

The absence of D-linking effects in Cantonese *wh*-islands

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Background

D-linked *wh*-phrases ameliorate *wh*-island violations:

**What_i does Tom wonder [who repaired ___i]?*

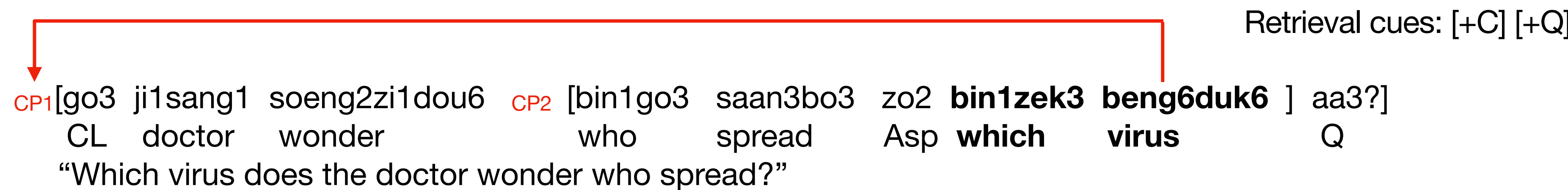
?*Which computer_i does Tom wonder [who repaired ___i]?*

Two accounts for D-linking effects

Processing account	Similarity-based interference - Cue-based retrieval process is initiated at gap position - Intervening <i>wh</i>-phrase induces similarity-based interference - D-linking reduces the degree of similarity-based interference [1]
Semantic account	- Interpretation of operators requires sets of discrete individuals - D-linking facilitates this interpretation [2,3]

Wh-island effects and D-linking effects in *wh*-in-situ languages

The two accounts make distinct predictions for *wh*-island effects and D-linking effects in ***wh*-in-situ** languages.



Account	Explanation	Wh-island	D-linking effects
Processing account	- Processing an in-situ <i>wh</i>-phrase involves cue-based retrieval to search for its scope position [4] - D-linking does not reduce the degree of similarity-based interference induced by the embedded scope position	✓	✗
Semantic account	The semantics of D-linked <i>wh</i> -phrases should be the same in <i>wh</i> -in-situ languages	✓	✓

Experiment

Participants: 44 native Hong Kong Cantonese speakers

Materials:

2x2x2 design

- Dependency Length:** Short vs. Long
- Structure Type:** Island vs. Non-island
- Wh*-phrase Type:** Bare vs. D-linked
- 4 tokens/condition + 32 filler items, pseudo-randomized order

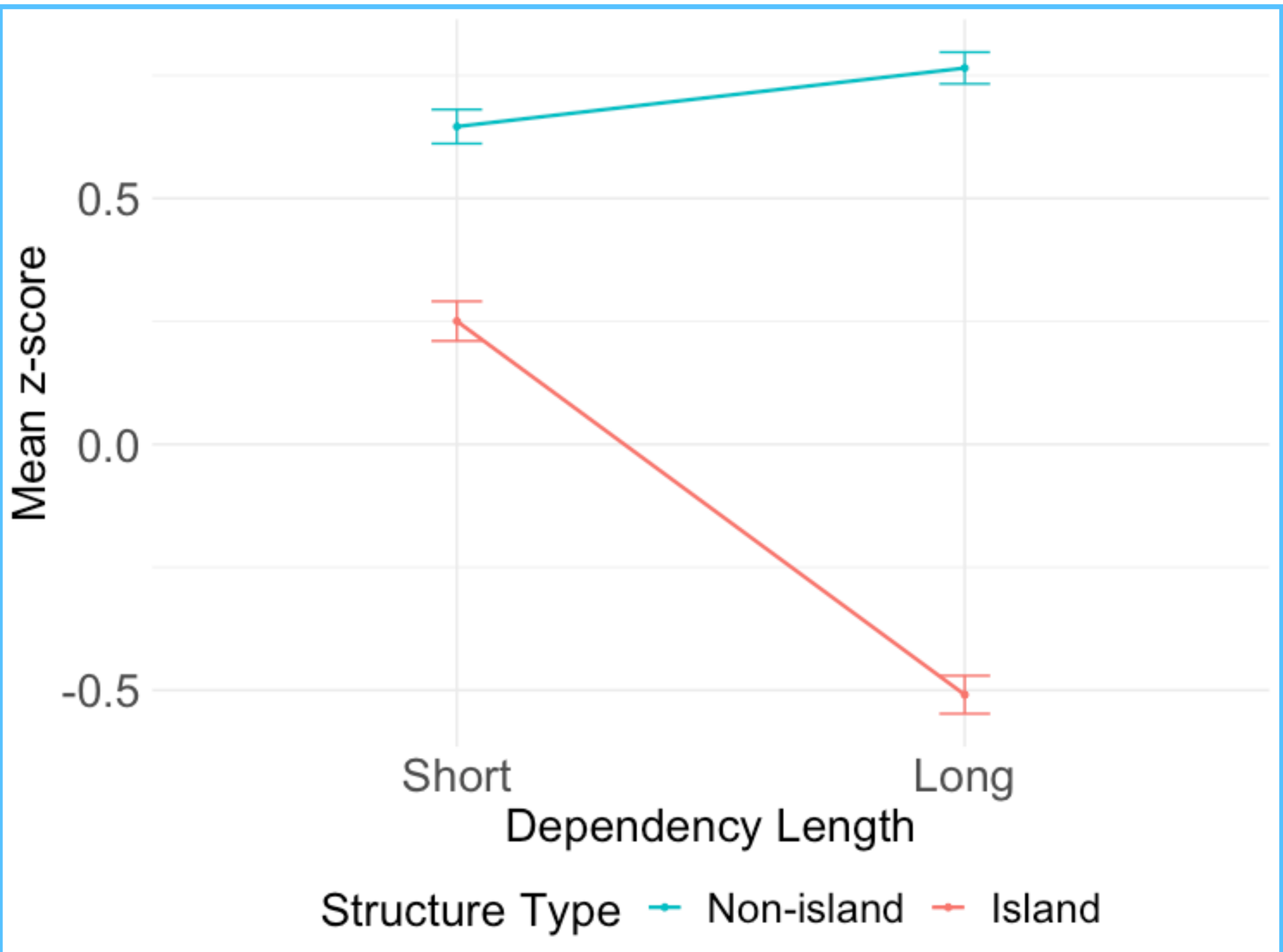
Procedure

- Question-answer pairs to avoid Y/N question interpretation
- Participants rated the acceptability of pairs on 1-7 scale

	<i>Short dependency</i>	<i>Long dependency</i>
Non-island	{bin1go3 ji1sang1 / bin1go3 } jing6wai4 siu2waa4 saan3bo3 zo2 zek3 {which doctor / who } think Siuwaa spread Asp CL beng6duk6 aa3? virus Q “{Which doctor/Who} thinks Siuwaa spread the virus?”	go3 ji1sang1 jing6wai4 siu2waa4 saan3bo3 zo2 CL doctor think Siuwaa spread Asp {bin1zek3 beng6duk6 / mat1je5 } aa3? {which virus / what } Q “{Which virus/What} does the doctor think Siuwaa spread?”
Island	{bin1go3 ji1sang1 / bin1go3 } soeng2zi1dou6 bin1go3 saan3bo3 zo2 {which doctor / who } wonder who spread Asp zek3 beng6duk6 aa3? CL virus Q “{Which doctor/Who} wonders who spread the virus?”	go3 ji1sang1 soeng2zi1dou6 bin1go3 saan3bo3 zo2 CL doctor wonder who spread Asp {bin1zek3 beng6duk6 / mat1je5 } aa3? {which virus / what } Q “{Which virus/What} does the doctor wonder who spread?”
Answer	ji1zi6 lau4gam2 go2 go3 ji1sang1 。 treat flu that CL doctor “The doctor who treats flu.”	dou6zi3 tou5o1 go2 zek3 beng6duk6 。 cause diarrhea that CL virus “The virus which causes diarrhea.”

Results

Wh-island effect



- Significant** interaction between **Dependency Length** and **Structure Type** (Estimate = -0.87992, SE = 0.06877, $p < 2e^{-16}$)
 - Strong evidence for **presence** of *wh*-island effects in Cantonese

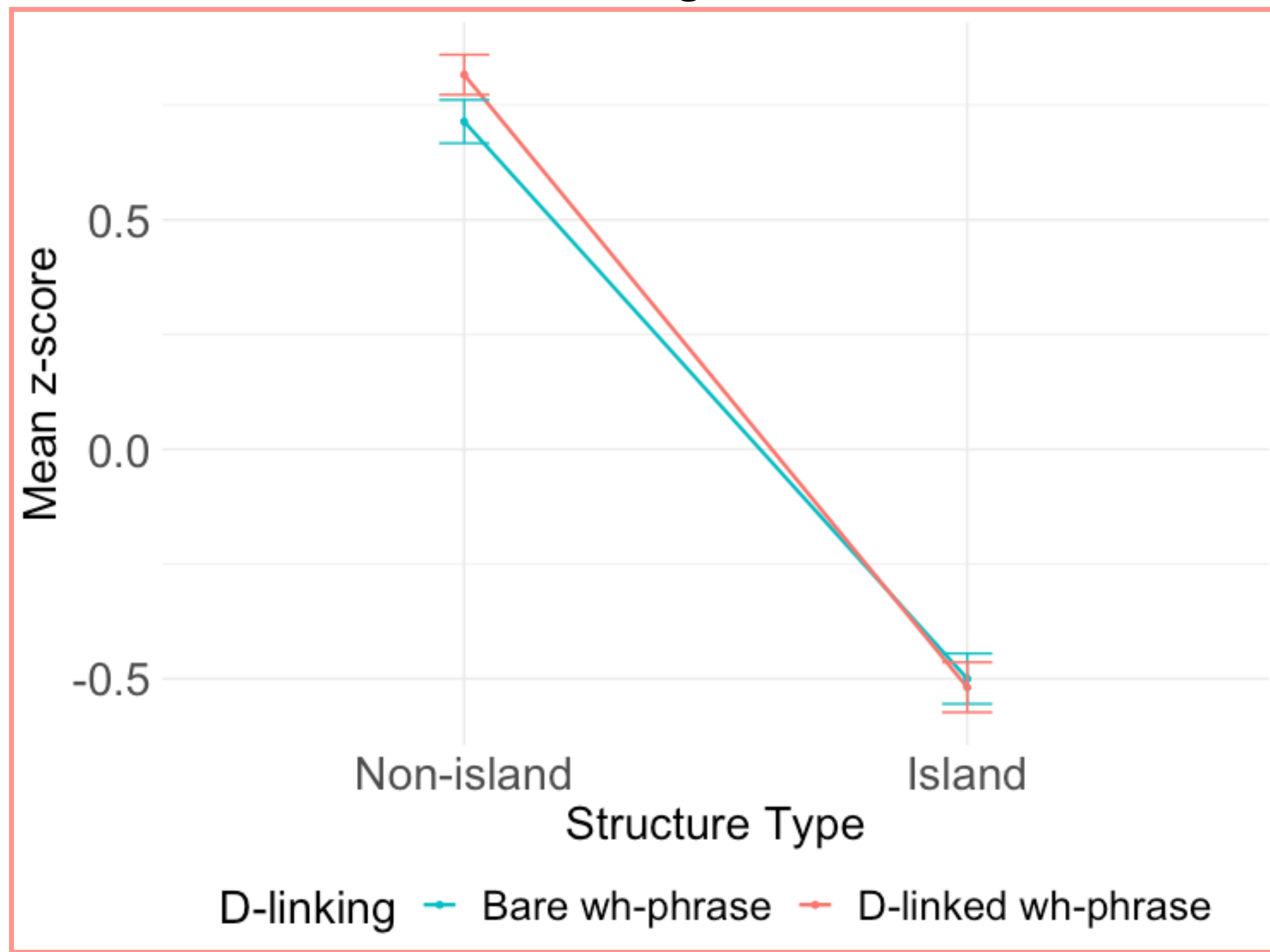
- No significant interaction between **Structure Type** and ***Wh*-phrase Type** (Estimate = -0.13311, SE = 0.09609, $p = 0.16646$)
 - Suggests that D-linking effects are **absent** in Cantonese *wh*-islands

- Semantic account** fails to predict absence of D-linking effects in Cantonese
- Similarity-based interference** correctly predicts the results
 - Processing account captures the cross-linguistic pattern of D-linking effects in *wh*-islands
 - Supports idea that *wh*-island effects stem from constraints on retrieval mechanism in working memory

References

[1] Atkinson et al. (2016). [2,3] Szabolcsi & Zwarts (1993; 1997). [4] Xiang et al. (2015).

No D-linking effects



Z-score ~ *Wh*-phrase Type * Structure Type + (1 + *Wh*-phrase Type + Structure Type | item)

Z-score ~ *Wh*-phrase Type * Structure Type * Dependency Length + (1 + Structure Type | participant) + (1 + Dependency Length | item)