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Gestural semantics

Replicating the typology of linguistic inferences with pro- and post-speech gestures

Philippe Schlenker[1,2,3]

Why Gesture?

Laura: Why do we use gestures?

- Many of the examples in the paper aren't very natural, aside from weight-watchers (23) and insulting expressive (54). Is there a connection between gesture and insult?

- Why would we use gesture to do all of these things, specifically?

- "if our gestures can be "modulated" (778) in detailed ways to represent the content as accurately as possible, why would we even need to implicate things?"

- All of these examples involve combinations of language and gesture. Isn't the language (or linguistic efficiency) doing most of the work in generating the nuanced inferences?

Gesture and Audience Design?

Kelly: I'm also interested in how gestures affect eavesdropper/unintended audience scenarios. Since gestures and words are perceived through different senses, i.e., one hears words and sees gestures, we can leverage this difference to communicate with specific targeted audience. Rather than designing messages with specific words (dogwhistles, in-jokes...), one can simply move their body and gesture only at the intended listeners, while others are blocked from seeing the gestures.

For example, at the Thanksgiving dinner table, when Uncle Steve starts talking about some non-PC nonsense, your sister might turn towards you and make a circling motion cuckoo sign to indicate her thoughts on Uncle Steve's speech. Gesturing in this way also generate unique inferences like "this is private information", "I don't know these people to hear what I'm about to say", "I only trust you", and otherwise feelings of secrecy.

Why Gestural Semantics?

Kelly: I'm overall still unsure what is motivating the approach to compare gestural semantics to linguistic semantics.

I was thinking that maybe the point is to clarify the gesture-linguistic semantic interface, and by clarifying so, they are validating the existence of gestural semantics? Would like to hear more about this.

A more specific example I was wondering about is why should "the same triggering algorithms applies to pro-speech gestures and to 'normal' words (779)" ?

Main Claims: Kinds of Gesture

- Co-speech gestures have been argued to contribute either supplemental meanings (conventional implicatures) or presuppositions (not the focus here).
- Pro-speech gestures contribute at-issue content, sometimes together with presuppositions and/or implicatures, much like words do.
  - But pro-speech gestures have iconic properties that make them non-interchangeable with words.
- Some pro-speech gestures work like expressives (e.g. slurs)
- Post-speech gestures work like supplements

Main Claims: Gesture is Semantically and Pragmatically Versatile

- Many of the diverse kinds of inference that we can prompt with language can also be prompted with gesture:

  - Scalar implicature (including “blind implicatures”)
  - Presuppositions (including anti-presuppositions)
  - Homogeneity Inferences
  - Supplements
  - Expressives

"An important achievement of contemporary semantics was to uncover an exquisitely detailed typology of linguistic inferences" (737).

(5) **Typology of linguistic inferences**

Type	Lexical?	Examples
Standard scalar implicatures	No (Horn 1972), except possibly for the existence of lexical scales	Some group members attended. ⇒ not all group members attended
Blind scalar implicatures	No, just like standard scalar implicatures (Magri 2009)	#Some Italians come from a warm country.
Presuppositions	Yes (Heim 1983)	None of my students knows that he is incompetent. (⇒ all of my students are incompetent)
Anti-presupositions	Like standard presuppositions, possibly with lexical scales in addition	#John is incompetent and he believes it.
Homogeneity inferences	[not entirely clear yet, but probably not lexical]	Mary will/won't find her presents. ⇒ she will find all / she will find none
Supplements	Yes, through the comma intonation (Potts 2005)[4]	One/#None of these women helped her son, which saved him.
Expressives	Yes (Potts 2005)	(#) If I were really prejudiced against the French, I wouldn't hire a Frog.

“An important achievement of contemporary semantics was to uncover an exquisitely detailed typology of linguistic inferences” (737).

Question: Why is this an important achievement?

How could we explain this achievement to someone who isn’t already excited about semantics?

Main Claims: Semantics/Pragmatics

- Gesture gives us some new data for thinking about the semantics/pragmatics boundary:
  - For example, it gives us some new reasons to think that the process of deriving alternatives for calculating implicatures is non-lexical.

Main Claims: Iconic Meaning

- Gestures have rich, non-trivial *iconic* components to their meanings.
- These iconic features seem to compose with the other expressions (we need to study this more!)
- This gives us a reason to think that pro-speech gestures aren't just codes (stand-ins) for spoken words. (They have semantic properties that words don't have.)
- Gestures' iconic properties make their meanings less arbitrary than words, which makes gestural neologisms easier than spoken ones.

Main Claims: Iconic Meaning

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Ari: We can sometimes create new words on the fly too:

- Portmanteaus: "guesstimate"

- "chalant" from "nonchalant"

While some neologisms may deviate from these logical rules -- think 'irregardless' -- are there no cases in which gestural meaning deviates from established rules too?

Main Claims: Iconic Meaning

Rivka: Mandarin's writing has more iconic properties than Western scripts:

- 上 means "up" (compare this with a gesture of pointing up?)
- 下 means "down" (pointing down?)
- 川 means "river" 鱼 means "fish"
- （see how 🐟 standing up looks like鱼）

Rivka reports that iconic properties of logographs helped her to memorize them.

Main Claims: Iconic Meaning

Lots more questions about iconicity:

- Sadie
- Kritin
- Theo
- Jiwoo
- etc.

Let's look at an example of what Schlenker says about iconicity first.

Scalar Implicature

Notation: CROSS refers to a single iteration of the cross sign, and CROSS-rep_3 to three unpunctuated repetitions of the cross gesture.[12]

(17) *Context:* as part of a treasure hunt, the speaker was supposed to look for crosses.
I entered the room

a. and I saw CROSS_  .
⇒ the speaker saw one cross

b. but I didn't see CROSS_  .
⇒ the speaker didn't seen any crosses

c. and I saw CROSS-rep_3_  .
⇒ the speaker saw several crosses
(examples modified from Schlenker and Lamberton to appear)

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(examples modified from Schlenker and Lamberton to appear)

- Why do we infer from (17a) that the speaker saw exactly one cross (and not merely at least one cross?
- Does the gesture means "exactly one cross"?
- This is not compatible with (17b–c).
- So, it looks like a scalar implicature, of the kind that you would infer if someone said, "I saw a cross"

Scalar Implicature

(19) *A driving instructor to a student:*
In order to get out, you

a. should TURN-WHEEL_  .
⇒ you should turn the wheel a bit but not much

b. should COMPLETELY-TURN-WHEEL_  .
⇒ you should completely turn the wheel

a′. shouldn't TURN-WHEEL_  .
⇒ you shouldn't turn the wheel at all, OR you shouldn't turn the wheel just a bit.

b′. you shouldn't COMPLETELY-TURN-WHEEL_
 .
⇒ you shouldn't turn the wheel a lot but you should probably turn it a bit

Scalar Implicature

Rutger questions these (and other) judgments.

(19) *A driving instructor to a student:*
In order to get out, you

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⇒ you should turn the wheel a bit but not much

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b′. you shouldn't COMPLETELY-TURN-WHEEL_
 .
⇒ you shouldn't turn the wheel a lot but you should probably turn it a bit

e.g. This one could be negated if the speaker has a "flair for exaggeration

More generally: Aren't many off the effects that Schlenker describes weaker than purely linguistic counterparts?

And: Maybe priming in the laboratory is doing a lot of the work here?

Scalar Implicature

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In order to get out, you

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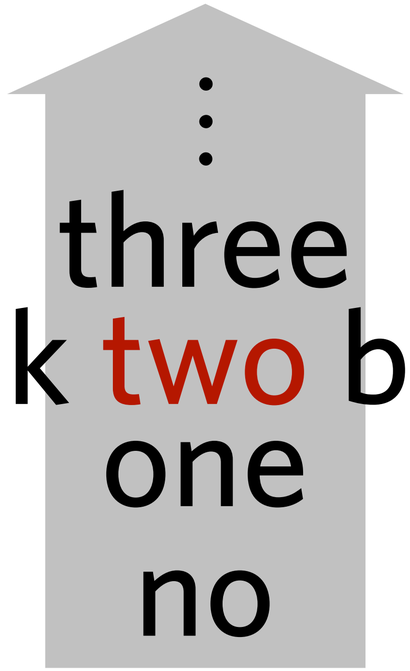
"...indirect gestural implicatures can apparently be triggered without contextual alternatives when a gesture contains a less informative one as a sub-part."

Scalar Implicature

"...indirect gestural implicatures can apparently be triggered without contextual alternatives when a gesture contains a less informative one as a sub-part."

Compare to Katzir:

Scalar Implicature



$\Longrightarrow$I didn't drink three (or more) beers.

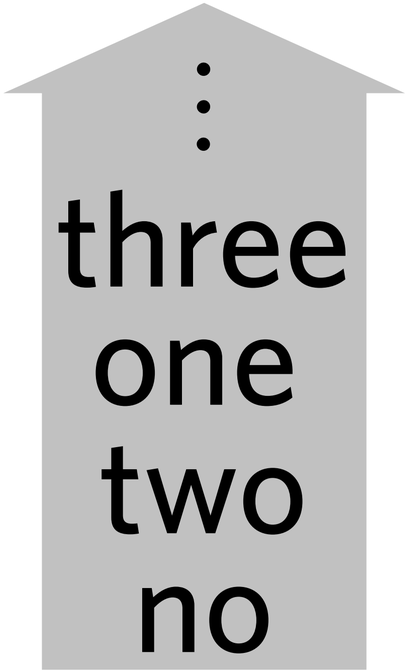
Scalar Implicature

$\Longrightarrow$I drank a beer.

Scalar Implicature

$\Longrightarrow$I drank a beer.

Where do scales come from?



-Convention/Lexical Knowledge (Horn 1972)

-Constrained by an algorithm defined in terms of syntactic complexity (Katzir 2007)

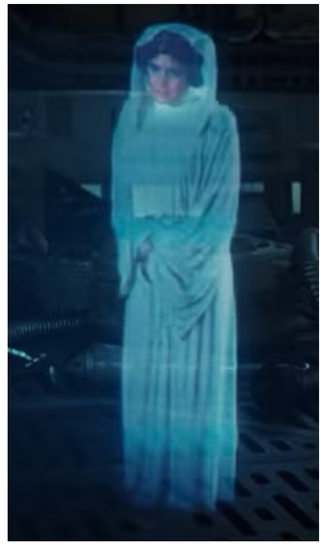
-Sometimes from the QUD?

-In principle unconstrained (Bergen, Levy, and Goodman 2016)

-Schlenker argues that iconic parthood mechanism is at least loosely analogous to Katzir's.

-This gives us some further reason reason to think that some kind of non-conventional productivity is at work.

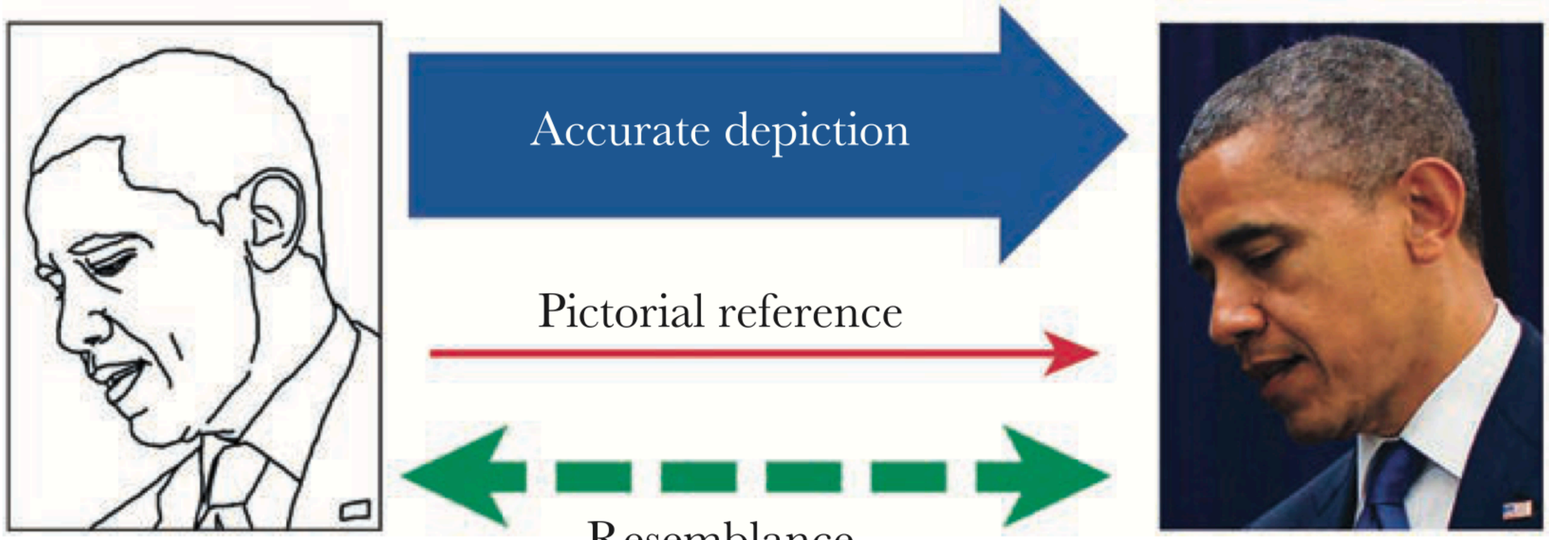
Main Claims: Iconic Meaning

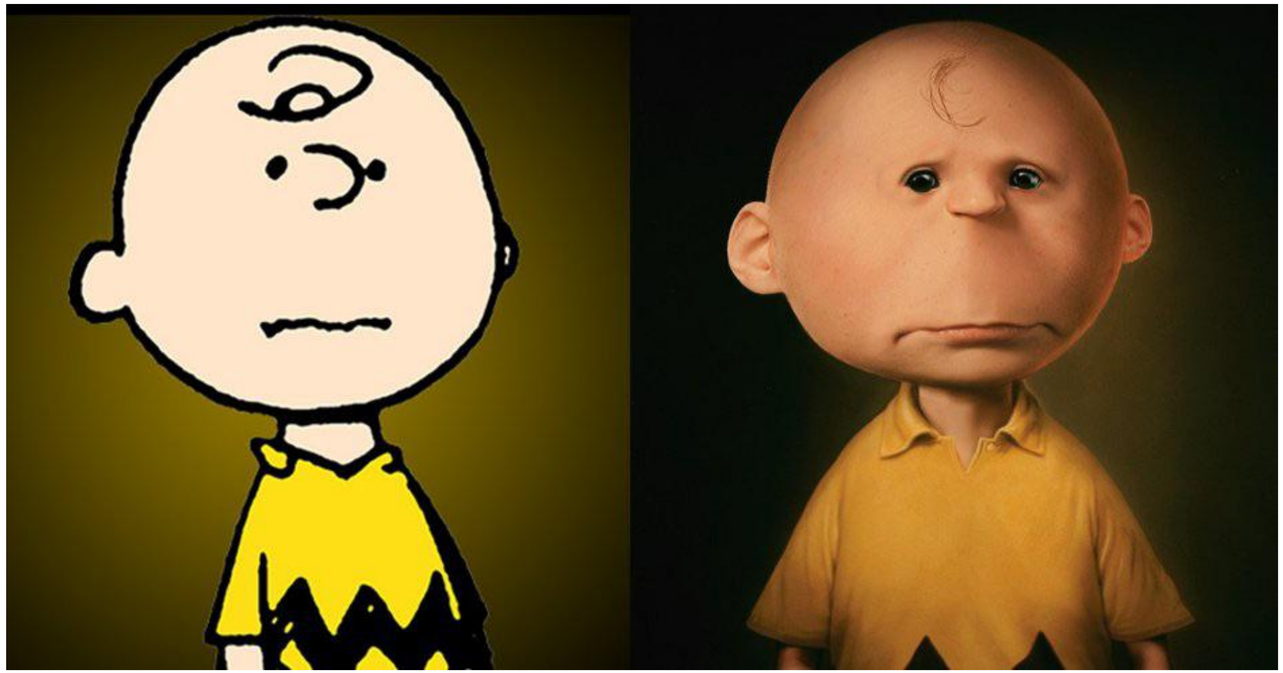


Sadie: Schlenker says that he thinks we can extend (a 3D extension of) Gabe Greenberg's geometric-projection semantics to help make sense of gestures, but I have some doubts:

- Maybe gestures aren't merely visual, but also proprioceptive or otherwise multimodal?
  (e.g. Schlenker's steering-wheel example)

- Unlike pictures, gestures can vary a lot in their surface properties without varying in meaning (cf. font/accent differences)


Accurate depiction
Pictorial reference
Resemblance
Picture
Scene



Main Claims: Iconic Meaning

Kristin: What kind of cognitive system might be involved in computing iconic alternatives? Just visuospatial or also maybe motoric?

[Kristin sketches how the structure of hierarchical motor representations could be useful here, drawing on work by Myrto Mylopolous and Frederique de Vignemont]

Similarly, maybe the relevant iconicity in using “looooong” to mean very long is specifically motoric. (In general, there is an interesting question about how we figure out the relevant resemblance properties in all of these cases.)

Main Claims: Iconic Meaning

Kelly: Are we considering possible additions to physical gestures like sounds? An uniquely productive function of gestures is that they contain gradient spatial information. This led me to think about sounds that often accompany gestures, like the onomatopoeic ones on p.737-8, which can also transmit unique information. Is this inside the scope of gestural semantics? Does the addition of sounds change the gesture meaning or the inferential path?

Main Claims: Iconic Meaning

Theo: Schlenker overstates the iconic properties of gestures:

- Many visual properties of gestures are normally semantically irrelevant (size of my grip ⇏ thickness of steering wheel)

- Steering-wheel gestures can be used to describe turning in vehicles without steering wheels.

- Schlenker's claim that pro-speech gestures aren't just codes for words isn't obviously right. They could just be codes for phrases instead. He hasn't convinced me that gestures aren't translatable into speech.

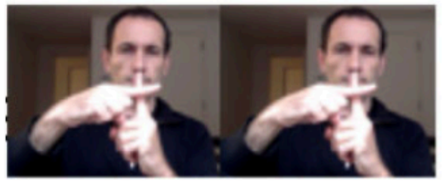
Main Claims: Iconic Meaning

Jiwoo: Gestures are more ambiguous than linguistic expressions. One source of this is that it is often ambiguous which iconic features we should take to have semantic import.

"In order for the addressee to distinguish between TURN-WHEEL and COMPLETELY-TURN-WHEEL, the addresser would need to give more specific signals, e.g., making an explicitly exaggerated motion for COMPLETELY-TURN-WHEEL. It seems that many of the other cases Schlenker discusses, including VERY-BIG and ROTATING, exhibit a similar ambiguity."

"I think adding such specific details to gestures functions much like adding certain linguistic elements, e.g., adding COMPLETELY to TURN-WHEEL, adding VERY to BIG, or adding TAKE-OFF-THE-GROUND to ROTATING. And these added elements appear to be crucial for generating gestural implicatures."

“Blind” Implicature

(22) I knew that whenever there was a ℂℝ𝕆𝕊𝕊_  **[cross]**, it was part of a ℂℝ𝕆𝕊𝕊 ℂℝ𝕆𝕊𝕊_  **[pair]**.[19] I entered a room and finally saw

a. ? ℂℝ𝕆𝕊𝕊_ 

b. ℂℝ𝕆𝕊𝕊 ℂℝ𝕆𝕊𝕊_ 

"Blind" Implicature

(7) a. #Some Italians come from a warm country.
b. All Italians come from a warm country.

Puzzle:

-By (neo-)Gricean standards, (7a) and (7b) are equally informative: they have the same contextual entailments.

-So why is (7b) more felicitous than (7a)?

Schlenker's answer, following Magri:

-We infer some implicatures "blind"—i.e., without considering their relationships to context.

"Blind" Implicature

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-By (neo-)Gricean standards, (7a) and (7b) are equally informative: they have the same contextual entailments.

Andre: Neither Grice's maxim of quantity, nor neo-Griceans' replacements (e.g. Levinson, Hawkins), are formulated in terms of contextual entailment, right?

Isn't this something that Magri (via Heim) later invented?

"Blind" Implicature

(7) a. #Some Italians come from a warm country.
b. All Italians come from a warm country.

I-Condition: Two propositions are equally informative if they are materially equivalent given common knowledge.

Andre: Maybe we can come up with a Gricean alternative to this that predicts the infelicity of (7a) in a different way.

(Andre sketches such an alternative, which I think I would have to read about 10 papers to be in a position to evaluate.)

Presupposition

(27) a. Is Mary going to (i) TURN-WHEEL-small_  (ii) get/be behind the wheel and TURN-WHEEL-small_  .
(i) ⇒ Mary is currently behind a wheel

b. If Mary (i) TURN-WHEEL-small_  (ii) gets/is behind the wheel and TURN-WHEEL-small_  , we'll notice.
(i) ⇒ Mary is currently behind a wheel

Presupposition

c. In this race, none of your friends is going to (i) TURN-WHEEL-small_  (ii) get/be behind the wheel and TURN-WHEEL-small_  .

(i) $\Rightarrow$ in this race, each of your friends is behind a wheel

Presupposition

(28) a. At the end of the meeting, will John (i) REMOVE-

GLASSES_  (ii) have glasses on and REMOVE-

GLASSES_  ?

(i) ⇒ right before the end of the meeting, John will have glasses on

b. If at the end of the meeting John (i) REMOVE-

GLASSES_  (ii) has glasses on and REMOVE-

GLASSES_  , we'll notice.

(i) ⇒ right before the end of the meeting, John will have glasses on

c. At the end of the meeting, none of your colleagues will (i) REMOVE-

GLASSES_  (ii) have glasses on and REMOVE-

GLASSES_  .

(i) ⇒ right before the end of the meeting, each of your colleagues will have glasses on

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GLASSES_  .
(i) ⇒ right before the end of the meeting, each of your colleagues will have glasses on

Elliot: Are we *sure* that these are presuppositions, and not at-issue entailments?

Anti-Presupposition

(35) Competition between *believe* and *know*

a. John believes that he is competent.
   ⇒ it is not established that John is competent
b. Each of my students believes that he is competent.
   ⇒ it is not established that each of my students is competent
c. #John believes that Paris is in France.

(36) a. [Uttered by a speaker with bad eyes in front a mirror].
   He looks like you.... in fact, **he** is you!
b. Every individual (including you) admires himself.

Anti-Presupposition

Rutger: What's going on with this example?

(36) a. [Uttered by a speaker with bad eyes in front a mirror].
He looks like you.... in fact, **he** is you!
b. Every individual (including you) admires himself.