Annual report 2016 of ACLC research group: Amusia and language

Coordinator: Silke Hamann

Web page:
Amusia and language
and
Amusia

Current external funding:
NWO PhD's in the Humanities to Paul Boersma for Jasmin Pfeifer's PhD project "Speech perception impairments in congenital amusia" [€ 173,000].

Participants in 2016:

- dr. S. R. Hamann (ACLC), senior researcher, coordinator
- prof. dr. P.P.G. Boersma (ACLC), senior researcher
- prof. dr. H.J. Honing (ILLC), senior researcher
- prof. dr. dr. Peter Indefrey (Universität Düsseldorf), senior researcher
- J. Pfeifer (ACLC), PhD candidate, September 2013 – September 2017

Description of the research group:
Congenital amusia is a neuro-developmental disorder that is neither caused by insufficient exposure to music, nor by a hearing deficiency, brain damage or intellectual impairment. People with congenital amusia (amusics) face lifelong impairments in the musical domain (music often causes discomfort to them). They cannot detect a pitch difference between two adjacent tones if this difference is one semitone or less.

- Why look at the language of amusics?
  - It has long been argued that congenital amusia is domain-specific to music and does not affect language, but recent studies (Patel et al. 2008, Liu et al. 2010) suggest that amusics show deficits in the perception of linguistic pitch (intonation and tone).
  - It is still unknown which linguistic parameters are influenced by amusia.
  - It is unclear whether speech production is affected by amusia: there are contrasting reports of whether amusics can accurately imitate sentences and pitch sequences (Hutchins and Peretz 2012) or not (Williamson et al. 2012)
- The research group
  - employs EEG and perception experiments to test the perception of small pitch differences and of quantitative and qualitative vowel differences,

- compares the sentence production of amusics with that of non--amusics (are there differences in intonation and vowel quality or quantity?),
- infers from these findings the size of learnable phonetic differences and discuss the possible problems that amusics face when learning a language.

Research highlights in 2016:

A dizygotic twin study showed that congenital amusia has a genetic component because one of the twins is affected (like the father), the other one is not (talk Pfeifer & Hamann 2016).

Valorisation:

- June 14, 2016: Presentation of our research at the *Heine-Science-Slam* (by scientists of all faculties of the HHU Düsseldorf).
- November 17, 2016: Presentation of our research at the *Science Slam Bahnhof Langendreer*.