Neural correlates of vocal learning in songbirds and humans

Kant, A.M. van der

Acknowledgements

A PhD is a journey where the company you bring makes the journey both joyful and succesful. I would like to dedicate this page to everyone who has helped me bring this one to a happy end. First I would like to thank my supervisors, Annemie Van der Linden, Niels Schiller and Claartje Levelt for their support, advice and for their constant belief in my work. I would also like to thank all previous and current members of the Bio Imaging Lab, the LUCL, the LIBC and the Brain and Development Lab for the valuable discussions and suggestions, with a special thanks to the bird team in Antwerp, Eveline Crone and all LACG members in Leiden.

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Curriculum Vitae

Anne Marie van der Kant was born May 4th 1984 in Lelystad, The Netherlands. After receiving het atheneum diploma at O.S.G. De Rietlanden in Lelystad, she started her Bachelor degree in Linguistics at Leiden University. Here she first became interested in the sensitive period hypothesis of language acquisition through her thesis research into the syntactic development of congenitally deaf children who received a cochlear implant.

Following her Bachelor degree, Anne moved to Nijmegen for a Cognitive Neuroscience research master, specialization Psycholinguïstics. The research internship for her master thesis was carried out at the Max Planck institute for Psycholinguïstics under guidance of Dr. Anneke Vermeulen and Prof. Dr. Rob Schreuder and resulted in the paper "Reading Comprehension of Flemish Deaf Children in Belgium: Sources of Variability in Reading Comprehension after Cochlear Implantation.", published in Deafness and Education International.

In July 2009, the PhD research described in this thesis was started at the Bio Imaging Lab of the University of Antwerp under supervision of Prof. Dr. Annemie Van der Linden and Dr. Colline Poirier. Results of the zebra finch studies carried out in Antwerp were presented at the 9th International Congress of Neuroethology and the 9th International Conference on the Evolution of Language. Between 2012 and 2014 the human fMRI studies described in this thesis were carried out at the Leiden University Center for Linguistics and the Leiden Institute for Brain and Cognition under supervision of Prof. Dr. Niels O. Schiller and Prof. Dr. Clara C. Levelt. Results were presented at the Society of the Neurobiology of Language 2014 Annual Meeting.

List of publications

Full Publications

Inter-species comparative research in vocal learning: possibilities and limitations.
Van der Kant, A.M. In: McCronhon, L, Thompson, B, Verhoef, T, Yamauchi, H (Eds.) *The past, present and future of language evolution research. Student volume following the 9th International Conference on the Evolution of Language*, March 17, 2014

Functional Magnetic Resonance Imaging (fMRI) with Auditory Stimulation in Songbirds.
Van Ruijssevelt, L, De Groof, G, Van der Kant, A, Poirier, C, Van Audekerke, J, Verhoye, M, Van der Linden AM. *Journal of Visualized Experiments* 2013;(76), e4369

Comparisons of different methods to train a young zebra finch (Taeniopygia guttata) to learn a song.
Dergnaucourt S, Poirier C, Van der Kant AM, Van der Linden AM, Gahr M. *Journal of Physiology-Paris* 2013;107(3): 210218.

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Van Ruijssevelt L, Van der Kant AM, De Groof G, Van der Linden AM. *Journal of Physiology-Paris* 2013;107(3): 156169.

Representation of early sensory experience in the adult auditory midbrain: implications for vocal learning.
Van der Kant AM, Deregnaucourt S, Gahr M, Van der Linden AM, Poirier C. *PLoS One* 2013;8(4): e61764.

Reading Comprehension of Flemish Deaf Children in Belgium: Sources of Variability in Reading Comprehension after Cochlear Implantation.
Van der Kant AM, Vermeulen A, De Raeve L, Schreuder R. *Deafness and Education International* 2010;12(2):77-98

Conference Proceedings

Neural correlates of non-adjacent dependency learning: fMRI and connectivity studies into individual differences.
Van der Kant A & Schiller N.O. Poster. *Society for the Neurobiology of Language (SNL) Annual meeting*, August 27-29, 2014, Amsterdam, The Netherlands

Neural correlates of song perception during zebra finch song learning as shown by BOLD fMRI.
Van der Kant A & Van der Linden A. Poster. *9th International Conference on the Evolution of Language*, March 13-16, 2012, Kyoto, Japan

Neural correlates of conspecific song perception change during the sensory-motor period in zebra finch males but not females.
Van der Kant A & Van der Linden A. Poster. *9th meeting of the Belgian Society for Neuroscience*, May 23th, 2011, Leuven, Belgium

Functional MRI reveals a relationship between the strength of song learning and birds own song selectivity in the auditory midbrain.
Van der Kant A, Deregnaucourt S, Gahr M, Van der Linden A, Poirier C. Poster. *9th International Congress of Neuroethology*, August 2-7, 2010, Salamanca, Spain

Reading Comprehension of Flemish Deaf Children.
Van der Kant AM, Vermeulen AM, Schreuder R, De Raeve L. Poster. *9th European Symposium on Paediatric Cochlear Implantation*, May 14-17, 2009, Warsaw, Poland

Morphological Development in Dutch-speaking Cochlear Implanted Deaf Children.
Hammer A, van der Kant A, Coene M, et al. Poster. *13th International Morphology Meeting*, February 3-6, 2008, Vienna, Austria