1. INTRODUCTION

- Informational strength has been seen as key when it comes to scalar implicature (SI) derivation (Horn, 1972)
- Most accounts of SIs say that stronger alternatives are needed
- Are stronger alternatives active in comprehenders’ minds?

Ronai & Xiang (2023) tested the activation of strong scalars (hot) by weak ones (warm)
- When they presented isolated scalar words, there was no priming
- The strong terms were shown to be activated in a sentential context – suggesting involvement in SI derivation

Which alternatives are relevant during online SI derivation?

2. HYPOTHESES & ACCOUNTS

- No activation when informational strength relations change
- Negation can reverse entailment relations (Horn, 1972)
- Scalar words such as hot are no longer stronger than warm
- Are antonyms also present in the process?

The Scalar Account (Horn, 1972) suggests that only stronger alternatives are relevant, antonyms play no role due to the split-scale assumption

The Semantic Network Account accounts for any alternative activation effects as simply epiphenomenal byproducts of spreading activation

The Alternative Activation Account proposes domain-general activation followed by selection based on contextual and grammatical factors (Götzner, 2017)

4. METHODS

- Four lexical decision experiments on PCIbex (N = 50 each)
- Single factor: Related vs unrelated
  - Related: either weak scalar or antonym
  - RSVP (350ms per word, 650ms SOA)
- Experiment 3: Only prime words (clean) and targets (filthy)
  - 150ms per prime, 650ms SOA

5. PREDICTIONS & RESULTS:

<table>
<thead>
<tr>
<th>Experiment</th>
<th>Estimate</th>
<th>SE</th>
<th>df</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exp 1: Negated weak scalars</td>
<td>0.0081</td>
<td>0.011</td>
<td>32.23</td>
<td>0.71</td>
<td>0.483</td>
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<tr>
<td>Exp 2: Antonyms in sentences</td>
<td>0.0238</td>
<td>0.008</td>
<td>2846</td>
<td>2.93</td>
<td>0.0034*</td>
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<tr>
<td>Exp 3: Antonyms in isolation</td>
<td>0.0248</td>
<td>0.009</td>
<td>2665</td>
<td>2.75</td>
<td>0.0061**</td>
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<tr>
<td>Exp 4: Negated antonyms</td>
<td>-0.001</td>
<td>0.013</td>
<td>29.37</td>
<td>-0.05</td>
<td>0.958</td>
</tr>
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</table>

COMBINED PLOT: EXP 1, 2, & 4 + EXP 3 (R&X, 2023)

6. RESULTS: COMBINED ANALYSIS

Combined data from Exp 1, 2, 3 and 4 from Ronai & Xiang (2023), which tested non-negated weak scalars

We created a 2 x 3 factorial design
- **Negation:** Non-negated (baseline) vs. negated
- **Prime:** Weak scalar vs. antonym vs. unrelated (baseline)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Estimate</th>
<th>SE</th>
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<th>t-value</th>
<th>p-value</th>
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</thead>
<tbody>
<tr>
<td>Negation</td>
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<td>0.028</td>
<td>200.5</td>
<td>1.17</td>
<td>0.26513</td>
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<td>Weak scalar</td>
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<td>0.009</td>
<td>8922</td>
<td>-4.390</td>
<td>0.0001***</td>
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<td>Antonym</td>
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<td>0.009</td>
<td>8915</td>
<td>-2.625</td>
<td>0.00867**</td>
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<tr>
<td>Negation: Weak scalar</td>
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<td>0.013</td>
<td>8917</td>
<td>2.164</td>
<td>0.03049*</td>
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<tr>
<td>Negation: Antonym</td>
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<td>0.013</td>
<td>8917</td>
<td>1.954</td>
<td>0.05069</td>
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</tbody>
</table>

7. DISCUSSION

- Negation cancels the activation of targets
  - Informational strength matters
- Negation influences activation differently when weak scalar vs antonym primes are used
  - Antonymic primes primed targets both in sentences and in isolation
- An epiphenomenon in online SI derivation?
- But see Doran et al. (2009) a.o. for evidence that non-entailed alternatives facilitate SI derivation
- Most compatible with the Alternative Activation Account
  - Comprehenders seem to activate a slew of associates (antonyms) and then select depending on the grammar (negation) and context