

Projection of non-spoken content: a composition-driven approach

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Today I'll bring the two together by arguing for an interface-oriented approach to non-spoken content.

Posing the question

Much of the work in formal semantics and pragmatics of gesture and other non-spoken content has focused on **PROJECTION** (Ebert & Ebert 2014; Schlenker 2018a,b; Tieu et al. 2017, 2018; Esipova 2019).

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One type of projecting content is **LEXICAL PRESUPPOSITIONS**:

- (1) a. Jackie **stopped** smoking.
 - b. Jackie didn't **stop** smoking.
 - c. **Did** Jackie **stop** smoking?
 - d. **If** Jackie **stopped** smoking, I'll give you \$10.
- only (a): → Jackie no longer smokes.
 (a)–(d): → Jackie used to smoke.

DOESN'T PROJECT
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Posing the question

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(2) *Context: We are going on a group tour and want to rent a van. The speaker just learned that Stephanie might bring along her only dog.*

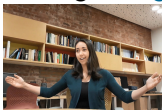
If Stephanie is bringing...

a. her **large** dog

ADJECTIVE

b. her dog, **a large animal**

APPOSITIVE



c. her dog**LARGE**

CO-NOMINAL GESTURE

..., we should get a bigger van.

↗ Stephanie is bringing her dog.

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If you have a uniform, modality-neutral response to Question 1, Question 2 becomes trivial.

But projection of non-spoken content is treated independently of projection of spoken content in the above cited literature, which relies heavily on whether a given piece of content co-occurs with something in the primary modality (most prominently, in Schlenker 2018b).

Sketching the answer

Composition-driven, modality-neutral approach to projection: for any piece of content that has its own node in the morphosyntax, how it projects is determined by how it composes in the syntax/semantics, regardless of its modality.

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Composition-driven, modality-neutral approach to projection: for any piece of content that has its own node in the morphosyntax, how it projects is determined by how it composes in the syntax/semantics, regardless of its modality.

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Two relevant composition strategies, (**subsecutive**) **modifiers** and **supplements**, with two associated projection patterns.

Outline

- 1 Introduction
- 2 Modifiers and supplements
- 3 Gestures
- 4 Facial expressions
- 5 Conclusion

Modification as a composition strategy

A (SUBJECTIVE) MODIFIER composes with an expression α yielding an expression β such that $\beta \Rightarrow \alpha$ (simplified).

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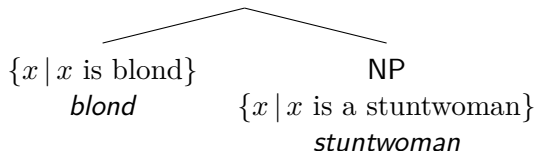
A (SUBJECTIVE) MODIFIER composes with an expression α yielding an expression β such that $\beta \Rightarrow \alpha$ (simplified).

Modifiers of set-denoting expressions compose with sets and return subsets thereof.

E.g., *blond* in (3) composes with the NP (Noun Phrase) *stuntwoman* yielding a subset of stuntwomen.

(3) Zoe is a blond stuntwoman.

$\{x \mid x \text{ is a stuntwoman and } x \text{ is blond}\}$



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E.g., Potts 2005: (*who is*) a stuntwoman in (4) composes with the DP (Determiner Phrase) *Zoe* passing on the denotation of *Zoe* unchanged and contributing the proposition of a special type that *Zoe* is a stuntwoman.

(4) I invited *Zoe*, (*who is*) a stuntwoman.

Zoe (at-issue)

•

$Zoe \in \{x \mid x \text{ is a stuntwoman}\}$ (conventional implicature)

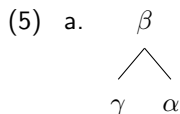
DP	$\{x \mid x \text{ is a stuntwoman}\}$
<i>Zoe</i>	<i>(who is) a stuntwoman</i>
<i>Zoe</i>	

Projection of modifiers

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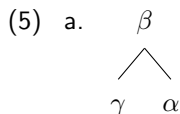


Assuming γ is a subsective modifier ($\beta \Rightarrow \alpha$), γ is:

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Assuming γ is a subjective modifier ($\beta \Rightarrow \alpha$), γ is:

- b. **RESTRICTING** iff $\alpha \not\Rightarrow \beta$ and
- c. **NON-RESTRICTING** iff $\alpha \Rightarrow \beta$

E.g., *female* is restricting in (6a) and non-restricting in (6b).

- (6) a. the **female** director of 'Four Rooms' **RESTRICTING**
- b. the **female** director of 'Mi Vida Loca' **NON-RESTRICTING**

Projection of modifiers

Non-restricting modifiers are truth-conditionally vacuous (Leffel 2014, examples adopted from there):

- (7) a. I will eliminate every **harmful** chemical.
 ↗ I will eliminate every chemical.
- b. I will eliminate every **harmful** carcinogen.
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But that doesn't mean we don't interpret non-restricting modifiers at all; we still get the inference that the expression being modified entails the result of modification ($\alpha \Rightarrow \beta$), i.e. the **NON-RESTRICTING MODIFIER INFERENCE**.

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- (8) *Context: We are going on a group tour and want to rent a van. The speaker just learned that Stephanie might bring along her only dog.*
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 - Do you know how big Stephanie's dog is? #'Cause if she's bringing her **large** dog, we should get a bigger van.
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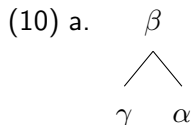
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Intended: '...if (her dog is large and she's bringing her large dog)...
- (9) *Context: We are going on a group tour and want to rent a van. The speaker just learned that Stephanie might bring along her pet.*
Do you know what kind of pet Stephanie has? ?%'Cause if she's bringing **her dog**, we should get a bigger van.
↗ Stephanie has a dog.
≈ '...if (she has a dog and she's bringing her dog)...

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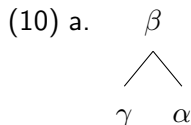
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Cosuppositions were proposed in Schlenker 2018a as inferences triggered by co-speech gestures across the board and extended to other types of content in Schlenker 2018b,c. By equating them with non-restricting modifier inferences, I both constrain and expand them.

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Many accounts for supplement projection (e.g., Potts 2005; AnderBois et al. 2013; Koev 2013)—I will not propose a new one here.

Tally

Modifiers	Supplements
Compose with α , yielding β such that $\beta \Rightarrow \alpha$	Compose with α , return a proposition about α
Can be restricting or not	Can never be restricting
Project when non-restricting, as cosuppositions	Always project, any existing analysis of supplement projection will do
Examples: <ul style="list-style-type: none"> ● adnominal adjectives ● restrictive relative clauses 	Examples: <ul style="list-style-type: none"> ● appositives ● sentence-level adverbs

Co-nominal gestures vs. adjectives and appositives: experiment

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		Interpretation		
		<i>Projecting non-restricting</i>	<i>Restricting</i>	<i>Non-projecting non-restricting</i>
Content Type	<i>Adjective</i>	4	4	4
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	<i>Gesture</i>	4	4	4

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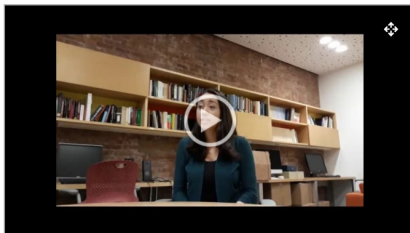
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- Each participant saw 1 randomly selected item per condition and 2 additional check items.

Co-nominal gestures vs. adjectives and appositives: experiment

Typical trial:

Context: We are going on a group tour. Anna and Maria are responsible for renting a van. Maria just told Anna that **Stephanie, who has two pets, a small cat and a large dog**, is planning to bring along one of her pets. **Anna, who has seen both Stephanie's pets before**, says:



Given the context, how natural is the sentence in the video?

Totally unnatural

Totally natural

Drag the slider



Co-nominal gestures vs. adjectives and appositives: experiment

(12) *Context: We are going on a group tour. Anna and Maria are responsible for renting a van. Maria just told Anna that...*

- a. **PROJECTING NON-RESTRICTING** ...*Stephanie, who has two pets, a small cat and a large dog, is planning to bring along one of her pets. Anna, who has seen both Stephanie's pets before, says:*
Do you know which one of Stephanie's pets is coming with us?
'Cause if she's bringing...

(i) her **small cat**

ADJECTIVE

(ii) her **cat, a small animal**

APPOSITIVE



(iii) her cat **SMALL**

GESTURE

..., we'll be fine, but if she's bringing...

(i) her **large dog**

(ii) her **dog, a large animal**



(iii) her dog **LARGE**

.., we should get a bigger van.

Co-nominal gestures vs. adjectives and appositives: experiment

- (8) b. **RESTRICTING** ...*Stephanie, who has two dogs, a small Pug and a large Great Dane, is planning to bring along one of her dogs. Anna, who has seen both Stephanie's dogs before, says:*

Do you know which one of Stephanie's dogs is coming with us?

'Cause if she's bringing...

- (i) her **small** dog

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- (iii) her **dog**_{SMALL}

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Co-nominal gestures vs. adjectives and appositives: experiment

- (8) c. **NON-PROJECTING NON-RESTRICTING** ...*Stephanie is planning to bring along her dog. Anna knows that Stephanie only has one dog, but has never seen it. She says:*

Do you know how big Stephanie's dog is? 'Cause if she's bringing...

- (i) her **small** dog

ADJECTIVE

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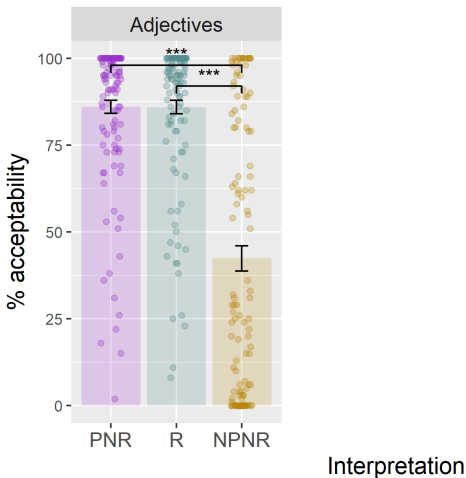


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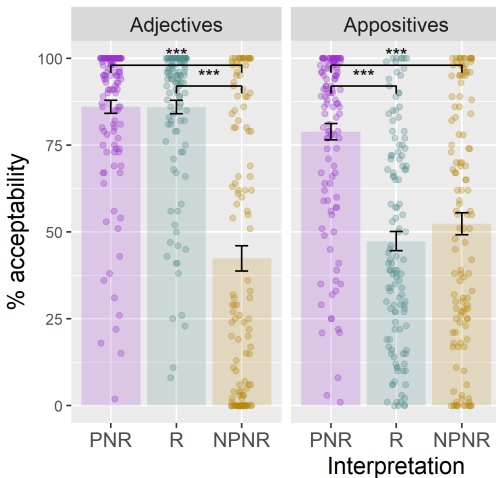


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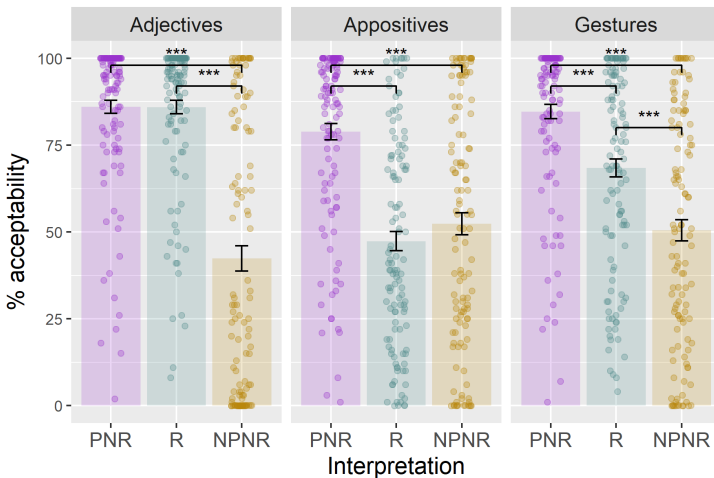


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Existing analyses of co-speech gestures

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Undergeneration problem: this analysis predicts that restricting interpretations of co-speech gestures should be completely unavailable.

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Overgeneration problem: this analysis predicts unattested interpretations for DP-level gestures. E.g., if *LARGE* composes with *her dog* in *Stephanie is bringing her dog_{LARGE}*, we predict that this sentence can be interpreted as ‘Stephanie is bringing her dog and a large object’ or ‘Stephanie is bringing her dog and her dog is large’.

Proposal: composition determines projection for gestures, too

Why do the supplemental and cosuppositional analyses fail? Because they want a uniform story for projection of co-speech gestures, regardless of where these gestures adjoin in the syntax. But this is not how spoken expressions work, so why should gestures?

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- **no gesture-specific composition**, i.e., compositionally integrated gestures compose just like spoken content.

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E.g., two construals for *Stephanie is bringing her dog_{LARGE}*:

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But why are restricting interpretations of gestures degraded?

- Following Schlenker's original intuition, **co-speech gestures prefer to be truth-conditionally vacuous** due to their secondary modality nature.
- Thus, modifier gestures prefer to be non-restricting; this preference can be overridden (to a gradient and variable extent).

Schlenker's (2018b) classification of "iconic enrichments"








	External enrichments (= syntactically eliminable)		Internal enrichments (= syntactically ineliminable)	
	No separate time slot: <i>Co-speech/co-sign gestures</i>	Separate time slot: <i>Post-speech/post-sign gestures</i>	No separate time slot: <i>Iconic modulations</i>	Separate time slot: <i>Pro-speech/pro-sign gestures</i>
Speech	John  punished his son.	John punished his son – 	The talk was loooooong.	Your brother, I am going to 
Sign	IX-arc-b  NEVER [SPEND MONEY]	IX-arc-b NEVER SPEND MONEY] _b – 	POSS-1 GROUP GROW_  	[currently unclear]
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But such facial expressions do not behave uniformly wrt projection.

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- (13) a. Yesterday there was a party, and, **⟨surprisingly, impressively, *very, *extremely⟩**, Mia got drunk.
 ✓ It is **⟨surprising, impressive⟩** that Mia got drunk.
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- b. Yesterday there was a party, and Mia got **⟨surprisingly, impressively, very, extremely⟩** drunk.
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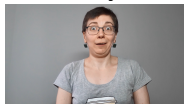
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(14) a. Yesterday there was a party,



and Mia got drunk ^{○_○}.

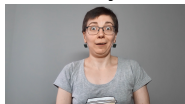
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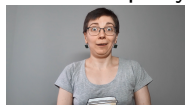


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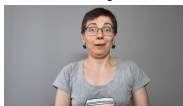
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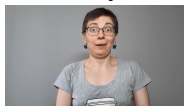
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- b. #When a friend of mine gets drunk, I usually don't say anything, but when, **⟨surprisingly, impressively⟩**, a friend of mine gets drunk, I sometimes comment on that.
 Intended: 'When (a friend of mine gets drunk and I am ⟨surprised, impressed⟩ by this fact)...

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- ✓ '...when a friend of mine gets very drunk...'
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But why don't degree modifier co-something facial expressions exhibit the preference to be truth-conditionally vacuous and thus non-restricting?

Perhaps that's due to them being **degree** modifiers. Cf. (adopted from Schlenker 2018b, (13)):

(19) If the talk is **loooong**, I'll leave before the end.

↗ If the talk is long, the speaker will leave before the end.

→ If the talk is very long, the speaker will leave before the end.

Updated tally

Modifiers	Supplements
Compose with α , yielding β such that $\beta \Rightarrow \alpha$	Compose with α , return a proposition about α
Can be restricting or not	Can never be restricting
Project when non-restricting, as cosuppositions	Always project, any existing analysis of supplement projection will do
Examples:	Examples:
<ul style="list-style-type: none"> ● adnominal adjectives ● restrictive relative clauses ● NP-level gestures ● degree modifier facial expressions ● <i>phi</i>-features on pronouns ● height specifications on gestures 	<ul style="list-style-type: none"> ● appositives ● sentence-level adverbs ● DP-level gestures ● sentence-level facial expressions

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Summary:

- The “co-something” status does not determine the choice of projection strategy for non-spoken content. The way this content composes does, just like for spoken content.
- The “co-something” status might make a given piece of content preferably truth-conditionally vacuous, but this preference can be overridden by other considerations.

Broad programmatic point: if we want to approach gestures (and other types of non-spoken content) as linguistic objects, we should do so at all levels of representation.

Acknowledgements

I thank my dissertation committee:



Lucas Champollion



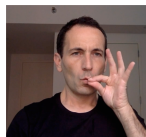
Ailís Cournane



Kathryn Davidson



Stephanie Harves



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—my gesture model:



Anna Alsop

—and many-many-many people at NYU, Harvard, MIT, Sinn und Bedeutung 22, CreteLing 2018, Linguistic Investigations Beyond Language 2019, etc.

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