

# TOWARD AN ACCOMMODATION ACCOUNT OF DEACCENTING UNDER NONIDENTITY

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EXPERIMENTS IN LINGUISTIC MEANING 1

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# OVERVIEW

**Anaphoric deaccenting** is possible on constituents that are **identical** to an antecedent as well as **inferable** from one.

Two licensing mechanisms are proposed in the literature:

- 1) Givenness in the grammar
- 2) Identity and accommodation

We investigated the **production** and **perception** of discourse-new, inferable, and repeated verbs.

Results: repeated and inferable verbs have a **different empirical status**, supporting the accommodation account.

Deaccenting acceptability is affected by contextual support, which may index ease of antecedent accommodation.

# BACKGROUND

**Anaphoric deaccenting** moves an otherwise expected pitch accent off a redundant constituent.

Andrea rebuffed Laura, and Ron EMBRACED *Laura*.

Christina embraced Laura, and RON *embraced Laura*.

Empirically, material does not need to be **identical** to a linguistic antecedent to be deaccented.

Deaccenting is also licit for targets that are made **accessible** or **inferable** in the discourse.

## Co-reference

A: Did you see Dr. Cremer to get your root canal?

B: Don't remind me. I'd like to STRANGLE *the butcher*.

(Büring 2007)

## Entailment

Bach wrote many pieces for viola. He must have LOVED *string instruments*.

(van Deemter 1999)

# World knowledge inferences

First John called Mary a Republican, and then SHE *insulted* HIM.

(Lakoff 1968)

# Nonlinguistic context

[Hearer cocks their head to one side as if listening for a faint or distant noise.]

Speaker: I *heard it*, TOO.

(Rochemont 1986)

# One approach to deaccenting: **givenness in the grammar**

(Chafe 1974, 1994; Ladd 1980; Rochemont 1986; Rooth 1992; van Deemter 1994, 1999; Selkirk 1995; Schwarzschild 1999; Sauerland 2005; Baumann & Riester 2012; Büring 2016; i.a.)

Deaccenting is licensed exactly when the constituent's meaning is given/accessible in the discourse.

Antecedent-identical material is trivially deaccented as a subset of given material.



Certain of these approaches interface directly with focus theory and aim to unify deaccenting with F-marking.

Others deal more abstractly with the notion of givenness and may appeal to a separate marker, G.

But, they agree in their uniform treatment of identical and inferable material.

Antecedent: Bach wrote many pieces for viola.

Target: He must have LOVED *string instruments*<sub>G</sub>.

*String instruments* is deaccentable because *viola* entails *string instrument*, modulo existential closure.

## A second approach: **identity and accommodation**

(Tancredi 1992, Fox 2000, Wagner 2012)

This approach proposes that deaccenting is *grammatical* only for identical material.

Other material can be *acceptably* deaccented if an alternative antecedent can be accommodated.

Antecedent: Bach wrote many pieces for viola.

Target: He must have LOVED *string instruments*.

The pattern of accentuation in the target is ungrammatical.

But, it's reasonable to accommodate:

Antecedent': Bach wrote many pieces for a string instrument.

Had this been the antecedent, deaccenting *would* be grammatical, so the target is acceptable.

**Puzzle:** There are two competing strategies for generating deaccenting of antecedent-nonidentical material.

**Strategy 1:** Account for nonidentity in the **grammar** using entailment relations or direct givenness marking.

**Strategy 2:** Require identity in the grammar, and account for nonidentity with an **extragrammatical** process.

(NB: It is not the case that each account in the literature exclusively uses one strategy or the other.)

Systematic empirical investigation of deaccenting might provide insight about how to deal with nonidentity.

Also, while nonidentical examples are commonly cited in the literature, there has been little empirical work on such cases.

**Exception:** Chodroff & Cole (2019) investigated the production of new, accessible, and repeated nouns.

*Contra* prior intuitions, they found that accessible nouns were accented rather than deaccented.

We investigated the **production** and **perception** of (de)accentuation on verbs.

The verbs could be discourse-new, discourse-old, or inferable/accessible.

This fleshes out the empirical status of “accessible” material.

The results also constrain the theoretical treatment of nonidentical material in the theoretical apparatus.

# EXPERIMENT 1: PRODUCTION

Do speakers deaccent inferable constituents in production?

Have speakers produce inferable verbs, with new and repeated verbs for comparison.



# EXPERIMENTAL PARADIGM: PRODUCTION

*SVO and SVO*

**S2:** monosyllable, discourse-new

**O2:** trochee, discourse-old\*

**V2:** iamb, variable discourse status

\*Discourse-new objects were also used, but will not be discussed here. When the object is discourse-new, the verb is not in nuclear position, leading to less clear prosodic distinctions according to discourse status.

# EXPERIMENTAL PARADIGM: PRODUCTION

**New:** Second verb is fully discourse-new

*Andrea **rebuffed** Laura, and Ron **embraced** Laura.*

**Inferable:** First and second verb linked by inferencing relation

*Veronica **hugged** Laura, and Ron **embraced** Laura.*

**Repeated:** First and second verb identical

*Christina **embraced** Laura, and Ron **embraced** Laura.*

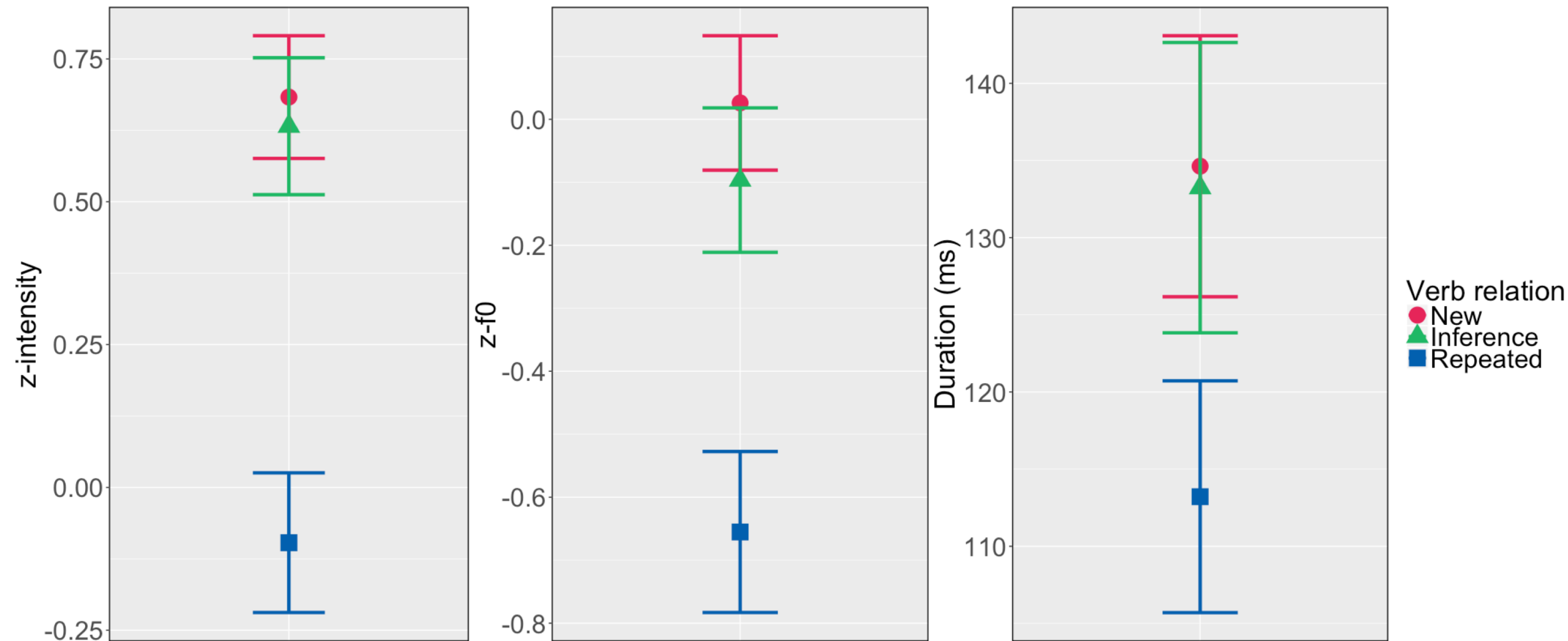
# EXPERIMENT 1: PRODUCTION

- **Penn Forced Aligner** (Yuan & Liberman 2008)
- **ProsodyPro** (Xu 2013)

Analysis of three correlates of accent on the stressed verb nucleus:

- **Intensity (loudness)**  
(Fry 1955, 1958, Liberman 1960, Beckman 1986)
- **$f_0$  (pitch)**  
(Fry 1955, 1958, Liberman 1960)
- **Duration**  
(Fry 1955, 1958, Adams & Munro 1978, Isenberg & Gay 1978, Cutler & Darwin 1981)

# EXPERIMENT 1: PRODUCTION



New verbs were accented and repeated verbs were deaccented.  
Inferable verbs were accented, not deaccented.

# EXPERIMENT 2: LISTENER ASSESSMENTS

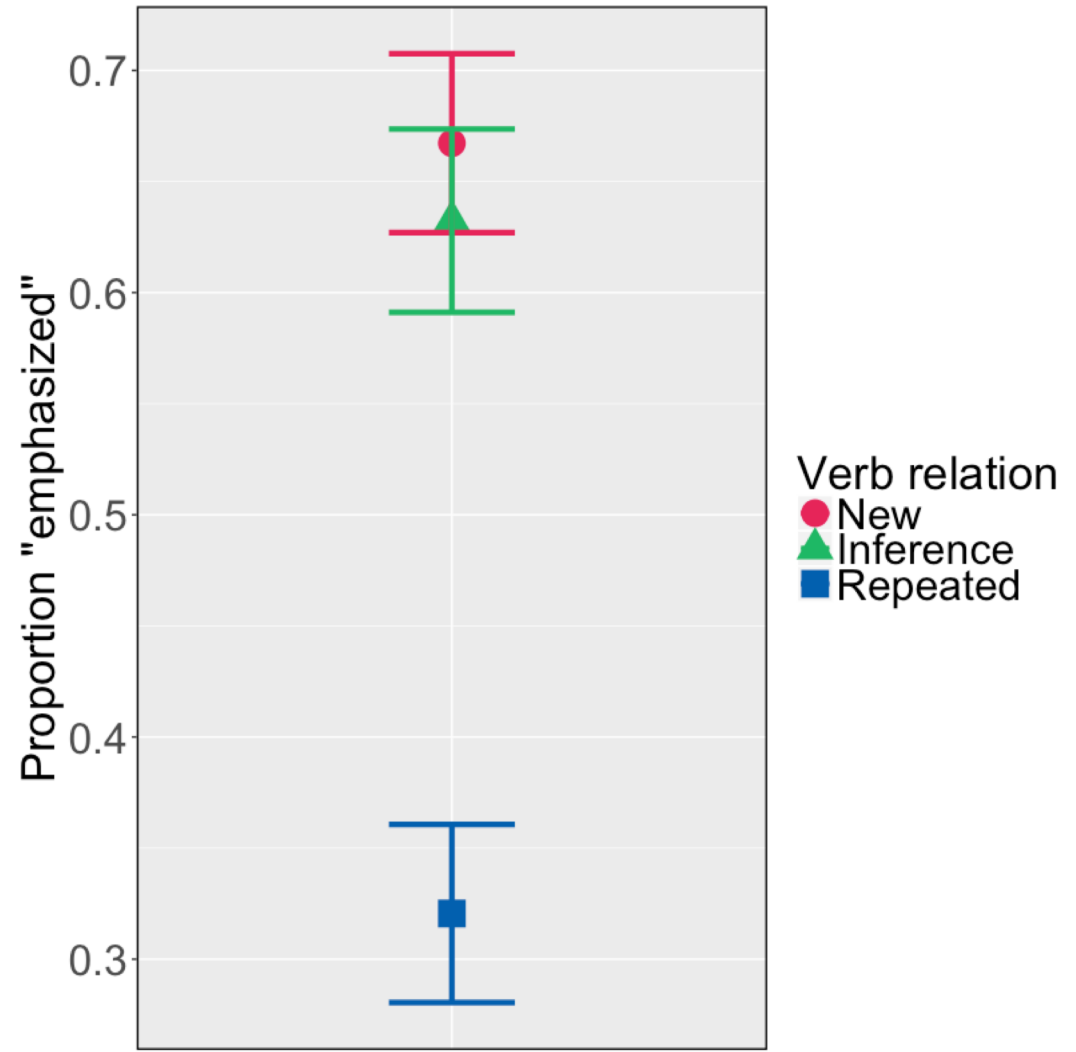
Did the Experiment 1 phonetic analysis capture impressionistic facts of accent?

Have listeners rate whether verbs were “emphasized” or “not emphasized.”

Listeners heard only the critical clause; no information on discourse status.

*Andrea rebuffed Laura, and Ron embraced Laura.*

# EXPERIMENT 2: LISTENER ASSESSMENTS



Listeners agreed that new and inferable verbs were accented, and repeated verbs were deaccented.

In production, speakers reliably accented inferable verbs rather than deaccenting them.

This disagrees with the generalization from the literature that entailed and other accessible material should be deaccented.

However, these speakers did not plan their own utterances, so they may not have deaccented for a variety of reasons.

The remaining experiments investigate the status of deaccenting in **perception** – how do listeners react *given* that the speaker has chosen to deaccent inferable material?

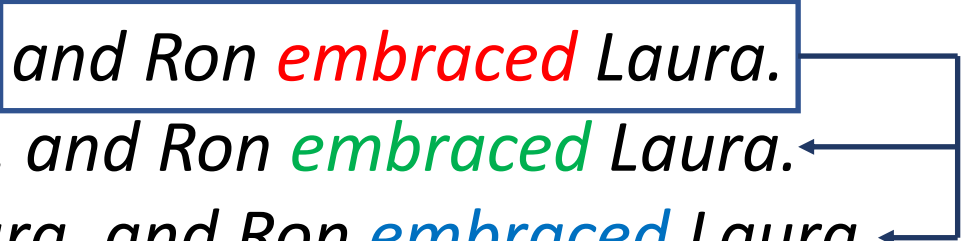
# EXPERIMENTAL PARADIGM: PERCEPTION

*Andrea **rebuffed** Laura, and Ron **embraced** Laura.*  
*Veronica **hugged** Laura, and Ron **embraced** Laura.*  
*Christina **embraced** Laura, and Ron **embraced** Laura.*



# EXPERIMENTAL PARADIGM: PERCEPTION

Andrea *rebuffed* Laura, and Ron *embraced* Laura.  
Veronica *hugged* Laura, and Ron *embraced* Laura.  
Christina *embraced* Laura, and Ron *embraced* Laura.



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Christina *embraced* Laura, and Ron *embraced* Laura.

Andrea *rebuffed* Laura, and Ron *embraced* Laura. ←  
Veronica *hugged* Laura, and Ron *embraced* Laura. ←  
Christina *embraced* Laura, and Ron *embraced* Laura. ←

# EXPERIMENTAL PARADIGM: PERCEPTION

## ACCENTED V2

*Andrea **rebuffed** Laura, and Ron **embraced** Laura.  
Veronica **hugged** Laura, and Ron **embraced** Laura.  
Christina **embraced** Laura, and Ron **embraced** Laura.*

## DEACCENTED V2

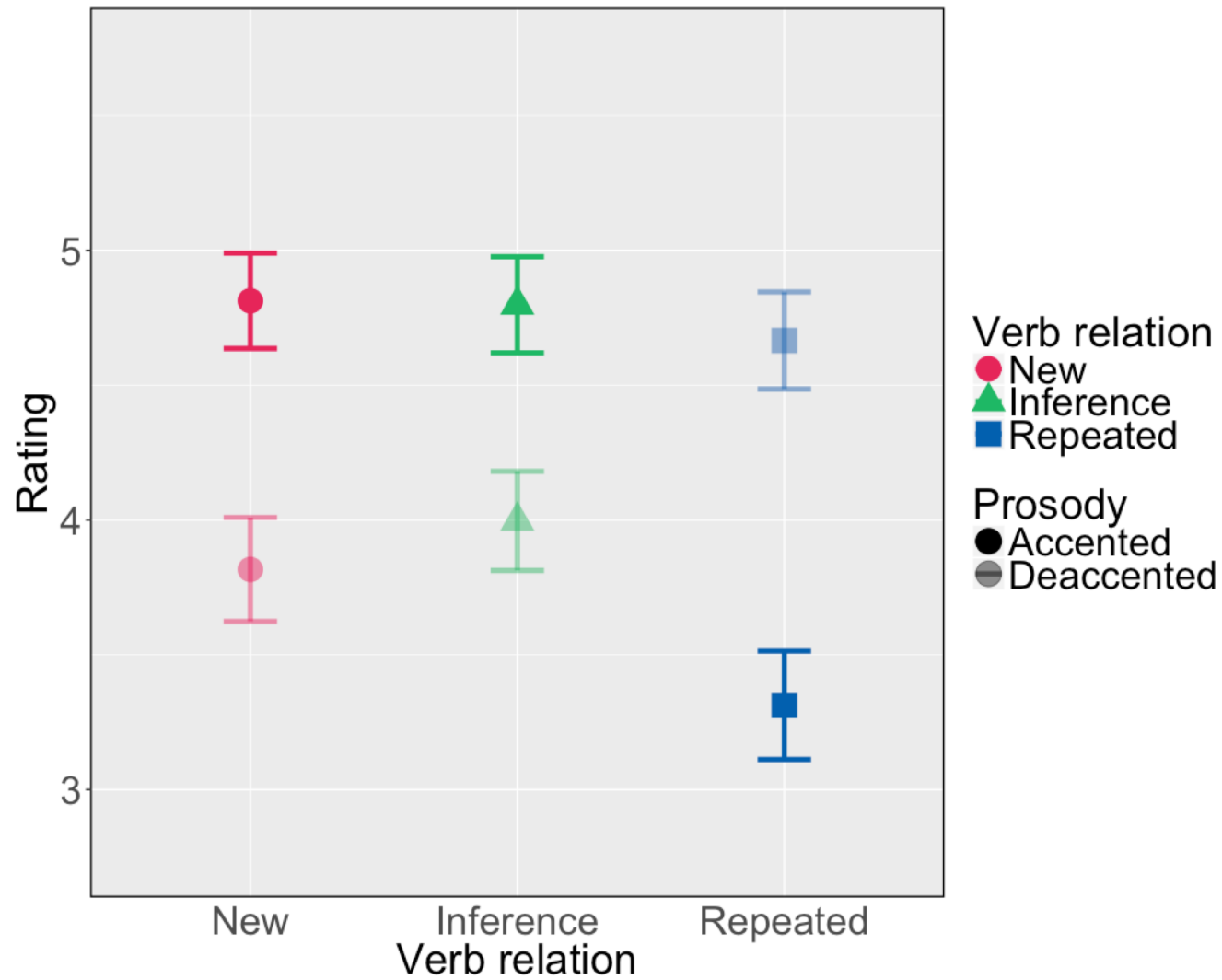
*Andrea **rebuffed** Laura, and Ron **embraced** Laura.  
Veronica **hugged** Laura, and Ron **embraced** Laura.  
Christina **embraced** Laura, and Ron **embraced** Laura.*

# EXPERIMENT 3: DEACCENTING PERCEPTION

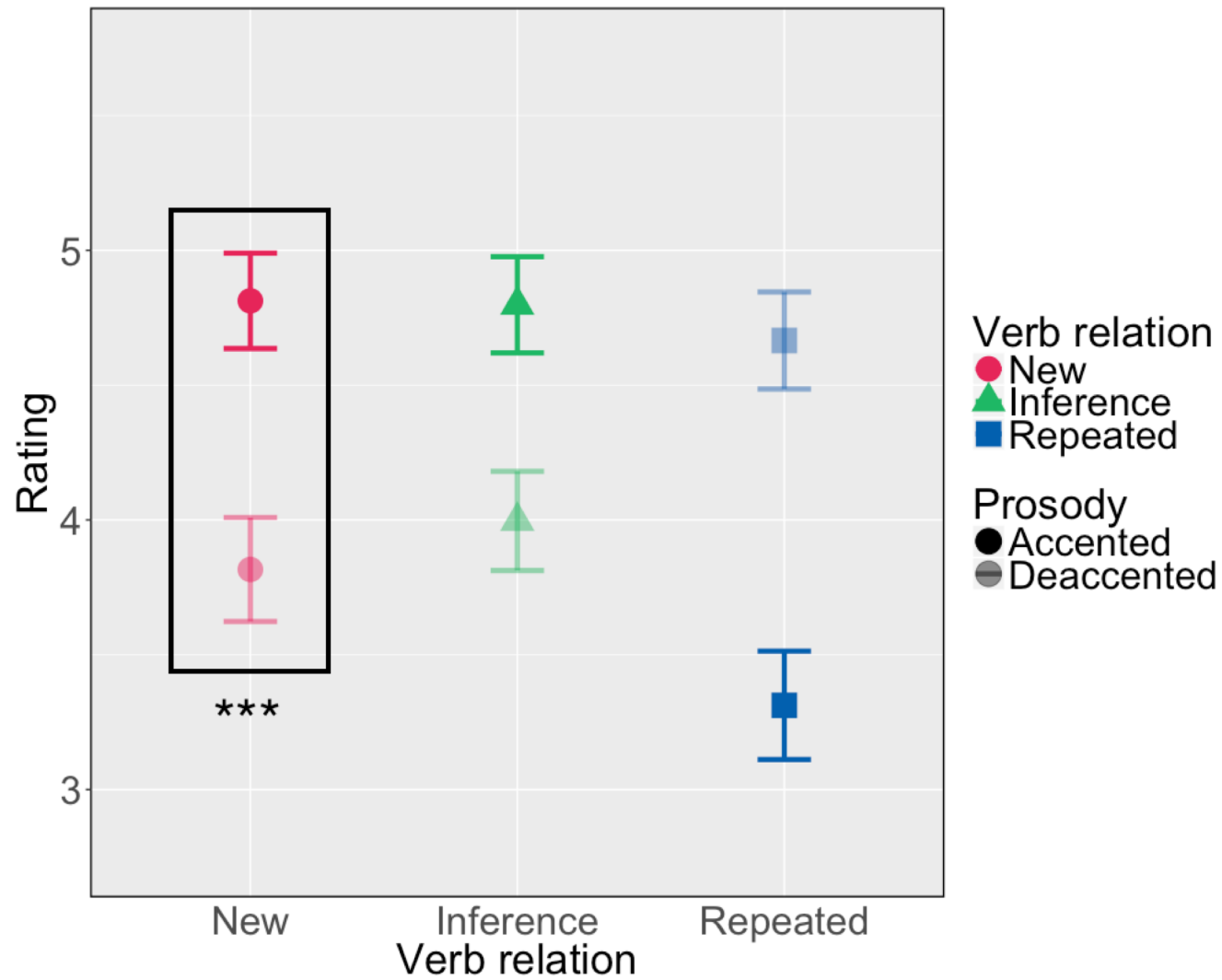
How natural do these stimuli sound in out-of-the-blue contexts?

**On a scale from 1 to 7, how natural does the “melody” or “tune” of this sentence sound?**

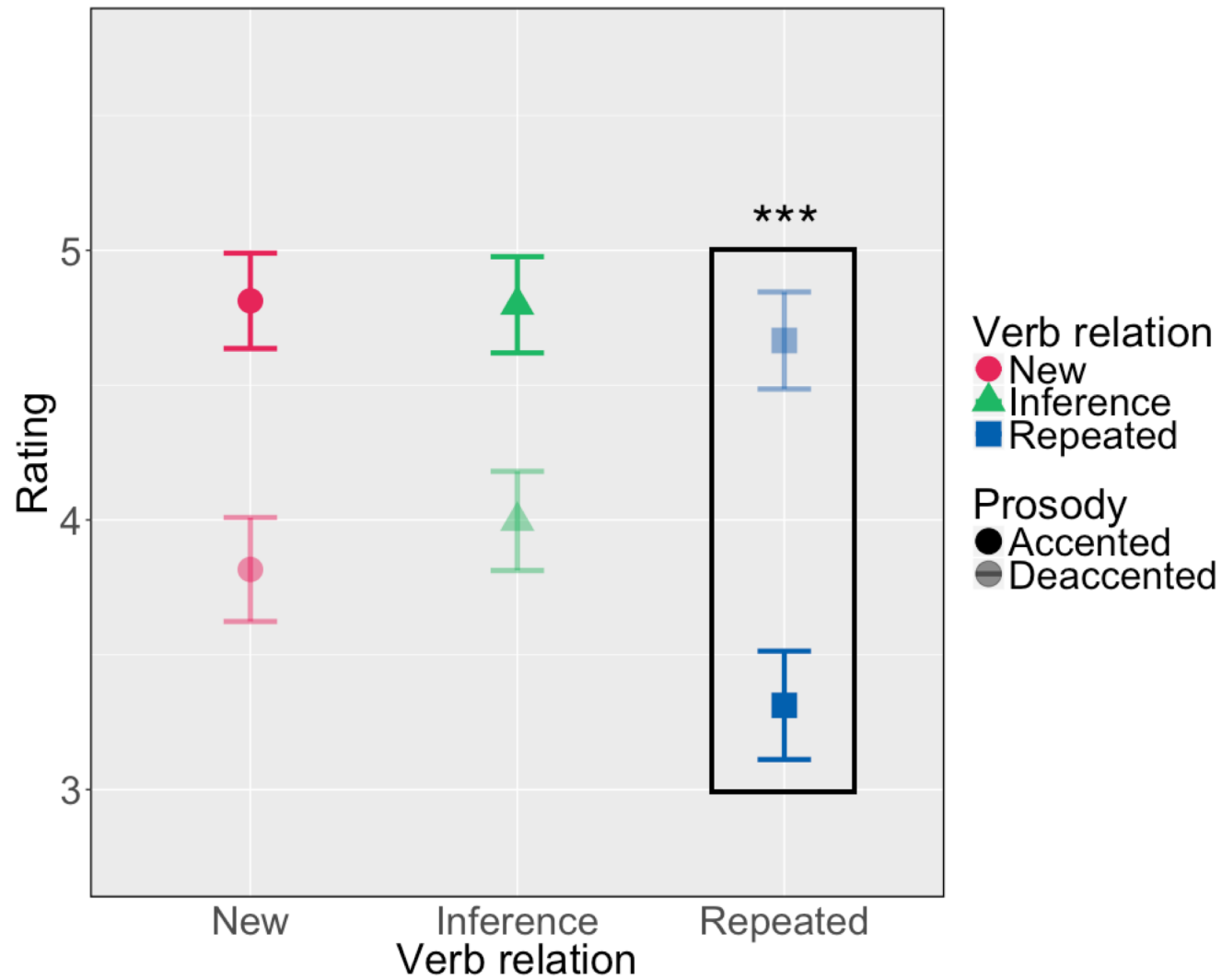
# EXPERIMENT 3: DEACCENTING PERCEPTION



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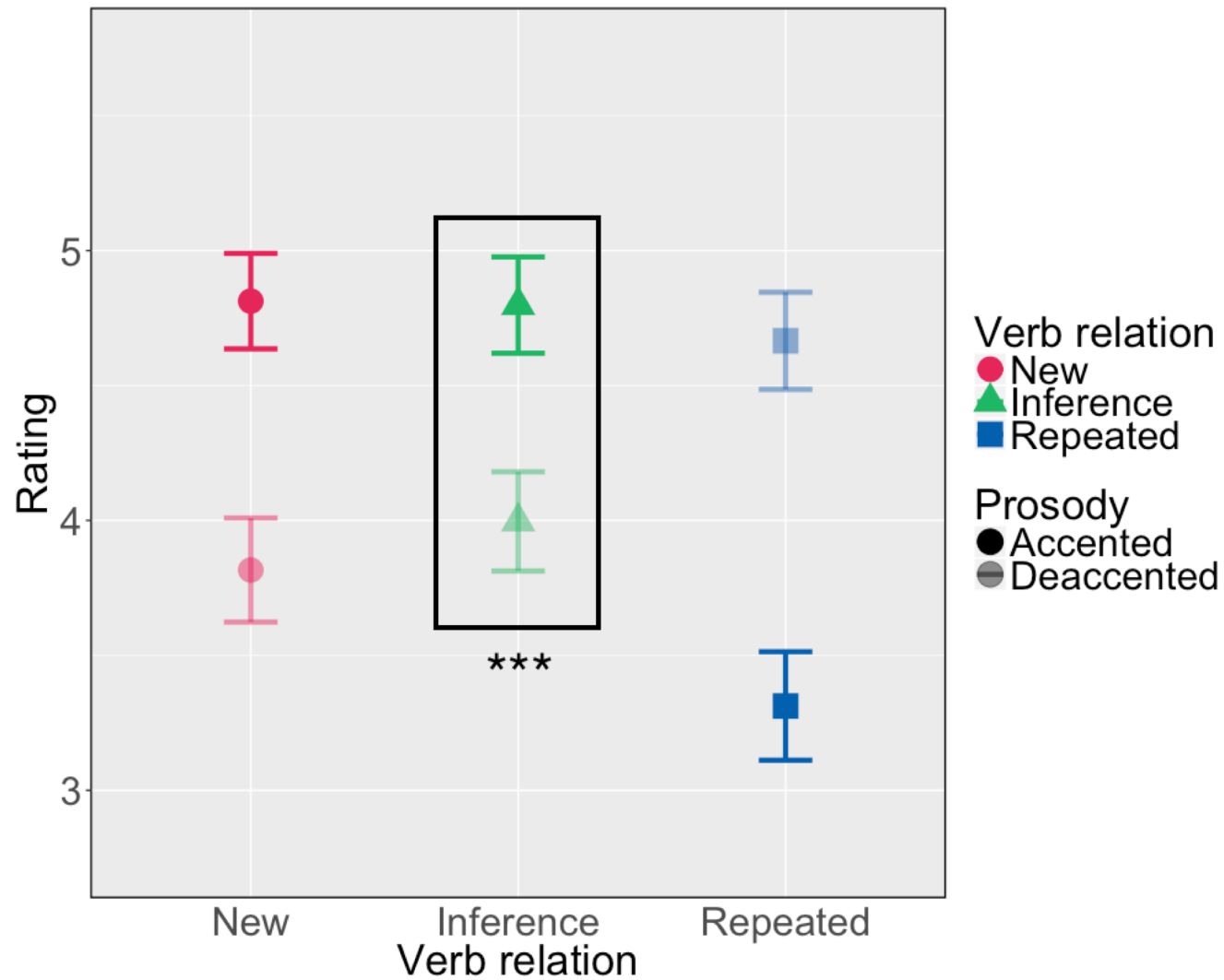


# EXPERIMENT 3: DEACCENTING PERCEPTION





# EXPERIMENT 3: DEACCENTING PERCEPTION



There was a reliable preference for inferable verbs to be accented.

# EXPERIMENT 4: DEACCENTING IN CONTEXT

Does context influence how natural deaccenting sounds?

Add a context that supports “situationally identical” reading for inferable verbs and their antecedents.

This might make it more acceptable to treat the second verb as “given.”

# EXPERIMENT 4: DEACCENTING IN CONTEXT

*CONTEXT:*

The high school reunion was very eventful, with many people seeing each other for the first time in ten years.

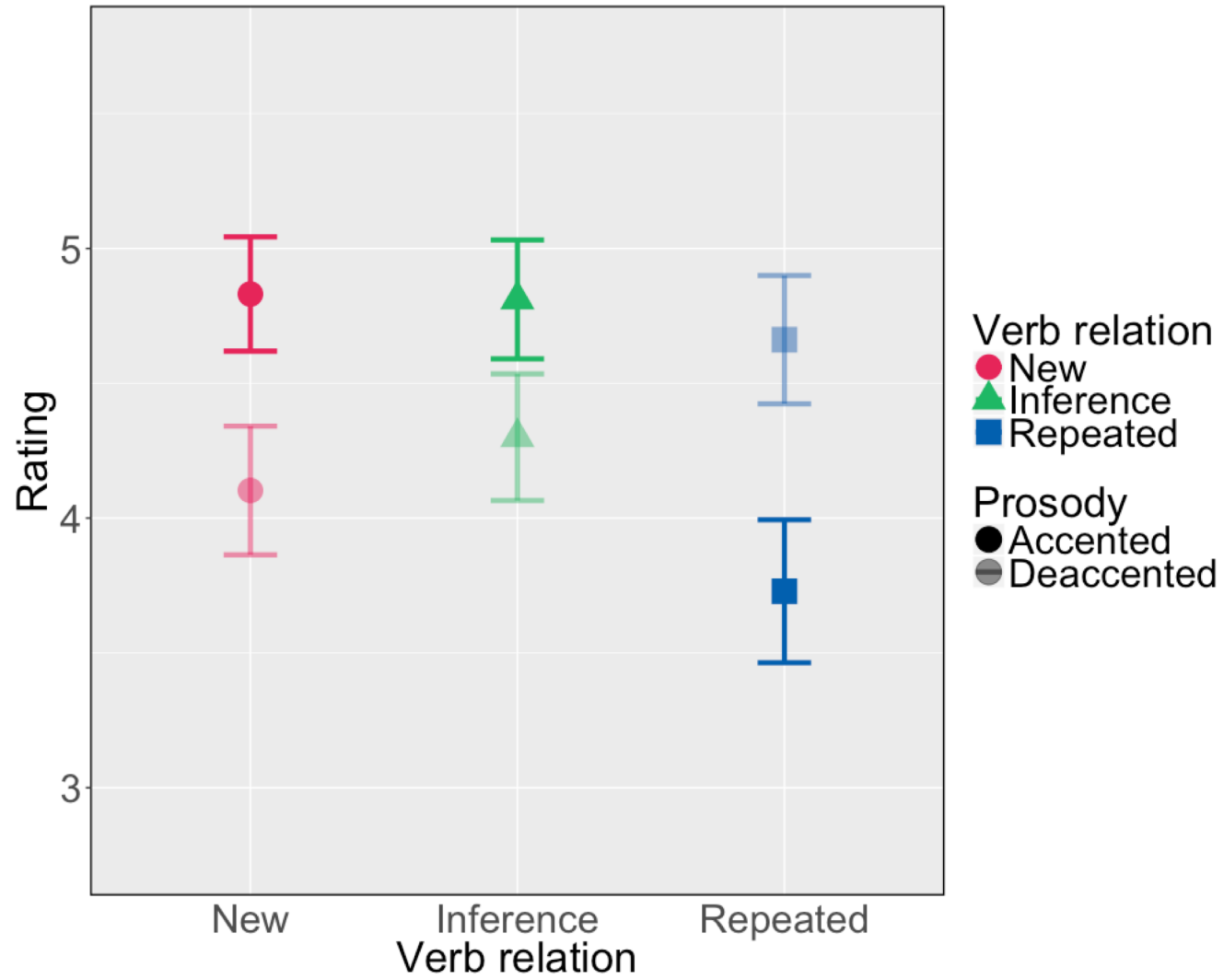
**ACCENTED V2**

*Andrea **rebuffed** Laura, and Ron **embraced** Laura.  
Veronica **hugged** Laura, and Ron **embraced** Laura.  
Christina **embraced** Laura, and Ron **embraced** Laura.*

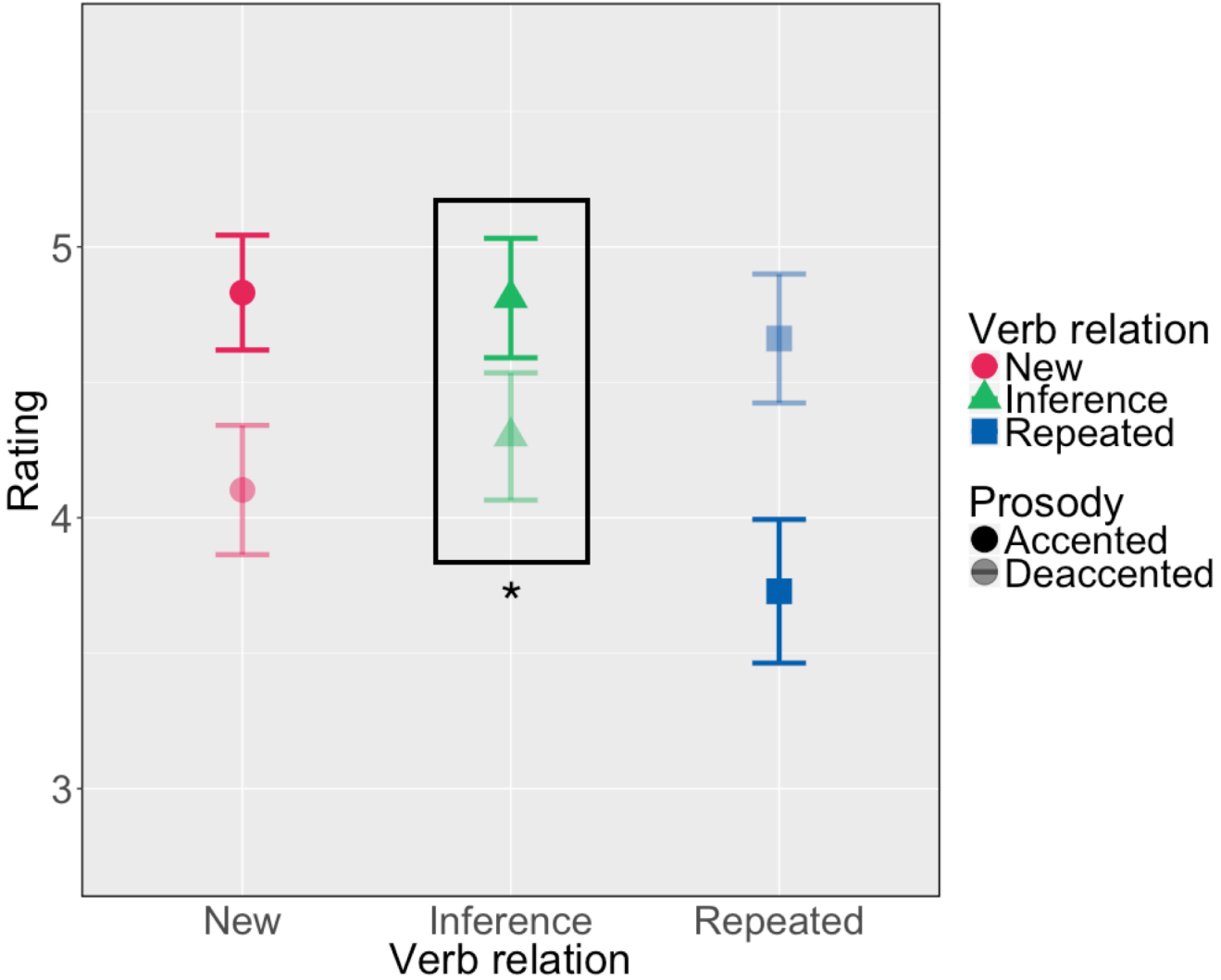
**DEACCENTED V2**

*Andrea **rebuffed** Laura, and Ron **embraced** Laura.  
Veronica **hugged** Laura, and Ron **embraced** Laura.  
Christina **embraced** Laura, and Ron **embraced** Laura.*

# EXPERIMENT 4: DEACCENTING IN CONTEXT



# EXPERIMENT 4: DEACCENTING IN CONTEXT



The preference for accenting inferable verbs eroded with the addition of context.

# EXPERIMENT 5: DEACCENTING WITH *TOO*

Do presupposition triggers affect how natural deaccenting sounds?

Add the presupposition trigger *too* to the end of each stimulus.

*too* can indicate that the second clause builds on the discourse contribution of the first clause. (e.g., Beaver & Clark 2008)

# EXPERIMENT 5: DEACCENTING WITH *TOO*

## ACCENTED V2

Andrea *rebuffed* Laura, and Ron *embraced* Laura, too.

Veronica *hugged* Laura, and Ron *embraced* Laura, too.

Christina *embraced* Laura, and Ron *embraced* Laura, too.

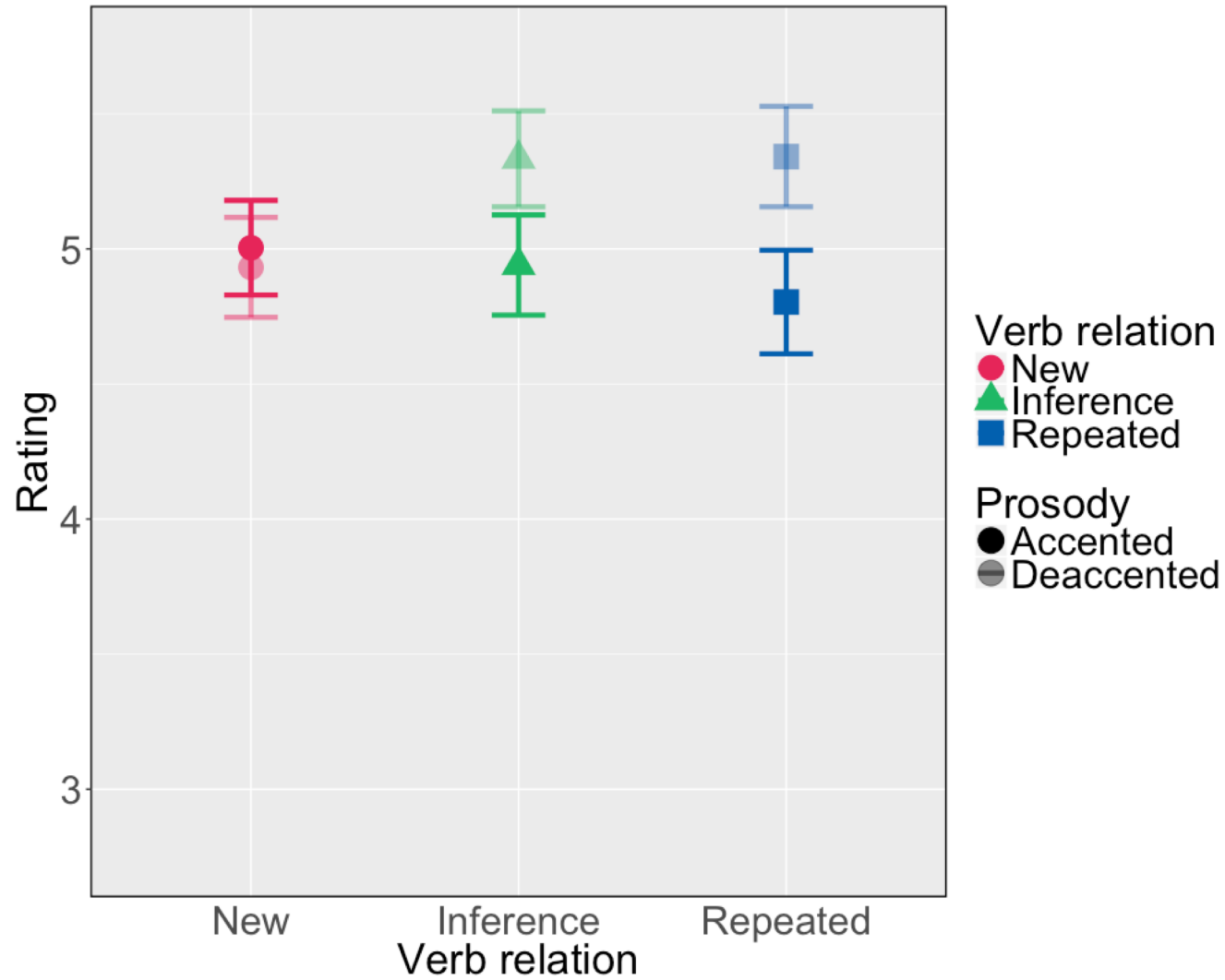
## DEACCENTED V2

Andrea *rebuffed* Laura, and Ron *embraced* Laura, too.

Veronica *hugged* Laura, and Ron *embraced* Laura, too.

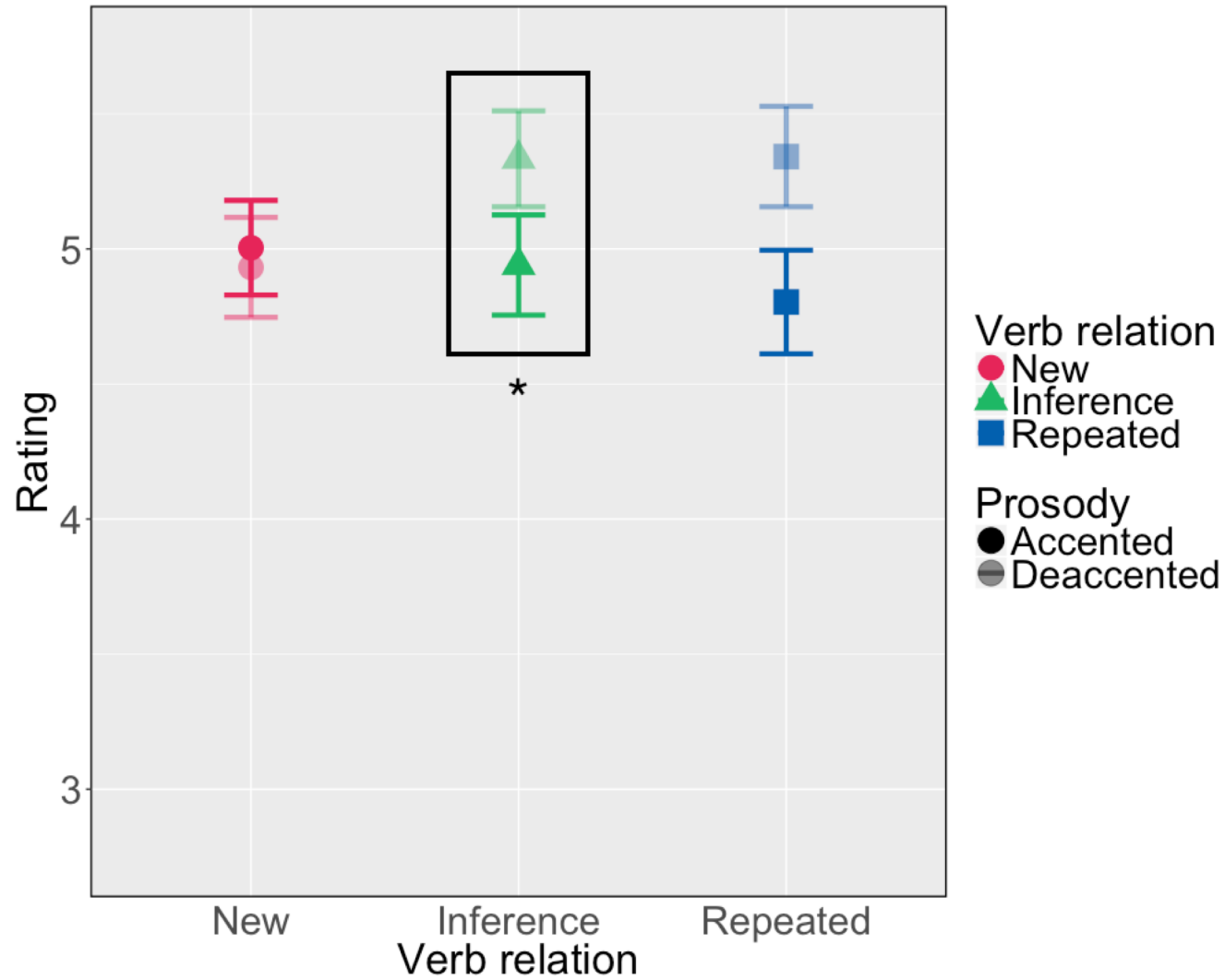
Christina *embraced* Laura, and Ron *embraced* Laura, too.

# EXPERIMENT 5: DEACCENTING WITH *TOO*





# EXPERIMENT 5: DEACCENTING WITH *TOO*



With *too*, there was a preference for deaccenting inferable verbs.

There was also a strong amelioration effect across all conditions.

# CONCLUSIONS

Deaccenting of inferable material was not observed in production, and was treated as unnatural in out-of-the-blue contexts. (Experiments 1-3)

However, the naturalness of deaccenting increased as a function of support from the broader context.  
(Experiments 4-5)

The results are largely compatible with the **accommodation** approach to nonidentity in deaccenting.

This approach schematizes such deaccenting as ungrammatical but salvageable.

It allows for a principled connection between contextual support and listeners' willingness to accommodate an alternative antecedent.

The results are problematic for the **grammatical** approach.

This model uses the same mechanism to model deaccenting for identical and nonidentical material.

But, identical (**repeated**) and nonidentical (**inferable**) material clearly have different empirical status.

One path forward for the grammatical approach is to suggest that listeners were not aware of the inference relations...

...or that processing them is costly in some way.

However, this proposal is difficult to reconcile with our norming results that our **inferable** verbs were highly available.

(**inferable**: 6.14 / 7 **new**: 2.14 / 7)

The data suggest that antecedent-target **identity** is privileged in deaccenting, suggesting the **identity-and-accommodation** account takes the right approach.

THANKS TO...



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# EXPERIMENTAL PARADIGM: PRODUCTION

Two types of **inferable** verbs were used.

1) Entailment:

hugged – embraced

2) Bridging:

charmed – seduced

The results did not differ, so they were presented together.

# NORMING INFERABILITY

Given that you know

**New:**

**Ann rebuffed Brad**

**2.14 / 7**

**Inferable:**

**Ann hugged Brad**

**6.14 / 7**

how likely do you think it is that

**Ann embraced Brad?**

# EXPERIMENTS 4 & 4b: DEACCENTING IN CONTEXT

Experiments 4 & 4b investigated the same question, but prompted participants slightly differently:

## Expt. 4

Here is a scenario:

*As they did every year, the teachers worried about how the students would interact with each other on the first day of high school.*

Press any key to hear a speaker talk about the scenario.

## Expt. 4b

Imagine you just heard someone say:

*Like every year, there were a lot of clever maneuvers during the legislative session.*

Next, press any key to hear the same person say:

*Henry supported Emma, and Lee defended Daniel.*

# EXPERIMENT 4b: DEACCENTING IN CONTEXT

The results in the main presentation are from Experiment 4.

The results of Experiment 4b are shown to the right.

