

Co- and post-speech gestures: a prosody/syntax approach

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- 1 Intro: co- vs. post-speech gestures
- 2 Existing takes on co- vs. post-speech gestures
- 3 Exploring the data further
- 4 Towards a unified approach to gestures
- 5 A note on at-issue uses of gestures
- 6 Conclusions
- 7 Questions for further discussion

Co- vs. post-speech gestures

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(2) John brought a bottle of beer — LARGE.

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(2) John brought a bottle of beer — LARGE.

- Both contribute non-at-issue content (by default), and in unembedded environments, under neutral prosody they seem quite similar.

Anaphoricity constraints

- Schlenker (to appear) notes that when a gesture modifies a low-scope indefinite under negation, co-speech alignment is more acceptable than post-speech one (NB: judgements vary):

- (3) a. %John didn't bring [a bottle of beer]^{LARGE}.
b. %??John didn't bring a bottle of beer — LARGE.

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- (3) a. %John didn't bring [a bottle of beer]^{LARGE}.
b. %??John didn't bring a bottle of beer — LARGE.
- He further notes that this constraint on post-speech gestures is akin to anaphoric constraints on supplements, such as non-restrictive relative clauses (NRCs), and ordinary pronouns:
- (4) a. *John didn't bring a bottle of beer, which was large.
b. John didn't bring a bottle of beer. *It was large.

Interaction with Contrastive Focus (not the focus of this talk)

- Co-speech gestures modifying non-contrastive verbal expressions are forced to have an at-issue interpretation under Contrastive Focus (with variable acceptability); post-speech gestures aren't:

(5) a. %If *John* orders a **beer**^{SMALL} and *Bill* orders a



beer^{LARGE}, I'll win.

≈ If *John* orders a **small** beer and *Bill* orders a **large** beer...

b. If **John** orders a beer — **SMALL** and **Bill** orders a beer — **LARGE**, I'll win.

≈ If **John** orders a beer, which (btw) will be **small**, and **Bill** orders a beer, which (btw) will be **large**...

Questions

- The only observable difference b/n co- and post-speech gestures is temporal alignment. What levels of language do we have to assume are sensitive to temporal alignment in order to derive the contrasts b/n co- and post-speech gestures above? Do we want the alignment distinctions to arise in syntax and semantics proper, or can we keep alignment as a PF phenomenon (result of linearization of the structure delivered by narrow syntax) with further syntax-sensitive constraints on prosodic grouping?

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- What about other types of NAI content? How many of their properties can be attributed to their temporal alignment? Gestures are a good starting point to investigate the role of alignment, though, because you can manipulate the alignment independently — something you can't do for NRCs, other types of verbal supplements, or verbal presuppositions.

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Existing takes on co- vs. post-speech gestures

- Schlenker (to appear) and Ebert (2017) both posit different semantics for co-and post-speech gestures, also implying a different syntactic structure for the two.

Schlenker to appear

- Gist: co-speech gestures trigger assertion-dependent conditional presuppositions (*cosuppositions*) of the form $P \Rightarrow G$ where P is the verbal expression the gesture modifies and G is the content of the gesture; post-speech gestures are supplements.

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- Anaphoricity constraints:
 - Co-speech gestures have no anaphoric link to the verbal expression they modify, hence, no anaphoric constraints.
 - Post-speech gestures contain an anaphoric element, akin to relativizers in NRCs, hence, anaphoric constraints.

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 - Post-speech gestures contain an anaphoric element, akin to relativizers in NRCs, hence, anaphoric constraints.
- A version of Schlenker's analysis (Krifka, Pasternak p.c. to Schlenker): both co- and post-speech gestures trigger cosuppositions, but post-speech gestures contain an anaphoric element.

Ebert 2017

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- Anaphoricity constraints:
 - Co-speech gestures can modify NP constituents, which will be the case in examples like (3a).
 - Post-speech gestures contain an anaphoric element, hence, anaphoric constraints.

Questions raised by Schlenker's and Ebert's analyses

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Questions raised by Schlenker's and Ebert's analyses

- Why do post-speech gestures have an anaphoric element while co-speech gestures don't?
- Why does the anaphoric element in post-speech gestures require a discourse referent? Why, for example, can't it target NP predicates?
- What accounts for the gradient and variable nature of judgements for examples like (3)?

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Exploring the data further

- Based on (3b), the anaphoric element in post-speech gestures can't target "constructed" DP antecedents, unlike the pronouns in (6), thus patterning more with NRCs than with parentheticals:

- (6) a. John didn't bring a bottle of beer/any bottles of beer (they are too large/heavy).
 b. John doesn't have a cat/any cats (their claws are usually sharp).
- (7) a. John didn't bring *a bottle of beer/??any bottles of beer, which are too large/heavy.
 b. John doesn't have *a cat/??any cats, whose claws are usually sharp.

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- a. John didn't bring *a bottle of beer/??any bottles of beer, which are too large/heavy.
 - b. John doesn't have *a cat/??any cats, whose claws are usually sharp.
- This suggests higher level of syntactic integration of post-speech gestures and NRCs than of parentheticals.
 - NB: The parentheticals in (6) are rationale clauses; perhaps, for syntactically independent chunks, one needs richer semantic content than (non-emblematic) gestures are typically capable of providing.

- But why couldn't post-speech gestures/NRCs attach at the NP level thus targeting the NP predicate as their antecedent?
- One could say that both relativizers like *which* and the null anaphoric element in post-speech gestures can't target predicates in general.
- However, they have to be especially picky, since that seems to only be true about NPs, but not about adjectival or verbal predicates:

- (8) a. Some people say John is smart, which I think he is(n't).
b. John killed himself, which is a stupid thing for anyone to do.

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- Furthermore, one might want a uniform analysis of gestures that doesn't rely on positing a null anaphoric element in post-speech gestures and lack thereof in co-speech gestures. But if co-speech gestures come with a null anaphoric element, too, it should be able to target NP predicates, as evidenced by (3a).

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Towards a unified approach to gestures: gist

- Goal: sketch (one version of) an analysis in which gestures have a uniform syntax and semantics, and the co- and post-speech distinction is a PF-level phenomenon, affected by various prosodic considerations.

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- Goal: sketch (one version of) an analysis in which gestures have a uniform syntax and semantics, and the co- and post-speech distinction is a PF-level phenomenon, affected by various prosodic considerations.
- Gist:
 - Gestural modifiers uniformly come with silent anaphoric elements that can target antecedents of different size, including NPs and DPs (but anaphora to NPs might be independently marked).
 - Assumption: the size of the antecedent of a gestural modifier — just like for NRCs — is determined by the modifier's level of attachment in narrow syntax.
 - The co- vs. post-speech distinction is not made either in syntax or semantics. It only arises at PF during linearization.
 - Linearization of a gesture as following a verbal expression is ruled out when the gesture is attached at the NP level due to syntax-aware constraints on prosodic grouping.

Deriving anaphoricity constraints

- OT-style constraints:
 - (NRM): Non-restrictive modifiers that occupy a separate time slot have to form an intonational phrase (IP) on their own (the empirical phenomenon established in Selkirk 2005 and references therein).
 - Assign * for each lacking IP boundary around a non-restrictive modifier with a separate time slot.

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- Ranking: (NRM) | WRAPNP $\gg$ PRPARSE

- WRAPNP makes sure the optimal output for an NP-modifying gesture is a string with the gesture linearized as a co-speech one:

(9)

[D [NP GESTURE]]	(NRM)	WRAPNP	PRPARSE
 a. (...D NP ^{GESTURE} ...)			
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- Both alignment options are available for DP-modifying gestures:

(10)

[D NP] [GESTURE]	(NRM)	WRAPNP	PRPARSE
 a. (...D NP ^{GESTURE} ...)			
 b. (...D NP) (GESTURE)			

- “Parasitic” alignment is not an option for NRCs, so, due to (NRM) | WRAPNP $\gg$ PRPARSE, NP-modifying NRCs have no licit output string (the null output wins):

(11)

[D [NP NRC]]	(NRM)	WRAPNP	PRPARSE
 a. $\emptyset$			*
b. (...D NP) (NRC)		*!	
c. (...D NP NRC)	*!		

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- DP-modifying NRCs, of course, will have a licit non-null output:

(12)

[D NP] [NRC]	(NRM)	WRAPNP	PRPARSE
a. $\emptyset$			*!
 b. (...D NP) (NRC)			
c. (...D NP NRC)	*!		

Accounting for variation and gradience

- What accounts for variation and gradience in the acceptability of co- and post-speech gestures modifying NPs?
 - Different orders of the constraints (would account for variation)?
 - Different weights assigned to them (would account for variation and gradience, deriving more/less optimal outputs)?

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- What about NP-level co-speech gestures? They seem already marked for at least some speakers. Should we throw another constraint into the mix, establishing a preference for “maximal” antecedents?
- Another potential source of variation for post-speech gestures: parenthetical uses of post-speech gestures (i.e., w/o full syntactic integration) with “constructed” antecedents?

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- Under a uniform cosuppositional analysis, local accommodation should be available for gestures regardless of alignment. Could it save the day in (3b) ($\approx$ 'It's not the case that [John brought a beer and it was large]')? That doesn't seem to be a possible reading.
- A modified supplemental analysis: gestural modifiers are ambiguous b/n non-restrictive and restrictive interpretations, with the former being the default and the latter available under some pressure. In that case, can post-speech gestures have restrictive uses?

- One relevant observation is that, unlike (13a), (13b) is hard to pronounce.

- (13) a. John might order a beer that will be **small** or a beer that will be **large**.
- b. ??John might order a beer — **SMALL** or a beer — **LARGE**.

- One relevant observation is that, unlike (13a), (13b) is hard to pronounce.

- (13) a. John might order a beer that will be **small** or a beer that will be **large**.
 b. ??John might order a beer — **SMALL** or a beer — **LARGE**.

- How does that observation fit into our system?
- Restrictive gestures would need to attach at the NP level. WRAPNP rules out (D NP) (GESTURE). (D NP GESTURE) might be generated, but the articulatory system will fail to externalize it. The only candidate that will survive both PF and externalization is (D NP^{GESTURE}).

(14)

[D [NP GESTURE _R]]	(NRM)	WRAPNP	PRPARSE
 a. (...D NP GESTURE)			
 b. (...D NP ^{GESTURE} ...)			
c. (...D NP) (GESTURE)		*!	

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Conclusions

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- Gestures are a particularly interesting case of non-at-issue content because of their flexible alignment — smth verbal non-at-issue content doesn't have.
- Alignment has non-trivial consequences for gestures, in particular, wrt anaphoric constraints.
- I've focused on the differences b/n co- and post-speech gestures and argued that at least some of those can be accounted for w/o positing different syntax and semantics for co- and post-speech gestures, but by appealing to the prosodic properties of gestures linearized at PF as co-occurring vs. following the verbal expressions they modify.

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- What else determines alignment of gestures? Triviality? Can pragmatics affect linearization?
- What about pre-speech gestures? Are pre-speech gestures essentially pro-speech gestures with verbal supplements/elaborations?
- What about VP-modifying gestures? Can VPs be targeted by post-speech gestures/NRCs, but only when there's no negation, in which case the whole NegP has to be targeted?

References I

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Appendix A: Acceptability of at-issue uses of co-speech gestures under CF

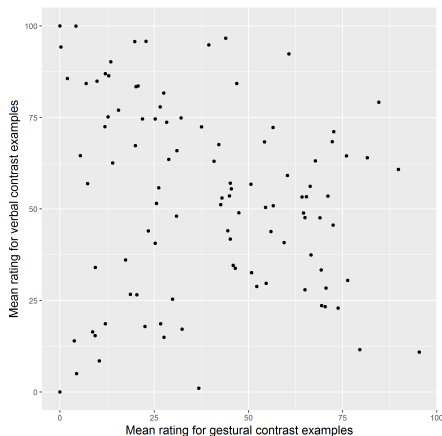


Figure: Individual variation in acceptability of examples with non-contrastive verbal expressions modified by contrastive co-speech gestures vs. examples with contrastive verbal expressions modified by non-contrastive co-speech gestures

Appendix B: Pre-speech gestures

- At first approximation, pre-speech gestures aren't modifiers, but instead, pro-speech gestures with verbal supplements/elaborations.

- (15) a. John brought LARGE__VERTICAL__OBJECT — a bottle of beer.
b. [Real-life example about dissertation defenses.]
And then we start HIT-HIT-HIT — asking questions.

Appendix C: VP-modifying gestures and NRCs

- It looks like for VP-modifying gestures the key distinction isn't the existence of an event discourse referent. VP predicates can be targeted by post-speech gestures/NRCs, but only when there's no negation. When there is negation the whole NegP is preferably targeted, which forces the odd “negative predicate” interpretation.



- (16) a. John [killed himself]^{HANG} .
 b. John killed himself — HANG.
- (17) a. John didn't [kill himself]^{HANG}.
 b. ?#John didn't kill himself — HANG.
- (18) a. John killed himself, which is a stupid thing for anyone to do.
 b. ?#John didn't kill himself, which is a stupid thing for anyone to do.
 c. No student killed himself, which is a stupid thing for anyone to do.

Appendix D: Elaboration uses of post-speech gestures?

- Can post-speech gestures have at-issue elaboration uses that some nominal appositives do?

- (19) If a professor, a famous one, publishes a book, he will make a lot of money. (Nouwen 2014, (3))
- (20) a. A: Bring me a beer, a large one.
B: No, I'll bring you a small one.
- b. A: Bring me a beer — LARGE.
B: ?No, I'll bring you a small beer.
- (21) a. Don't bring me a beer, ??a large one / at least not a large one.
- b. Don't bring me a beer — ??LARGE.