Do signers activate „Maus“ while seeing "Maus"? Second language activation during first language processing.

The cross-linked connections of mental lexicon entries of a first (L1) and second language (L2) are a major field of interest in psycholinguistic research. The investigation of sign languages enlarges this field of interest, because additionally it is possible to test whether or not lexical entries of L1 and L2 are cross-linked although they belong to different language modalities (a visual-manual representation for a sign versus an orthographic representation of a written word).

Thierry & Wu (2007) showed for Chinese – English bilinguals that the first language (Chinese) is also activated when participants read sentences in their second language (English). Morford et al. (2011) could show the same connection between L1 activation (American Sign Language) during L2 processing (English) for Deaf signers.

In this event related potential (ERP) study, we investigated whether or not cross-modal activation also occurs the other way round: We asked if deaf native German Sign Language (DGS) signers activate their second language (written German) when processing sentences in DGS. Participants watched real time videos with signed sentences in German Sign Language, while their EEG signal (electroencephalogram) was recorded. We used two kinds of priming conditions to investigate correlating event related potentials: first, an intermodal priming, where prime and target signs were minimal pairs in DGS (ROOM – FAMILY); and second, a cross-modal priming, where prime and target signs where minimal pairs in their German translation (HOUSE – MOUSE). Stimuli sentences occurred in one of the three following conditions:

(a) Intermodal priming condition (minimal pairs in DGS):

NEXT WEEK ROOM THERE FAMILY PARTY ORGANIZE
‘Next week, a family will organize a party in the room.’

(b) Cross-modal priming condition (minimal pairs in written German):

LAST WEEK MY HOUSE THERE MOUSE HIDE
‘Last week, a mouse hid in my house.’

(c) No priming condition (sentences were identical to (a) or (b) but contained a non-related sign instead of a prime):

NEXT WEEK RESTAURANT THERE FAMILY PARTY ORGANIZE
‘Next week, a family will organize a party in the restaurant.’

LAST WEEK MY KITCHEN THERE MOUSE HIDE
‘Last week, a mouse hid in my kitchen.’

The hitherto existing analysis of the EEG data shows that a priming effect (less activation power for the target sign if it is a minimal pair of the prime) is not only found for DGS minimal pairs but also – and this is new – for the orthographic minimal pairs (condition b). This supports the assumption that deaf native signers also activate the orthographic representations of their second language while they perceive their native sign language.

In our talk (in English), we will present the underlying assumptions of this experiment, the methodological procedure and the highly interesting outcome.

References:
Workshop 9 on Sign Linguistics

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