The role of QUD in ellipsis and role shift in Catalan Sign Language

David Blunier1  Giorgia Zorzi2

1Département de linguistique
  University of Geneva, Switzerland

2Departament de Traducció i Ciències del llenguatge
  Universitat Pompeu Fabra, Barcelona, Spain

QUDs and exhaustivity: experiments, computation, and theory
  September 25-26, Graz, Austria
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Embedded reading vs Matrix reading: LIKE vs SAY

Contrast, alternatives and the QUD
Answering puzzle 1: Uninterpreted person features
Answering puzzle 2: Main utterance point and the QUD

Conclusions
In this talk

- Present new data on the interpretation of shifted indexicals under ellipsis in Catalan Sign Language (LSC).

- Extend a Question Under Discussion approach to LSC to account for the possible readings available in the ellipsis site.
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- The discourse relation between the antecedent clause (A-C) and the ellipsis clause (E-C) follows the **Contrastive Principle** (Winkler, 2005): the remnants must occur in a contrastive relation to their antecedent correlates.

(2) Mary said Jenny went to Europe and Fred did too.

- Here, contrasted elements are marked with **contrastive focus** (Frazier et al., 2007).
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(3) Mary said Jenny went to Europe and Fred did too.

- Here, contrasted elements are marked with **contrastive focus** (Frazier et al., 2007).
- At the semantic level, focused elements generate sets of alternatives, which are presumably constrained by two factors:
  1. The corresponding elements in the A-C, and
  2. The question under discussion (QUD).
Ellipsis in sign languages

- In sign languages, **non-manual markers (NMMs)** and the **use of the signing space** signal contrast:

(4)  $\text{MARINA}_a \text{ FRUIT } _{3a}\text{GIVE}_1, \text{ JORDI}_b \ _{3b}\text{AUX}_1 \ _{1}\text{ TOO}.$  

'Marina gave me some fruit and Jordi did, too'. (LSC: Zorzi 2018)

- NMMs signal contrastive focus on the two subjects: head lean and body shift towards opposite sides of the signing space, raised eyebrows, use of opposite sides of the space.

**Figure:** NMMs of constrative focus
Pronouns under ellipsis

- Pronouns in sign and spoken languages share features. They can be bound, as in (5):

  (5) [ALL BOY]$_a$ WANT [ALL GIRL]$_b$ THINK IX-$_a$ LIKE IX-$_b$.
  ‘All the boys want all the girls to think they like them.’
  (ASL, Kuhn 2015b)
Pronouns under ellipsis

- They can give rise to *strict/sloppy readings* under VP-ellipsis, as in (6):

  (6) GIANNI$_a$ SECRETARY POSS$_a$ VALUE. PIERO SAME.
  
a. ‘Gianni values his secretary, Piero (values Gianni’s secretary), too.’
b. ‘Gianni values his secretary, Piero (values Piero’s secretary), too.’
  
  (LIS, Cecchetto et al. 2015)

- (6)a. represents a *strict reading*, whereas (6)b. represents a *sloppy reading*
Role shift

- **Role shift** (RS) is a construction commonly used in sign languages to report utterances or thoughts from an agent's (distinct from the utterance speaker) perspective (Quer, 2011).
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- It is **signaled by non-manual markers** such as body/head movement and eyegaze contact break with the actual addressee:

  ![Figure: NMMs of RS: eyegaze, body shift, head position, facial expressions](image)

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Role shift

- RS displays **indexical shift**: in the scope of an attitude verb, 1st and 2nd person pronominals retrieve their reference from the reported context.

(7) MANELᵢ THINK [RSIX-1ᵢ 1ᵢ-GIVE-2ₖ AT-ALL]
    ‘Manel thinks that he won’t give me anything at all.’ (Quer 2011:280)
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Outline

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   Ellipsis in sign languages
   Pronouns under ellipsis
   Role shift

2. Indexicals under role shift and ellipsis
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4. Conclusions
The interaction of role shift and ellipsis seems to have interesting consequences for pronoun interpretation: Cecchetto et al. (2015) show, for Italian Sign Language (LIS), that role-shifted antecedents can only give rise to sloppy readings:

(8) a. GIANN\(i\) SAY $\text{IX}_{3i}$ MARIA KISS. PIERO SAME.
   Gianni\(_i\) said that he\(_i\) kissed Maria. Piero\(_j\) did (say that he\(_{i/j}\) kissed Maria), too.

b. GIANN\(i\) SAY [RS $\text{IX}_{1i}$ MARIA KISS]. PIERO SAME.
   Gianni\(_i\) said that he\(_i\) kissed Maria. Piero\(_j\) did (say that he\(_{i/j}\) kissed Maria), too.
Indexicals under role shift and ellipsis

- This is cashed out in terms of a context shifting operator (as defined in Schlenker 2017) that requires that the context $c$ fixing the denotation of the first person indexical $I$ be a context in which $I$ denotes the individual whom the subject argument of SAY refers to:

$$\begin{align*}
\left[ \text{SAY-OP} ; \phi \right]_{g,c} & = \lambda x'. \lambda w' \left[ \phi \right]_{g[i \mapsto x'], w'} 
\end{align*}$$

- Since, to be bound, indexicals require SAY-OP, the absence of a strict reading leads Cecchetto et al. (2015) to argue that the ellipsis site contains a copy of SAY-OP, and vindicates an identity-in-form approach to ellipsis.
Shifted 1st person indexicals allow strict readings under ellipsis

• However, in Catalan Sign Language (LSC) no difference arises in ellipsis readings from the presence vs absence of RS in the antecedent

• Both strict and sloppy interpretations are available for the ellipsis clause (E-C), regardless whether the antecedent clause (A-C) contains a 3rd person (10a) or a shifted 1st person form (10b):

(10) a. GIORGIA\_i SAY IX_{3i} ALEX_k LIKE_{3i} AUX_{3k}. JORDI TOO. (4.2)
    
    b. GIORGIA\_i SAY [RS IX_{1i} ALEX_k LIKE_{1i} AUX_{3k}]. JORDI TOO. (4.3)

Giorgia\_i said that she\_i likes Alex...

1. Jordi\_j ⟨said that she\_j likes Alex⟩, too.
2. Jordi\_j ⟨said that he\_j likes Alex⟩, too.
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- This poses a challenge for Cecchetto et al. (2015) approach, since their analysis in terms of binding rules out a strict reading under role shift for (10).
- Even assuming that the SAY-OP is not reconducted in E-C, their approach will not derive the strict reading, since it requires that GIORGIA is the argument taken by the λ-binder as argument for the SAY-OP:

\[ \text{GIORGIA}_i \ \lambda x_i \text{SAY} \!_x^i,w \ldots \ JORDI_j \ \lambda x_j \text{SAY} \!_{x^*i/j,w} \ldots \]

- Since, in this approach, indexicals must be bound in order to be shifted (and cannot simply be referential or free, as 3rd PPs), it cannot account for the strict reading observed in LSC.
Another puzzle: embedded-LIKE and matrix-SAY readings

- Sentences like (10) a and b can have two different readings, depending on whether the embedding verb SAY is interpreted in E-C:

\[(13) \quad \text{a. GIORGIA}_i \ \text{SAY} \ [IX_{3i} \ ALEX_k \ \text{LIKE} \ _{3i}AUX_{3k}] \text{, JORDI TOO.} \]
\[\text{b. GIORGIA}_i \ \text{SAY} \ [RS \ IX_{1i} \ ALEX_k \ \text{LIKE} \ _{1i}AUX_{3k}] \text{. JORDI TOO.} \]

Giorgia$_i$ said that she$_i$ likes Alex...

1. Jordi$_j$ \textit{said that Giorgia/Jordi likes Alex}, too. \textit{(SAY-reading)}
2. Jordi$_j$ \textit{likes Alex}, too. \textit{(LIKE-reading)}
Puzzles

1. How can we justify the similar interpretations of 3rd person and shifted 1st person under ellipsis?
2. How can we tell apart the *SAY* and *LIKE* readings?
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Answering puzzle 1: Uninterpreted person features

- Remember that the presence vs absence of role shift in our LSC examples did not make any difference regarding the different readings available in E-C: both 3rd person and shifted 1st person pronouns can be interpreted strictly or sloppily.
Answering puzzle 1: Uninterpreted person features

- Remember that the presence vs absence of role shift in our LSC examples did not make any difference regarding the different readings available in E-C: both 3rd person and shifted 1st person pronouns can be interpreted strictly or sloppily.

- We would like to suggest that person features are ignored during the computation of focus alternatives, as suggested by i.a. Jacobson (2012), Sauerland (2013).
Answering puzzle 1: Uninterpreted person features

- It has already be noted that φ-features are systematically ignored in environments involving focused alternatives, like pronouns in the scope of *Only* and VP-ellipsis.

(14) *Only I did my homework.*
\[ \leadsto I \text{ did my homework and } x \text{ didn’t do } x’S \text{ homework.} \]

(15) *John did his homework and Mary did (...) too.*
\[ \leadsto \text{Mary did his}_j \text{ homework (strict)} \]
\[ \leadsto \text{Mary}_m \text{ did her}_m \text{ homework (sloppy)} \]
Answering puzzle 1: Uninterpreted person features

- Assuming that $\phi$-features are interpreted as partial identity functions of type $\langle e, e \rangle$ and have the following entries, we can assume that their respective contributing presuppositions are not satisfied under *Only* or in ellipsis:

\[
(16) \ [\phi^{-1}P]^{g,c} = \lambda x : x \in s(c).x
\]

\[
(17) \ [\phi^{-FEM}]^{g,c} = \lambda x : x \in FEM.x
\]
Answering puzzle 1: Uninterpreted person features

- Schlenker (2014) and Kuhn (2015a) convincingly show that these phenomena are well attested in both American Sign Language (ASL) and French Sign Language (LSF)
Answering puzzle 1: Uninterpreted person features

- Schlenker (2014) and Kuhn (2015a) convincingly show that these phenomena are well attested in both American Sign Language (ASL) and French Sign Language (LSF).
- Similar data on lack of person features interpretation on the verb in the E-C is found in LSC in gapping:

(19) \[ \text{MARINA}_a \text{ JORDI}_b \text{ WATCH} \text{ } _3a\text{GIVE}_3b, \text{ MARC}_c \text{ JORDINA}_d \text{ PLANT} \]
\[ 3c\text{GIVE}_3d \].

‘Marina gave Jordi a watch and Marc Jordina a plant.’

(LSC, Zorzi 2018:341)

- The person-agreement features on the verb GIVE go uninterpreted in E-C.
Answering puzzle 1: Uninterpreted person features

- The meaning of both 3rd person and 1st person pronouns in E-C reduces to:

\[
\llbracket pro \rrbracket^g = \{ \lambda x. \mid x \in D_e \}
\]

- Since the indexical 1st person features of 1P are ignored, the pronoun can either be bound or left free in E-C, giving rise to sloppy or strict interpretations:

\[
\text{GIORGIA}_i \ \text{SAY} \ [RS \ \text{IX}_{1i} \ ALEX_k \ \text{LIKE} \ _{1i}\text{AUX}_{3k}]. \ \text{JORDI}_j \ \langle \text{SAY} \ IX_{3i/j} \ ALEX_k \ \text{LIKE} \ _{3i/j}\text{AUX}_{3k} \rangle \ \text{TOO.}
\]

'Giorgia\textsubscript{i} said that she\textsubscript{i} likes Alex. Jordi\textsubscript{j} \text{\langle said that s/he\textsubscript{i/j} likes Alex\rangle}, too.'
Puzzle 2. How can we account for the fact that E-C is sometimes interpreted as containing the matrix verb (SAY-reading), and sometimes as containing the embedded clause only (LIKE-reading)?
A generalized ambiguity

• Contexts are crucial in predicting the availability of the different readings the E-C can have:

1 Context: Giorgia and Jordi are siblings. Their mother asked them who does Giorgia like and they both answered that she likes Alex.

'Giorgia said that she likes Alex, Jordi $\langle$ said that Giorgia likes Alex $\rangle$, too.'

2 Context: Giorgia and Jordi are siblings. Their mother asked them who they like and they both answered that they like Alex.

'Giorgia said that she likes Alex, Jordi $\langle$ said that Jordi likes Alex $\rangle$, too.'

3 Context: Giorgia and Jordi are siblings. Their mother asked who they like and Giorgia answered that her and her brother like Alex.

'Giorgia said that she likes Alex, Jordi $\langle$ likes Alex $\rangle$, too.'
The computation of ellipsis: focused alternatives à la Rooth (1992)

- We adopt a fairly standard semantic account of ellipsis, in which the meaning of E-C is retrieved via the computation of *focus alternatives*, from which the standard meaning of A-C is a part of:

  \[
  \text{Focus interpretation principle:}
  \]

  \[
  [A-C]^g \epsilon \parallel E-C \parallel^g
  \]

- According to this view, ellipsis is licensed iff there is a proper contrasting item \(\alpha\) s.t. \(\alpha\) is a part of/substr of the focused alternatives of another object \(\gamma\) that matches \(\alpha\) in type.
Ellipsis and the QUD

- We understand a context in the sense used above as the different propositions that constitute the body of information a speaker and a hearer share, pursuing a strategy of inquiry whose goal is to ultimately answer the *question under discussion* (Roberts, 2012).
- We adopt Kehler’s 2016 idea that QUD plays a fundamental role in ellipsis licensing: the meaning of an elided VP is evaluated against a (explicit or implicit) QUD.

(23) Ellipsis-QUD matching condition (Kehler 2016):
For any A-C and E-C for which \([A-C]_g \sqsubseteq [E-C]_g\), QUD = \([E-C]_g\)
The EQMC states that ellipsis of a constituent $\alpha$ will be licensed iff there is an antecedent $\gamma$ whose ordinary semantic value is part of the focus semantic value of $\alpha$ and that this value is congruent to a QUD.

Following Elliott et al. (2016), we define Congruence as follows: a declarative sentence $S$ is congruent to question $Q$ (wrt $g$) iff $\parallel Q \parallel^g = \parallel S \parallel^g$.

The different readings of (21) corresponds to different QUDs which, in turn, determine the semantic value of E-C.
Deriving reading 1: SAY-strict

• **Context:** Giorgia and Jordi are siblings. Their mother asked them who does Giorgia like and they both answered that she likes Alex.
  ‘Giorgia said that she likes Alex, Jordi said that Giorgia likes Alex, too.’

• \( QUD = \parallel E-C \parallel = \lambda p. \exists x(p = \lambda w. \ x \ said \ that \ Giorgia \ likes \ Alex). \)
Deriving reading 2: SAY-sloppy

- **Context:** Giorgia and Jordi are siblings. Their mother asked them who does Giorgia like and they both answered that they like Alex.

  ‘Giorgia said that she likes Alex, Jordi (said that Jordi likes Alex), too.’

- \( \text{QUD} = \| \ E-C \ | = \lambda p. \exists x (p = \lambda w. \ x \ said \ that \ x \ likes \ Alex). \)
Deriving reading 3: LIKE-reading

- **Context:** Giorgia and Jordi are siblings. Their mother asked who they like and Giorgia answered that her and her brother like Alex. ‘Giorgia said that she likes Alex, Jordi \(\text{likes} \) Alex, too.’

- **QUD** = \( \parallel \text{E-C} \parallel = \lambda p. \exists x (p = \lambda w. x \text{ likes Alex}) \).
Disentangling readings: at-issue content

- When contexts are underspecified, i.e. compatible with different QUDs, ambiguities arise.
- Such ambiguities systematically arise with embedded clauses under attitude verbs such as say, think or believe.
- Embedding attitude verbs can in those cases have a so-called parenthetical use (Urmson, 1952):

(24) A: Why didn’t Louise come to the meeting yesterday?
B. I heard that she’s out of town. (Simons 2007:2)
In cases such as (24), B’s answer can be understood as such because the embedded clause represents the main point of her utterance: the matrix proposition is used parenthetically.
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• Parenthetical material is not-at-issue, and non-at-issue content updates the common ground in a way that cannot be negotiated (Farkas and Bruce, 2010)
Disentangling readings: at-issue content

- In cases such as (24), B’s answer can be understood as such because the embedded clause represents the main point of her utterance: the matrix proposition is used parenthetically.
- Parenthetical material is not-at-issue, and non-at-issue content updates the common ground in a way that cannot be negotiated (Farkas and Bruce, 2010)
- Therefore, its content cannot be part of the potential answers to a broader QUD, like the one that licenses the matrix clause.
We therefore predict that in any context in which the saying event is at-issue, the alternatives corresponding to the matrix QUD will be licensed in E-C, and both strict and sloppy SAY-readings in (21) can be derived:

\[(25)\]  
\begin{align*} 
  a. \quad & \text{QUD}_{\text{SAY}} = \parallel E-C_{\text{MATRIX}} \parallel^g = \{x \text{ said that Giorgia}/x \text{ likes Alex} \mid x \in D_e\} \quad (\text{EQCM condition}) \\
  b. \quad & [A-C_{\text{MATRIX}}] \in \parallel E-C_{\text{MATRIX}} \parallel^g \quad (\text{focus condition})
\end{align*}
Disentangling readings: at-issue content

- If, however, the embedding predicate is not interpreted as at-issue content, it will fail to be part of the alternatives deemed relevant in the E-C, being compatible only with the QUD the embedded clause represents a partial/complete answer to, that is, the QUD$_{LIKE}$:

\[(26)\]

- a. $QUD_{LIKE} \equiv || E-C_{EMBED} ||^g = \{x \text{ likes } Alex | x \in D_e\}$ (EQCM condition)
- b. $[A-C_{EMBED}] \in || E-C-EMBED ||^g$ (focus condition)
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- The LSC data doesn’t support a strict syntactic identity condition between the A-C and E-C (contra Cecchetto et al. 2015), but rather supports an hybrid account (Barros and Kotek 2018, Barros and Kotek 2019 i.a).

- With or without RS, both 3rd person and shifted 1st person pronouns can be interpreted strictly or sloppily: this is due to person features being ignored in the computation of alternatives in the E-C.

- Available alternatives in the E-C are fully predicted by a model in which the QUD serves as a licensor for ellipsis: only contrasted elements in the antecedent that count as congruent to the QUD will be treated as proper alternatives.


