

Catalan Sign Language ellipsis, role shift, and the QUD

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Abstract

This piece is concerned with the interpretation of context-dependent elements such as IX_1 , IX_2 and $IX_{(HERE)}$ in Catalan Sign Language (LSC) under role shift and ellipsis. We show that their behavior in both environments sheds light on ellipsis mechanisms, which share essential properties with anaphora and discourse reference, and speech reports constructions.

Keywords: Pronouns, ellipsis, role shift, Question Under Discussion, Catalan Sign Language.

1 Introduction

Since the pioneering work of David Kaplan (Kaplan 1989), it is often assumed that elements such as *I*, *you*, *here* and *now* should be given a special status within semantic theories, most notably because of their context-sensitive properties: *I*, for instance, always refers directly to the speaker of the actual utterance it is used in, and is famously insensitive to intensional operators such as attitude verbs like *say*:

(1) Sam said to Maria that I am in love with you.

Where *I* invariably refer to the actual speaker reporting what Sam said, and *you* to the actual addressee. This property (among others) sets elements such as *I* and *you* apart from similar ones such as 3rd person *he* or *she*, which do not possess this rigidity in reference. Sign languages, however, tend to behave differently in allowing anaphoric reference of 1st and 2nd person pronouns in attitude reports. In this piece, we explore the behavior of such ‘role-shifted’ indexicals in interaction with ellipsis constructions, such as VP-ellipsis, which reveal puzzling restrictions on pronominal reference. The paper is structured as follows: §1 introduces the main phenomena this study is concerned with, namely, the interaction of role shift with ellipsis in sign languages. §2 introduces the methodology used for elicitation, as well as the relevant LSC data, to which we provide a formal analysis in §3; §4 concludes.



Figure 1: Non-manual markers of role shift: eyegaze and body shift, head tilt, facial expressions (Quer 2011).

1.1 Indexicals and role shift in sign languages

In sign languages, pronominal elements share a common structure in that they all consist in a combination of a *pointing gesture*, called *index*, and a *locus*, which serves to identify a given referent in the signing space (Sandler and Lillo-Martin 2006 a.m.o.). In the case of first and second person, the *loci* associated with the index are the body of the signer and the position of the actual addressee, respectively. However, in most sign languages (if not all, see Herrmann and Steinbach 2012), 1st and 2nd person pronouns *can* be used anaphorically in intensional constructions through *role shift*. Role shift is a complex construction allowing for the signer to report utterances or thoughts from a distinct, but first-personal, perspective, in a quotational manner¹.

When using role shift, a signer will use non-manual markers (NMMs) such as body lean, head tilt, and eyegaze contact break with the addressee. These NMMs, illustrated in Figure 1.1, typically take scope over the reported sentence.

As mentioned above, under role shift, indexical pronouns IX_1 and IX_2 are ‘shifted away’ from the actual speaker to refer to the agent of the reported utterance or thought, as in (2):²

- (2) MANEL_a THINK $\overline{IX_{1a} 1a GIVE_{2b} AT-ALL}$ ^{RS_a}
 ‘Manel_a thinks that he_a won’t give me_b anything at all.’ (LSC, Quer 2011: 280)

In (2), the signer is reporting a sentence that Manel told him: the first person pronoun IX_1 under role shift refers to Manel, the agent of the reported utterance, and not to the actual signer; the shifted 2nd person agreement reference under role shift, instead, refers to the actual signer. Under role shift, the 1st person pronoun loses its indexical value to be interpreted as a third person anaphoric pronoun.

1. Whether or not sign language role shift could be reduced to a form of quotation as commonly used in spoken languages is still much debated. See most notably Davidson (2015) and Maier (2018) for arguments in favor of a quotational analysis, and Schlenker (Schlenker 2017a, Schlenker 2017b) for an alternative view.

2. The glosses conventions used in this paper follow the ones developed in the SIGN-HUB project grammar. The number indexes 1 and 2 refer respectively to 1st and 2nd person singular. The letter indexes are used to identify the referent the IX pronoun is coindexed with; they do not necessarily refer to a specific location in space.

1.2 The interaction of indexicals with ellipsis

As for most spoken languages, pronouns in sign languages give rise to so-called ‘strict/sloppy readings’ under ellipsis, as in (3), an example from Italian Sign Language (LIS):³

- (3) GIANNI_a SECRETARY POSS_a VALUE. PIERO SAME
 a. ‘Gianni_a values his_a secretary, Piero_b ⟨values his_a secretary⟩, too.’ (strict reading)
 b. ‘Gianni_a values his_a secretary, Piero_b ⟨values his_b secretary⟩, too.’ (sloppy reading)
 (LIS, Cecchetto et al. 2015: 229)

As initially observed by a.o. Dahl (1973) and Williams (1977), VP-ellipsis sites tend to generate ambiguities whenever antecedents contain a referential pronoun: as a consequence, its elided counterpart can either refer to the topmost DP *Gianni*, giving rise to a strict reading (3a), or to the closer ‘remnant’ DP, *Piero*, licensing a sloppy reading (3b).

1.3 A restriction about indexicals in Italian Sign Language

As illustrated in (3), sign languages also display the strict/sloppy alternation. What is more, as demonstrated by Cecchetto et al. (2015) for LIS, a restriction seems to arise in configurations involving an indexical pronoun under role shift: when the antecedent contains a role-shifted indexical, it cannot be interpreted ‘strictly’ in the ellipsis site, contrary to its 3rd person counterpart. This restriction is illustrated in (4) and (5).

- (4) GIANNI_a SAY IX_{3a} MARIA KISS. PIERO SAME. strict ✓, sloppy ✓
 ‘Gianni_a said that he_a kissed Maria. Piero_b ⟨said that he_{a/b} kissed Maria⟩, too.’
- (5) GIANNI_a SAY $\overline{\text{IX}}_{1a}^{\text{RS}_a}$ MARIA KISS. PIERO SAME. strict ✗, sloppy ✓
 ‘Gianni_a said that he_a kissed Maria. Piero_b ⟨said that he_{a/b} kissed Maria⟩, too.’
 (LIS, adapted from Cecchetto et al. 2015: 229)

In order to explain this restriction, Cecchetto et al. (2015) adopt the context-shifting analysis for indexicals under role shift of Schlenker (2017a). Under this view, the NMMs used to license role shift are analyzed as introducing a dedicated operator in the logical form of reported sentences, whose role is to shift the coordinates of the actual context against which the embedded indexical is evaluated. As a result, the indexical comes out being interpreted not referring to the speaker, but to the subject of the matrix clause, *Gianni*:

- (6) $\llbracket \text{SAY-OP}_i \phi \rrbracket^{g,c} = \lambda x'. \lambda w' \llbracket \phi \rrbracket^{g[i \rightarrow x'], w'}$

In words, the shifting operator *SAY-OP*, when fed a proposition ϕ , changes the speaker and world coordinates of the actual context c on the interpretation function in order to deliver a function from individuals and worlds to truth values, a centered proposition in the sense of Lewis (1979). The first person indexical is thus bound (alongside the world of evaluation of the reported sentence) and allowed to refer back to the subject of the matrix verb *SAY*, i.e., *Gianni*.

The absence of a strict reading in sentences like (5) leads Cecchetto et al. (2015) to argue that the ellipsis site contains a copy of *SAY-OP*, thus vindicating an approach to ellipsis that

3. Here and throughout the paper, we indicate elided material between ⟨angled brackets⟩.

assumes an ‘identity in form’ between the antecedent and the ellipsis clause, in the spirit of analyses such as those of Sag (1976), Fiengo and May (1994), Merchant (2001), Rudin (2019). The reasoning goes as follows: since the silent indexical in (5) can only be interpreted as referring to the external argument of the elided verb *SAY*, i.e. *Piero*, the lack of the other reading follows from the presence of an elided operator binding the indexical in the elided clause, henceforth blocking a strict interpretation.

2 Catalan Sign Language data

2.1 Methodology

The LSC data presented in this work were collected among two Deaf consultants with a particular linguistic awareness of LSC and accustomed to data elicitation. Data collection sessions took place both live and online using the same methodology: first, the consultants were presented with a context under three different modalities: signed in LSC, pictured and written in glosses. Both written context and glosses were in Spanish, the written language they are more comfortable with. Discussion about the interpretation of sentences was conducted in LSC. Each sentence was recorded and then elicited again in the subsequent sessions to make sure the judgments were consistent⁴.

2.2 Strict/sloppy interpretations of IX₁ under role shift

In LSC, no difference between role-shifted first person reports and indirect 3rd person ones was observed, contrary to LIS. Both sentences license strict and sloppy interpretations altogether, regardless of presence or absence of role shift:

- (7) a. SECRETARY_a SAY IX_{3a} JOSEP_b 3a PRESENT-GIVE_{3b}, IX_{3c} GIORGIA_c TOO. (video)
 RS_a
- b. SECRETARY_a SAY $\overline{\text{IX}_1 a \text{ JOSEP}_b 1a \text{ PRESENT-GIVE}_{3b}}, \text{IX}_{3c} \text{ GIORGIA}_c \text{ TOO.}$ (video)
 ‘The secretary_a said that she’ll give a present to Josep, Giorgia_c (said that she_{a/c} will give a present to Josep), too.’ ✓ strict (secretary) ✓ sloppy (Giorgia)

Interestingly, the interpretation of the ellipsis sentence changed radically when the informants were provided with different contexts. Consider the following examples of the same target sentence, in which each context favors one interpretation over the two others (as before, role-shifted reports and 3rd person reports are interpreted the same way):

- (8) *Context: The secretary says: "I will give a present to Josep". Giorgia says: "The secretary will give a present to Josep".*⁵
- RS_a
 SECRETARY_a SAY $\overline{\text{IX}_1 a \text{ JOSEP}_b 1a \text{ PRESENT-GIVE}_{3b}}, \text{IX}_{3c} \text{ GIORGIA}_c \text{ TOO.}$
 ‘The secretary_a said that she’ll give a present to Josep, Giorgia_c (said that she_{a/c} will give a present to Josep), too.’ ✓ strict (secretary) ✗ sloppy (Giorgia)

4. Online sessions were carried out with the support of a PowerPoint presentation and sentences were recorded using screen recording.

5. Informants were provided with contexts both signed and written in glosses as the following, corresponding to the sloppy reading:

SECRETARY: "IX₁ JOSEP PRESENT-GIVE"
 GIORGIA: "IX₁ JOSEP PRESENT-GIVE"

- (9) Context: The secretary says: "I will give a present to Josep". Georgia says: "I will give a present to Josep".

RS_a

SECRETARY_a SAY $\overline{\text{IX}_{1a} \text{JOSEP}_b \text{1}_a \text{PRESENT-GIVE}_{3b}}$, IX_{3c} GIORGIA_c TOO.
 'The secretary_a said that she'll give a present to Josep, Georgia_c <said that she*_{a/c} will give a present to Josep>, too.' ✗ strict (secretary) ✓ sloppy (Georgia)

When sentences were presented out of the blue, a "narrow scope" interpretation of the ellipsis site was favored by the informants, in which the ellipsis site corresponds to the embedded sentence only, excluding the matrix verb SAY. This is illustrated in (10).

- RS_a
- (10) SECRETARY_a SAY $\overline{\text{IX}_{1a} \text{JOSEP}_b \text{1}_a \text{PRESENT-GIVE}_{3b}}$, IX_{3c} GIORGIA_c TOO.
 'The secretary_a said that she'll give a present to Josep and Georgia_c <will give a present to Josep>, too.'

Observations for both LIS and LSC are summarized in Table 1.

Table 1: Readings of the ellipsis clause with and without role shift in LIS and LSC.

	No RS	RS
LIS	Matrix sloppy: ✓	Matrix sloppy: ✓
	Matrix strict: ✓	Matrix strict: ✗
	Embedded: ?	Embedded: ?
LSC	Matrix sloppy: ✓	Matrix sloppy: ✓
	Matrix strict: ✓	Matrix strict: ✓
	Embedded: ✓	Embedded: ✓

3 Analysis: ellipsis sites as answers to QUDs

In order to capture the above LSC data, we propose to analyze ellipsis as a form of discourse reference - in the sense of Wasow (1972), Hardt (1993), Kehler (2000), Poppels (2020) a.o. - whose content is partially determined by the Question Under Discussion (QUD). In that model, ellipsis is subsumed under general anaphora mechanisms allowing discourse reference, and is not subject to specific licensing conditions like parallelism or identity. Like other pronominal forms, ellipsis reference is sensitive to general discourse constraints like precedence and salience, as well as the "aboutness" of the current discourse it appears in.

This is where the QUD approach is directly relevant for our concerns. In a QUD model such as the one of Roberts (1996/2012), discourse can be viewed as a hierarchical set of question/answer pairs aimed at sharing statements about "the way things are" (Stalnaker (1978)). Participants in a conversation aim at answering these questions following a defined strategy of inquiry that relies on prosodic, semantic and pragmatic cues. Following Keshet (2013), Elliott, Nicolae, and Sudo (2016) and Kehler (2016), we straightforwardly apply this model to ellipsis by positing that the content of elided constituents can be resolved against (sometimes implicit) QUDs in the discourse structure. As an example, consider (11):

- (11) Every boy in John's class hoped Mrs. Smith would pass him. In John's_j case, I think she WILL <pass him_j>. (Kehler 2016: 10)

The elided VP of the second sentence admits a sloppy reading of the form *I think she will pass John* that is unexpected in this configuration, since the pronoun *him* in the antecedent is bound by the quantifier phrase *Every boy*. This is a major problem for identity theories of ellipsis which posit a "parallelism" requirement between the elided VP and its antecedent, be it syntactic, semantic, or both (Fox 2000; Merchant 2001). As a solution, Kehler (2016) proposes to assume that the alternatives against which ellipsis is computed are not directly provided by the antecedent clause, but rather by the PP *As for John*, which introduces a contrastive topic within the discourse structure. Contrastive topics are used to introduce new QUDs (Büring 2003) which, in turn, provide the relevant set of alternatives against which the ellipsis site can be resolved. Thus, in the above example, the ellipsis site is not computed directly against the antecedent *Every boy in John's class hoped Mrs. Smith would pass him* but rather, against the implicit question *What about John_j? Do you think she will pass him_j?*

Such a model treats ellipsis phenomena on a par with other form of discourse anaphora, such as pronominal reference: contrary to identity approaches, in which antecedents provide the syntactic/semantic material licensing elliptical structure, the QUD model vindicates a referential approach in which antecedents are just a convenient way to promote discourse referents that can otherwise be inferred, as in (11).

3.1 Predicting matrix and embedded readings

The above model can straightforwardly derive the first set of data regarding the scope of ellipsis. Recall that, depending on the provided context, sentences like (7a-b) can trigger a "matrix" interpretation, incorporating the matrix verb and the ambiguous pronoun (7), or an "embedded" interpretation, in which the ellipsis site only consists in the embedded sentence and does not give rise to the strict-sloppy alternation (10). This is in line with observations initially made by Urmson (1952) about the status of embedding verbs such as *say* or *think*, which can trigger a so-called *parenthetical reading* (Simons 2007, Simons 2019) as in the following example:

- (12) A: Why didn't Louise come to the meeting yesterday?
 B: I heard that she's out of town. (Simons 2007: 2)

In (12), B's utterance felicitously answers A's question because only the embedded sentence *she's out of town* is deemed relevant, while the matrix verb is treated as a parenthetical. Put differently, the matrix verb is considered being not at-issue and, therefore, is not interpreted as introducing a QUD corresponding to *How do you know that Louise is out of town?* that B's utterance should aim at answering. The ongoing QUD is thus identified on pragmatic grounds by identification of which VP (matrix or embedded) serves as the *main point of utterance* (Simons 2007, Simons 2019).

The same reasoning can be applied to our LSC data: in (7), the matrix VP is identified as the main point of utterance, in a context where the saying event is made salient. As a consequence, the following QUDs can be established, giving rise to the strict/sloppy alternation mentioned above:

- (13) a. QUD (7): *Who^x said that x gave a present to Josep?* (Sloppy reading)
 b. $\lambda p.\exists x(p = \lambda w. x \text{ said that } x \text{ gave a present to Josep in } w).$

In words, the QUD that is relevant in (7) (under the sloppy interpretation) corresponds to the set of propositions of the form *x said that x likes Alex*, which correctly derives the sloppy interpretation for the ellipsis site.

As for the strict interpretation, it is obtained through identification of another QUD, corresponding to the one in (14).

- (14) a. QUD (7): *Who said that the secretary gave a present to Josep?* (Strict reading)
 b. $\lambda p.\exists x(p = \lambda w. x \text{ said that the secretary gave a present to Josep in } w)$.

The QUD in (14) corresponds to the set of propositions of the form *x said that the secretary likes Alex*, identifying the elided pronoun with the referent *the secretary* and enforcing a strict interpretation. In a similar fashion, the embedded reading is obtained when the matrix verb is disregarded as a possible candidate for introducing a relevant QUD: this happens, for instance, in contexts where it is unclear whereas two distinct utterances were made, as in (10). In that case, only the content of the embedded clause is interpreted as being at-issue, introducing a QUD of the form in (15).

- (15) a. QUD (10): *Who gave a present to Josep?* (Embedded reading)
 b. $\lambda p.\exists x(p = \lambda w. x \text{ gave a present to Josep in } w)$.

As a consequence, the only possible value that the ellipsis site can have is a proposition of the form *x gave a present to Josep*, with no associated ambiguities.

3.2 Predicting strict/sloppy alternations with indexicals

What remains to be explained is the lack of interpretative differences between plain, non-shifted utterances such as (7a), and role-shifted ones like (7b), which fail to exhibit the pattern observed for LIS by Cecchetto et al. (2015). In LSC, the presence vs absence of role shift does not seem to generate semantic differences, at least not at the propositional level.⁶ Recall that, in their analysis, Cecchetto et al. (2015) interpret the unavailability of strict readings in role shifted reports to be an argument for the presence of articulated, unpronounced material within the ellipsis site, as advocated by e.g. Chung (2006) and Merchant (2013). This is so because, according to their analysis of role shift, the context-shifting operator *SAY-OP* defined in (6) is directly copied from the antecedent in the ellipsis clause, forcing all the indexicals within its scope to be shifted to the closest matrix subject (in the cited example (5), *Piero*).

This line of analysis might be appealing, but cannot be straightforwardly applied to our LSC data, which does not seem to behave like LIS in this respect. Crucially, we suggest that, on the contrary, the LSC data vindicates a radically different stance towards ellipsis, according to which elided sites are driven by discourse reference mechanisms analogous to those at play for pronoun and anaphora resolution, as suggested by a.o. Poppels and Kehler (2017), Poppels (2020) and Miller (2020). According to this line of analysis, ellipsis sites essentially behave as unspecified pro-forms that are anaphoric to discourse referents. As mentioned in the previous section, the antecedent-retrieving mechanisms are sensitive to a variety of factors, including contextual information, salience, and the QUD (see a.o. Poppels (2020) and

6. Role shifted utterances seem to exhibit presuppositional restrictions that their non-shifted counterparts do not, such as a *verbatim* requirement which presupposes that the form of the original utterance was identical to the one of the report.

Miller (2020) for experimental data). Since no further restrictions are dictated by copying algorithms (as in identity theories), ellipsis sites do not have to satisfy strict identity constraints. This can readily be observed with phi-features on pronouns, which are ignored in a broad range of ellipsis phenomena. Consider first an example of VP ellipsis in American Sign Language (ASL), from Schlenker (2014):

- (16) 7 IX_{arc-a} 6 FRENCH SWIMMER LIKE PEOPLE SUPPORT IX_{arc-a} . IX_b GERMAN SWIMMER SAME_{a,b} .
 ‘The six French swimmers_a like people who support them_a. The German swimmer_b does ⟨like people who support him_b⟩, too.’ (ASL, Schlenker 2014: 26)

Note that in (16), the plural features on the pronoun IX_{arc-a} are uninterpreted in the ellipsis site. The same holds for other ellipsis phenomena, such as gapping:

- (17) MARINA_a JORDI_b WATCH _{3a}GIVE_{3b}, MARC_c JORDINA_d PLANT
 ‘Marina gave Jordi a watch and Marc Jordina a plant.’ (LSC, Zorzi 2018: 341)

Again, the person features associated with the agreeing verb *GIVE* - referring to the loci attributed to referents *MARINA* and *JORDI*, respectively - are left uninterpreted in the ellipsis site. Similarly, in our canonical examples (7) sqq., the first-person feature (analyzed here as shifted towards the reported speaker, *SECRETARY*) does not restrict the range of possible individuals that could be referred to by the ellipsis site.

3.3 Another indexical: $IX_{(HERE)}$

In line with previous research on shifted indexicals in LSC, we also tested the behavior of the location indexical $IX_{(HERE)}$ under ellipsis. In his pioneering study, Quer (2005) observed that, in a single role-shifted report, two indexicals could refer to different contexts, even though both were under the scope of role shift markers. This is illustrated in (18):

- (18) $\overline{IX_a MADRID_m MOMENT^t JOAN_i \overline{THINK IX_{1i} STUDY FINISH IX_{b(HERE)}^{RS_i}}$
 ‘When he was in Madrid, Joan thought he would finish his study in Barcelona.’
 (LSC, adapted from Quer 2005: 154)

In the above example, the first person indexical IX_1 is shifted towards *JOAN*, the reported speaker, while the locative indexical $IX_{(HERE)}$ denotes the actual place of utterance, Barcelona. This was taken by Quer (2005) as a counterexample to the *shift together* constraint proposed by Anand and Nevins (2004) for indexical shift in spoken languages.

Our data, however, suggest that things might be more intricate. In fact, reference of the indexical $IX_{(HERE)}$ seems to be ambiguous when no further contextual information is available:

- (19) *Context: Gemma meets Brendan in San Sebastian. Brendan says: "I like to live here".*
Later, Gemma reports to Josep:
 $BRENDAN_a SAY \overline{IX_{1a} LIVE IX_{b/ss(HERE)}^{RS_a} LIKE}$ (video)
 ‘Brendan_a said that he_a likes to live here_{b/ss}.’ $IX_{(HERE)} = \text{Barcelona/San Sebastian}$

With no further specification, the indexical $IX_{(HERE)}$ in the role-shifted report in (19) can assume two different values: the place of the actual utterance, Barcelona, or that of the report, San Sebastian. The ambiguity can be drastically reduced upon indicating a specific location in the matrix clause preceding the report, as in (20):

(20) *Context: same as (19).*

RS_a

IX_{SS} SAN SEBASTIAN BRENDAN_a SAY $\overline{IX_{1a} LIVE IX_{SS(HERE)} LIKE}$ (video)
 ‘While in San Sebastian, Brendan_a said that he_a likes to live here_{SS}.’

In the above example, the preferred interpretation of $IX_{(HERE)}$ is San Sebastian, thanks to both mention of the reported location and the context, in contrast to Quer’s (2005) results (cp. his (23)).

Even more interestingly, the behavior of $IX_{(HERE)}$ under ellipsis closely mirrors that exposed in (7) for the first person indexical IX_1 . In the following example, the context allows for a sloppy reading of $IX_{(HERE)}$ in the ellipsis site:

(21) *Context: Gemma meets Brendan in San Sebastian. Brendan tells her: "I like to live here". She then goes on to visit her friend Javier in Madrid, who tells her: "I like to live here". Back in Barcelona, Gemma tells Josep about what her friends told her:*

RS_a

BRENDAN_a SAY $\overline{IX_{1a} LIVE IX_{b/SS(HERE)} LIKE}$, JAVIER TOO. (video)
 ‘Brendan_a said that he_a likes to live here_{b/SS}, Javier_j <said that he_j likes to live here_{b/SS/m}> too.’
 < $IX_{(HERE)}$ > = Barcelona/San Sebastian/Madrid

In (21), the elided indexical $IX_{(HERE)}$ can assume all three possible values provided by the context: Barcelona (actual place of utterance), San Sebastian (Brendan’s location) and Madrid (Javier’s location).

As its first-person counterpart IX_1 , the elided value of $IX_{(HERE)}$ is sensitive to contextual information. In the following example, the second saying event is modified, changing the available QUDs and, in turn, constraining the possible values for the ellipsis site, making it possible only for the strict reading to arise:

(22) *Context: Gemma meets Brendan in San Sebastian. Brendan tells her: "I like to live here". She then goes on to visit her friend Javier in Madrid, who tells her: "Brendan likes to live here". Back in Barcelona, Gemma tells Joseph about what her friends told her:*

RS_a

BRENDAN_a SAY $\overline{IX_{1a} LIVE HERE_{b/SS} LIKE}$, JAVIER TOO. (video)
 ‘Brendan_a said that he_a likes to live $IX_{b/SS(HERE)}$, Javier_j <said that he_a likes to live here_{b/SS/*m}> too.’
 < $IX_{(HERE)}$ > = Barcelona/San Sebastian/*Madrid

Note that the values of the two elided indexicals IX_1 and $IX_{(HERE)}$ do not vary independently: in (22), the value of IX_1 has to refer to Brendan, since $IX_{(HERE)}$ refers to Brendan’s location, reminding the *shift together* effect as defined by Anand and Nevins (2004) and Anand (2006) for indexical shift in spoken languages. Again, ambiguity is maintained through possible identification of different QUDs, corresponding to different readings. Whenever two saying events are explicitly introduced in the context, the matrix reading is made available, making it possible for the strict/sloppy reading of indexical $IX_{(HERE)}$ to arise.

- (23) a. QUD (21): *Where does x like to live?* (sloppy reading)
 b. $\lambda p.\exists x.\exists y. y$ is the location of x ($p = \lambda w. x$ likes to live in y in w).
- (24) a. QUD (21): *Where does Brendan like to live?* (strict reading)
 b. $\lambda p.\exists x. x$ is Brendan's location ($p = \lambda w. \text{Brendan}$ likes to live in x in w).

Note also that, contrary to example (7b), the indexical/unshifted reading of $IX_{(HERE)}$ is always available, both inside or outside ellipsis - contrary to its first person counterpart. This is not an isolated feature of LSC, similar results having been reported for DGS as well (see Herrmann and Steinbach 2012).

How should this asymmetry be accounted for? As a tentative answer, we would like to suggest that this is a consequence of the pragmatics of role shift. Following Zucchi (2004), we analyze the NMMs of role shift mentioned above as introducing a presupposition that the variable introduced by the pronoun be identified with the author of the report. If no such individual cannot be identified, the result is presupposition failure, and communication fails.⁷ But - and this is crucial - no such failure can arise, since such a speaker is always grammatically provided *qua* subject of the matrix clause. This explains why IX_1 *must* shift under role shift: if the speaker were to refer to himself using IX_1 , he would not use role shift in the first place. However, this is not the case for $IX_{(HERE)}$, whose adverbial function allows it to remain unspecified. When this is the case, contextual information is crucial to retrieve indexical reference intended by the speaker: this explains the data in (20), where *SAN SEBASTIAN* is provided in the matrix clause, allowing $IX_{(HERE)}$ to refer back to it under role shift.

Another argument in favor of such an analysis is provided by the second person indexical IX_2 under role shift: when no addressee is specified in the report, IX_2 can refer to the addressee of the actual utterance or the shifted one. However, if the addressee of the reported context is introduced as a discourse referent, IX_2 must have a shifted reading. This is illustrated in (25):

- (25) *Context: The secretary tells to Gemma: "I work better than you do." Later that day, Gemma reports what she has been told to Xavi:*
- RS_a
- [better]
- a. SECRETARY_a SAY IX_{1a} WORK $\frac{[better]}{1_a \text{ARC}_{2_g/x}}$. (video)
 'The secretary_a said that she_a worked better than you_{g,x}.' 2nd pers = Gemma/Xavi
- RS_a
- [better]
- b. SECRETARY_a SAY GEMMA_g IX_{1a} WORK $\frac{[better]}{1_a \text{ARC}_{2_g/*x}}$. (video)
 'The secretary_a said that she_a worked better than you_{g,*x}.' 2nd pers = Gemma

In this example, the indexical second person feature is fully disambiguated when provided with a lexically specified referent, as in (25b); when not, as in (25a), both addressees can be selected under role shift, with a clear preference for the shifted interpretation if the NMMs used for the report involve the body of the signer shifting away from the actual addressee (Xavi in the examples above).

7. This achieves the same result as the *SAY-OP* described in (6).

4 Conclusion

The LSC data presented in this paper provides further empirical and theoretical support for a model of ellipsis radically different from the one put forth in Cecchetto et al. (2015): should ellipsis be viewed as a product of a copying algorithm ensuring identity in form with its antecedent, the absence of difference between 3rd person reports (7a) and role-shifted 1st person ones (7b) is rather puzzling. On the other side, this is predicted in a model where ellipsis is a form of entity-retrieving mechanism in discourse, similar to discourse anaphora in general. Let us assume, alongside Cecchetto et al. (2015), that the shifting of indexicals under role shift in sign languages is due to a context-shift operator *à la* Schlenker (2017a), as exposed in (6). If the ellipsis site does not feature any covert operator of that type (precisely because, according to the model advocated here, ellipsis sites are not covert syntactic structures, but silent pro-forms of some type), nothing guarantees that the pronominal referent intended in the ellipsis site will refer to the closest attitude holder, *GIORGIA* in (7b). Rather, ellipsis is fully ambiguous in that case (under the matrix reading), and such ambiguity can only be lifted by pragmatics, through identification from the hearer of the relevant QUD addressed by the speaker, as explained in §3.

Since the pragmatics of discourse reference are not assumed to be language-dependent, adopting such a model would predict that the restrictions on readings observed in role-shifted sentences like (5) in LIS amount either to contextual ones, or should be taken as default preferences for ellipsis resolution in LIS, something that should be addressed in further research.⁸

References

- Anand, Pranav. 2006. "De De Se." PhD diss., MIT.
- Anand, Pranav, and Andrew Nevins. 2004. "Shifty operators in changing contexts." In *Semantics and Linguistic Theory*, 14:20–37.
- Büring, Daniel. 2003. "On D-trees, beans, and B-accents." *Linguistics and philosophy* 26 (5): 511–545.
- Cecchetto, Carlo, Alessandra Checchetto, Carlo Geraci, Mirko Santoro, and Sandro Zucchi. 2015. "The syntax of predicate ellipsis in Italian Sign Language (LIS)." *Lingua* 166:214–235.
- Chung, Sandra. 2006. "Sluicing and the lexicon: The point of no return." In *Proceedings of the annual meeting of the Berkeley Linguistics Society*, 31:73–91.
- Dahl, Östen. 1973. "On so-called "sloppy identity"." *Synthese*, 81–112.
- Davidson, Kathryn. 2015. "Quotation, demonstration, and iconicity." *Linguistics and Philosophy* 38 (6): 477–520.
- Elliott, Patrick D, Andreea Nicolae, and Yasutada Sudo. 2016. "The sticky reading: VP ellipsis without parallel binding." In *Semantics and Linguistic Theory*, 24:640–655.
- Fiengo, Robert, and Robert May. 1994. *Indices and identity*. Vol. 24. MIT press.
- Fox, Danny. 2000. *Economy and semantic interpretation*. MIT press.

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- Hardt, Daniel. 1993. "Verb phrase ellipsis: Form, meaning, and processing." PhD diss., University of Pennsylvania.
- Herrmann, Annika, and Markus Steinbach. 2012. "Quotation in sign languages." *Quotatives: Cross-linguistic and Cross-disciplinary Perspectives*. Amsterdam: John Benjamins, 203–228.
- Kaplan, David. 1989. "Demonstratives." In *Themes From Kaplan*, edited by Joseph Almog, John Perry, and Howard Wettstein, 481–563. Oxford University Press.
- Kehler, Andrew. 2000. "Coherence and the resolution of ellipsis." *Linguistics and Philosophy* 23 (6): 533–575.
- . 2016. "On QUD-based licensing of strict and sloppy ambiguities." In *Semantics and Linguistic Theory*, 25:512–532.
- Keshet, Ezra. 2013. "Sloppy identity unbound." In *Semantics and Linguistic Theory*, 23:412–431.
- Lewis, David. 1979. "Attitudes de dicto and de se." *The philosophical review* 88 (4): 513–543.
- Maier, Emar. 2018. "Quotation, demonstration, and attraction in sign language role shift." *Theoretical Linguistics* 44 (3-4): 265–276.
- Merchant, Jason. 2001. *The syntax of silence: Sluicing, islands, and the theory of ellipsis*. Oxford University Press on Demand.
- . 2013. "Voice and ellipsis." *Linguistic Inquiry* 44 (1): 77–108.
- Miller, Philip. 2020. "Discourse conditions on Verb Phrase Ellipsis." In *ECBAE 2020*.
- Poppels, Till. 2020. "Towards a Referential Theory of Ellipsis." PhD diss., University of California, San Diego.
- Poppels, Till, and Andrew Kehler. 2017. "Overcoming the identity crisis: Novel evidence for a referential theory of verb phrase ellipsis." In *Proceedings from the Annual Meeting of the Chicago Linguistic Society*, 53:291–305. 1. Chicago Linguistic Society.
- Quer, Josep. 2005. "Context shift and indexical variables in sign languages." In *Semantics and linguistic theory*, 15:152–168.
- . 2011. "Reporting and quoting in signed discourse." *Understanding quotation* 7:277.
- Roberts, Craige. 1996/2012. "Information structure: Towards an integrated formal theory of pragmatics." *Semantics and Pragmatics* 5:1–69.
- Rudin, Deniz. 2019. "Head-based syntactic identity in sluicing." *Linguistic Inquiry* 50 (2): 253–283.
- Sag, Ivan A. 1976. "Deletion and logical form." PhD diss., Massachusetts Institute of Technology.
- Sandler, Wendy, and Diane Lillo-Martin. 2006. *Sign language and linguistic universals*. Cambridge University Press.
- Schlenker, Philippe. 2014. "Iconic features." *Natural Language Semantics* 22 (4): 299–356.

- Schlenker, Philippe. 2017a. "Super Monsters I: Attitude and action role shift in sign language." *Semantics and Pragmatics* 10.
- . 2017b. "Super Monsters II: Role shift, iconicity and quotation in sign language." *Semantics and Pragmatics* 10.
- Simons, Mandy. 2007. "Observations on embedding verbs, evidentiality, and presupposition." *Lingua* 117 (6): 1034–1056.
- . 2019. "The Status of Main Point Complement Clauses." *Proceedings of the 23rd Workshop on the Semantics and Pragmatics of Dialogue*.
- Stalnaker, Robert. 1978. "Assertion." In *Syntax and Semantics*, edited by Peter Cole, vol. 9. Academic Press.
- Urmson, James O. 1952. "Parenthetical verbs." *Mind* 61 (244): 480–496.
- Wasow, Thomas. 1972. "Anaphoric relations in English." PhD diss., Massachusetts Institute of Technology.
- Williams, Edwin S. 1977. "Discourse and Logical Form." *Linguistic Inquiry* 8 (1): 101–139. ISSN: 00243892, 15309150. <http://www.jstor.org/stable/4177974>.
- Zorzi, Giorgia. 2018. "Coordination and gapping in Catalan Sign Language (LSC)." PhD diss., Universitat Pompeu Fabra.
- Zucchi, Alessandro. 2004. "Monsters in the visual mode." Ms., *Università degli Studi di Milano*.