Homograph Priming Effects are Independent of Environmental Context
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**Background**
- Effects of selecting a meaning for a homograph are brief according to most theories of homograph processing (e.g., Gorfein & St. John, 2001; Simpson & Kang, 1994).
  - Simpson & Kellas (1989) primed homographs toward secondary meaning (bank/river), naming of target word related to dominant meaning (money) increased compared to baseline, even after 12 intervening trials.
- Processing a homograph to the point of meaning selection results in “active and specific inhibition of competing meanings” (p. 376).
- Gorfein, Robertson, & Werner (2001) Sentence sensibility judgments, large cost for changing meaning on consecutive sentences, but by 4 intervening trials no cost observed.
- Gorfein & St. John (2001) connectionist model included four levels of representation. Each level contains moderate inhibitory feed-forward connections to the immediate subsequent layer and strong inhibitory feedback connections to the immediate prior layer. At each stage of processing, alternative meanings are assumed to directly inhibit each other.
- Long term effects of meaning selection have been observed:
  - 10 minutes (Gorfein, Brown, & DeBasi, 2007)
    - Phase 1: homophones primed toward secondary meaning using picture location task.
    - Phase 2: spelling or word association of homophones preceded by word related to primary meaning.
    - Phase 3: spelling or word association of homophones preceded by neutral, unrelated words.
    - Proportion of primary responses in Phase 3 reduced due to Phase 1 secondary priming.
  - 24 hours (Gorfein & Walters, 1989)
    - Phase 1: homophone priming (portion dominant, secondary, no context) using fill-in-the-blank sentences.
    - Phase 2: homophone priming (portion consistent with meaning in phase 1; portion inconsistent) picture location task.
    - Phase 3: spell homophones without context; phase 3 occurred either 10 minutes or 24 hours after phase 2.
    - Sentence manipulation has both immediate and lasting effects – additive with presentation of picture.
  - 1 week (Gorfein, 2012)
    - See poster 3139

**Researchers have suggested long term effects are due to episodic memory. Episodic memory is dependent on contextual retrieval (e.g., Parker, Dagnall, & Coyle, 2007).
- Parker, Dagnall, & Coyle (2007, Exp. 2)
  - Study Phase: associates to non-presented cue words in one of two environmental contexts.
  - Test phase: presented with cues and asked to (a) recall words from study associated with the cues (explicit) or (b) write down the first word that came to mind (implicit) in one of two environmental contexts.
  - Decreased performance on explicit test when environmental context changed, no difference for implicit test.

**Purpose**
- Examine whether long term effects of priming secondary meanings are present with a change in global context.

**Design**
- Priming: Set Viewed 1st, Set Viewed 2nd, Set Not Viewed.
- Global Context: Room Change or Not.
- Measured Word Association Accuracy (Secondary Meaning Accurate).

**Procedure**
- Informed Consent.
- PowerPoint Presentation of 1st Set with Picture Location Test.
  - All participants taken to hallway for 5 minutes.
  - Half returned to room (No Context Change), half to second room (Context Change).
- PowerPoint Presentation of 2nd Set with Picture Location Test.
- Word Association Task.
- Recognition Test.
- Language Background Questionnaire.

**Results**
- No effect of global context (room change).
  - \(F(3, \text{1772}) = 0.19, MSE = 0.17, p = .90\)
  - Context Change 0.19 0.35
  - No Context Change 0.20 0.40

- No interaction.

- Secondary meaning retrieved more frequently when primed,
  - \(F(2, \text{3544}) = 32.46, MSE = 0.15, p < .0001\)

**Conclusions**
- Long term effects of priming the subordinate meaning of unbalanced homographs were observed:
  - 20 minutes from initial priming to word association task.
  - No difference between first set primed (20 minute delay to test) and second set primed (5 minute delay to test).
- No global context effects were observed.
- Subordinate responses in word association task were equivalent for those who experience a room change and those who did not.
- Long term effects are not due to episodic memory in this case.
- Results support the Activation-Selection Model (Gorfein, 2001).

**References**
Available on request