INDIVIDUAL DIFFERENCES AND ACCEPTABILITY JUDGMENTS

PHILIP HOFMEISTER
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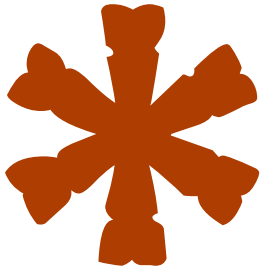
JUDGE, JURY, EX-ECUTIONER



STRUCTURE & EVIDENCE

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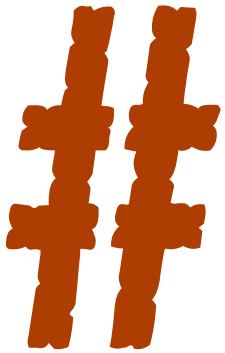

STRUCTURE & EVIDENCE

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STRUCTURE & EVIDENCE

INTERPRETING JUDGMENTS

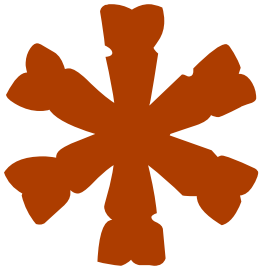
How can you tell what factors are influencing acceptability judgments?

INTERPRETING JUDGMENTS

“Starlings linguists language loggers commented on the work of studied are damn smart!”

David Beaver, 2006

INTERPRETING JUDGMENTS



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GRAMMAR OR PROCESSING ?

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- If processing difficulty & grammatical violations influence acceptability, any acceptability contrast could mean
  - Both options are grammatical but one is easy to process and the other difficult
  - One option is grammatical and one is ungrammatical
  - Both options = ungrammatical but one is easy to process and the other difficult

HOW CAN WE TELL THE DIFFERENCE?

STRUCTURE & EVIDENCE

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- We need criteria for telling apart the influences of grammar & processing on acceptability judgments

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- We need criteria for telling apart the influences of grammar & processing on acceptability judgments
- Today we're going to look at one possible criterion: individual differences in processing resources

INDIVIDUAL DIFFERENCES

- Tasks like the reading span task provide a measurement of individual differences in language processing resources [Daneman & Carpenter 1980]
  - Participants read sentences and memorize sentence-final words

INDIVIDUAL DIFFERENCES

- IF individuals with higher reading span scores experience less difficulty
- THEN, in cases where acceptability decrements are due to processing, individuals who have less difficulty processing a sentence should give it higher judgments

- For acceptability contrasts that are NOT due to differential processing complexity, we do not expect a *positive linear relationship*

COMBINING 2 SOURCES OF PROCESSING DIFFICULTY

The nurse from the clinic supervised the administrator who scolded the medic while a patient was brought into the emergency room. [SHORT-SHORT]

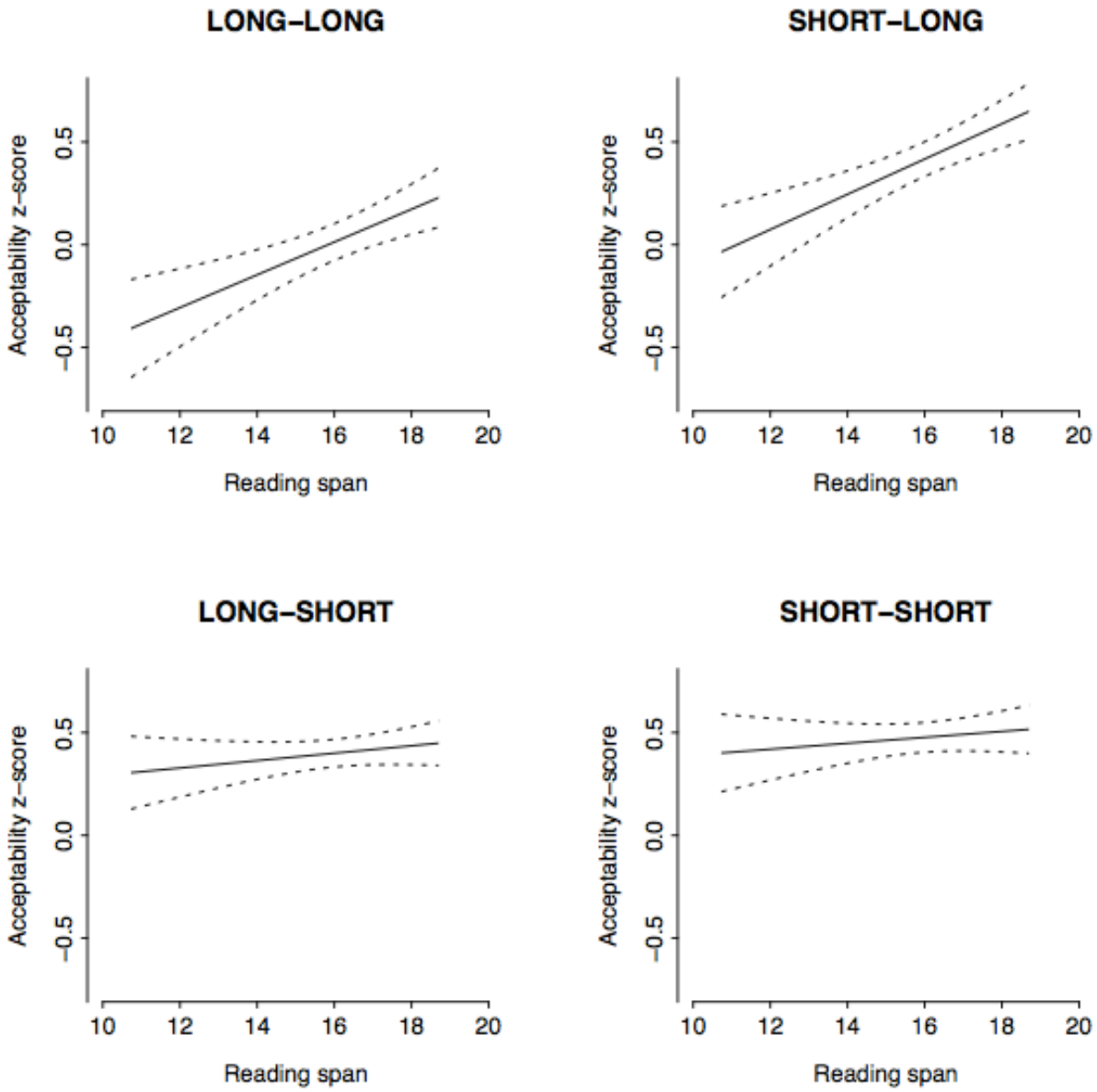
The nurse who was from the clinic supervised the administrator who scolded the medic while a patient was brought into the emergency room. [LONG-SHORT]

The administrator who the nurse from the clinic supervised scolded the medic while a patient was brought into the emergency room. [SHORT-LONG]

The administrator who the nurse who was from the clinic supervised scolded the medic while a patient was brought into the emergency room. [LONG-LONG]

Hofmeister, Staum Casasanto & Sag, in press

For the most difficult sentences, acceptability judgments are higher as reading span scores increase



Hofmeister, Staum Casasanto & Sag, in press

WHAT HAPPENED?

- Acceptability judgments for these sentences show a positive linear relationship with reading span score
- Predicted if the judgments were low due to processing difficulty AND people with higher RS scores experienced less difficulty

COMBINING GRAMMATICAL VIOLATIONS

The friend who visited Sue asked she whether the value of the house had dropped since the recession began. [GOOD-BAD]

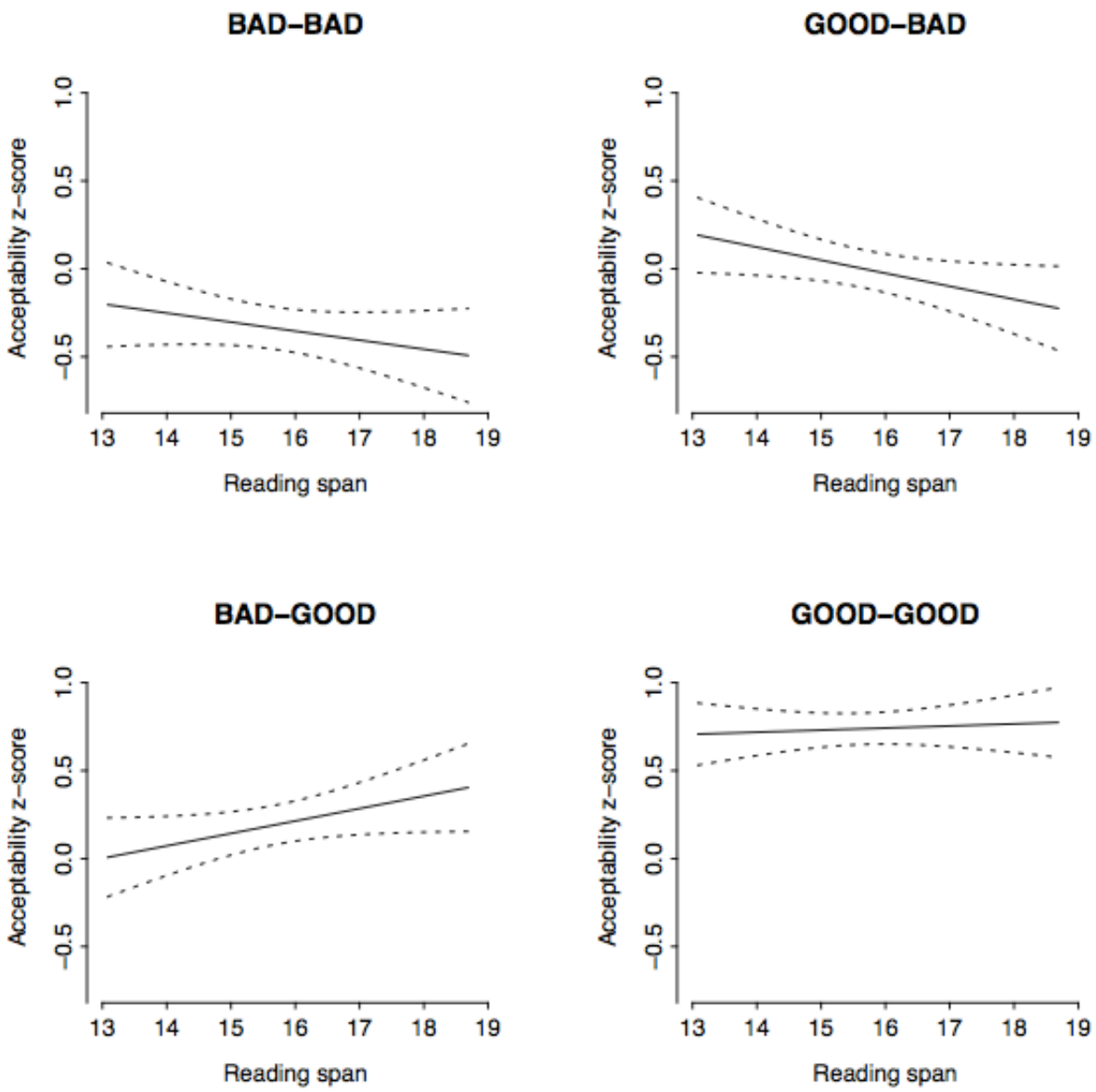
The friend who visited Sue asked her whether the value of the house had dropped since the recession began. [GOOD-GOOD]

The friend who visit Sue asked she whether the value of the house had dropped since the recession began. [BAD-BAD]

The friend who visit Sue asked her whether the value of the house had dropped since the recession began. [BAD-GOOD]

Hofmeister, Staum Casasanto & Sag, in press

For the worst sentences, higher reading span scores predict **lower** acceptability judgments



Hofmeister, Staum Casasanto & Sag, in press

WHAT HAPPENED?

- Acceptability judgments for sentences with the lowest ratings have a negative linear relationship with reading span scores

TODAY

- Use this information to inform grammatical theories
- There are ambiguous cases where there is debate about the appropriate analysis

TODAY

- Wh-islands
  - *Adoption is something you should decide whether you can commit to before diving in.*
- Relate judgments to reading span scores
- Compare this to how judgments for ungrammatical sentences relate to reading span scores

METHOD: JUDGE & REMEMBER

- Thermometer judgments [Featherston 2008]
  - Targets rated relative to two reference sentences & scores are normalized across participants

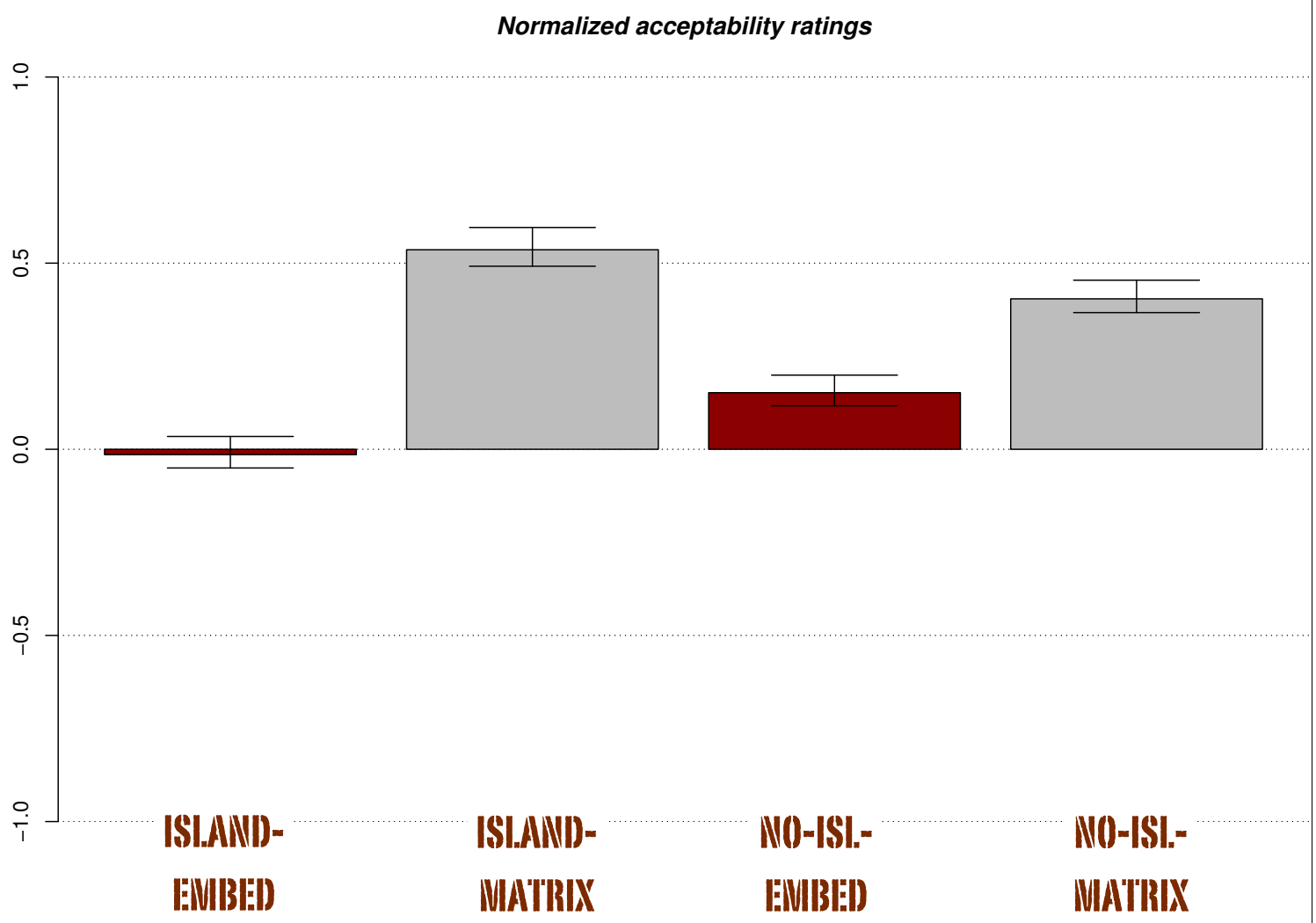
DESIGN

- 40 participants from the University of Essex community
- 24 critical items
- 100 total items (including practice)

ITEMS

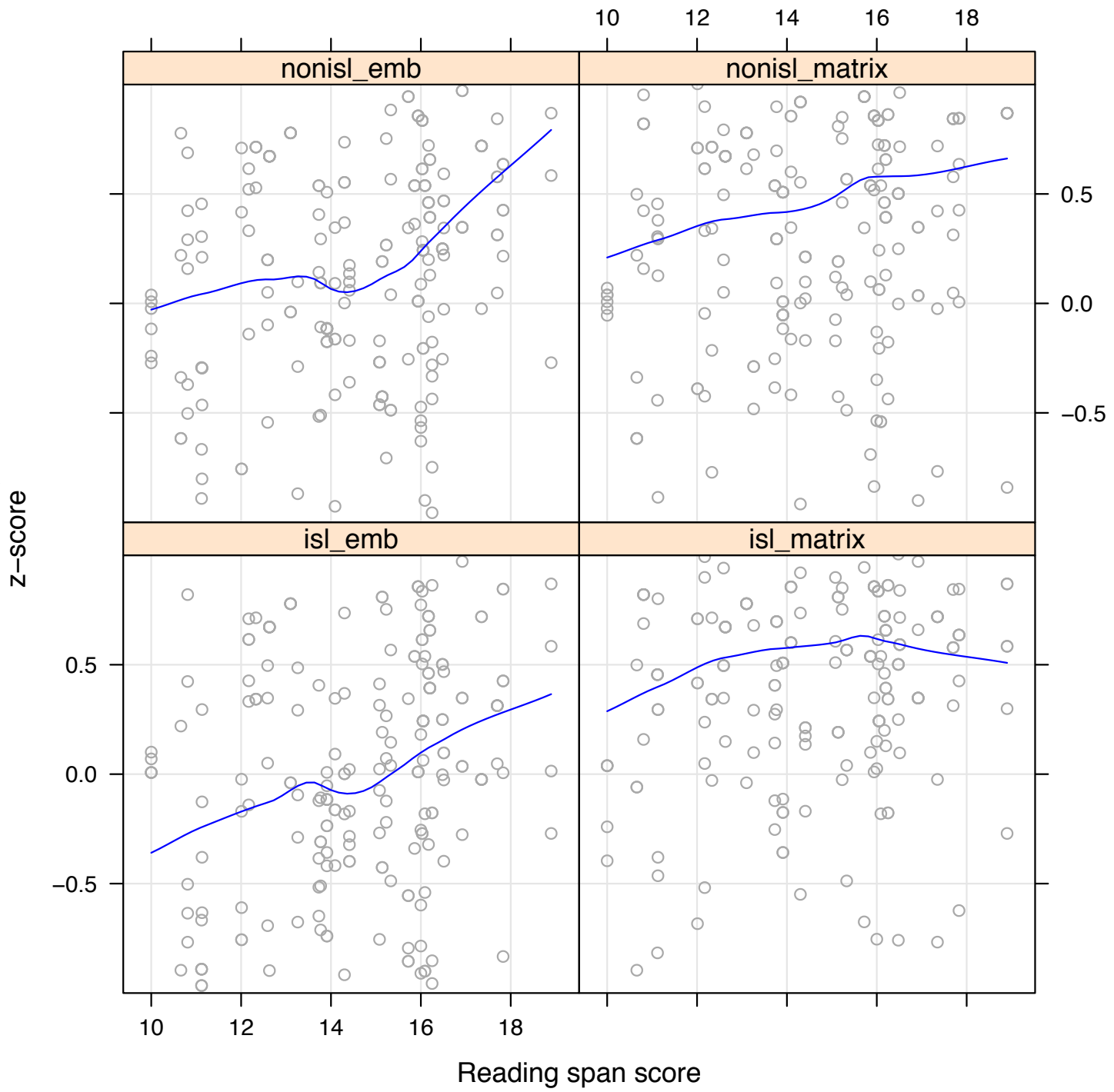
- It was time to admit which methods Cheney knew whether the CIA had used during the interrogation of terrorists. [ISLAND-EMBED]
- It was time to admit which methods Cheney knew that the CIA had used during the interrogation of terrorists. [NON-ISLAND-EMBED]
- It was Cheney that knew whether the CIA had used unethical methods during the interrogation of terrorists. [ISLAND-MATRIX]
- It was Cheney that knew that the CIA had used unethical methods during the interrogation of terrorists. [NON-ISLAND-MATRIX]

RESULTS



SIGNIFICANT INTERACTION OF DEPENDENCY LENGTH & ISLANDHOOD

READING SPAN SCORES



STRUCTURE & EVIDENCE

SUMMARY

- Higher judgments are provided by those with higher reading span scores
- These effects are most pronounced for the "worst" conditions (although there is no interaction)
- In sum, this looks a lot like cases of standard processing difficulty

SUMMARY

- By itself, this merely shows a relationship between judgments and measures of memory (of some sort)
- This is technically reconcilable with grammatical theories of islands, e.g. Sprouse, Wagers, & Phillips (2012)
  - Effects of grammar stack on top of processing effects, i.e. wh-islands can be both hard and ungrammatical

COMBINING PROCESSING DIFFICULTY & GRAMMATICAL VIOLATIONS

They couldn't remember which lawyer that the reporter interviewed had defended the elderly man at the courthouse. [HARD-GOOD]

They couldn't remember which lawyer had defended the elderly man that the reporter interviewed at the courthouse. [EASY-GOOD]

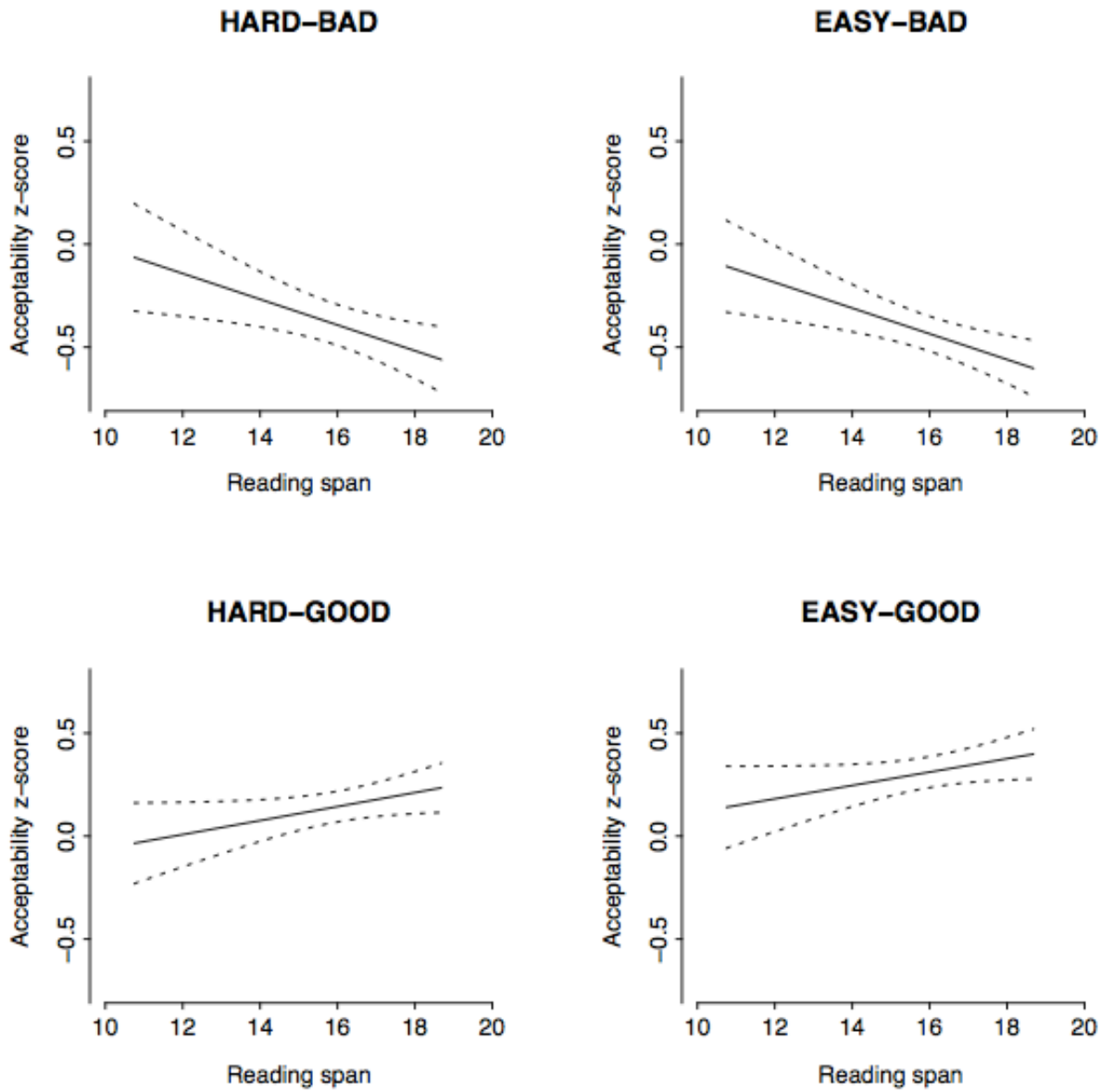
They couldn't remember which lawyer that the reporter interviewed had defending the elderly man at the courthouse. [HARD-BAD]

They couldn't remember which lawyer had defending the elderly man that the reporter interviewed at the courthouse. [EASY-BAD]

Hofmeister, Staum Casasanto & Sag, in press

Reading span scores predict acceptability judgments negatively in the ungrammatical sentences

Reading span scores predict acceptability judgments positively in the grammatical sentences



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READING SPANS & UN-GRAMMATICAL ITEMS

- People who always play violent video games are actually slightly less likely than their otherwise similar peers to have enacted violence. [GOOD-GOOD]
- People who always play violent video games are actually slightly less likely than their otherwise similar peers to have enacting violence. [GOOD-BAD]
- People who always playing violent video games are actually slightly less likely than their otherwise similar peers to have enacted violence. [BAD-GOOD]
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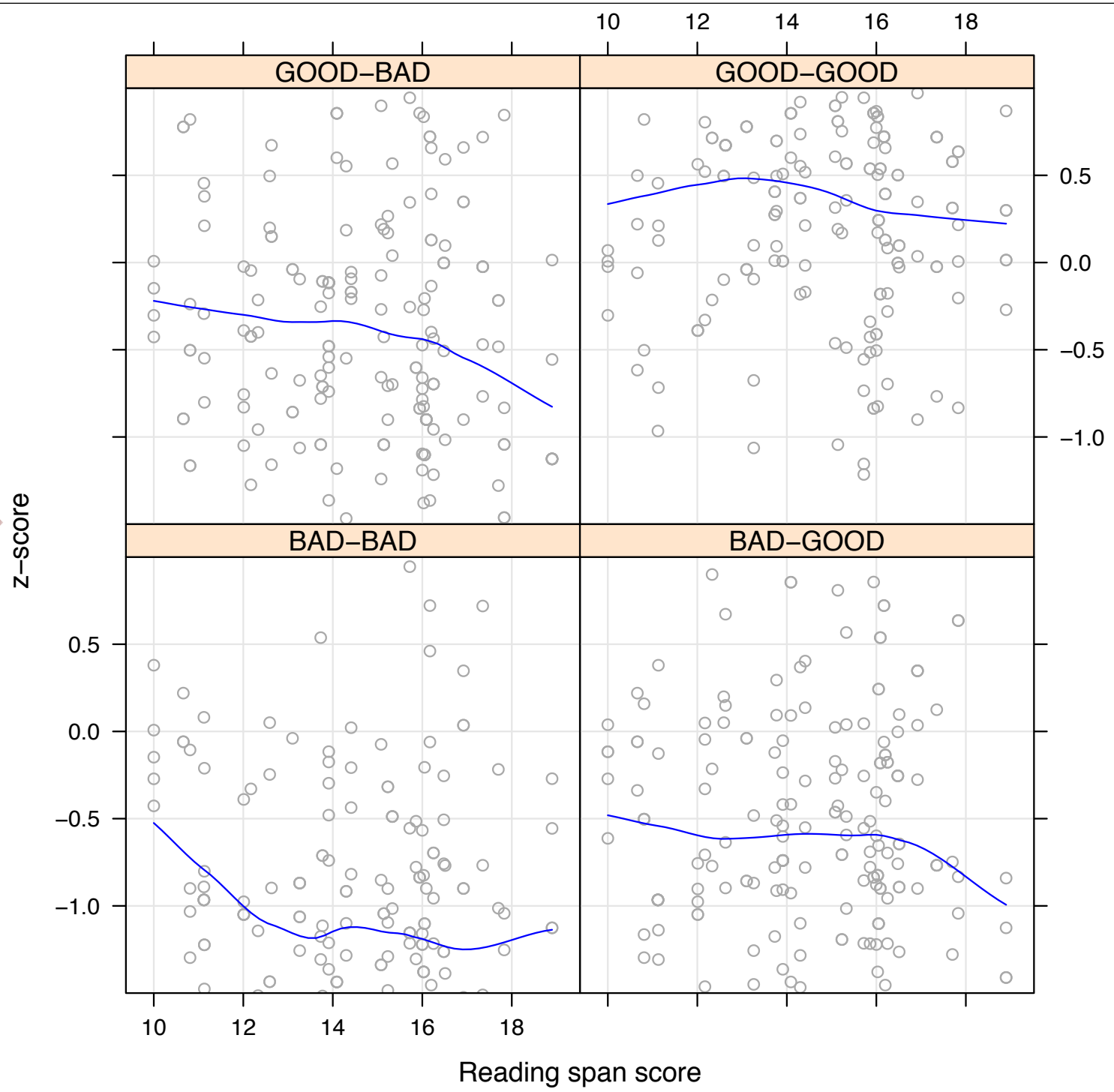


STRUCTURE & EVIDENCE

SUMMARY

- Judgments for sentences with grammatical "errors" decrease with higher reading span scores
- This pattern appears in 3 different experiments now
- If a grammatical error was present in the wh-island violation, we would expect to see a repetition of this pattern

CONCLUSION

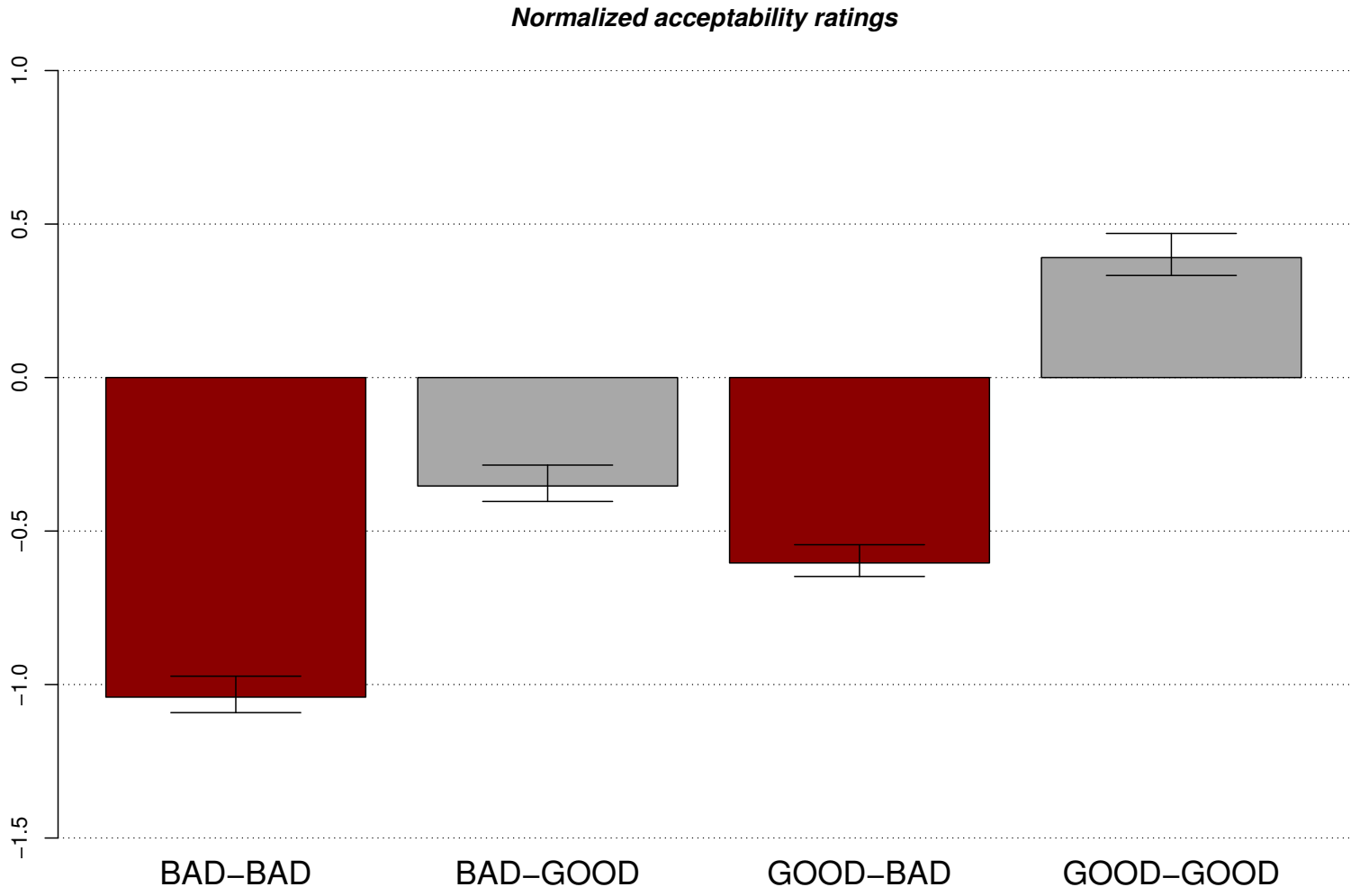
- The contribution of processing difficulty to judgment contrasts is evident via looking at individual differences
- Grammatical theories can become more refined and empirically grounded by taking into account patterns of individual variation

END

LIMITATIONS

- Comparison of different data sets
  - Follow-up study
    - It was time to admit which methods Cheney knew whether the CIA had used during the interrogation of terrorists.
    - It was time to admit which methods Cheney knew that the CIA had using during the interrogation of terrorists.

GRAMMAR VIOLATIONS



MODEL RESULTS

PREDICTOR	t-VALUE	SIGNIFICANCE
dep-length (dep)	-5.041	*
load	1.409	
island (isl)	-0.299	
reading span (rs)	3.719	*
dep * load	-0.411	
dep * island	-3.396	*
load * island	0.199	
dep * rs	0.617	
load * rs	-0.409	
island * rs	-0.442	
dep * load * isl	-0.901	
dep * load * rs	0.265	
dep * isl * rs	0.149	
load * isl * rs	-1.453	
dep * load * isl * rs	-0.892	

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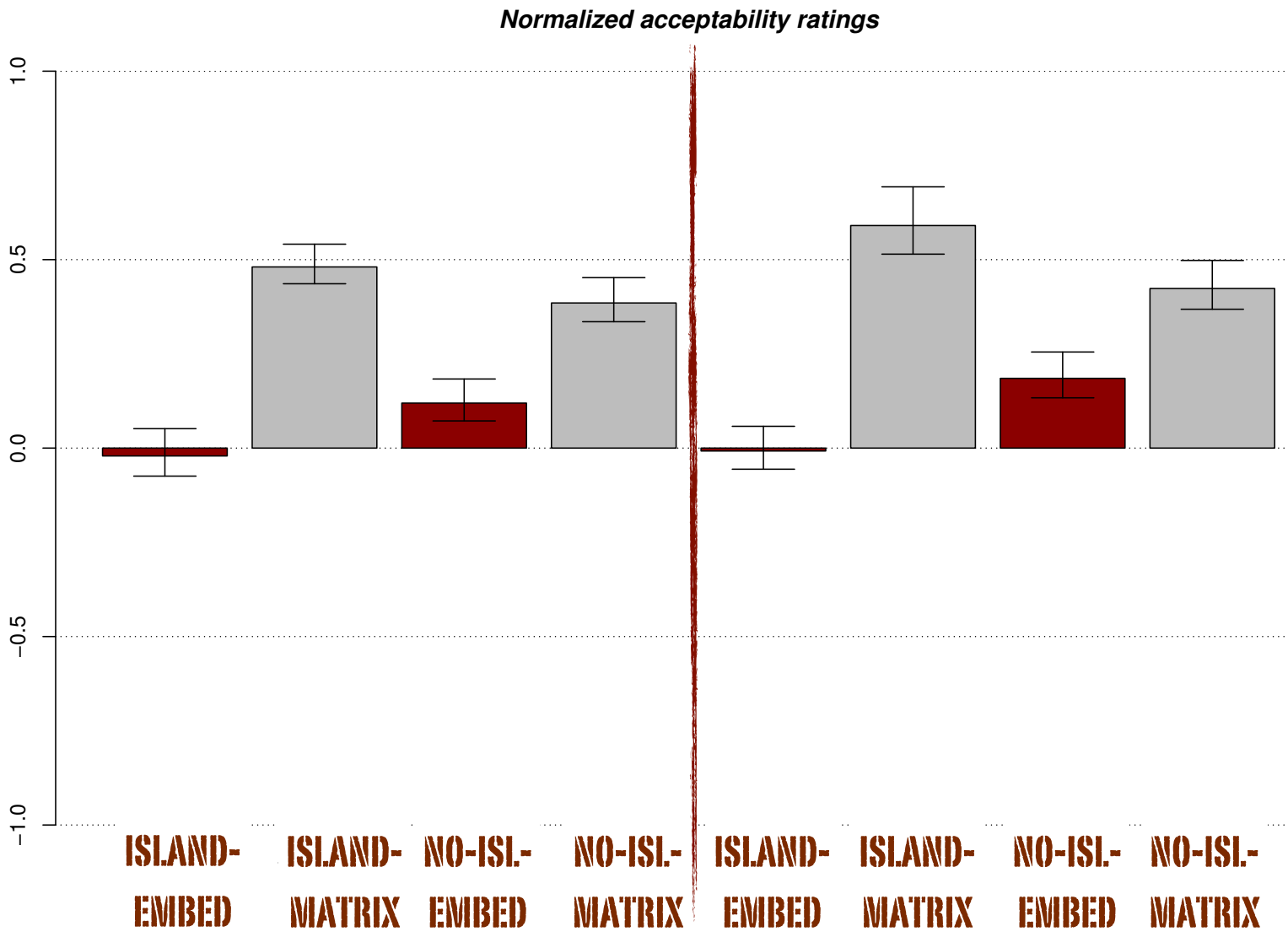

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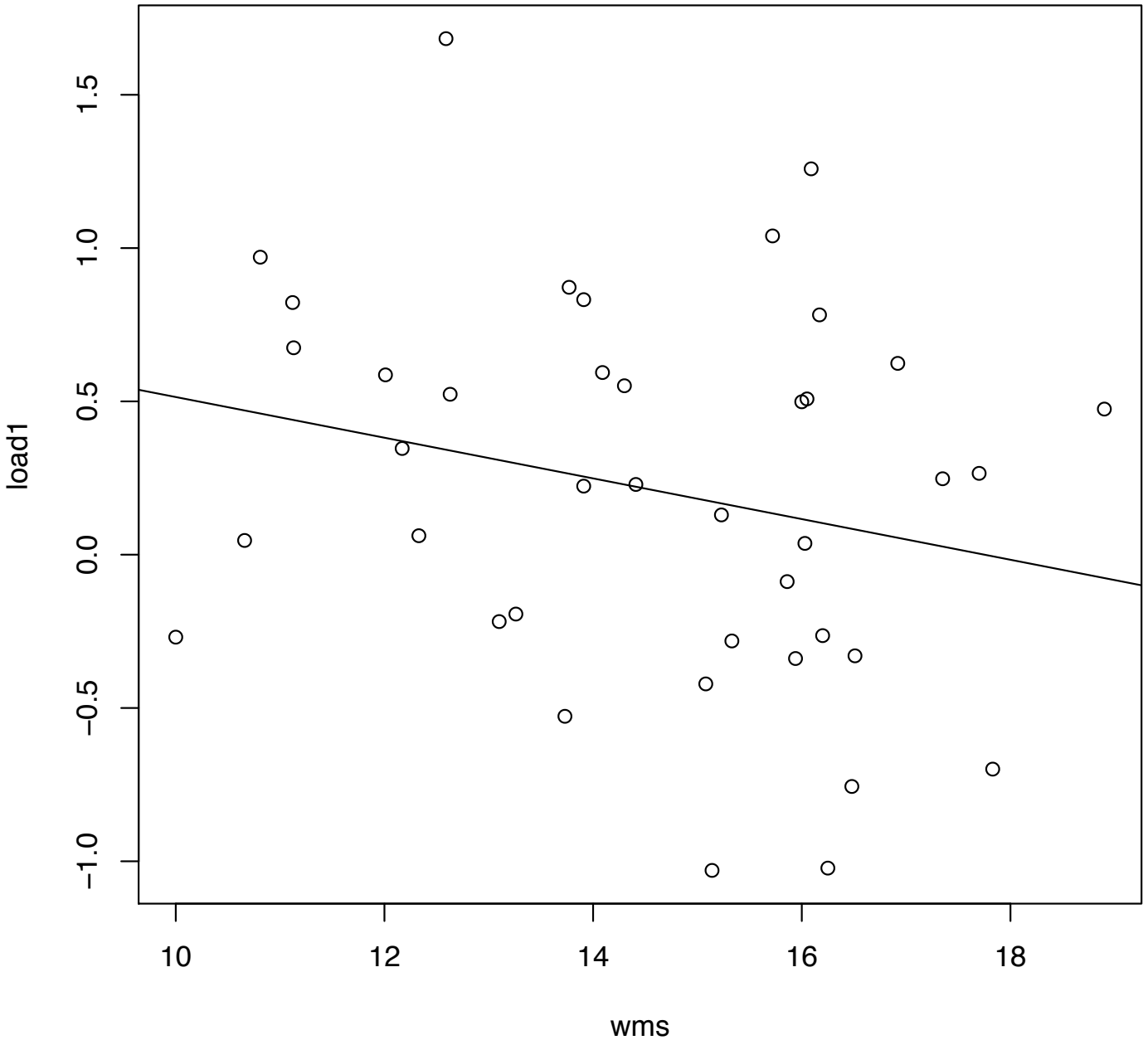

$t = -1.503, p = .14$

COMBINING PROCESSING DIFFICULTY & GRAMMATICAL VIOLATIONS

They couldn't remember which lawyer that the reporter interviewed had defended the elderly man at the courthouse. [HARD-GOOD]

They couldn't remember which lawyer had defended the elderly man that the reporter interviewed at the courthouse. [EASY-GOOD]

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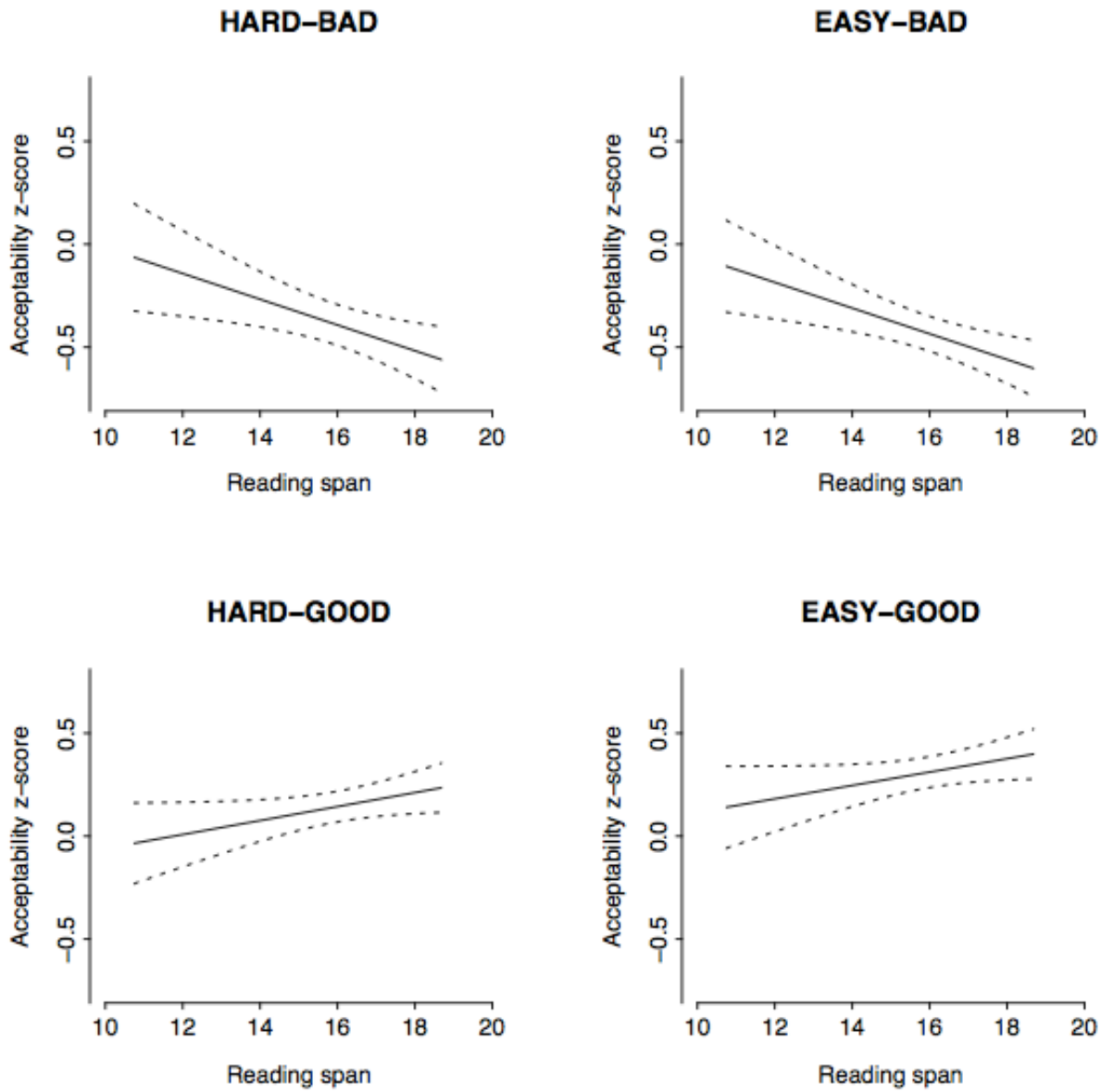

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COMBINING PROCESSING DIFFICULTY AND GRAMMATICAL VIOLATIONS

- Acceptability judgments for these sentences correlate **positively** with working memory measures in the grammatical conditions, and **negatively** with working memory measures in the ungrammatical conditions

COMBINING TWO RTDS – REALLY HARD

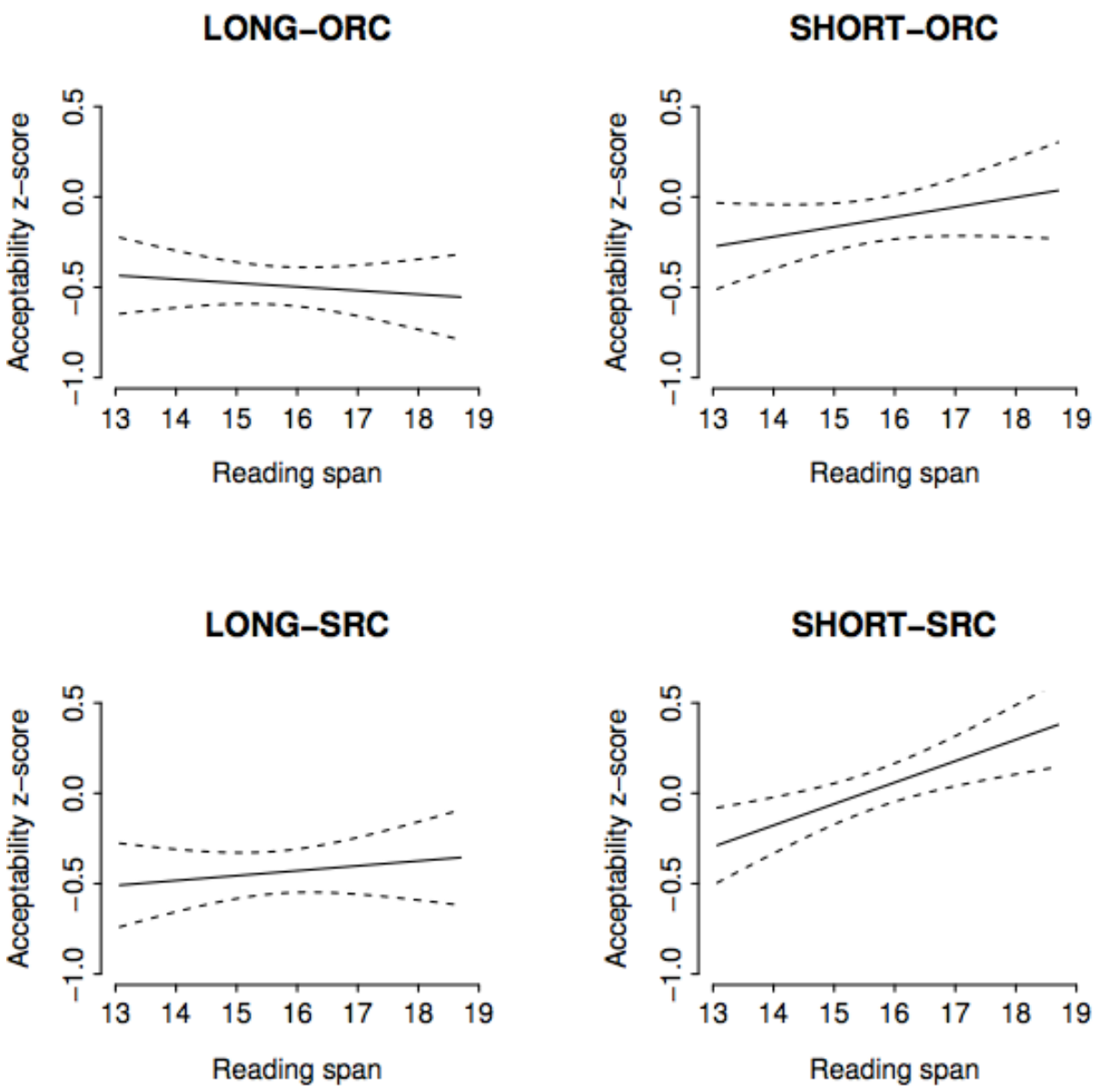
a. [short-src] Someone figured out which politician wrote that Robert bribed a reporter that trusted Nancy without thinking about it.

b. [short-orc]Someone figured out which politician wrote that Robert bribed a reporter that Nancy trusted without thinking about it.

c. [long-src] Someone figured out which politician a reporter that trusted Nancy wrote that Robert bribed without thinking about it.

d. [long-orc] Someone figured out which politician a reporter that Nancy trusted wrote that Robert bribed without thinking about it.

Hofmeister, Staum Casasanto & Sag, in press



Hofmeister, Staum Casasanto & Sag, submitted

MODEL RESULTS

PREDICTOR	t-VALUE	SIGNIFICANCE
load	1.067	
early-error	-7.962	*
late-error	-11.611	*
reading span	-3.628	*
load & early-x	0.113	
load * latex	-0.359	
earlyx * latex	2.007	*
load * rs	0.773	
earlyx * rs	-0.302	
latex * rs	0.284	
load * earlyx * latex	-0.874	
load * earlyx * rs	-0.914	
load * latex * rs	-0.647	
earlyx * latex * rs	-1.500	
load * earlyx * latex * rs	1.990	*

MODEL RESULTS

load	1.067	
early-error	-7.962	*
late-error	-11.611	*
reading span	-3.628	*
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load * latex * rs	-0.647	
earlyx * latex * rs	-1.500	
load * earlyx * latex * rs	1.990	*

METHOD: JUDGE & REMEMBER

- Memory load manipulation
  - Participants saw 1 or 2 words prior to the target sentence, e.g. CHURCH - PURSE
  - After reading key sentence, they were prompted to recall study words