Introduction
The iconicity of signs of American Sign Language (ASL) does not seem to influence signers’ language processing (Bosworth & Emmorey, 2010). However, this might be different for metaphor comprehension (see Taub, 2001). According to the Double Mapping Constraint (DMC) proposed by Meir (2010), iconic signs used in a metaphorical expression must preserve the structural mapping between
1) the articulators and the concrete source domain and
2) the source and the target domains.
Thus, the signed translation equivalents of some common metaphors in spoken languages are impossible to express in sign languages. For instance, the English metaphor *The acid ate the metal* cannot be expressed by means of the iconic sign *EAT* which depicts holding food and bringing it to the mouth in sign languages such as ASL because the connotation of the metaphor is the act of consumption, a concept that is not depicted by the iconic sign *EAT*.

In the current behavioral RT-experiment, we examined deaf native ASL signers’ comprehension of written English (L2) metaphors against the background of the restrictions of the DMC. We thus investigated the role of the DMC in language processing and whether the presentation of iconic sign primes would affect metaphor comprehension in English.

Material & Method

- 24 deaf native ASL signers:
  - mean age = 30.4 years, SD = ±5.6
  - right-handed
  - skilled readers of English

**Prime trials: related iconic prime + metaphor**
30 metaphors complying with the DMC (e.g., *Communication collapsed.*)
30 metaphors violating the DMC (e.g., *The acid ate the metal.*)

**Control trials: unrelated iconic prime + metaphor**
30 metaphors complying with the DMC (e.g., *Communication collapsed.*)
30 metaphors violating the DMC (e.g., *The acid ate the metal.*)

**Baseline trials: still prime + metaphor**
30 metaphors complying with the DMC (e.g., *Communication collapsed.*)
30 metaphors violating the DMC (e.g., *The acid ate the metal.*)

Results

- no main effect of either prime or metaphor type; only interaction effects
- facilitation effect when related signs preceded metaphors that complied with the DMC when translated into ASL (stronger than the facilitation caused by unrelated signs)
- interference effect if related signs preceded metaphors that violated the DMC when translated into ASL

Discussion

- Deaf ASL signers’ L1 (ASL) interacts with metaphor comprehension in their L2 (English):
  - related iconic primes facilitated access to the metaphorical meaning of sentences that complied with the DMC
  - related iconic primes of the ASL sign prime hindered participants’ access the metaphorical meaning of sentences that violated the DMC
- ASL signers are sensitive to the DMC when processing metaphors in their L2.

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References


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