

D-linking and working memory: New evidence from Spanish

Alex Stiller and Grant Goodall

Department of Linguistics / UC San Diego

Background

D-linking and islands

Gaps in island environment show increase in acceptability when *wh*-filler is “D-linked” / lexically specified (Pesetsky 1987).

(1) * **What does Mary believe [the claim [that the teacher saw __]?**

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(2) ?? **Which movie does Mary believe [the claim [that the teacher saw __]?**

A working memory account

Why (1) is bad under this account:

Reintegration of *wh*-filler at gap site is difficult, reducing acceptability. In addition:

- Clause boundary
- Intervening referents
- Complex structure (island)

Why (2) is better under this account:

D-linked filler is more lexically elaborated, so it is more easily retrievable from working memory and reintegrated into structure at gap site, thus increasing acceptability. (cf. Hofmeister & Sag 2010, Kluender & Kutas 1993)

This account predicts amelioration in non-islands also, and this has been claimed to be true (Hofmeister 2007, Goodall 2015).

(3) **What does Mary believe [that John saw __]?**

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(4) **Which movie does Mary believe [that John saw __]?**

Problems with the evidence

- Overall results in the literature are mixed, with some studies finding **no D-linking effect in non-islands** (Alexopoulou & Keller 2013, Sprouse, Caponigro, Greco & Cecchetto 2015).
- In the studies where an effect in non-islands has been found, this may be due to the **simple presence of a D-linked filler** (which might increase acceptability on its own), rather than to the dependency between the filler and the gap.

This experiment

Goal: Address the above two problems concerning the evidence for the working memory account. Do these problems argue against the working memory account?

Strategy: Make use of Spanish *wh*-questions, which favor inversion of subject and verb.

wh S V order

(5) *Qué la profesora vio?
what the teacher saw

wh V S order

(6) Qué vio la profesora?
what saw the teacher

D-linking is thought to ameliorate S V order. What about V S order?

Things to note:

- SV order is not an island.
 - Working memory account predicts **D-linking effect** nonetheless, since D-linking should ameliorate all *wh*-dependencies, whether in island environments or not.
- VS order has only trivial *wh*-dependency.
 - Working memory account predicts **no D-linking effect** here, since there is no significant retrieval problem that D-linking could ameliorate.

Experiment

Acceptability experiment

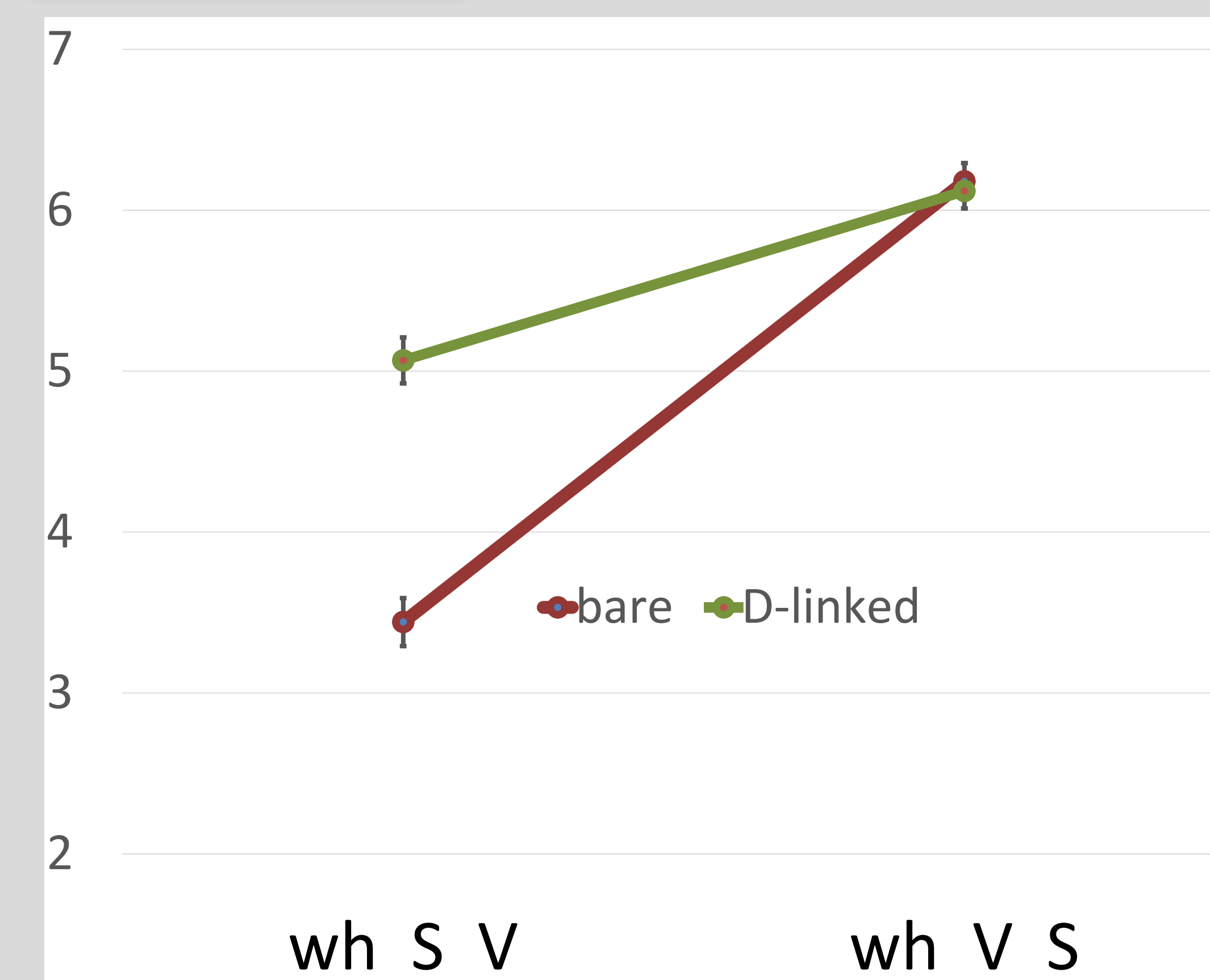
- 7-point scale (1 = “very bad”, 7 = “very good”)
- 45 participants, all native Spanish speakers residing in a Spanish-speaking country.
- Participants saw 3 tokens of each condition.
- 36 filler items (3 : 1 filler/experimental ratio)
- Counterbalanced (Latin square) and pseudo-randomized.

	<i>wh</i> S V	<i>wh</i> V S
bare	¿Qué la profesora vio en el cine?	¿Qué vio la profesora en el cine?
	‘What did the teacher see at the theater?’	
D-linked	¿Qué película la profesora vio en el cine?	¿Qué película vio la profesora en el cine?
	‘What movie did the teacher see at the theater?’	

D-linking effect in non-island?

D-linking effect with trivial dependency?

Results

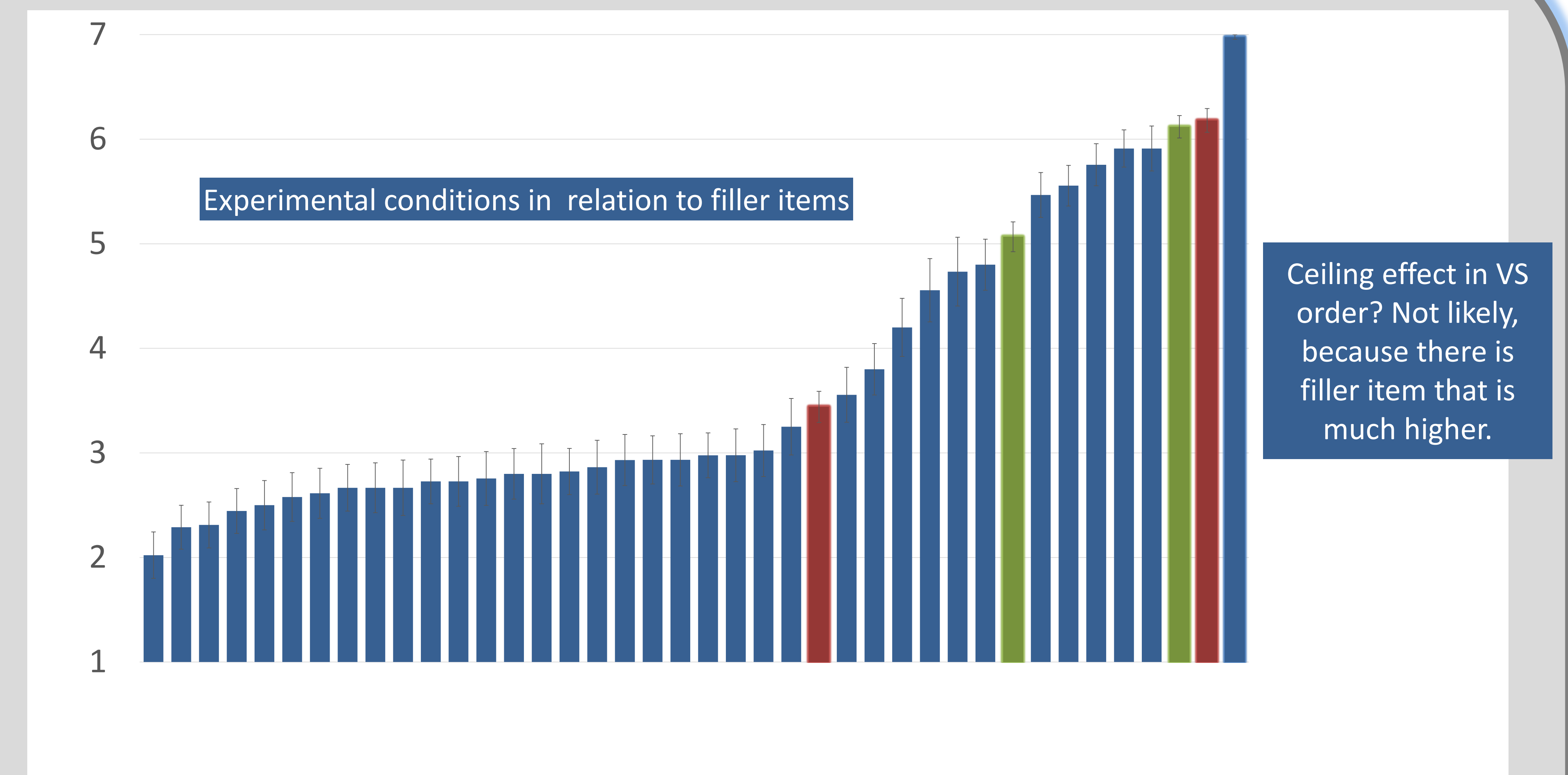


wh S V

wh V S

D-linking effect
 $p < 0.001$

No D-linking effect



Experimental conditions in relation to filler items

Ceiling effect in VS order? Not likely, because there is filler item that is much higher.

Conclusion I

I. D-linking improves the acceptability of gaps even in non-islands.

Spanish *wh*-questions with SV order are not a standard island environment:

- Clause is not embedded.
- Adjunct extraction better than argument extraction

Standard grammatical accounts of D-linking (e.g. Szabolcsi & Zwarts 1993) do not predict an effect here, since no Boolean operator intervenes between the *wh*-phrase and the gap.

References

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Conclusion II

II. D-linking has no effect on acceptability with trivial filler-gap dependency.

In the VS order, there is only a trivial *wh*-dependency (the filler is followed immediately by the subcategorizing verb), so as expected, there is no D-linking effect. The D-linking effect emerges only when the dependency is non-trivial, as in the SV order, suggesting that the effect is due not to the simple presence of a D-linked filler, but to the ameliorating effect on the dependency.