

Sign language semantics, Day 5: Iconicity, classifiers, role shift, and quotation

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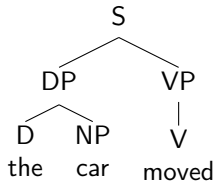
Section 1

Introduction: Logical vs. iconic meaning

Iconicity in the grammar

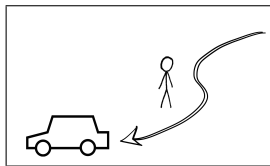
Symbolic meaning

(Lillo-Martin, ...)



Iconic meaning

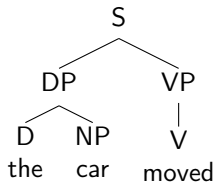
(Cuxac, Liddell, ...)



Iconicity in the grammar

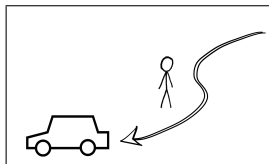
Symbolic meaning

(Lillo-Martin, ...)



Iconic meaning

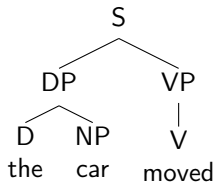
(Cuxac, Liddell, ...)



Iconicity in the grammar

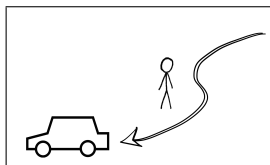
Symbolic meaning

(Lillo-Martin, ...)



Iconic meaning

(Cuxac, Liddell, ...)



- ▶ Schlenker, Lamberton, and Santoro 2012:
An iconic mapping defines a **set of individuals or events**.
Thus, add an iconic predicate **directly into the logical form**.

Roadmap for today

1. What kind of meaning does a picture have?
2. How do we integrate two different kinds of meanings into a single interpretation?
3. What are the points of *interface* between logical meaning and iconic meaning?
 - ▶ Classifier constructions
 - ▶ Role-shift constructions

Section 2

Pictorial semantics (see Greenberg 2015)

A semantics of pictures?

- ▶ Is it possible to give a precise semantics for pictures?
- ▶ Why not?
- ▶ Just as you can state the meaning of a sentence with respect to **truth conditions** (i.e., the set of conditions under which the sentence is true), you can state the meaning of a picture with respect to **accuracy conditions**.

Accuracy judgments



Accuracy judgments



Accurate



Inaccurate

Accuracy judgments



Accurate



Inaccurate

Moral: possible to assign 'truth' or 'accuracy' conditions to pictures.

Another examples



Another examples



Accurate



Inaccurate

Underspecification



Accurate



Accurate

Underspecification



Accurate



Accurate

Moral: pictorial information may be underspecified.

Underspecification

- ▶ What kinds of information can be underspecified?



Underspecification

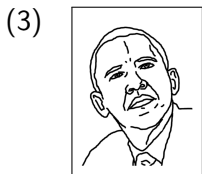
- Preservation of **topology** but not **geometry**.



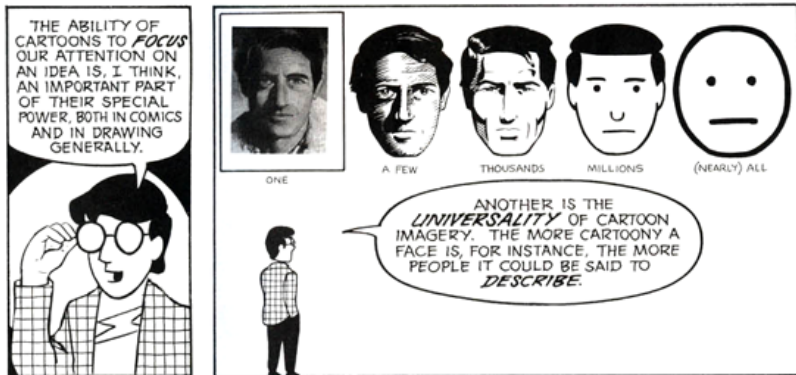
Analogy to vagueness in natural language

- ▶ Both sentences and pictures can be underspecified or **vague** with respect to certain information.

- (1) John is tall.
(Exactly how tall?)
- (2) It's raining.
(Who is president of the US?)



- (What color is Obama's tie?)
(What is going on outside the picture frame?)

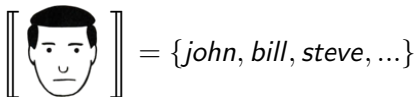


McCloud (1993), *Understanding Comics*

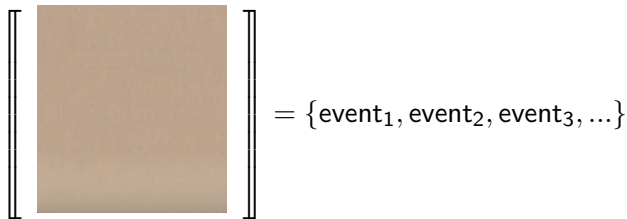
Iconic predicates

- ▶ The meaning of a picture is a set of individuals or events.
(Zucchi et al. 2012, Schlenker et al. 2013, Davidson 2015)

- ▶ A set of individuals:



- ▶ A set of events:



- ▶ Observe that this is the same semantic **type** as nouns or verbs.

Iconicity definition

Let us be a bit more precise:

- ▶ A sign is **iconic** if there is a structure-preserving mapping from the form of the sign to its meaning.
- ▶ Given a phonetic form Φ , an **iconic predicate** is the set of individuals or events iconically match Φ .
- ▶ Being the same type as logical meanings, the two may interact.

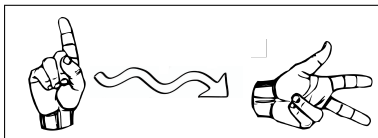
$$\left[\left[\text{Iconic} \right] \right] \wedge \left[\left[\text{linguist} \right] \right] = \{john, steve, \dots\}$$

Section 3

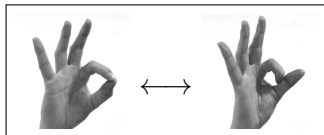
Iconicity and gradience in sign language

Iconicity in sign language

- ▶ Claim: sign language displays iconicity.
- ▶ Examples (ASL):



“The person walked up to the vehicle along a wavy path.”



small disk \longleftrightarrow smaller disk
(Emmorey & Herzig 2003)

Iconicity in sign language

How do we *prove* that these are iconic, as opposed, to, say, combinatorial morphemes?

- ▶ An iconic mapping can preserve **geometric structure** (i.e. measurement).
 - ▶ **Result:** gradient phonetic changes yield gradience in semantic interpretation.
- ▶ In contrast, generative grammar is a discrete, combinatorial system. Thus, gradient effects not possible.
- ▶ **Upshot:** the interpretation of gradient phonetic changes can serve as a diagnostic for iconicity.

(Emmorey and Herzig 2003)

Emmorey and Herzig 2003

- ▶ Deaf signers and hearing non-signers asked to choose the size of an indicated medallion (from a set of stickers).
 - ▶ Two handshapes, each lexicalized in ASL for small disks.
 - ▶ Gradient manipulations of the aperture (as seen in ASL).



- ▶ *Findings:* For signers, gradient interpretation of aperture; significantly more sensitive to gradience than non-signers.
- ▶ In a (non-contrastive) production task, no significant use of gradience; significance of choice of handshape.

Two caveats:

1. Gradience is not *necessary* to show the presence of iconicity.
 - ▶ As we saw, can preserve a range of different kinds of structure; gradience only emerges when *geometric* structure preserved.
2. Gradience is sufficient to show the presence of *something* beyond a discrete grammar, but not necessarily iconicity.
 - ▶ We will see an example with accents in a moment.

Section 4

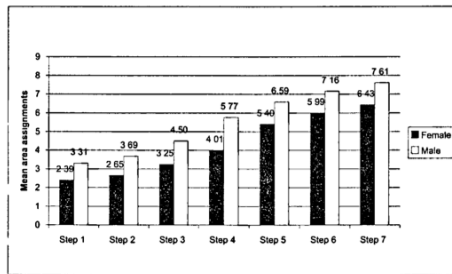
How do these meanings interact?

Incorporating meaning from two sources

- ▶ Sign language communicates both logical and iconic meaning.
 - ▶ One example, so far; more to come.
- ▶ But, is it surprising that humans are able to integrate two kinds of meaning?
 - ▶ After all, we make inferences all the time about how people look, sound, dress,
- ▶ Is iconicity in sign language any different?

Interpreting (gradient) accents

“guide”



(Plichta and Preston 2005)

- ▶ $[[I \text{ ate } [pa].]] = I \text{ ate pie and } I \text{ am from the south.}$

Differences in compositional properties

- ▶ Several differences:
 - ▶ arbitrariness of mapping (formant contour to latitude)
 - ▶ low intentionality of production
 - ▶ low awareness in perception
- ▶ Compositional properties differ:
 - (4) If I eat [pa], I'll be happy.
≠ If (I eat pie and I am from the south), I'll be happy.
= (If I eat pie, I'll be happy) and I am from the south.
- ▶ Systematically **projects** to top level.

Differences in compositional properties

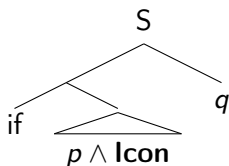
- ▶ We have already seen at least two cases where iconicity in sign language is evaluated at a lower level.
- ▶ What were they?

Differences in compositional properties

- ▶ Iconicity in sign language can be 'at-issue':

(5) LSF

IF MIRKO PAPERS GIVE-rep-accel, IX SECRETARY HAPPY.
= 'If (Mirko gives papers at an accelerating pace), the secretary will be happy.'



Differences in compositional properties

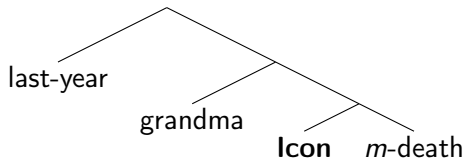
- ▶ Iconic predicates can take a non-sentential logical argument:

(6) LSF

LAST-YEAR MY GRANDMOTHER DIE-incomplete.

= 'Last year, my grandmother almost died.'

≠ 'My grandmother died and it happened like this:
incompletely.'



What about co-speech gesture?

- ▶ One possibility: iconicity acts similarly to **co-speech gesture**.
(Goldin-Meadow and Brentari to appear)
- ▶ Schlenker 2015: Different projective properties.

(7) If I slap gesture punish my child, my spouse will be upset.
= If I punish my child, my spouse will be upset, and
punishing my child would happen with an ear-pinch.

- ▶ Co-speech gestures tend to project; iconicity, as we have seen, may be evaluated 'low'.

Points of interface

- ▶ In the following sections, we will explore some **points of interface** between iconicity and the combinatorial grammar in sign language.

Section 5

How is iconicity introduced in S.L.?

How are iconic predicates introduced?

- ▶ Some questions: can anything be iconic? Are there any limits regarding when iconicity can be interpreted in sign language?
- ▶ Up to this point, it's possible that I've given the impression that 'anything goes' in sign language.
- ▶ This, however, is not the case.
 - ▶ For many verbs in ASL/LSF, modifications w.r.t. telicity/pluractionality are restricted to certain temporal properties.
 - ▶ In Italian Sign Language, iconic adjectival modifications only hold of a certain morphological class of adjectives.

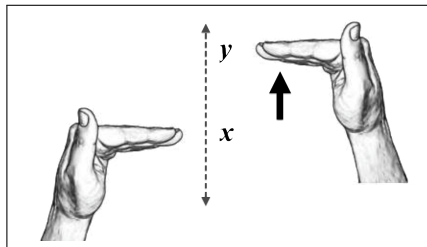
Iconic adjectives in LIS

- ▶ Aristodemo and Geraci 2015 argue that scales are iconically represented for adjectives in Italian Sign Language (LIS).
- ▶ For some adjectives, a comparative form can be constructed by signing the adjective at two different positions along a path.

(8) MARIA TALL- x GIANNI TALL-scale-more- y .

'Gianni is taller than Maria.'

(LIS)



Iconic adjectives in LIS

- ▶ But, these iconic modifications are only available for a certain morphological class of adjectives.
- ▶ TALL1 vs. TALL2
- ▶ DEEP1 vs. DEEP2
- ▶ EDUCATED vs. SMART

Constructions that introduce iconic arguments

- ▶ Notably, there are several specific constructions in sign language that allow a much freer use of iconicity.
- ▶ **Classifier predicates:** handshapes that illustrate movement and locations.
- ▶ **Role shift:** body shift that indicates taking some individual's perspective.

At-issue iconic content in English

- ▶ Even in English, there are certain ways of making gestural or depictive content at-issue.
- ▶ Demonstrative pronouns:
 - (9) If I punish my child like slap this, my spouse will be angry.
- ▶ Quotative constructions:
 - (10) John was all, 'wahhh I don't like loud music!'
- ▶ Analysis: both demonstratives and quotatives are functions that ask for an iconically specified predicate as an argument.

Demonstration variable in classifiers and RS?

- ▶ The general proposal I'd like to suggest here is that both classifier constructions and role shift also subcategorize for an iconically defined predicate.

Section 6

Classifier predicates

Classifiers

- ▶ 'Classifier' terminology comes from spoken language

(11) **Japanese**

kami ni mai
paper two CL-flat
'two pieces of paper'

- ▶ Classifiers in SL – handshape carries similar restriction

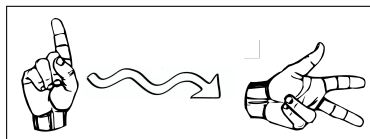
(12) **ASL**

PAPER THREE CL-flat CL-flat CL-flat
'three pieces of paper'

- ▶ Handshapes conventionalized.
- ▶ Mismatch results in ungrammaticality (for both modalities).

Classifiers as iconic predicates

- ▶ Unlike spoken language, classifiers in ASL act as verbal predicates, iconically indicating an event.

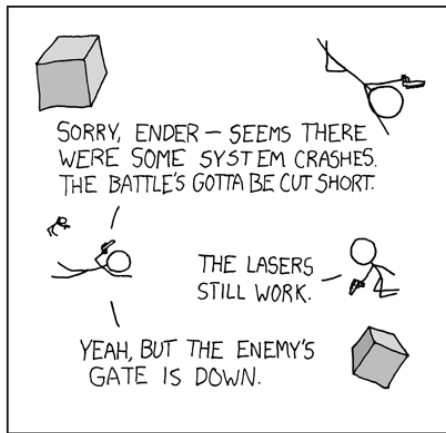


'The person moved to the car along a wavy path.'

- ▶ This iconic predicate preserves at least:
 - ▶ Location
 - ▶ Orientation
 - ▶ Classifier-internal structure

Conventionalized underspecification

- ▶ Conventionalized underspecification preserves specific internal structure of an object (c.f. stick figures).



Proposal sketch

Proposal sketch (Zucchi et al. 2012; Davidson 2015):

- ▶ A classifier is an event predicate (i.e. a set of events) that
 - a. presupposes that its agent (for object classifiers) or its theme (for handling classifiers) is in the specified nominal class, and
 - b. entails that the event happened in the manner iconically demonstrated

ASL/English bilingual kids

Evidence for demonstration argument CODAs (Davidson 2015):

- ▶ Sound effects frequently accompany classifiers:

(13) GOLF CL-1(path of ball) BALL CL-1(path of ball)
golf (sound-effect) ball (sound-effect)
'In golf the ball goes high up, the ball goes like this.'
(3 year-old with Deaf father)

- ▶ Corpus search of 48 classifiers:
 - ▶ 20 accompanied by no speech (all w/Deaf interlocutor)
 - ▶ 14 accompanied by verb (12 w/hearing interlocutors)
 - ▶ 9 with sound effects (equal mix interlocutors)
 - ▶ 5 other/unintelligible

An analogue in spoken language?

- ▶ **Ideophones** = onomatopoetic words with eventive meaning.
 - ▶ English: *snip*; Tselal: *tsok'*
- ▶ 'Sound classifier'? - only applies to very specific events.
- ▶ Allow freer iconic modification than other verbs:
 - (14) I went to the barber and snip, no more ponytail.
 - (15) I went to the barber and snip snip snip, no more ponytail.
- ▶ At-issue accompaniment by gestures.

Section 7

Role Shift and Quotation

Quotation as a means to introduce iconicity

- ▶ In spoken language, direct quotation is intuitively a way of *demonstrating* what happened.

(16) John said to pay attention.

(17) John said, 'Pay attention!'

→ these are the exact words that he said.

- ▶ Sentence-embedding verbs like 'said' entail a speech act, but other constructions embed more general demonstrations.

(18) John was all 'Ahh! I hate spiders!'

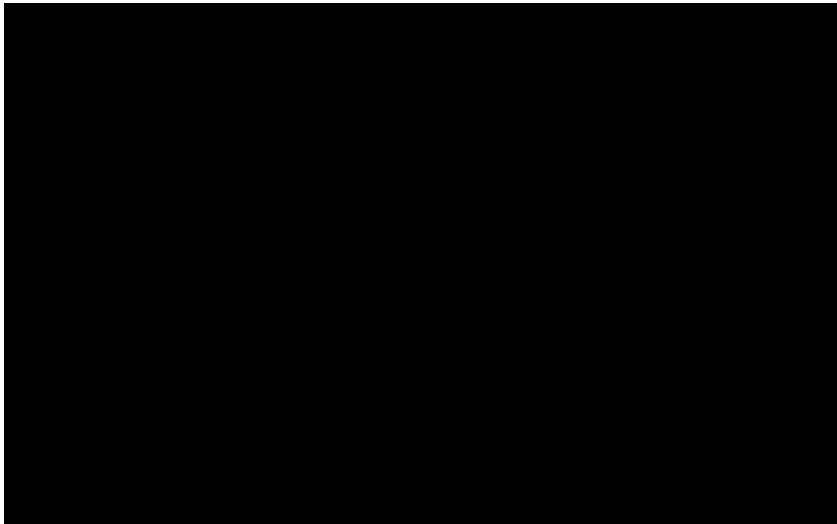
(19) My cat was like 'Feed me!'

(20) He was like [gobbling gesture]. (Davidson 2015)

Use vs. mention

- ▶ **Use** of a word vs. **mention** of a word:
 - (21) **Use:** John ate succotash.
 - (22) **Mention:** John said the word 'succotash'.
- ▶ Some cases seem to be simultaneously *use* and *mention*:
 - (23) Trump doesn't want a 'loser' to be president.
 - (24) Warren says electing Trump would be a 'really really really' big mistake for the American people.
 - ▶ Mention, in that this must be the exact words that were said.
 - ▶ Use, in that it retains the syntax and semantic type of original.

Use or mention?



Use or mention?

- (25) I hear the words 'that's final' come out of your mouth ever again, they truly will be ____.

Role shift

- ▶ In sign language, **role shift** is a perspective-taking construction, marked by shifting the body.
- ▶ **Attitude role shift:**
 - ▶ Very much like quotation in spoken language.
 - ▶ Entails the existence of a speech act.

(26) JOHN IX-a $\overline{\text{IX-1 LIKE ICECREAM}}$ ^{RS-a}.
 'John said, 'I like icecream.'"

- ▶ **Action role shift:**
 - ▶ No speech act entailed.

(27) MARY-a $\overline{\text{1-WATCH-b}}$ ^{RS-a}.
 Mary was watching it (like this).

Role-shift preserves iconic information

- ▶ ASL, no Role Shift:

(28) IX-b HAMMER.

‘He was hammering’

#Response: No, he was hammering upwards

- ▶ ASL, Action role shift:

(29) IX-b $\overline{\text{HAMMER}}^{\text{RS-b}}$

‘He was like hammering [like this]’

Response: No, he was hammering upwards

Role-shift preserves iconic information

- (30) $\frac{\text{IX-a } \overline{\text{1-WALK-WITH-ENERGY}}(\text{CL-ONE})}{\text{RS-a}} \text{ :-)$
 'He walked with energy.'

Even if smile starts before RS, the presence of RS means that it must be interpreted as the *agent* being happy.

Analysis sketch

- ▶ Under role shift, words are both *use* and *mention*.
 - ▶ Syntax must be obeyed, but the *manner* of utterance is also interpreted.
- ▶ Role shift, like classifiers, introduces an iconic argument; this iconic argument captures the 'mention' qualities of the utterance.
- ▶ Davidson (2015) (following Supalla 1982): Can role shift be viewed a classifier of the whole body?
 - ▶ Here, 'preserving internal structure' will entail that facial expressions, etc. will be retained.

Section 8

Other topics

New directions...

- ▶ All this work is super new ... the large majority of the results I've presented have appeared in the last five years.
- ▶ Many questions and phenomena still to investigate!

Topics

- ▶ Non-manuals
 - ▶ The role of simultaneity
 - ▶ The meaning of functional non-manuals
(Wilbur 2011, Benitez-Quiroz et al. 2016)
- ▶ Sublexical decomposition
 - ▶ *Again*-ambiguities (Kuhn 2015)
- ▶ Specificity of indefinites and quantifier domain restriction
(various works by Gemmar Barberà; Davidson and Gagne 2014)
- ▶ Counterfactuals and modality (Schlenker 2013)

Linearity

- ▶ Spoken language is generally considered a linear signal.
- ▶ Sign language, with two articulators and a face, can express simultaneous signals.
 - ▶ Not the same pressure to linearize.
- ▶ Simultaneity of manual signs:
 - ▶ Classifiers
 - ▶ Buoys

Non-manual signs

- ▶ Simultaneity of non-manual signs (i.e. facial expressions).
- ▶ Two functions:
 - ▶ **Grammatical:** Y/N questions, wh-questions, negation, conditionals. (Similar to intonation in spoken language.)
 - ▶ **Affective (adverbial):** carefully, sloppily,...
- ▶ Wilbur 2011: Roughly speaking, non-manual signs spread over the syntactic domain over which they take scope
- ▶ Tentative data:

- (31) a. $\overline{\text{ALL STUDENTS UNDERSTAND}}^{\text{hs}} \quad \checkmark \neg > \forall \quad \checkmark \forall > \neg$
- b. $\text{ALL STUDENTS } \overline{\text{UNDERSTAND}}^{\text{hs}} \quad * \neg > \forall \quad \checkmark \forall > \neg$
 'All the students didn't understand.'

The meaning of non-manuals

- ▶ Some non-manuals seem to indicate a natural semantic class.
- ▶ Brow-raise:
 - ▶ Y/N questions
 - ▶ Antecedent of conditions
 - ▶ Disjunction
 - ▶ Topicalization
- ▶ Can we state a generalization in terms of inquisitive semantics?

Section 9

'Again'-ambiguities

Again-ambiguities in English

- ▶ In English, the adverb *again* has been shown to be ambiguous with telic verbs.

(32) I closed the door again.

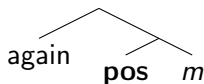
- Repetitive:** I closed the door twice.
- Restitutive:** I returned it to a state of closure.

Again ambiguities in English

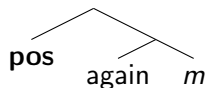
A popular analysis:

- ▶ Verb is morphologically complex; structural ambiguity based on where *again* attaches.
- ▶ In our terms, something like:

(33) a.



b.



Again-ambiguities in ASL

- ▶ For some signers, ASL shows a similar ambiguity with AGAIN.

- (34)
- a. IX-1 DOOR AGAIN CLOSE.
'I closed the door again.'
 - b. YESTERDAY JOHN SELF CHANGE WOLF AGAIN
'Yesterday, John changed into a wolf again.'
 - c. THIS YEAR, GROUP AGAIN GREW.
'This year, my group grew again.'
 - d. THIS WEEK, TEMPERATURE INCREASE AGAIN.
'This week, the temperature increased again.'

Iconicity and *again*

Preliminary results!

- ▶ With iconically incomplete forms, verbs still ambiguous!

(35) I DOOR AGAIN CLOSE-incomplete.

a. **Repetitive:** I incompletely closed the door twice.

b. **Restitutive:** I returned it to a state *of being incompletely closed*.

- ▶ The state of incomplete closure must be retrievable from the meaning of the modified verb so it can be targeted by *again*.
- ▶ This state is available on a scale-based decomposition, which represents the full set of closure-degrees.

Section 10

Scope and domain of quantifiers

Domain of quantifiers

- ▶ Davidson and Gagne 2014: height tracks domain restriction. ('More is up.')

(36) *Context:*

Last night I watched a movie with my friends about vampires. Afterwards I went to bed and I dreamt that...

- (37) a. ALL-low TRANSFORM INTO VAMPIRE.
b. ALL-high TRANSFORM INTO VAMPIRE.
'...everyone transformed into vampires.'

- ▶ Also for NONE, SOMEONE

Specificity of existentials

- ▶ For existentials, what's the contribution of widening the domain?
- ▶ Perhaps: implicature of unidentifiability
- ▶ Barberà 2012: in Catalan Sign Language, this is grammatically encoded.
 - ▶ High loci used for non-specific reference
 - ▶ High locus can't introduce discourse referents without modal subordination

Thanks!