**INTRODUCTION**

How are number agreement features tracked during language production?

Mismatch Effect: Mismatch between verb and noun in subject-verb agreement errors occurs when the head noun of the subject NP is singular, and local nouns in PP arguments are plural, which would result in errors (Bock & Miller, 1991).

Hierarchical Distance: Number features of the head noun of the subject NP are passed to the verb, plural features of local nouns occasionally pass incorrectly to the verb, causing agreement errors.

Franck, Vigliocco, & Nicol (2002): The helipcopter for the sky(ies) over the camp(s).

- Linear Distance to the Head noun: Head noun is singular, interference is greater when local nouns are further from the head noun.

Semantic Integration: Elements within a phrase that are conceptually linked are planned with more overlap, which allows their features to interact with each other.

Solomon & Pearlmutter (2004): The pizza with the plastic bag(s).

- Integrated mismatch effect was larger than Unintegrated mismatch effect.

- Supports plural local nouns situated hierarchically closer to the head noun have a greater chance of interfering with agreement computation than plural local nouns situated deeper in the syntactic tree.

**GILLESPIE & PEARLMUTTER (2008)**

Are there effects of semantic integration or linear distance to the head (controlling hierarchical distance)?

**Figure 1. Descending structure**

Early-Integrated Late-Integrated
The book with the term (pgs) by the red pen(s)
Flipped

- Early-Integrated: N1 > N2 cannot be Linear Distance to Head alone.
- Late-Integrated: N2 Plural cannot be Linear Distance to Head alone.

Early-Integrated: N1 > Late-Integrated: N1 cannot be Semantic Integration alone.

Proposed alternative:

- More semantically integrated local nouns are planned closer to the head noun.
- Order of production determines order of planning.

Early-Integrated: N1 N2 N2 N1
Late-Integrated: N1 N2 N2 N1

Implications for hierarchical distance:

- Hierarchical distance is not sufficient to explain mismatch effects.
- Linear distance interacts with hierarchical distance.

**CURRENT EXPERIMENT**

In any effect of hierarchical distance (controlling semantic integration)?

**Figure 2. Linear Distance to Head (% mismatch effect)**

Early-Integrated Late-Integrated
The book with the term (pgs) by the red pen(s)

- Early-Integrated: N1 > N2 cannot be Linear Distance to Head alone.
- Late-Integrated: N2 Plural cannot be Linear Distance to Head alone.

Early-Integrated: N1 > Late-Integrated: N1 cannot be Semantic Integration alone.

- Early-Integrated: N2 Plural cannot be Linear Distance to Head alone.
- Late-Integrated: N3 Plural cannot be Linear Distance to Head alone.

- Early-Integrated: N2 > Late-Integrated: N1 cannot be Semantic Integration alone.

- Early-Integrated: N2 Plural cannot be Linear Distance to Head alone.
- Late-Integrated: N3 Plural cannot be Linear Distance to Head alone.

**DISCUSSION**

Models of agreement computation may not require a hierarchical account.

Gillespie & Pearlmutter (2008): Linear distance is sufficient to explain mismatch effects.

Early-Integrated: N1 > N2 suggests Linear Distance to Head is a factor.

- No interaction of plural position and structure rules out Hierarchical Distance.

Summary:

- Controlling semantic integration, only linear distance to the head affected mismatch effects.
- Hierarchical distance does not affect agreement computation.

**REFERENCES & ACKNOWLEDGMENTS**


**NORMING**

- Early-Integrated: N1 N2 N2 N1
- Late-Integrated: N1 N2 N2 N1

**Flipped:**

- Percent Rater 1
- 4.10
- 5.11
- 2.00
- 93.5

- Percent Rater 2
- 4.15
- 5.16
- 4.50
- 93.5

**Mean:**

- 4.12
- 5.14
- 3.00
- 96.6

**Note:** Semantic integration scale rate 3-7, with 3 = highly integrated. % attachment is the % difference of the second PP to N1 (N2 vs. N1).

**Against Hierarchical Distance in Subject-Verb Agreement Production**

Maureen Gillespie & Neal J. Pearlmutter

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