INTRODUCTION

How is number agreement implemented in sentence production?

Hierarchical Feature-Passing

Franck, Vigliocco, & Nicol (2002): Hierarchical feature-passing is the underlying mechanism.

The helicopter for the flight(s) over the canyon(s)

— Higher agreement error rate when N2 was plural compared to when N3 was plural.
— Error rates depend on syntactic distance from plural local NP to highest subject NP node, with shorter distances yielding increased error rates.

Semantic Integration


Semantic Integration: the degree to which two elements are linked at the message level during production

The pizza with the yummy topping(s) (tightly integrated) The pizza with the tasty beverage(s) (loosely integrated)

— Tightly integrated subject NPs elicited more agreement errors than loosely integrated subject NPs, relative to singular controls.
— Hierarchical distance between local NP and subject NP node does not vary.
— Effect of semantic integration is distinct from hierarchical effects.

EXPERIMENT 1

Can semantic integration potentially explain Franck et al.’s hierarchical distance result?

The helicopter for the flight(s) over the canyon(s)

— N1 and N2 more tightly integrated than N1 and N3?
— If so, integration may be able to account for higher error rates when N2 is plural compared to when N3 is plural.

Method

— Stimuli from Experiment 2 in Franck et al. rated for semantic integration on a scale from 1 (not integrated) to 7 (tightly integrated).
— Obtained integration ratings for N1- N2 relationship and for N1- N3 relationship.
— 240 participants, 32 items, 24 counterbalanced lists

Results

Mean semantic integration ratings:

<table>
<thead>
<tr>
<th>N1-N2</th>
<th>N1-N3</th>
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<tbody>
<tr>
<td>N1-N2</td>
<td>4.54</td>
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<tr>
<td>N1-N3</td>
<td>3.05</td>
</tr>
</tbody>
</table>

(t = 16.52, p < .0001)

— N1- N2 more integrated than N1- N3.
— Higher error rate for plural N2 in Franck et al. could be due to integration differences rather than hierarchical distance.

EXPERIMENT 2

Does hierarchical distance affect error rates when semantic integration is held constant?

The mango by the pineapple(s) near the blender(s)

— 24 stimulus sets, 60 fillers
— Subject-verb agreement error elicitation procedure
— 43 participants produced completions to preambles

Semantic Integration Ratings

140 participants rated preambles for integration as in Experiment 1.

Mean semantic integration ratings were matched for N1-N2 versus N1-N3 (M = 3.8 for each pair).

Attachment Preferences

— 60 participants showed that the final PP in the stimuli (near the blender(s)) modified NP2 rather NP1.
— Attachment rate to NP2 was 70%.

Error Rate Results

— Main N2 number effect; no N3 number effect; no interaction
— Size of number effect larger when only N2 was plural than when only N3 was.

CONCLUSIONS

Semantic integration and hierarchical distance are confounded in Franck et al (2002).
— Higher integration ratings for N1-N2 pairs than for N1-N3 pairs
— Larger effect of N2 number in Franck et al. could be due to integration differences.
— Larger effect of N2 number than of N3 number even when semantic integration is controlled.
— Both semantic integration and hierarchical distance are relevant factors in producing subject-verb agreement.

REFERENCES


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