

Type of polysemy matters: Evidence from semantic relatedness decisions

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Background

Research has shown representational and processing differences between homonyms that have multiple unrelated meanings (e.g., 'electric/sports fan') and polysemes that have multiple related senses (e.g., 'fluffy/spicy rabbit') [1]

More recent work has suggested there may also be important differences among polysemes [2, 3, 4]

Aim: examine different types of polysemes, recognised by linguists, in a task that requires sense selection

Method

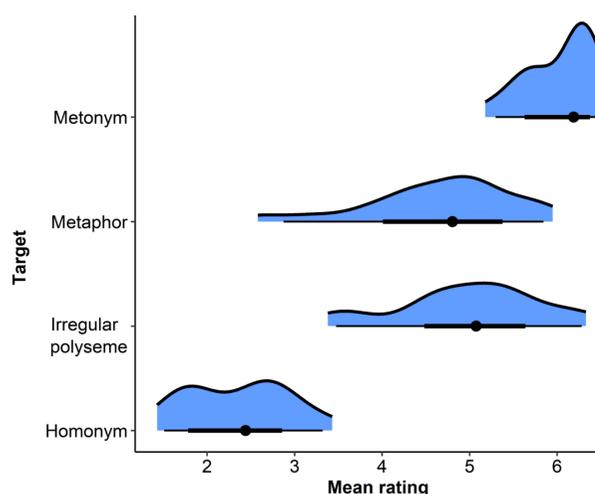
Task: relatedness decisions to semantically related and unrelated target-probe word pairs

Target (within subjects; 20 items each):

- **Irregular polyseme** – unconventional, unpredictable sense extensions (e.g., 'Windows/food menu')
- **Metaphorical polyseme/metaphor** – figurative sense extensions (e.g., 'wooden/authoritative chair')
- **Metonymic polyseme/metonym** – conventional, predictable sense extensions (e.g., 'fluffy/spicy rabbit')
- **Homonym** – unrelated meanings (control condition)
- **Unambiguous word** – one sense (control condition)

Relatedness between senses

Separate, web-based norming study (N=40); 7-point scale; higher ratings denote greater relatedness

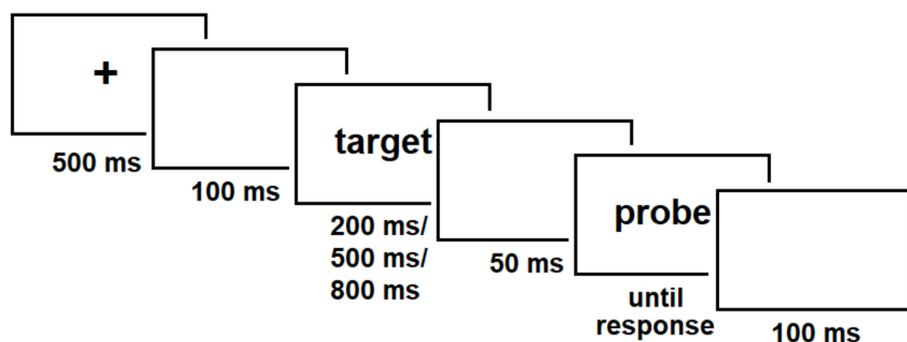


Probe (within subjects):

- Dominant-sense (e.g., 'chair-furniture')
- Subordinate-sense (e.g., 'chair-meeting')
- Unrelated filler (e.g., 'chair-stomach')

Experiments 1-3 (web-based; N=55 each)

Duration of the ambiguous target manipulated across three experiments (200/500/800 ms) to examine the time course of access to the dominant and subordinate senses

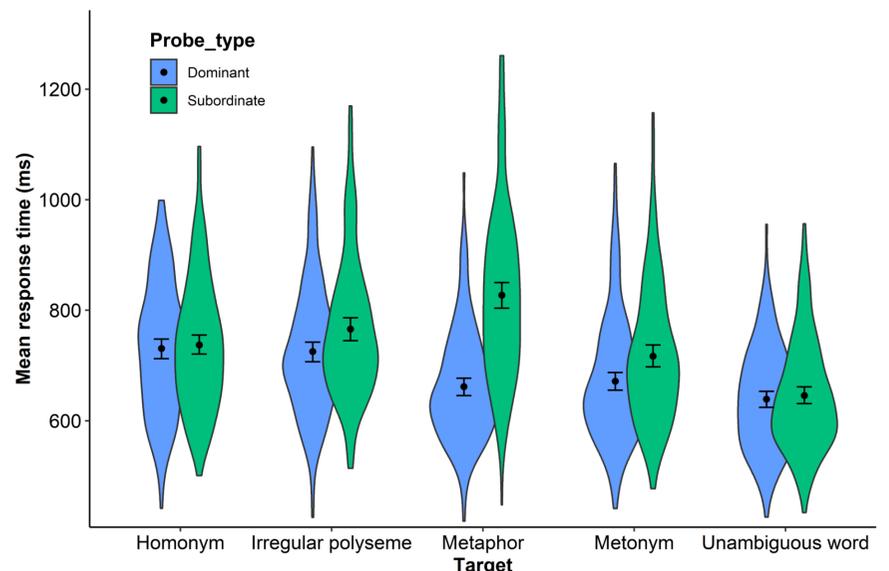


Results & Discussion

Analysis: Target x Probe x Experiment LMM on RTs; post hoc tests focused on differences among targets

Minimal effect of the between-experiments manipulation

Large difference between dominant and subordinate sense trials for metaphors but not the other polysemes



Irregular polysemes

- Slower than metaphors in the dominant sense, metonyms, and unambiguous words
- Like homonyms, these polysemes seem to have separate representations that hinder semantic processing
- Consistent with findings from artificial language learning paradigms [3]
- Challenge for the shared representation account [4]

Metaphors

- Slower than metonyms and unambiguous words but only in the subordinate sense
- The subordinate sense must be generated on-line, either because it is not sufficiently activated out of context or not lexicalised
- Metaphor should not be viewed as a subtype of irregular polysemy [cf. 5]

Metonyms

- Processed as fast as unambiguous words
- These polysemes seem to have a single representation for all their senses
- No particular support for either the core [2] or the underspecified representation account [6]

Overall

- Support for the distinction within polysemy
- This helps to advance current models of ambiguity
- Further investigation across different tasks needed

References:

- [1] Rodd et al. (2004) *Cog Sci*
- [2] Klepousniotou et al. (2008) *J Exp Psych Learn Mem Cog*
- [3] Maciejewski et al. (2020) *Lang, Cog, & Neurosci*
- [4] Brocher et al. (2018) *Lang, Cog, & Neurosci*
- [5] Apresjan (1974) *Linguistics*
- [6] Frisson & Pickering (1999) *J Exp Psych Learn Mem Cog*