How are irregular polysemes like sour stored in and retrieved from memory?

**Homonyms (bank; money; river)**
- In the absence of a biasing context
  - Only the most frequent (dominant) of a homonym’s unrelated meanings is retrieved
- **Dominance effect** consistent with separate lexical entries for each meaning (Simpson, 1981)
- In contexts biased toward less frequent (subordinate) meaning
  - Dominant and subordinate meanings compete for retrieval (Duffy et al., 1988; but c.f., Vu et al., 1998) and subordinate meaning takes longer to retrieve (subordinate bias effect)

**Regular Polysemes (novel; object; content)**
- Marginally engender longer reading times when a disambiguating context is biased toward a subordinate semantically related sense (Frazier & Rayner, 1990)
- Retrieval is via application of lexical rules (Rabagliati et al., 2011) or an underspecified node (Frisson & Pickering, 1999).

**Irregular Polysemes (sour; lemon; milk)**
- Differ from homonyms because senses are semantically related
- Differ from regular polysemes because senses cannot be derived from each other by productive rules
- Similar processing for homonyms and irregular polysemes has been observed (Klein & Murphy, 2001; 2002)
- Results of Klein & Murphy (2001, Exp’t 5)

**Results of previous studies may have been due to materials and baseline problems**

1. Materials not normed for sense frequency (Duffy et al., 1988) or sense relatedness (Kleespiesnotion et al., 2008)
2. Baseline for inhibition effects (polysemes plus underscore) skewed toward dominant reading
   - Slower retrieval times supporting inhibition may be due to the contribution of subordinate senses rather than polysemes as a whole

**Dominance Prediction**
If irregular polysemes are stored like homonyms, they too should exhibit dominance effects (i.e., faster retrieval of the dominant sense in a non-biasing context).

**Switching Cost Prediction**
If the non-selected sense of irregular polysemes is inhibited in retrieval, then switching between senses will be equally costly for both polysemes and homonyms. BUT, if irregular polysemes share core features, they should incur lower switching costs than homonyms.

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**Ambiguity Resolution:**

<table>
<thead>
<tr>
<th>Item</th>
<th>Inconsistent Context</th>
<th>Dominance</th>
<th>Baseline</th>
<th>Prime</th>
<th>Target</th>
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<tbody>
<tr>
<td>Homonym</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inconsistent Context</td>
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<td>Subordinate</td>
<td></td>
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<tr>
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<td>SWIM</td>
<td>BANK</td>
<td>SWIM</td>
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<tr>
<td>Subordinate</td>
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<td>SWIM</td>
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<td>SWIM</td>
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<tr>
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<td>DAIRY</td>
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<td>DAIRY</td>
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<tr>
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<td>SOUR</td>
<td>DAIRY</td>
<td>SOUR</td>
<td>DAIRY</td>
<td></td>
</tr>
</tbody>
</table>

- RTs on target in no context and inconsistent context conditions
- For the baseline: RTs on context word in inconsistent context condition e.g., dairy context is the baseline for dairy target

**Context prediction.**
If irregular polysemes are processed like homonyms, subordinate contexts should be read more slowly after an irregular polysemes than after a matched control.

**Ambiguous word prediction.**
If irregular polysemes are processed like regular polysemes, they should take longer to read than a control following subordinate contexts.

**But**, if shared features (core meaning) of irregular polysemes are initially retrieved, no reading difficulties are expected.

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**Inconsistent Context Condition—Visible Primes**

- Irregular polysemes not retrieved like homonyms
- No switching costs (inhibition) for irregular polysemes
- Facilitation regardless of whether interpretation switched from dominant to subordinate or subordinate to dominant

**No Context Condition—Visible Primes**

- Irregular polysemes were not retrieved like homonyms
- Dominance effects only observed for homonyms

**Inconsistent Context Condition—Invisible Primes**

- Irregular polysemes not retrieved like homonyms
- No switching costs (inhibition) for irregular polysemes
- Facilitation regardless of whether interpretation switched from dominant to subordinate or subordinate to dominant

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**Summary and Conclusions for Priming Results**

- Irregular polysemes are retrieved differently from homonyms whether or not an inconsistent context word is present
- Lack of priming in the absence of context and easier switching between senses suggest shared sense meaning activation
- Irregular polysemes do not pattern with homonyms
- Inconsistent prime results consistent with self-inhibition of responses for masked priming (Eimer & Schlaghecken, 1998)

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**Are homonyms and irregular polysemes processed differently in context?**

Duffy et al. (1988) found that a homonym’s dominant meaning competes with a context-biased subordinate meaning.
- homonyms are read more slowly than context or subordinate contexts
- subordinate contexts are read more slowly following a homonym
- Frazier and Rayner (1990) and Frisson and Pickering (1999) showed little or no conflict between regular polysemes senses, consistent with filling out an underspecified representation.
- regular polysemes were read marginally slower than controls after subordinate contexts
- subordinate contexts showed no slow down following a regular polysemes

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**Context Before the ambiguous word:**
For winning rummy against his best friends (hand) was strong enough for winning against his best friends.
Because the squirrel was very excited.

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**Inconsistent Context Condition—Invisible Primes**

- Irregular polysemes read more slowly than controls in spillover
- Homonyms read longer on later subordinate contexts

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**Inconsistent Context Condition—Invisible Primes**

- Homonyms read slower after subordinate context

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**Irregular polysemes are processed differently than homonyms and regular polysemes in both word recognition and reading.**

- Unlike homonyms, irregular polysemes share a core meaning that does not require the processor to fully commit to either sense, and facilitates switching between interpretations.
- Unlike what happens with regular polysemes, subordinate contexts do not elicit extended reading times of subsequent irregular polysemes because no lexical rule is applied.
- Integration of core meaning of word senses in sentence contexts comes with short-term cost.

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**References**


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**Acknowledgments**

This research was supported by a National Institute of Mental Health grant (R01-MH058200) to A. Brocher. We thank the Buffalo State Psychology Department for their support. We also thank the participants for their time and efforts.

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**Contact Information**

Andreas Brocher, 1
Stephani Foraker, 2
Jean-Pierre Koenig, 1
Gail Mauner 3
1Linguistics Department, 2Psychology Department | University at Buffalo | Psychology Department | Buffalo State College
contact: abrocher, jkoenig, mauner @buffalo.edu | forakesn@buffalostate.edu

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**References**

*See the full reference list for this paper.*

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**Tables and Figures**

- Table 1: Processing times relative to No Prime
- Figure 1: Dominance effects for masked priming
- Figure 2: Evidence from Priming and Eye Gaze Duration