Timing of Lexical Activation in Determiner–Adjective–Noun Phrase Production

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INTRODUCTION

How are an NP’s content words activated for production?

Lexical Activation in Isolated Noun Production

Schriefers, Meyer, and Levelt (1990), in Dutch

Picture–word interference paradigm with isolated N expected responses

Pictures of common objects

Semantically related, phonologically related, and unrelated spoken distractor words

Distractors presented at 3 SOAs (time between picture presentation and distractor).

Semantic Distractor

<table>
<thead>
<tr>
<th>Noun</th>
<th>Determiner</th>
<th>Adjective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shape</td>
<td>triangle</td>
<td>purple</td>
</tr>
<tr>
<td>Rhombus</td>
<td>trial</td>
<td>lollipop</td>
</tr>
<tr>
<td>Beige</td>
<td>perfect</td>
<td>tiny</td>
</tr>
<tr>
<td>FACILITATION</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Phonological Distractor

<table>
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<th>Determiner</th>
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<td>tiny</td>
</tr>
<tr>
<td>INTERFERENCE</td>
<td></td>
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</tr>
</tbody>
</table>

Materials and Design

Picture Stimuli with N and Adj Production Targets

12 line drawings of objects from two N categories: shape and clothing

12 attributes from two Adj categories: color and pattern

144 pictures total: all combinations of Ns and Adj

Distractor Words for Each Target

Semantically related, identical, and unrelated distractors; no condition related only by phonology

Color Category

<table>
<thead>
<tr>
<th>Purple</th>
<th>Green</th>
<th>Blue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perfect</td>
<td>Dress</td>
<td>Perfect</td>
</tr>
<tr>
<td>Triangle</td>
<td>Dress</td>
<td>Triangle</td>
</tr>
<tr>
<td>Lollipop</td>
<td>Dress</td>
<td>Lollipop</td>
</tr>
</tbody>
</table>

Phonologically related

<table>
<thead>
<tr>
<th>Purple</th>
<th>Green</th>
<th>Blue</th>
</tr>
</thead>
<tbody>
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<td>Green</td>
<td>Lollipop</td>
</tr>
</tbody>
</table>

Semantic interference at -150 ms SOA; phonological facilitation at 0 and +150 ms SOAs

Distractor to be produced: the green dress

SOAs

3 negative SOAs

-200 ms, -150 ms, -50 ms

3 positive SOAs

100 ms, 200 ms, 250 ms

NP Targets

-200 ms

-150 ms

-50 ms

50 ms

100 ms

200 ms

250 ms

EXPERIMENT 1

222 Ss run; 200 analyzed thus far.

Familiarization Phases 1 and 2

Test Phase responses: N labels (e.g., triangle)

Semantic interference at -150 ms SOA; phonological facilitation at 0 and +150 ms SOAs

No phonological facilitation

EXPERIMENT 2

119 Ss run; 109 analyzed thus far.

Familiarization Phase 1 (training for N labels)

Test Phase responses: N labels (e.g., triangle)

Isolated Adj Target RT Differences (ms) from Unrel Condition

No significant interference or facilitation

EXPERIMENT 3

132 Ss run; 124 analyzed thus far.

Familiarization Phase 2 (training for Adj labels)

Test Phase responses: Adj labels (e.g., purple)

Isolated Adj Target RT Differences (ms) from Unrel Condition

No significant interference or facilitation

CONCLUSIONS

In Det–Adj–N NPs, N and Adj lemmas activated close together in time.

- Adj lemma activation preceded N lemma activation.
- Activation order appears to be linear-order driven.
- Alternative explanation: Attribute may be more salient initially, pointing to conceptual reasoning for activation order.

Both N and Adj lemmas in NPs show patterns of reactivation at later SOAs.

- Most likely an effect of the task
- Processing of same-category word may result in conscious reassessment of response.

Semantic interference for N at similar SOAs to those in Schriefers (1992, 1993) and Schriefers et al. (1990).

In the N case, effects of semantically related distractors are greater for content words in isolation than in NPs.

REFERENCES


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