & M. H. F. van Uden. *Tilburg: KSGV, 121-133*

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Journal Reviewer

Acta Psychologica, Behavioral Brain Research, Brain Topography, Behavior Research Methods, Cerebral Cortex, Cognition, Cognitive Neuroscience, Cognitive Science, Developmental Psychology, European Journal of Neuroscience, Experimental Brain Research, Frontiers in Human Neuroscience, Frontiers in Psychology, Journal of Cognitive Neuroscience, Journal of Neuroscience, Journal of Physiology, NeuroImage, Neuroscience, PLOS One, Psychological Research, Psychological Science, Social Neuroscience

Oral presentations and Conference Abstracts

Helmholtz Institute, Utrecht University, the Netherlands, Talk, October 2011
Hersenspublieksdag, Utrecht, the Netherlands, Talk, October 2011
ESCOP, San Sebastian, Spain, Talk, September 2011
ENS, Basel, Switzerland, Talk, September 2011
Social and situated cognition, Leiden, the Netherlands, Invited speaker, June 2011
KVIT, Linköping, Sweden, Invited speaker, May 2011
Action Lab West, University of California Santa Barbara, USA, Lab Talk, August 2010
LNCO, Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland, Talk, September 2009
Cognitive Science, 2009, Amsterdam, the Netherlands, Talk, August 2009
Cognitive Neuroscience 2009, San Francisco USA, Poster, March 2009
University of Chicago, Lab Talk, March 2009
University of Verona, Italy, Invited Speaker, December 2008.
Donders Discussions, Donders Institute for Brain, Cognition and Behaviour, The Netherlands, Invited speaker, October 2008.
Erasmus University of Rotterdam, Rotterdam, The Netherlands, Lab Talk, June 2008
7th Endo-Neuro-Psycho Meeting, Dorwerth, The Netherlands, Invited speaker, June 2008.
NVP Winter Conference. Egmond aan Zee, The Netherlands, Talk, December 2007.
Max Planck Institute for Human Cognitive and Brain Sciences, Leipzig, Germany, Talk, November 2007.
Florida State University, Tallahassee (FL), USA, Talk, October 2007.
Cognition: Embodied, Embedded, Enactive, Extended. University of Central Florida, Orlando (FL), USA, Talk, October, 2007
NWO Autumn School, Dorwerth, the Netherlands, Poster, October 2007
European Workshop of Movement Sciences (EWOMS), Amsterdam, the Netherlands. Poster, May 2007
NWO Autumn School, Doorwerth, the Netherlands. Poster (granted with poster-award), October 2006
Research Seminar Philosophy of Cognition and Behavior, Radboud University Nijmegen, Talk, September 2006.
NVP Winter Conference. Egmond aan Zee, The Netherlands, Talk, December 2005.
Pre-emptive Perception Conference, Delmenhorst, Germany. Poster (granted with poster-award) November 2005.