Semantic Satiation, Lexical Ambiguity, and Semantic Distance

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Background

Weakly-related semantic information may be more satiated following repetition than highly related information (Balota & Black, 1997; Kuhl & Anderson, 2011)

e.g., ROYALTY – DUKE vs. ROYALTY – QUEEN

Does this extend to biased ambiguous words?

One meaning is dominant (i.e., "highly related")
One is subordinate (i.e., "weakly related")

Some evidence of this (Black, 2001)

Non-typical satiation method
Meaning dominance not controlled

Method

Experiment 1:

Participants: 66 John Carroll University undergraduates

Materials: 72 biased homographs with two distinct noun meanings (e.g., calf)

Procedure:

Satiation: Participants saw an ambiguous cue presented onscreen for 600ms 3 or 30 times with a 300ms inter-stimulus interval

Relatedness Judgment: Immediately following the final presentation of the cue, participants saw a CUE—TARGET pairing and determined whether the cue and target were related.

Targets were:

Related to the dominant meaning
(e.g., CALF – COW);
Related to the subordinate meaning
(e.g., CALF – LEG); or
Unrelated
(e.g., CALF – TEA)

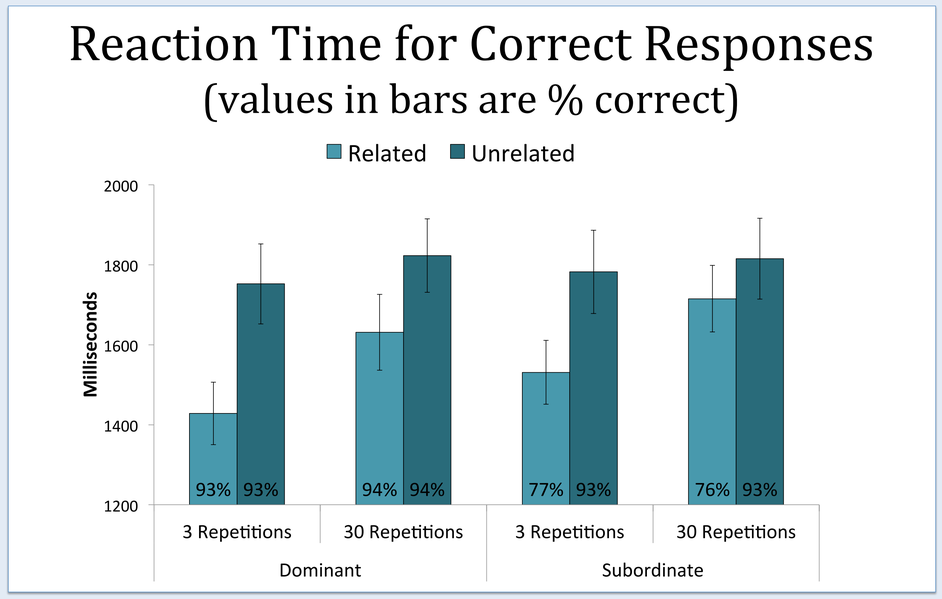
Experiment 2:

Participants: 84 JCU undergraduates

Materials: 48 biased homographs with two distinct noun meanings (NN: calf); 48 with one distinct noun and one distinct verb meaning (NV: duck).

Procedure: Identical to Experiment 1

Experiment 1



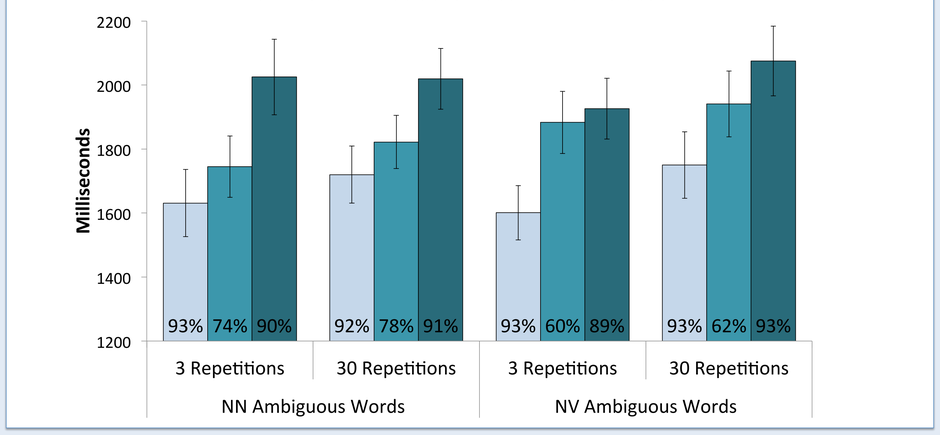
Relatedness Effect
$F(1, 63) = 16.741$, $p < .001$, $\eta_p^2 = .21$
Related < Unrelated

Ambiguity Effect
$F(1, 63) = 4.366$, $p < .05$, $\eta_p^2 = .07$
Dominant < Subordinate

Repetition Effect
$F(1, 63) = 27.316$, $p < .001$, $\eta_p^2 = .30$
3 reps < 30 reps

Satiation Effect
$F(1, 63) = 7.596$, $p < .01$, $\eta_p^2 = .11$
Related: 3 reps < 30 reps
Unrelated: 3 reps = 30 reps

Experiment 2



Relatedness & Ambiguity Effects
$F(1, 70) = 45.345$, $p < .001$, $\eta_p^2 = .39$
Dominant < Subordinate < Unrelated

Repetition Effect
$F(1, 70) = 7.435$, $p < .01$, $\eta_p^2 = .10$
3 reps< 30 reps

Semantic Distance Effect
$F(1, 70) = 4.520$, $p < .05$, $\eta_p^2 = .06$
NN dominant = NV dominant
NN unrelated = NV unrelated
NN subordinate < NV subordinate

No significant Satiation Effect
But same general pattern

Conclusions

Satiation for both dominant and subordinate meaning of ambiguous words

No evidence of greater satiation for the subordinate meaning compared with the dominant meaning

Unless considering a derived measure of change in relatedness effect – only in Experiment 1: dominant = 41%; subordinate = 60%

Evidence of semantic distance in Experiment 2

References

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