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RESEARCH

Locative Shift

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In sign language, one may sometimes re-use a locus that originally referred to a spatial location in order to denote an individual found at that location ("Locative Shift"). We suggest that Locative Shift arises when a covert individual-denoting variable *a* is merged with a location-denoting locus *b* to form a complex expression a^b, which denotes a situation stage of an individual. We investigate basic properties of Locative Shift in ASL: the phenomenon extends to temporal and modal shift; indexical loci are not usually locative-shifted; Locative Shift may have interpretive consequences, some of which appear to be at-issue; and Locative Shift can occur in highly iconic cases, possibly even without prior establishment of a situation-denoting locus. We further investigate the behavior of the co-opted loci under predicate ellipsis. The individual component of a locative-shifted locus can be bound, and in some cases its locative specification can be disregarded in the elided clause, under conditions that are reminiscent of the behavior of *phi*-features. In other cases, locative specifications are preserved under ellipsis, possibly even with elided indexical pronouns, whose overt counterparts resist Locative Shift. Some of our main findings can be replicated in LSF, although our data leave many questions open. Finally, we argue that some pointing gestures in English can undergo something like Locative Shift.

Keywords: sign language semantics; anaphora; loci; locative shift; agreement; ellipsis

1 Introduction

1.1 What is Locative Shift?

Sign languages often realize pronominal reference by establishing loci (= positions in signing space) which stand for discourse references, and by pointing towards them to express anaphora (e.g. Lillo-Martin and Klima 1990; Schlenker 2011b). Loci may denote individuals, but also spatial locations; in ASL (American Sign Language) at least, they may also denote temporal and modal situations (Schlenker 2013). But a curious phenomenon arises when a locus is available for a spatial location, and one has talked about an individual that is found at that location: *one may sometimes point towards the spatial locus to refer to the individual*. We refer to this phenomenon as "Locative Shift".[1] Earlier research explored cases in which an individual locus is iconically modulated to represent properties of its denotation, yielding for instance high loci to denote tall individuals (e.g. Schlenker et al. 2013); but the co-optation of situation loci to refer to individuals has yet to be understood, and systematically investigated.

Let us illustrate with data from ASL. (1a) displays the expected pattern, without Locative Shift: in the first sentence, *JOHN* is associated with a pointing sign *IX-b* which establishes a locus *b*. Working in a French city is associated with locus *a*, working in an American city is

[1] The same phenomenon is called "locus doubling" in Emmorey and Falgier (2004). Schlenker (2011a) uses the term "locative agreement", and Schlenker (2013) and Schlenker et al. (2013) use the terms "locative shift" and "locative agreement".

associated with locus *c*; in the second sentence, the object pronoun refers to John and is realized by pointing (by way of ***IX-b***, boldfaced) to the locus *b* associated with John (the rating is of 5.5 on a 7-point scale, thus slightly degraded). The surprising fact is that an analogous reading can be obtained (more felicitously in this case) by pointing to the locus *a* to refer to John-in-the-French-city (***IX-a*** +) and to the locus *c* to refer to John-in-the-American-city (***IX-c*** +), as illustrated in (1b) (see Section 1.4.2 for transcription conventions).[2]

(1) a. **Plain verb 'help', no Locative Shift**

5.5 JOHN IX-b $_a$[WORK FRENCH CITY] SAME $_c$[WORK AMERICA CITY].

^ ^

IX-a IX-1a HELP **IX-b**, IX-c IX-1c NOT HELP **IX-b.**

b. **Plain verb 'help', Locative Shift**

7 JOHN $_a$[WORK IX-a FRENCH CITY] SAME $_c$[WORK IX-c AMERICA CITY].

^ ^

IX-a IX-1a HELP **IX-a** +, IX-c IX-1c NOT HELP **IX-c** +.

Translation (for both sentences): 'John does business in a French city and he does business in an American city. There [= in the French city] I help him. There [= in the American city] I don't help him.'
(ASL, 4, 66; Schlenker 2013: 2 cardinal judgments; see (5) for other parts of the same paradigm)

1.2 Goals

On an empirical level, this article offers a detailed study of Locative Shift in one consultant's ASL (it is thus an investigation of this consultant's idiolect). We state several generalizations that constrain the appearance of Locative Shift (such as the observation that it cannot target indexical pronouns) and its interaction with binding and predicate ellipsis. Some of the main findings are replicated in LSF (French Sign Language), a language that is historically related to ASL (both are descended from Old French Sign Language; Supalla and Clark 2015) and shares with it numerous properties in the area of anaphora (e.g. Schlenker 2011b; Schlenker et al. 2013; 2016; 2017a; b). For reasons of brevity, the LSF findings are very briefly summarized in the main text, and presented in greater detail in Appendix II. We also argue that simple cases of Locative Shift might exist in an understudied type of gestures in spoken language, called "pro-speech gestures" (= gestures that replace than accompany words; see Ladewig 2011).

On a theoretical level, we follow much of the literature in treating (some) loci as overt variables. We analyze Locative Shift as arising when a covert individual-denoting variable *a* is merged with a location-denoting locus *b* to yield a complex expression a^b, spelled-out as *b*.[3] Under an assignment function s, this complex expression a^b denotes a situation stage of an individual: the situation stage of individual s(a) at situation s(b). While in examples such as (1) the locus *b* refers to a locative situation, we will see further examples in which *b* may refer to a temporal or to a modal situation. The notion of world and time stages of

[2] In these transcriptions, Schlenker (2013) wrote *a* + and *c* + to indicate that pointing is towards a position slightly higher than loci *a* and *c*, which might serve to distinguish between the person who is at the location – namely John – and the location itself. Still, cases of clear ambiguity are described in the literature, as we discuss below in connection with (4). A phonetic study would be needed to establish whether there are (possibly optional) distinctions between pronouns that do and pronouns that don't involve Locative Shift. (Note that Schlenker (2013) uses the transcription $_a$*EXPRESSION* when is a certain expression is signed in locus *a*; here we would transcribe this as *EXPRESSION*$_a$, with a suffixed rather than a prefixed subscript).

[3] For mnemonic reasons, we write *b* as a superscript because it intuitively constrains the location of the individual denoted by *a*, but it is *b* rather than *a* which is spelled out in cases of Locative Shift.

individuals was advocated both in the philosophical and in the linguistic literature (e.g. Carlson 1977; Lewis 1979; 1986; Paul 1994; Musan 1997). We will use a natural extension of this framework to *situation* stages of individuals, in such a way that temporal, modal and spatial versions of Locative Shift can uniformly be analyzed by reference to situation stages of individuals.

In some cases, different semantic results will be obtained depending on whether Locative Shift is or isn't applied. Thus if John (associated with locus *b*) owns an apartment in a French city (locus *a)* and another one in an American city (locus *c*), the expression *POSS-b APARTMENT* (without Locative Shift) will just refer to the apartment John owns, without specifying whether it is in France or in the US, very much like the expression his_b *apartment* with a variable *b* that denotes John. By contrast, if we apply Locative Shift by co-opting the spatial locus *c*, *POSS-c APARTMENT* will refer to the apartment owned by the situation stage of John corresponding to the American city, hence the Noun Phrase will refer to John's American apartment. In this case, the representation is akin to his_{b^c} *apartment,* where b^c is a complex expression (spelled out as *c*) denoting the situation stage of John (denoted by *b*) corresponding to the American city (denoted by *c*).

Our proposal will also interact in interesting ways with binding and predicate ellipsis. First, we will show that under Locative Shift, in the expression b^c the individual component *b* may be bound, including by an expression that does not have the same locative specifications. As a result, a binder may not fully determine the value of a locative-shifted locus it binds. For instance, the expression $\lambda b\ t_b$ *saw* $himself_{b^c}$ will associate to any individual x the value *true* just in case x saw the situation stage of x *associated with the location denoted by c*. This is because in general the denotation of b^c (= a situation stage of an individual) is different from that of *b* (= an individual). Second, we will show that under ellipsis, locative specifications may be retained in some cases, and may be disregarded in others, under conditions that are reminiscent of the behavior of *phi*-features. Finally, we will suggest that certain constraints on Locative Shift are relaxed under ellipsis: Locative Shift cannot target overt indexical pronouns but, for our consultant at least, it can target elided ones, with the result that some elided clauses have readings that their overt analogues lack.

1.3 Structure

The rest of this article is organized as follows. After discussing elicitation methods and transcription conventions in the rest of this section, we provide relevant background on Locative Shift and iconic loci in Section 2. We study the main properties of ASL Locative Shift in Section 3, and discuss its interaction with ellipsis in Section 4. In Section 5, we suggest that some pointing gestures in English can undergo something like Locative Shift. Conclusions and questions for future research are stated in Section 6. Appendix I extends some of the main findings to LSF, while subtle issues pertaining to ASL ellipsis are discussed in Appendix II. Finally, raw data for all original examples can be found in Supplementary Materials.

1.4 Elicitation methods and transcription conventions

1.4.1 Elicitation methods

The ASL consultant and the LSF consultant are both Deaf, native signers of Deaf, signing parents.[4] Data were elicited using the "playback method", with repeated quantitative acceptability judgments (1–7, with 7 = best) and repeated inferential judgments (on separate days) on videos involving minimal pairs (see e.g. Schlenker et al. 2013; Schlenker

[4] This section borrows from Schlenker, to appear.

2014 for a description of the method). In a nutshell, the playback method involves two steps. First, the sign language consultant signs sentences of interest on a video, as part of a paradigm (e.g. often with 2 to 6 sentences) signed by way of minimal pairs. Second, the consultant watches the video, provides quantitative acceptability ratings, and (when relevant) inferential judgments; he enters his answers in a computer, and redundantly signs them on a video. The evaluation step can be repeated on other days, sometimes with a considerable time delay. This method has the advantage of allowing for the precise assessment of minimal pairs (signed on the same video), in a quantitative, replicable way. Even when the judgments are obtained from just one consultant, the repetition of the task makes it possible to assess the stability of the judgments; and if necessary this method could be turned into an experimental one by assessing the same videos with other signers.

For readability, only average judgments are given, as well as a summary of the relevant aspects of the inferential judgments (complete quantitative judgments are given if this is informative, and we do systematically when there is more than a 2-point difference in the judgments obtained for a given sentence). Raw data obtained during elicitation sessions are provided in the Supplementary Materials, and specialists are invited to consult them when relevant (inferential judgments need not be straightforward to summarize, in which case the raw data may be particularly informative). Notations such as ASL, 34, 1550*a,e, 5 judgments* indicate that the relevant sentences appeared in the ASL video numbered 34, 1550, that only sentences *a* and *e* (i.e. the first and the fifth) from that paradigm are transcribed, and that averages are computed on the basis of 5 judgments (if no letters followed *34, 1550*, this would indicate that the entire paradigm was transcribed). When different inferential judgments were obtained on the same sentence, this is sometimes written with ratios, e.g. "3/5 judgments" referring to "3 judgments out of 5".

1.4.2 Transcription and translation conventions

In the following, sign language sentences are glossed in capital letters, as is standard. Transcriptions from the earlier literature were preserved. For new data, the following conventions were adopted. Expressions of the form *WORD–i*, $WORD_i$ and $[\ldots EXPRESSION\ldots]_i$ indicate that the relevant expression is associated with the locus (= position in signing space) *i*. A suffixed locus, as in *WORD–i,* indicates that the association is effected by modulating the sign in such a way that it points towards locus *i* (this is different from the addition of a pointing sign *IX-i* to a word); a subscripted locus, as in $WORD_i$ or $[\ldots EXPRESSION\ldots]_i$, indicates that the relevant expression is signed in position *i*. Locus names are assigned from right (= dominant side) to left from the signer's perspective: when loci *a, b, c* are mentioned, *a* appears on the signer's right, *c* on the left, and *b* somewhere in between (special conventions will be introduced for high and low loci when relevant). *IX* (for "index") is a pointing sign towards a locus, while *POSS* is a possessive; they are glossed as *IX-i* and *POSS-i* if they point towards (or "index") locus *i*; the numbers *1* and *2* correspond to the position of the signer and addressee respectively. *IX-i* is a standard way of realizing a pronoun corresponding to locus *i*, but sometimes *IX-i* can also serve to *establish* rather than to *retrieve* a locus *i*. Agreement verbs include loci in their realization – for instance the verb *a-ASK-1* starts out from the locus *a* and targets the first person locus *1;* it means that the third person individual denoted by *a* asks something to the signer. When an expression indexes a neutral locus it is usually written without a letter index (e.g. *IX* rather than *IX-a*). *IX-arc-i* refers to a plural pronoun indexing locus *i*, as it involves an arc motion towards *i* rather than a simple pointing sign. In most cases we omit non-manual expressions and manual modulations involving sign duration and size. When non-manual modulations are encoded (especially when citing earlier literature), they appear on a line

above the signs they modify, and ^ encodes raised eyebrows (older transcriptions we cite use *re*). In very long discourses, paradigms signed on the videos only repeated the target sentences (thus the discourse sentence of the paradigm was longer than the following discourses because it included material that was later omitted); we sometimes indicate this by way of the symbol |: before the part that was repeated.

Finally, two remarks about translations. First, when sentences were very degraded, we did not offer translations. Second, ASL pronouns are gender-neutral. We usually tried to pick translations that reflected our consultant's choices in written judgments entered in a computer, but nothing hinges on these decisions.

2 Locative Shift: background

We start by providing some background on Locative Shift as well as on other cases in which loci appear to be displaced to encode spatial information about their denotations. Our goal is threefold: first, we summarize earlier results on Locative Shift; second, we seek to situate it with respect to related phenomena involving positional specifications of loci; third, we will suggest that once the (powerful) mechanism of Locative Shift is in place, it might be able to explain these other iconic cases as special cases.

2.1 Basic cases of Locative Shift

Locative Shift has been studied before. In (2), from Padden (1988), locus *c* is introduced in the first sentence to refer to a spatial location, one to which the agent has walked; but in the second sentence, this same locus is used to refer to the agent herself. (Here and throughout, we keep the original transcription conventions when citing earlier literature. Most are transparent, but pointing signs, which we gloss as *IX*, appear as *INDEX* in Padden 1988 and as *PRO* in Emmorey 2002.)

(2) $_{a}$INDEX $_{b}$PERSON-WALK-TO$_{c}$, STOP, THINK-ABOUT. $_{c}$INDEX DECIDE WAIT.
'She$_{i}$ walked over there, stopped and thought a bit, then she$_{i}$ decided to wait there.' (Padden 1988)

Van Hoek (1992) studies the phenomenon within the framework of cognitive semantics, arguing that Locative Shift shows that pronouns "carry a great deal of additional information pertaining to the conceptual location of referents in the discourse space". One of her examples is cited by Emmorey (2002), who adapts the transcription to her own conventions, with *PRO* standing for a pointing sign (i.e. *INDEX* or *IX* in other transcriptions):

(3) NIGHT, WE-TWO$_{a}$ TALK THERE$_{a}$ HIS$_{a}$ ROOM. PRO$_{a}$ $_{a}$BAWL-OUT$_{1st}$. I $_{1st}$TELL$_{a}$ I SORRY. PRO$_{a}$ FORGIVE ME. MORNING, I GO$_{b}$ OUT$_{b}$ Y-A-RD$_{b}$ $_{1st}$SEEb PRO$_{b}$ AGAIN. $_{b}$BAWL-OUT$_{1st}$ AGAIN. STRANGE. BEFORE, **PRO$_{a}$** $_{a}$TELL$_{1st}$ **PRO$_{a}$** FORGIVE ME. MORNING **PRO$_{b}$** ANGRY AGAIN.

'In the evening, we talked, in his room. He bawled me out. I told him I was sorry, and he forgave me. In the morning, I went out to the yard and saw him again. He bawled me out again. It was strange. Before, **he** told me **he** forgave me, but in the morning **he** was angry again.' (van Hoek 1992, cited in Emmorey 2002)

Emmorey (2002) mentions a particularly interesting example in which the same index can have a location-denoting or an individual-denoting interpretation depending on the rest of the sentence it appears in, as shown in (4).

(4) 1960, DAD$_a$ VISIT$_a$ AUSTRALIA$_a$. DRIVE-AROUND$_a$. FINISH, $_a$FLY$_b$ INDIA. REFUSE DRIVE-AROUND$_b$. WHY?
A) PRO$_a$ LOST$_{[\text{continually}]}$. SICK-OF-IT.
B) PRO$_a$ HAVE STRICT LAWS. THINK MAYBE SAME INDIA.

'In 1960, my dad visited Australia. He drove all around, and then he flew to India. He refused to drive there because
A) he (in Australia) was continually getting lost. He was sick of it.'
B) it (Australia) had strict (traffic) laws, and he thought it would be the same in India.'

Still, some individual-denoting pronouns could in principle be null, and thus it is not always easy to ascertain that, say, the pronoun in (4a) is individual-denoting: it could in principle be location-denoting ('there'), with a null subject pronoun referring to the relevant individual. But this problem does not arise in the examples in (5), from Schlenker (2013) (see the original for the full paradigm, from which (1) was also extracted).[5] Here the first person locus comes in two varieties, one slightly to the signer's right and transcribed as *1a*, and the other slightly to the signer's left and transcribed as *1c* (because *a* and *c* are positions to the signer's right and left respectively). The position of the loci is diagramed after the example, in (6).

(5) **Locative Shift with the plain form vs. agreeing form of *HELP***

a. **Plain verb 'help', Locative Shift**

7 JOHN $_a$[WORK IX-a FRENCH CITY] SAME $_c$[WORK IX-c AMERICA CITY].
^ ^
IX-a IX-1a HELP IX-a+, IX-c IX-1c NOT HELP IX-c+

b. **Agreement verb 'help', Locative Shift – no full pronoun**

6.5 JOHN IX-b WORK $_a$[IX-a FRENCH CITY] SAME $_c$[WORK IX-c AMERICA CITY].
^ ^
IX-a IX-1a 1a-HELP-a, IX-c IX-1c NOT 1c-HELP-c.

c. **Agreement verb 'help', Locative Shift – full pronoun**

6.5 JOHN IX-b $_a$[WORK FRENCH CITY] SAME $_c$[WORK AMERICA CITY].
^ <^>
IX-a IX-1a 1a-HELP-a IX-a, IX-c IX-1c NOT 1c-HELP-c IX-c.

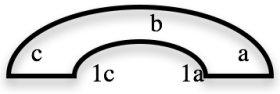
'John does business in a French city and he does business in an American city
There [= in the French city] I help him. There [= in the American city] I don't help him.'
(ASL, 4, 66; Schlenker 2013)

[5] Two remarks should be added.

(i) 4 judgments were obtained, two of them ordinal (= ranking of sentences by acceptability, with 1st = best), and two of them cardinal (= acceptability on a 7-point scale, with 7 = best). The ordinal judgment pertained to a larger paradigm with 6 sentences. Averages given in the text only pertain to the cardinal judgments. Note that we write *a*+ and *c*+ to indicate that pointing is towards a position slightly higher than loci *a* and *c*, which might serve to distinguish between the location (without +) and the person who is at that location (with +; see also fn. 2).

(ii) We make no claims about the details of the phonetic realization, and note that the ambiguity found in (4) suggests that this potential fine-grained difference is at best optional (should it be real, it would be easy to accommodate in the account we develop below, since our semantics treats locative-shifted loci differently from location-denoting loci).

(6) **Approximate position of the loci in (5) from the signer's perspective**



These examples involve two versions of the verb *HELP*: a plain form, whose object is expressed as a separate pronoun, and an agreeing form, which targets the locus corresponding to its object; in this case, a separate object pronoun may but need not be separately expressed. The agreeing form is of interest because there is no doubt that the locus it targets corresponds to its object, i.e. the helpee – whereas in the case of the plain verb one might ask whether the post-verbal pronoun could be a locative argument (with a null pronoun, or even an intransitive use of *HELP* akin to "I do some helping"). Since there is no sense in which the signer claims to be helping cities, the examples in (5b, c) present very clear cases in which a locus that initially denoted a spatial location does double duty in denoting an individual as well.

2.2 Other cases of locus displacement: high and low loci

Locative Shift should be investigated within the broader context of iconic uses of loci, as discussed for instance by Liddell (2003); Kegl (2004); Schlenker et al. (2013) and Schlenker (2014).[6] As Liddell (2003) emphasized, multiple examples suggest that loci need not be points in space, but may sometimes be entire areas that serve as simplified pictorial representations of their denotations. Schlenker et al. (2013) emphasize that this "iconic life" is perfectly compatible with a simultaneous "logical life" of the same loci, functioning as variables. Here we retrace basic facts about high and low loci, used in particular to refer to tall and short individuals. Their connection to our topic is the following: with Locative Shift, we will see that one can co-opt part of a location-denoting iconic representation (e.g. the top of a tower) to refer to an individual located in the relevant place. But this suggests that high and low loci might be a special case of the same phenomenon: when loci are structured areas, one typically points towards a subpart that corresponds roughly to the head, and as a result one may point high or low in signing space simply because the person's head is understood to be high or low in real space. We will suggest that one should probably start from a null hypothesis on which high and low loci are a special case of Locative Shift: in the case of structured (area-based) loci, the head of the locus corresponds to a situation stage (here: a spatial position) of the head of the denoted individual.

2.2.1 Basic facts about high and low loci

Loci are usually established on a single horizontal plane, but peculiar inferences are obtained when they are established high or low instead. An ASL example without quantifiers, from Schlenker et al. (2013), is given in (7). In brief, high loci are used to refer to a tall, important or powerful individuals, whereas low loci are used to refer to short individuals (similar data were described for LSF in Schlenker et al. 2013). Loci of normal height are often unmarked and thus do not trigger any relevant inference.

(7) YESTERDAY IX-1 SEE R [= body-anchored proper name]. IX-1 NOT UNDERSTAND IX-a$^{\text{high/normal/low}}$.
a. ^{7} High locus. Inference: R is tall, or powerful/important
b. ^{7} Normal locus. Inference: nothing special
c. ^{7} Low locus. Inference: R is short
'Yesterday I saw R [= body-anchored proper name]. I didn't understand him.'
(ASL, 11, 24; Schenker et al. 2013)

[6] This section borrows from Schlenker et al. (2013) and Schlenker (2014).

As can be seen, the relevant inferences are preserved under negation, which provides initial motivation for treating them as presuppositional in nature, a proposal that has been made about the semantic specifications of pronouns, such as gender, in spoken language (Cooper 1983).

Importantly, high and low loci can appear under binding, with results that are expected from the standpoint of a presuppositional analysis. From this perspective, (8a) is acceptable because the bound variable *her*$_i$ ranges over female individuals; and (8b) is acceptable to the extent that one assumes that the relevant set of directors only comprises females.

(8) a. [None of these women]$_i$ thinks that I like her$_i$.
b. [None of these directors]$_i$ thinks that I like her$_i$.

Related conditions on bound high loci arguably apply in (9) (here too, similar examples were described for LSF, but we note that systematic "projection tests" have yet to be applied to these cases; see Schlenker et al. 2013 for analogous facts with low loci):

(9) NO TALL MAN THINK IX-1 LIKE IX-a.
a. [7] High locus
b. [6] Normal locus
c. [3] Low locus
'No tall man thinks that I like him.' (ASL, 11, 27; Schlenker et al. 2013)

In Schlenker et al. (2013), height specifications were taken to have the same kind of presuppositional semantics as gender features (Cooper 1983), but with an iconic component specifying where the relevant person is located. In the present piece, we consider examples in which different locative-shifted loci are used for the same individual, and introduce conflicting presuppositions about that his/her location; reference to situation stages of an individual will circumvent this problem.

2.2.2 Iconicity and behavior under ellipsis

With the goal of assessing more precisely the iconic and grammatical nature of high loci, Schlenker (2014) investigates ASL and LSF paradigms such as (10). In this ASL example, *CL*$_a$ is a finger (person-denoting) classifier on the right, representing a tall astronaut; *CL*$_b$ is a finger (person-denoting) person classifier on the left representing a short astronaut.[7]

(10) HAVE TWO ROCKET PERSON [ONE HEIGHT]$_a$ [ONE SHORT]$_b$. THE-TWO-a,b PRACTICE DIFFERENT VARIOUS-POSITIONS [positions shown].

IX-a HEIGHT IX-b SHORT, **CL$_a$-[position]-CL$_b$-[position]**.
'There were two astronauts, one$_a$ tall, one$_b$ short. They trained in various positions [positions shown]. They were in [__] position.

a. **IX-a_upper_part LIKE SELF-a_upper_part**. IX-b_lower_part NOT.
The tall one liked himself. The short one didn't (like himself).'

b. *IX-a_upper_part LIKE SELF-a_upper_part. IX-b_lower_part NOT LIKE SELF-b_upper_part.
[intended:] The tall one liked himself. The short one didn't like himself.'
(ASL, 17, 178; Schlenker 2014)

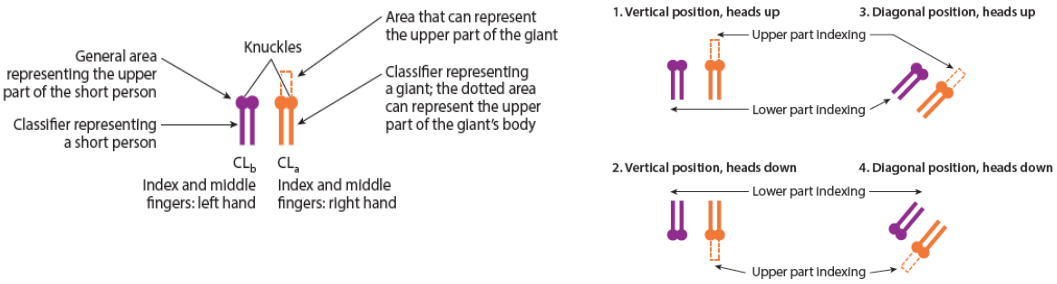
[7] Here the high locus is transcribed as *upper_part* because, after rotation of the classifiers, it finds itself low; but it is the same thing as what is otherwise transcribed as *high*.

This paradigm had several goals.

(i) First, it showed that in 'standing' position, 'tall person' indexing could be higher than 'short person' indexing, as expected on an iconic analysis. This is the reason this paradigm makes reference to a tall and to a short individual.

(ii) Second, the indexed position could rotate in accordance with the position of the denoted person on the assumption that there was a geometric projection between the structured locus and the denoted situation. Thus the individuals mentioned in (10) are rotated as shown in (11), which depicts the approximate target of upper part vs. lower part indexing in the various situations mentioned in different versions of the paradigm, with the finger classifiers rotated to represent the different positions of their denotations.

(11) **Tall vs. short person rotations – schematic representation from the signer's perspective** (figure from Schlenker 2017c)



Let us pause to consider the boldfaced part of (10a). Each of the two finger classifiers represented an individual, one taller than the other, with the knuckles corresponding to the upper part of the body; in the case of the tall individual, the locus extended above the knuckles, with the result that the reflexive *SELF-a_upper_part* targeted a position *above* the knuckles in the 'vertical position, heads up' case; this is represented in the left-hand figure in (11). But as different cases of rotation were considered, the finger classifiers rotated accordingly, and the 'upper part' of the locus indexed by *SELF-a_upper_part* did as well, as represented in the right-hand figure in (11).[8]

(iii) Third, the paradigm in (10) was also intended to assess whether height specifications resemble gender features in being sometimes disregarded under ellipsis. An example is given in (12a), where the elided VP has a bound reading, unlike its overt counterpart in (12c). On the (standard) assumption that VP ellipsis is effected by copying part the antecedent VP, this suggests that the feminine features of that antecedent can be ignored by ellipsis resolution, as represented with a barred pronoun in (12b) (where the covert copied VP is in smaller font).

(12) In my study group,
a. Mary did her homework, and John did too.
=> available bound variable reading in the second clause
b. Mary λi t_i did her$_i$ homework, and John λi t_i did [do ~~her~~$_i$ homework] too.
c. Mary did her homework, and John did her homework too.
=> no bound variable reading reading in the second clause

The non-boldfaced part of (10a) was designed to test whether ASL ellipsis makes it possible to disregard height specifications as well. Here the antecedent VP includes a reflexive

[8] See Liddell (2003) and Schlenker et al. (2013) for further arguments, based on agreement verbs, to the effect that loci are structured representations of their denotations.

which indexes the upper part of a locus, which is adequate to refer to a giant but not to a short person. Despite this apparent mismatch, the elided sentence is acceptable – unlike the overt counterpart in (10b), which includes a reflexive *SELF* referring to a short person but with high specifications. The conclusion is that, in ASL, height specifications can be ignored by the mechanism that computes ellipsis resolution, just as is the case for *phi*-features in English. This will be important for what follows: we will see that spatial specifications of locative-shifted loci can in some cases be ignored in similar conditions under ellipsis.

The theoretical interpretation of these results requires great caution, however. One possibility is that iconic specifications of loci are (admittedly non-standard) *phi*-features. But this conclusion might be premature. The main question is whether the ability of an element to be disregarded under ellipsis is solely characteristic of featural elements, or holds of a broader class. Schlenker (2014) didn't give a final answer, and Schlenker (2015b; 2018c) shows that co-speech gestures in spoken language, which certainly don't count as "features", can almost certainly be disregarded in this way as well. We will revisit this issue when we discuss the interaction of Locative Shift with ellipsis in Section 4.

2.2.3 Gradience

The foregoing results leave open an important question: Do high loci display a (quasi-) gradient behavior? If so, one would expect that when two loci are interpreted iconically, a third one can be "sandwiched" between them, with the expected interpretation.[9] This question will matter for what follows because in highly iconic cases, Locative Shift displays a gradient behavior.

While a gradient geometric behavior is displayed in (10)/(11), it is not clear whether it is due to loci *per se* or to their interaction with person classifiers. The latter possibility is particularly salient because classifiers are known to display a highly iconic behavior (e.g. Zucchi 2011; Davidson 2015).

This question is addressed by example (13), from Schlenker (2015a). In the absence of any classifiers, pronouns index 4 different heights that reflect the height of the heads of their denotations, which is a step towards "quasi-gradience". (13c) shows that these height specifications are disregarded in the course of ellipsis resolution, for otherwise the elided occurrences of *SELF* taking *IX-b* and *IX-d* as antecedents would have the "wrong" feature specifications – which in turn should yield deviance, as in the control sentence in (13b), which contrasts with (13a) (the position of the loci is represented in (14)).

(13) SHOW HAVE 4 GYMNAST STAND-CL BAR ORDER HEIGHT.

a. *SELF* signed at various, appropriate heights
6.5 IX-a PRESENT SELF-a WELL, IX-b MAYBE NOT PRESENT SELF-b WELL, IX-c NOT CLEAR, IX-d DEFINITELY NOT PRESENT SELF-d WELL.

b. *SELF* signed at a constant, low height
3.2 IX-a PRESENT SELF-a WELL, IX-b MAYBE NOT PRESENT SELF-b^0 WELL, IX-c NOT CLEAR, IX-d DEFINITELY NOT PRESENT SELF-d^0 WELL.

c. *SELF* signed low, only once (with ellipsis of the the second and fourth VPs)
7 IX-a PRESENT SELF-a WELL, IX-b MAYBE NOT, IX-c NOT CLEAR, IX-d DEFINITELY NOT.
=> bound variable reading

[9] We write "quasi-gradient" rather than "gradient" behavior because fully gradient behavior would be impossible to test, as it would require infinitely many examples; in addition, obvious limitations of perception would force the system to break down when distinctions become too fine-grained.

'During a show, four gymnasts were standing on a bar, ranked by height. One [a short one] presented himself well; the second [taller] one possibly didn't present himself well; for the third [still taller] one, it was unclear; and the fourth [still taller] one definitely didn't present himself well.' (Schlenker 2015a)

(14) **Schematic representation of the loci in (13) from the signer's perspective**

The fact that such examples involve a genuine pictorial representation was further established in (15), also from Schlenker (2015a). The first sentence of (15) is analogous to (13a). The third sentence establishes that the gymnasts operated a vertical rotation, hence *additional* heights, but now below the position of the bar (the position of the loci is displayed in (16)).

(15) SHOW HAVE 4 GYMNAST STAND-CL BAR ORDER HEIGHT.
IX-a PRESENT SELF-a BAD, IX-b MAYBE NOT, IX-c NOT CLEAR, IX-d DEFINITELY NOT.
SUDDENLY STAND-CL HANG-CL. WEIRD - NOW

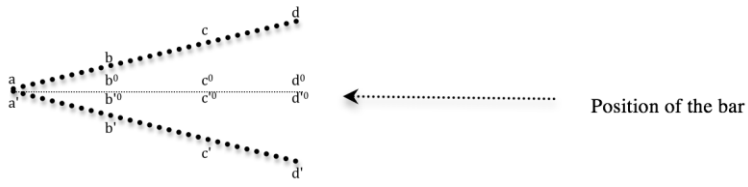
a. *SELF* signed at various, appropriate heights
6.3 IX-a' PRESENT SELF-a' WELL, IX-b' MAYBE NOT PRESENT SELF-b' WELL, IX-c' NOT CLEAR, IX-d' DEFINITELY NOT PRESENT SELF-d' WELL.

b. *SELF* signed at a constant, intermediate height
3.7 IX-a' PRESENT SELF-a' WELL, IX-b' MAYBE NOT PRESENT SELF-b'⁰ WELL, IX-c' NOT CLEAR, IX-d' DEFINITELY NOT PRESENT SELF-d'⁰ WELL.

c. *SELF* signed low, only once (with ellipsis of the the second and fourth VPs)
6.3 IX-a' PRESENT SELF-a' WELL, IX-b' MAYBE NOT, IX-c' NOT CLEAR, IX-d' DEFINITELY NOT.
=> bound variable reading

'During a show, four gymnasts were standing on a bar, ranked by height. One [a short one] presented himself badly; the second [taller one] didn't present himself badly; for the third [still taller] one, it was unclear; and the fourth [still taller] one definitely didn't present himself badly. Suddenly, they effected a vertical rotation. Oddly, now the short one presented himself well; the second one possibly didn't present himself well; for the third one, it was unclear; and the fourth one definitely didn't present himself well.' (Schlenker 2015a)

(16) **Schematic representation of the loci in (15) from the signer's perspective**



Unlike the examples in (10), the paradigms in (13) and (15) do not include classifiers, which means that the iconicity of these examples cannot be reduced to the iconicity of classifiers, as desired.

2.3 Summary and outlook

In this section, we saw initial cases of Locative Shift that were discussed in the literature: an individual-denoting locus may "move" in space to take the position of a location-denoting locus if the denoted individual is found at the corresponding location. We also saw other cases of locus displacement: high or low loci may serve to denote individuals whose head appears high or low. The phenomenon involves "iconicity in action": as a tall individual is rotated, the corresponding locus can be rotated as well; and the phenomenon seems to be quasi-gradient. In addition, positional specifications of high and low loci can be disregard under ellipsis in the same environments as *phi*-features.

We will submit that once the powerful mechanisms necessary to account for Locative Shift are in place, high and low loci can probably follow as a special cases. We will see that locative-shifted loci can be used in iconic and gradient fashion, just like high and low loci. In addition, it turns out that locative-shifted specifications can be disregarded under ellipsis in the same kind of conditions as *phi*-features and high/low specifications. Thus locative-shifted loci share important formal properties with high and low loci. In addition, their interpretation is rather similar as well. We announced at the outset that in cases of Locative Shift, a covert individual-denoting variable a is merged with a location-denoting locus b to yield a complex expression a^b, spelled-out as b. Under an assignment function s, this complex expression a^b denotes a situation stage of an individual: the situation stage of individual s(a) at situation s(b). In cases of high loci, a covert individual-denoting variable a is merged with a spatial specification *high* to yield a complex expression a^{high}, located high in signing space (the case of low loci is symmetric). And under an assignment s, a^{high} denotes individual s(a) whose upper part is situated high; this can be thought of as a high situation stage of s(a), with the auxiliary assumption that in standard cases the position of an individual can be identified with that of the upper part of his or her body. On this view, then, a^{high} denotes a 'high' stage of individual s(a).

3 Locative Shift in ASL: initial properties

Let us turn to a more detailed investigation of Locative Shift. We will summarize earlier data that suggest that Locative Shift may involve not just locative but also temporal and modal loci. This will argue for an analysis that involves situations (of various types), rather than just locations. We will then see that Locative Shift cannot normally target indexical pronouns, and that it can have interpretive consequences, including in cases in which it co-opts highly iconic loci. These observations will motivate the semantic proposal that was foreshadowed in Section 1.2.

3.1 Temporal and Modal Shift

Schlenker (2013) argues that Locative Shift has a temporal and a modal analogue. Thus in (17), the loci a and b are respectively associated with times at which John was a college student and a college professor. In the second sentence, however, the boldfaced pronouns index the same loci but refer to John rather than to time periods.

(17) **Temporal Shift**
Context: John is retired.
JOHN IX-b $_{a}$[FORMER COLLEGE STUDENT] $_{c}$[FORMER COLLEGE PROFESSOR PERSON].
re__ re__
IX-a IX-1a HELP **IX-a**+, IX-c IX-1c NOT HELP **IX-c**+.
'At some point John was a college student and at some point he was a university professor.
Then [= when he was a student] I helped him. Then [= when he was a professor] I didn't help him.'
(ASL, 4, 68b; Schlenker 2013)

Turning to the modal case, in (18) the loci *a* and *c* are initially associated with possible situations in which John is a college student and a college professor respectively, but are used in the second sentence to refer to John himself.

(18) **Modal Shift**
Context: I don't know who John is.
JOHN IX-b $_{a}$[POSSIBLE COLLEGE STUDENT] $_{c}$[POSSIBLE COLLEGE PROFESSOR PERSON].
re__ re__
IX-a IX-1a HELP **IX-a**+, IX-c IX-1c NOT HELP **IX-c**+.
'It's possible that John is a college student and it's possible that he is a university professor.
Then [= if he is a student] I will help him. Then [= if he is a professor] I won't help him.'
(ASL, 4, 72b; Schlenker 2013)

Schlenker (2013) shows that temporal and modal counterparts can be constructed for the full paradigm in (5), and that for his consultant patterns of preference among the various constructions are closely matched across domains, which suggests that a same phenomenon is at work.

3.2 No Locative Shift with indexical pronouns

Schlenker (2011a) notes that Locative Shift fails to apply to indexical pronouns, while results with deictic third person pronouns were not entirely clear. This can be seen in the contrasts obtained with the agreement form of *HELP* in (19) (where we average over more judgments than were reported in Schlenker (2011a), with the same results). The observation is that (19b), which involves Locative Shift of a third person locus (namely *a*, denoting John), is acceptable: since *a* corresponds to the French city and *c* corresponds to the American city, we find *1-HELP-a* and *1-HELP-c* to mean that I help John in the French city and in the American city respectively. By contrast, (19b)' involves Locative Shift of the second person pronoun (with *you* replacing *John* as the helpee), and the result is very degraded.

(19) –JOHN IX-b WORK $_{a}$[IX-a FRENCH CITY] SAME WORK $_{c}$[IX-c AMERICA CITY].
'John does business in a French city and he does business in an American city.

a. No Locative Shift
4.2 IX-a IX-1 1-HELP-b. IX-c IX-1 NOT 1-HELP-b.
There [= in the French city] I help him. There [= in the American city] I don't help him.'

b. Locative Shift
6 JOHN IX-b WORK $_a$[IX-a FRENCH CITY] SAME WORK $_c$[IX-c AMERICA CITY].
IX-a IX-1 1-HELP-a. IX-c IX-1 NOT 1-HELP-c.
There [= in the French city] I help him. There [= in the American city] I don't help him.'

–IX-2 WORK $_a$[IX-a FRENCH CITY] SAME IX-2 WORK $_c$[IX-c AMERICA CITY].
'You do business in a French city and you do business in an American city.

a'. No Locative Shift
6.3 IX-a IX-1 1-HELP-2. IX-c IX-1 NOT 1-HELP-2.
There [= in the French city] I help you. There [= in the American city] I don't help you.'

b'. Locative Shift
2.3 IX-a IX-1 1-HELP-a. IX-c IX-1 NOT 1-HELP-c.
Intended: There [= in the French city] I help you. There [= in the American city] I don't help you.'
(ASL, 8, 1; 3 judgments; Schlenker 2011a)

Similarly, we can see that an attempt to apply Locative Shift to a first person helpee in (20b) utterly fails: the sentence is very degraded.

(20) IX-1 WORK $_a$[IX-a FRENCH CITY] SAME IX-1 WORK $_c$[IX-c AMERICA CITY].
'I do business in a French city and I do business in an American city.

a. No Locative Shift
7 IX-a IX-2 2-HELP-1. IX-c IX-2 NOT 2-HELP-1.
There [= in the French city] you help me. There [= in the American city] you don't help me.'

b. Locative Shift
2.5 IX-a IX-2 2-HELP-a. IX-c IX-2 NOT 2-HELP-c.
Intended: There [= in the French city] you help me. There [= in the American city] you don't help me.'
(ASL, 8, 3, b1-b2; 4 judgments; Schlenker 2011a)[10]

For Schlenker (2011a); Schlenker et al. (2013), the failure of Locative Shift with indexical loci followed from a rule according to which when someone is present in the context of speech, the associated locus normally corresponds to this person's actual location. Schlenker et al. (2013) formalize this constraint with the presuppositional rule in (21):

(21) If *IX-i* is a pronoun indexing locus i, and if s(i) is present in the discourse situation around c,
$[\![\text{IX-i}]\!]^{c,s,w} = \#$ iff s(i) = # or **s(i) is present in the extra-linguistic situation and 1, i and s(i) are not roughly aligned**. If $[\![\text{IX-i}]\!]^{c,s,w} \neq \#$, $[\![\text{IX-i}]\!]^{c,s,w} = s(i)$.

In other words, the rule required that loci denoting individuals present in the extra-linguistic situation should correspond to their real position. This rule immediately predicted that Locative Shift cannot change the locus assigned to individuals present in the extra-linguistic situations. We will see several cases below in which this seems to be clearly true for second person pronouns.

[10] Third person controls (with *JOHN* replacing *IX-1*) displayed the opposite pattern of preference: 5.9 with Locative Shift, 3.7 without (we do not know why the version without Locative Shift was so degraded).

As alluded to in Schlenker (2011a), this analysis predicts that deictic pronouns referring to a third person who is present in the extra-linguistic situation should also fail to undergo Locative Shift, but judgments are less clear. (22) displays a flip in preference between the non-deictic case with *JOHN* (= Locative Shift preferred) and the deictic case (= Locative Shift dispreferred, but the effect is still less than striking:[11]

(22) ___ WORK IN IX-a FRENCH CITY SAME (WORK)[12] IX-c AMERICAN CITY. ……

Non-deictic pronoun

a. [5] ___ = JOHN IX-b
…… = IX-a IX-1 1-HELP-b, IX-c IX-1 NOT 1-HELP-b. (Judgments: 3, 4, 6, 7)

b. [6.7] ___ = JOHN IX-b
…… = IX-a IX-1 1-HELP-a, IX-c IX-1 NOT 1-HELP-c. (Judgments: 6, 7, 7, 7)

Deictic pronoun [IX-b is realized with a strong pointing towards a position in the extra-linguistic situation][13]

c. [7] ___ = IX-$b_{deictic}$
…… = IX-a IX-1 1-HELP-b, IX-c IX-1 NOT 1-HELP-b. (Judgments 7, 7, 7, 7)

d. [5] ___ = IX-$b_{deictic}$
…… = IX-a IX-1 1-HELP-a, IX-c IX-1 NOT 1-HELP-c. (Judgments: 3, 5, 6, 6)

'John/He [deictic] works in a French city and he works in an American city. There [= in the French city], I help him. There [= in the American city], I don't help him.'
(ASL, 10, 133; 3 judgments)

[11] Three remarks should be added. First, as an anonymous reviewer notes, deictic loci might be realized with a strong pointing, which could yield contrastive effects. This could interfere with the point under discussion here; we leave this issue for future research.

Second, we have further data on Locative Shift with deictic loci, but some are complex. The earlier case in (i) below was afflicted by a production error in (ib), noted by our consultant (locative *IX-b?* was not signed with pointing towards the right, but somewhat towards the center; as our consultant states in the written answer sheet, however, the incorrect pointing doesn't affect the judgment: mouthing of *THERE* is present, and a pause after pointing error both indicate clearly *IX-b* isn't referring to John). Still, the target sentences displayed the expected pattern in the averages, but with considerable variability across the three judgment tasks.

(i) ___ WORK IN IX-a FRENCH CITY SAME WORK IX-c AMERICAN CITY. ……

Non-deictic pronoun

a. [4.7] ___ = JOHN IX-b
…… = IX-a IX-1 1-HELP-b, IX-c IX-1 NOT 1-HELP-b. (Judgments: 3, 5, 6)

b. [5] ___ = JOHN IX-b
…… = IX-b? IX-1 1-HELP-a, IX-c IX-1 NOT 1-HELP-c. (Judgments: 5, 5, 5)

Deictic pronoun [IX-b is realized with a strong pointing towards a position in the extra-linguistic situation]

c. [7] ___ = IX-$b_{deictic}$
…… = IX-a IX-1 1-HELP-b, IX-c IX-1 NOT 1-HELP-b. (Judgments: 7, 7, 7)

d. [3.7] ___ = IX-$b_{deictic}$
…… = IX-a IX-1 1-HELP-a, IX-c IX-1 NOT 1-HELP-c. (Judgments: 3, 2, 6)

'John/He [deictic] works in a French city and he works in an American city. There [= in the French city], I help him. There [= in the American city], I don't help him.'
(ASL, 8, 9; 3 judgments)

Finally, in a modification of (22) in which the deictic pronoun *IX-*$b_{deictic}$ was replaced with *THAT-b GUY* (ASL 34, 2674), the locative-shifted version in d. received a slightly lower rating than the control sentences (6 vs. 7), and our consultant explicitly noted: "This is a slightly lower judgment because it would be preferable to match *HELP* to that guy's location if he's actually present, or to add meaning [to the effect] that the guy was in that location at the time [the] signer helped him."

[12] The second occurrence of *WORK* was omitted in b. but not in a., c., d.

[13] As our consultant notes, these deictic pronouns are realized differently from normal pronouns, and they involve: longer hold at end; higher pointing angle; a different wrist position; sharper motion.

3.3 Interpretive effects

In the examples discussed thus far, application of Locative Shift did not affect interpretation in any obvious way because the location of the relevant individuals is made clear by the preceding discourse. But there are cases in which Locative Shift does affect interpretation, as is illustrated in (23). Here different readings are obtained depending on whether the possessive pronoun indexes the locus *b* introduced by *JOHN* or the locus *c* introduced by *AMERICAN CITY*: in the first case, no specification is obtained about the apartment's location, and a plural reading could be obtained referring to both apartments (a bit degraded due to lack of pluralization); in the latter case, the apartment in question is the one John owns in an American city.

(23) **Locative Shift with possessives, and an interpretive effect**
JOHN IX-b OWN APARTMENT [FRENCH CITY]$_a$ SAME OWN APARTMENT [AMERICAN CITY]$_c$.
'John owns an apartment in a French city, and he also owns an apartment in an American city.'

a. $^{6.7}$ POSS-**b** APARTMENT NICE.
=> no inference about the apartment's location
'John's apartment is nice.'

b. ^{6} POSS-**c** APARTMENT NICE.[14]
=> John's American apartment is nice
'John's American apartment is nice.'
(ASL, 34, 2680a, b[15] (see also 27, 62); 3 judgments)

One might think that in (23b) we obtain a reading akin to "the apartment in the American city", with a kind of all-purpose genitive (= 'the American city's apartment') not involving genuine possession. This is not plausible, as in (24b) a locative-shifted version of the second person possessive pronoun is highly degraded. This is expected if Locative Shift is genuinely involved (since Locative Shift cannot target indexical loci), but not if the reading obtained in (23b) is due to an all-purpose genitive, which should be just as available in the second as in the third person case.

(24) IX-2 OWN APARTMENT [FRENCH CITY]$_a$ SAME OWN APARTMENT [AMERICAN CITY]$_c$.
'You own an apartment in a French city, and you also own an apartment in an American city.'

a. $^{6.7}$ POSS-**2** APARTMENT NICE.
=> no inference about the apartment's location
'Your apartment is nice.'

b. ^{2} POSS-**c** APARTMENT NICE.
(ASL, 34, 2682; 4 judgments)

[14] As seen in the Supplementary Materials, the consultant commented once [JL 17.05.17] (i) that from *IX-b* "it looks like John could be present in the context", and that (ii) the judgment in b. "assumes John is not present". This is unsurprising if Locative Shift is degraded with deictic elements, as argued in Section 3.2. A version of the paradigm without *IX-b* (ASL 27, 62) does not raise these issues but is harder to analyze: *JOHN* could be taken to be signed in neutral position and to "acquire" the locus c in sentence b., which would not be a strong case of Locative Shift.

[15] Examples c. and d. in ASL 34, 2680 were like a. and b. respectively, but with *THERE-c* added. Similar remarks apply to ASL 34, 2682 in (24).

3.4 Iconic cases

In the cases considered so far, Locative Shift involved antecedents that played a standard grammatical role (as a first approximation, loci corresponded to discourse referents).[16] But as noted in Section 2.2, high loci can play an iconic role. Do such cases also arise with loci undergoing Locative Shift? This appears to be the case.

3.4.1 Initial iconic cases

In (25a), two loci *a* and *b* are introduced for *JOHN* and *PETER* respectively, but in addition *BUILDING LEANING* introduces an area of signing space representing the tower of ., leaning rightwards from the signer's perspective. This is represented in (26) and encoded in (25) with the symbol//.

(25) JOHN$_a$ PETER$_b$ IX-1 THE-THREE-a,b,1 VISIT PISA FAMOUS BUILDING LEANING-//.
'John, Peter and I visited the famous Leaning Tower of Pisa.
THE-TWO-a,b WALK LONG TOP. IX-1 FILM-rep_[wavy line along //].
John and Peter took a while to walk towards the top. I fimed their ascent.

a. [6] JOHN IX-top **SHOW POSS-top HAND**. PETER IX-middle NOT.
Towards the top, John showed his hand. Peter didn't.'
=> John showed his hand in the upper part; Peter didn't show his hand (in the middle/lower part)

b. [4.7] JOHN IX-top SHOW POSS-top HAND. PETER IX-low NOT SHOW POSS-top HAND.[17]
(ASL, 28, 26; 3 judgments; Schlenker to appear)

(26) a. **Intuitive representation of the tower in signing space (signer's perspective)**

b. **Actual sign establishing the position of the tower (addressee's perspective)**

While we will revisit this and related sentences from the perspective of the interaction of ellipsis with Locative Shift, we can restrict attention to the first sentence of the discourse. In both (25a) and (25b), *JOHN* comes with a pointing sign *IX-top* towards a location near the top of the tower. This could be a locative-shifted-version of locus *a*, or a spatial locus meaning *there*. But what is striking is that the possessive pronoun indexes the same locus. One of two things may be going on.

[16] This part borrows material from Schlenker to appear.
[17] As can be seen in the raw data, the consultant obtained for (25b) a reading meaning: "John showed his hand in the upper part of the tower. Peter didn't show John's hand in the middle/lower part of the tower". This is a very odd thing to say, but on this reading the sentence is not syntactically deviant, which is presumably the reason acceptability is degraded but not very low.

- If *IX-top* is a pronoun referring to John, this is a case in which Locative Shift targets the subject pronoun, has interpretive consequences, and is highly iconic, in the sense that the point of signing space that is used has not already been assigned a discourse referent.
- If *IX-top* has a locative meaning, akin to *there*, then the possessive must have undergone Locative Shift: an all-purpose genitive meaning such as the 'the top's hand' is not plausible in this case, as the infelicity of the English paraphrase shows (this infelicity is presumably due to the fact that a hand is more directly related to its owner than to any spatial position it finds itself in).

Thus either the index *IX-top* or the possessive *POSS-top* has undergone Locative Shift. In addition, it can be ascertained that the possessive is used as a bound variable: the elided VP following *NOT* is naturally understood with a bound reading.[18] We will see below ASL examples that also involve Locative Shift of bound variables, and where a part of an iconic representation is co-opted by an individual-denoting locus without first being introduced as a spatial locus.

3.4.2 Iconic choices that influence interpretation

Our ASL consultant also accepts examples in which a reflexive pronoun and its antecedent do not share the same locative specifications. This is the case in (27). Here the reflexive *SELF* indexes loci that appear in (26a): locus *a* is the locus associated with *JOHN*, while *top* is a location corresponding to the top of the sign for *LEANING-//*, representing a building in leaning position. Importantly, the second sentence in (27a) and (27c) is interpreted on a bound variable reading (as can be seen in the inferential judgments reported in the Supplementary Materials); the translations reflect this.

(27) JOHN$_a$ PETER$_b$ IX-1 THE-THREE-1,a,b VISIT PISA FAMOUS BUILDING LEANING-//.
'John, Peter and I visited the famous Leaning Tower of Pisa.
THE-THREE-a,b,1 WALK LONG TOP. |: IX-1 PHOTO-rep_[wavy line along //], FINISH
The three of us took a while to walk towards the top. I took pictures during our ascent, and then

a. [6.4] IX-a **SEE SELF-top**, IX-b NOT.
John saw himself at the top, Peter didn't.'[19]

b. [5.6] IX-a SEE SELF-top, IX-b NOT SEE SELF-top. (Judgments: 5, 6, 7, 4, 6)
John saw himself at the top, Peter didn't see himself at the top.'
a, b => only John saw himself being high up

c. [7] IX-a SEE SELF-a, IX-b NOT.
John saw himself, Peter didn't.'

d. [6.6] IX-a SEE SELF-a, IX-b NOT SEE SELF-b.
John saw himself, Peter didn't see himself.'
c, d => only John saw himself
(ASL, 20, 82; 5 judgments; Schlenker to appear)

[18] Ellipsis resolution can disregard specifications of the antecedent, since the second sentence of (25) is understood to involve Peter showing his hand in the middle/lower part of the building, rather than towards the top; we come back to this point in Section 4.

[19] In all 5 sessions, the consultant obtained the inference that Peter didn't see Peter being in the upper part of the tower. In one session, he mentioned that it could possibly mean that Peter never saw Peter anywhere; in another session, he mentioned that "likely" Peter didn't see Peter anywhere in the tower.

The striking observation is that *IX-a* ***SEE SELF-top*** is understood to mean that John (originally associated with locus *a*) saw himself being *at the top of the tower*; this shows that the reflexive pronoun makes an iconic contribution. It can be further ascertained with a sentence with ellipsis, namely *IX-b NOT* referring to Peter, that the boldfaced VP is indeed interpreted on a bound variable reading. In other words, *SELF-top* simultaneously displays the behavior of a bound variable and of an iconic element.

Each locative-shifted reflexive seems to be relatively acceptable even though it does not have an overt location-denoting locus to agree with. It must be said, however, that the reflexives that display this behavior are a bit less acceptable than those that do not, and thus it is difficult to draw firm conclusions on this basis alone. Be that as it may, the inferential judgments suggest that the locative-shifted reflexives affect the nature of the at-issue component of the sentence. There is nothing in the context that presupposes that the relevant individuals were *at the top of the tower*, as can be seen by the more general inferences that are obtained in the absence of Locative Shift in (27c, d).

The example in (28) strengthens and extends the conclusions reached up to this point. The position of the loci is schematically represented in (29); the verb *LOOK* can target one of three positions towards the left of the bar, written as *L1* (far left), *L2* (a bit further to the right), *L3* (still further to the right), or *R* (far right); each can be realized *high* or *low*. Because the bar which is represented is tilted, it is clear that not just horizontal and vertical displacements are involved: full-fledged iconicity is needed.

Notation: here/represents the position of the tilted bar. We write *LOOK-…* and *POSS-…* for expressions that target different positions in different examples. For instance, in (28a) the first *LOOK-…* targets *L1-high*, i.e. a high position to the left of the tilted bar, as shown in (29). The second *LOOK-…* targets *L2-high*, i.e. a high position slightly to the right of *L1-high*. And *POSS-…* targets *L2-high*, a high position slightly to the right of *L2-high*.

(28) TOMORROW GYMNASTICS COMPETITION. BAR SELF CL-TILT_/. TWO GYMNAST MUST
'Tomorrow there is a gymnastics competition. The bar is tilted. Two gymnasts must

STAND MOVE-CL-rep JUMP-CL-rep HANG-CL-rep. :- SO BAR-TILT-CL_/.
stand on the bar, move on it, jump on it and perform rotations. So the bar is tilted.

ONE GYMNAST IX-a IF IX-1 LOOK-… LOOK-… FINISH PHOTO-neut POSS-… HAND, IX-a WILL HAPPY.
One gymnast will be happy if _____

OTHER GYMNAST IX-c NOT.
The other gymnast won't be [= won't be happy if I watch the first gymnast in this way (2/3 judgments)/if I watch the second gymnast in this way (3/3 judgments).'

	LOOK-…	LOOK-…	POSS-…
a. [5.7]	L1-high	L2-high	L3-high

__ = I watch his moves on the bar [on the left] before taking a picture of his hand while he is on the bar on the left.

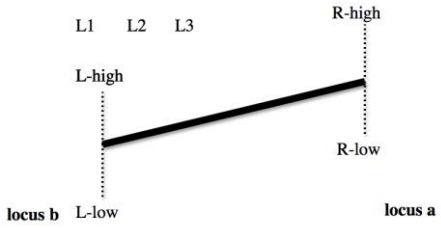
	LOOK-…	LOOK-…	POSS-…
b. [6]	L1-high	L2-high	R-high

__ = I watch his moves on the bar [on the left] before taking a picture of his hand while he is on the bar on the right.

c. [5.7] L1-high L2-high L3-low
__ = I watch his moves on the bar [on the left] before taking a picture of his hand while he is under the bar on the left.

d. [6] L1-high L2-high R-low
__ = I watch his moves on the bar [on the left] before taking a picture of his hand while he is under the bar on the right.
(ASL, 29, 92; 3 judgments. See the Supplementary Materials for details.)

(29) **Schematic representation of the loci in (28) from the signer's perspective**



Let us initially disregard the last sentence of each discourse, which involves ellipsis. Our target is the penultimate sentence, which describes the first gymnast. We believe the data can be described as follows: the indefinite *ONE GYMNAST* introduces the locus *a*, and it binds three locative-shifted versions of the same locus, corresponding to three different spatial locations, which are varied in the four conditions of the example. Each of these locative-shifted versions of the locus comes with a specification of the position of the first gymnast on the bar. Furthermore, each locative-shifted locus is used in the absence of a spatial locus to agree with. Finally, the fine-grained semantic contribution of each locus appears to be at-issue, as it affects the truth conditions in the scope of a conditional.

Let us argue for these conclusions in turn.

(i) The three loci involved are the object agreement markers of the two occurrences of *LOOK*, and the possessive *POSS* (as noted above, in the repetition *LOOK*-… *LOOK*-…, the two verbs target different positions, which is why the repetition is not vacuous). The inferences triggered suggest that *LOOK* agrees with an individual-denoting locus ('watch the gymnast on the left side of the bar') rather than with a space-denoting one ('look towards the left'), as the latter interpretation would not entail that the signer looked *at the gymnast* (rather than just at a particular location). It cannot be entirely excluded, however, that this is the result of pragmatic strengthening – but this would require quite a bit of contextual enrichment, since the target clauses appears in a downward-monotonic environment (under *IF*).

(ii) This issue does not arise with the possessive *POSS*, since it would make no sense to understand the hand to be the hand *of* a location. So *POSS* indexes a locative-shifted version of the initial locus *a*.

(iii) Remarkably, we see that the locative-shifted loci can give rise to a bound variable reading, as attested by the fact that the last sentence of the discourse can be understood on a bound reading, pertaining to the positions of the *second* gymnast.

The same results can be replicated with related sentences with ellipsis,[20] but also with sentences involving *only*, as can be seen in (30). The reading obtained is one on which the

[20] The example in (i) is slightly simpler than the example in (28) because it does not involve a conditional clause, but it is otherwise similar and makes the same points.

first gymnast wants me to look at him and take a picture of his hand while he is in certain designated positions represented by way of Locative Shift; and the other gymnast does not want me to do the same with *him*, which indicates that the locative-shifted loci are also read as bound variables.

(30) REMEMBER? TWO-YEAR-AGO GYMNASTICS COMPETITION. BAR SELF BAR-TILT-CL_/.
'Remember? Two years ago there was a gymnastics competition. The bar was titled.

REMEMBER TWO GYMNAST MUST STAND MOVE-CL-rep JUMP-CL-rep HANG-CL-rep.
Remember that two gymnasts had to stand on the bar, move on it and perform rotations.

|: SO BAR-TILT-CL_/.
So the bar was tilted.

ONLY FIRST GYMNAST (IX-a)[21] WANT IX-1 LOOK-… LOOK-… FINISH PHOTO-neut POSS-… HAND.
Only the first gymnast wanted me to _____
[= bound reading 2/3 judgments; ambiguous answer 1/3 judgment]

a. [6.7] L1-high L2-high L3-high
watch his moves on the bar [on the left] before taking a picture of his hand while he was on the bar on the left.'

b. [6.7] L1-high L2-high R-high
watch his moves on the bar [on the left] before taking a picture of his hand while he was on the bar on the right.'

c. [6.7] L1-high L2-high L3-low
watch his moves on the bar [on the left] before taking a picture of his hand while he was under the bar on the left.'

d. [6.3] L1-high L2-high R-low
watch his moves on the bar [on the left] before taking a picture of his hand while he was under the bar on the right.'
(ASL, 29, 89; 3 judgments. See the Supplementary Materials for details.)

3.5 Proposal

3.5.1 Main idea

At this point, a tentative way to capture the data is to posit a semantics that is more fine-grained than is standard: a locus may refer to an individual, to a situation, or to a situation stage of an individual, which can be thought of as an individual-at-a-situation (in turn, the situations may be spatial, temporal or modal).[22] While a full elucidation of that notion is left for future research, we can think of the New York stage of John as John *qua* associated with New York, typically John *while in New York*. Similarly, the 1980 stage of John would be John as he was in 1980; and for a world w, a w-stage of John is John as he is in world w (since we take situations to be basic, talk of time and world stages should be thought of as situation stages of a particular sort).

[21] In d. *IX-a* was not signed.
[22] Various audience members over the years suggested an analysis in terms of situation stages of individuals.

There have been several uses of situation stages of individual in the earlier literature. David Lewis (1979; 1986) famously argued for time- and world-stages of individuals on metaphysical grounds. In linguistics, Carlson (1977) argued that some predicates, such as *be available*, hold true of stages of individuals. He further argued that some nouns, such as *batter*, can make reference to stages of individuals, whereas others, such as *person*, refer to individuals; as a result, there might be a world with a total of 9 individuals but 35 batters (see also Krifka 1990). Paul (1994) argues that modified proper names, such as *the young Mozart*, can refer to stages of individuals. Musan (1997) argues that some DPs quantify over stages of individuals, as in the sentence *There was a professor sick*.[23]

However, to our knowledge no phenomenon comparable to Locative Shift has been described in the literature, and thus we must make a concrete proposal as to how a pronoun can come to denote a situation stage of an individual in sign language. We propose the hypothesis in (31) (foreshadowed in Schlenker, to appear); it is based on the view that loci realize variables and thus have a denotation under an assignment function (we come back below to some alternative proposals).

(31) **Hypothesis about locative-shifted loci**

a. Syntax

If a locus *a* denotes an individual s(a) and a locus *b* denotes a spatial, temporal or modal situation s(b), then under some pragmatic conditions, the locus *b* can also spell out the complex expression a^b.

b. Semantics

Evaluated under an assignment s, a^b denotes the stage of individual s(a) found in situation s(b). We will write it as *s(a)_at_s(b)*.

Let us add two remarks. First, in ASL, the locative locus *b* may but need not have been established in advance of Locative Shift. In highly iconic cases, a point of a pictorial representation may be used to trigger Locative Shift (how parts of iconic representations come to refer is an independent question that we do not further discuss here). Second, Locative Shift may have semantic consequences when different truth conditions are obtained by referring to individual s(a) and to a situation stage of individual s(a), e.g. s(a)_at_s(b).

3.5.2 Illustration

As an example, let us consider the first clause of (27a), repeated in (32a). Because it involves a bound reading (as shown by the interpretation of the second sentence with ellipsis), we take its Logical Form to be akin to (32b), where *b* is a locus denoting the top of the tower (we write the semantic value of *SEE* as *see'*, and the respective denotations of *a* and *b* as j, for John, and *t*, for the top of the tower). We provide in (32c) a derivation of the truth conditions making use of the hypothesis stated in (29).

(32) a. IX-a SEE SELF-top

b. IX-a λa t_a SEE a^b

[23] An anonymous reviewer also suggests a connection to pseudo-relative clauses in French and Italian, as in (i), discussed in Cinque (1996).

(i) J' ai vu Jean qui courait à toute vitesse. (French)
I have seen Jean qui ran at full speed
'I saw Jean running at full speed.' (Cinque 1996)

c. Let c be a context, let w be a world and let s be an assignment function on which s(a) denotes John (written as *j*) and s(b) denotes the top of the Leaning Tower of Pisa (written as *t*).

$$\begin{aligned}
[\![\text{IX-a } \lambda a\ t_a \text{ SEE } b^a]\!]^{c,s,w} &= [\![\lambda a\ t_a \text{ SEE } a^b]\!]^{c,s,w}([\![\text{IX-a}]\!]^{c,s,w}) \\
&= [\lambda x_e\ .\ [\![t_a \text{ SEE } a^b]\!]^{c,s[a\to x],w}](j) \\
&= [\lambda x_e\ .\ [\![\text{SEE } a^b]\!]^{c,s[a\to x],w}([\![t_a]\!]^{c,s[a\to x],w})](j) \\
&= [\lambda x_e\ .\ \text{see'}([\![\mathbf{a^b}]\!]^{\mathbf{c,s[a\to x],w}})(x)](j) \\
&= [\lambda x_e\ .\ \text{see'}(\mathbf{s[a\to x](a)_at_s[a\to x](b)})(x)](j) \\
&= [\lambda x_e\ .\ \text{see'}(\mathbf{x_at_t})(x)](j) \\
&= \text{see'}(j_at_t)(j)
\end{aligned}$$

The crucial steps in the semantic derivation are boldfaced. The object of *SEE* is the locative-shifted locus spelled-out as *b*, but corresponding to the complex expression a^b, while the subject of *SEE* is just a trace t_a.[24] Because the expression t_a *SEE* a^b is in the scope of a λ-abstractor, it is evaluated under a modified assignment function s[a→x] for various values of x, on which t_a denotes x while a^b denotes the stage of x associated with location s(b) (here: the top t of the tower). In the end, this yields a reading on which John saw the situation stage of John associated with the top of the tower, which presumably explains why the sentence means that John saw himself *being high up in the tower*. In addition, the expression $\lambda a\ t_a$ *SEE* a^b has the value λx_e . *see'(x_at_t)(x)*, which explains why the second clause in (27a) can means that Peter didn't himself *being at the top* (since replacing *x with p* for Peter, we get *see'(p_at_t)(p)*, i.e. Peter saw the situation stage of Peter associated with the top of the tower).

This is not quite enough, however. The semantics must be refined to allow predicates to take as arguments not just individuals and situations, but also situation stages of individuals. For present purposes, the simplest solution is to make the basic ontology inclusive enough to allow for 'normal' individuals as well as situated individuals. This is arguably needed on independent grounds. To take an example discussed in a different context by Paul (1994) and Matushansky (2008), modified proper names can sometimes be used to refer to time stages of individuals, but when this happens they allow for a non-standard syntax, with definite determiners and modifiers, as in (33b, c) and (34).

(33) a. Do you remember Paris?
b. Do you remember the Paris of the 1980's?
c. Do you remember the Paris of the 1960's?

(34) a The Paris of 2017 is cleaner than the New York of the 1980's.
b. The young W.A. Mozart did not visit Paris but the old W.A. Mozart did. (Paul 1994)

The important observation is that in (33) a positive answer carries different entailments depending on the question asked, despite the fact that each question is in the present tense. While (33a) just asks whether a relation of remembrance holds between the addressee and Paris, (33b, c) ask whether this relation holds with designated temporal stages of the city. Similarly, (34a) establishes a comparison between two time stages of two cities – and the semantics of *clean* and of the comparative construction seems to have no difficulties with these arguments, which suggests that they just denote individuals that are part of the standard linguistic ontology (similar remarks extend to (34b)).

[24] As in Heim and Kratzer (1998), we assume that local binding is obtained by moving the subject and creating a λ-abstract in the process.

3.5.3 Extensions

We turn to two extensions of the proposed analysis. One pertains to the relation between high/low loci and locative-shifted loci. The other concerns the presuppositional contributions (if any) of locative-shifted loci.

3.5.3.1 High and low loci

In view of the formal similarity between locative-shifted loci and high/low loci, we suggested above that a unified account should be sought. How could it be developed?

We propose to explore the following direction. In cases of high and low loci, a covert individual-denoting variable *a* is merged with a locus *b* found above or below *a* to yield a complex expression a^b, spelled out as *b*. This much is similar across high/low loci and locative-shifted loci. We saw that the locative component of locative-shifted loci need not be explicitly introduced, and this seems to be the standard case for high/low loci. But what about the semantic interpretation of high/low loci? In some cases, a high locus doesn't indicate that the *entire* individual is found high, just that the upper part of his or her body is.[25] We propose that an auxiliary assumption is needed, namely that a situation stage of an individual may be considered as high or low if the upper part of that individual's body is high or low; in other words, the upper part of the individual (or maybe the head) can go proxy for the entire individual. With this assumption, the analysis can proceed as in the case of locative-shifted loci: when *b* is a high or low locus, a^b denotes the stage of individual s(a) found in situation s(b), and thus (by our auxiliary assumption) a stage of s(a) in which the upper part of s(a) is found in position s(b).

If these ideas are on the right track, the Hypothesis about locative-shifted loci in (31) can be applied to high and low loci, in the version given in (35), with additions that are boldfaced.

(35) **Hypothesis about high and low loci**

a. Syntax

If a locus *a* denotes an individual s(a) and a locus *b* **above or below *a*** denotes a high or low position s(b), then under some pragmatic conditions, the locus *b* can also spell out the complex expression a^b.

b. Semantics

Evaluated under an assignment s, a^b denotes the stage of individual s(a) found in situation s(b) (written as as *s(a)_at_s(b)*).

Auxiliary assumption: a stage of an individual can be considered to be found in a certain position (= in a certain spatial situation) if the head of that individual is found in that position.

We leave a full investigation of this hypothesis for future research.

3.5.3.2 Presuppositional component of locative-shifted loci

Do locative-shifted loci come with presuppositions? While we leave an investigation for future research, two salient hypotheses are stated in (36). To make them somewhat precise, we adopt a semantics in which expressions are evaluated with respect to a context c, an assignment function s, which assigns value to variables (including loci), and a situation parameter w (which can correspond to temporal, modal or locative situations).

[25] Thanks to an anonymous referee for urging us to clarify this point.

(36) **Semantics of Locative Shift**
Let c be a context, w a situation of evaluation, and s an assignment function. We write as a^b the locative-shifted version of locus *a* at locus *b*.

a. Strong presuppositional semantics

$[\![a^b]\!]^{c, s, w}$ = # unless s(b) is a situation and s(a) is an individual and **s(a) is located at s(b) in w**. If $\neq$ # ,
$[\![a^b]\!]^{c, s, w}$ = s(a)_at_s(b), i.e. the situation stage of s(a) at s(b).

b. Weak presuppositional semantics

$[\![a^b]\!]^{c, s, w}$ = # unless s(b) is a situation and s(a) is an individual and **for some situation w' salient in c, s(a) is located at s(b) in w'**. If $\neq$ # ,
$[\![a^b]\!]^{c, s, w}$ = s(a)_at_s(b), i.e. the situation stage of s(a) at s(b).

According to the Strong presuppositional semantics in (36a), an individual locus *a* may undergo Locative Shift to a locus *b* only if it is presupposed that, in the situation of evaluation, the individual denoted at *a* is located at the situation denoted by *b*. Multiple examples discussed above suggest that this condition is too strong. (23b) above didn't say anything about John's location in the context of utterance (and thus in the situation of evaluation, since this sentence referred to the present moment). Still, the possessive could undergo Locative Shift. Similarly, in the highly iconic example in (28), it certainly cannot be presupposed that the relevant gymnast is at several locations at the same time, corresponding to the various instances of Locative Shift. Thus the Weak presuppositional semantics in (36b) is more appropriate: it only requires that there be a salient situation of evaluation at which the individual s(a) denoted by locus *a* is located at the situation s(b) denoted by locus *b*. When this condition is satisfied, the locative-shifted version of locus *a* at locus *b* (written as a^b) denotes the situation stage of s(a) at s(b). This makes it possible for the possessive *POSS-c APARTMENT* in (23b) to the apartment owned by the American-city-stage of John, which comes close to the intended meaning.[26]

Be that as it may, the detailed presuppositions (if any) of locative-shifted loci have yet to be investigated in detail. The results will interact with the issue of high/low loci discussed in the previous paragraph, since these are described in the literature (e.g. Schlenker et al. 2013) as triggering, in some cases at least, some positional presuppositions.

4 Locative Shift in ASL: interaction with predicate ellipsis

4.1 The import of predicate ellipsis

As we saw in Section 2.2.2, it was shown in earlier literature (Schlenker 2014) that height specifications can be disregarded under ellipsis in the same kind of configuration as *phi*-features, including when these specifications have a highly iconic semantics. We will now see that there are numerous cases in which spatial specifications of locative-shifted loci can be disregarded in similar environments.

[26] One final note is in order. We have assumed with much of the literature that loci can function as variables and thus have a denotation under an assignment function. This was important to guarantee that a locative-shifted version of locus *a* at locus *b* (written as a^b) can denote the situation stage of s(a) at s(b). Kuhn (2015) proposed instead that loci are features that remain uninterpreted but provide information about the antecedent of a pronoun. Both Kuhn's theory and the loci-as-variables theory must be refined so as to capture cases in which loci have an iconic component (Schlenker et al. 2013 partly do so for the loci-as-variables view); as we saw in our Pisa examples (e.g in (27)), this matters because locative-shifted loci can target parts of iconic representations. Once these mechanisms are in place, it might well be that Kuhn's theory can be used to restate the present analysis within a loci-as-features view, but it is too early to make pronouncements on this matter.

4.1.1 Varieties of predicate ellipsis

While we will consider possible analyses of this "disappearing act" of spatial specifications, we will not provide an in-depth analysis of the syntax of our elided constructions. Cecchetto et al. (2015) conducted an in-depth study of predicate ellipsis in Italian Sign Language (LIS) which could serve as a model in the future.[27] Importantly, they distinguish between two constructions: VP-ellipsis and stripping, illustrated for English in (37).

(37) a. VP ellipsis: John broke a vase, and Mary did too.
b. Stripping: John broke a vase, and Mary too.
(Cecchetto et al. 2015)

As Cecchetto et al. write, in VP ellipsis "only the VP undergoes deletion, not the T/INFL node or higher nodes". By contrast, in stripping, "everything in a clause is deleted under identity with corresponding parts of the preceding clause, except for one constituent and (usually) an adverb or a negative element". They argue on the basis of sophisticated syntactic tests that LIS has both constructions: (38a) and (39b) are, according to the authors, "likely cases of stripping", but (38b) and (39b) must be cases of VP-ellipsis, "since the INFL/Tense node is not part of the elided structure".

(38) a. GIANNI BOOK BUY MUST. MARIA SAME.
b. GIANNI BOOK BUY MUST. MARIA MUST SAME.
'Gianni must buy a book and also Maria must (buy a book).' (LIS, Cecchetto et al. 2015)

(39) a. GIANNI BEAN EAT FUT. PIERO SAME.
b. GIANNI BEAN EAT FUT. PIERO FUT SAME.
'Gianni will eat beans and Piero will too.' (LIS, Cecchetto et al. 2015)

Our syntactic analysis will remain neutral among these two possibilities, as they do not include in the elided clause an inflectional element that would decide in favor of VP-ellipsis; for this reason, we use the term "predicate ellipsis" to refer to our constructions. Still, our examples (which usually involve predicate ellipsis with *NOT*) are particularly similar to those that were used in Schlenker (2014) to show that some height specifications of loci could be disregarded under ellipsis, and thus we will be in a good position to argue that there are indeed strong similarities between the two phenomena.

Following the literature (including Schlenker 2014 and Cecchetto et al. 2015), we will assume that in predicate ellipsis, (i) the missing constituent is recovered by copying a constituent of the antecedent, but that (ii) under conditions to be determined, certain elements of that antecedent can be disregarded in the process. An English example (already introduced in (12)) is provided in (40a), analyzed as in (40b): the second clause *John did too* is missing its VP, which is obtained by copying the VP of the first clause (in (40b) the covert copied element is in small font). But in the process, the gender features of *her* can be ignored, which we write as ~~*her*~~$_i$. This is why a bound reading can be obtained in the elided clause (it differs in this respect from the unelided clause in (40c)).

(40) In my study group,
a. Mary did **her** homework, and John did too.
=> available bound variable reading in the second clause
b. Mary λi t_i did **her**$_i$ homework, and John λi t_i did [do ~~**her**~~$_i$ homework] too.

[27] For other types of ellipsis in ASL, see for instance Koulidobrova (2017) and Koulidobrova and Zidani-Eroglu (2018).

c. Mary did her homework, and John did her homework too.
=> no bound variable reading reading in the second clause
(Schlenker 2014)

A related analysis can be provided for the ASL examples in (10), the crucial parts of which are repeated in (41). The missing predicate of (41a) is copied from the antecedent, as is represented in the Logical Form in (41b). But in the process the high locus specifications of the object reflexive *SELF-a ~~upper_part~~* can be disregarded, giving rise to a bound reading (here too, the covert copied element is in small font, and *SELF-a ~~upper_part~~* indicates that the high locus specification is disregarded). An overt repetition of the predicate, as in the sentence in (41c), does not make it possible to disregard the high locus specifications, resulting in deviance.

(41) a. … IX-a_upper_part LIKE **SELF-a_upper_part**. IX-b_lower_part NOT.
'The tall one liked himself. The short one didn't (like himself).'
b. LF of a.:
… IX-a_upper_part LIKE **SELF-a_upper_part**. IX-b_lower_part NOT [LIKE SELF-b_~~upper_part~~].
c. … *IX-a_upper_part LIKE **SELF-a_upper_part**. IX-b_lower_part NOT LIKE SELF-b_upper_part.
[intended:] 'The tall one liked himself. The short one didn't like himself.'
(ASL, 17, 178; Schlenker 2014)

The key will be to determine under what conditions some locative specifications can be disregarded when a locative-shifted locus is copied under ellipsis resolution, and what this shows about these elements. A full account would require (i) a deeper understanding of the syntax of the relevant constructions, and (ii) an investigation of further ellipsis-related constructions – two issues we leave for future research.

4.1.2 Why can some elements be disregarded under ellipsis?

As noted, Schlenker (2014) concluded that (strongly iconic) height specifications of bound loci share the behavior of *phi*-features in being selectively ignored in the course of ellipsis resolution and under *only*. Still, this need not show that height specifications are features: as Schlenker (2014) noted, it might be that a broader class of elements displays this behavior, rather than just featural ones. In addition, in case only featural elements can be ignored under ellipsis and *only*, this may be syntactically constrained, or unconstrained; one prominent view is that only features that can be taken to be inherited under binding by an antecedent with the same features can be disregarded under ellipsis.

The debate is summarized in (42) (and follows Schlenker 2014; 2016).

(42) **Syntactically Constrained vs. Syntactically Unconstrained views**
(i) Syntactically Constrained: it is only features that can be taken to be inherited under binding by an antecedent with the same fatures can be disregarded under ellipsis and *only*.
(ii) Syntactically Unconstrained: some elements can be disgarded under ellipsis and *only* regardless of whether they can be taken to be inherited under binding by an antecedent with the same features.
a. *Strong View:* Only features can be disregarded.
b. *Weak View:* Featural and non-featural elements can be disregarded.

An example of a Syntactically Constrained view is sketched in (43) (Schlenker 2016), within a theory in which features can be disregarded under ellipsis and *only* because they may be inherited by way of morpho-syntactic agreement. In this case, a feature *F* on a pronoun *pro* can remain uninterpreted if *pro* is bound by an element with feature *F* – henceforth "deletion under agreement" (see Heim 1991; 2008; Schlenker 1999; 2003; von Stechow 2004; Kratzer 2009). The mechanism is illustrated in (44), where the gender/person features ~~*her*~~$_i$ and ~~*my*~~$_i$ remain uninterpreted. But it must be borne in mind that this is just one example of a family of diverse analyses that take the "disappearing act" of some specifications under ellipsis and related constructions to be restricted to featural elements.

(43) a. Optionally delete the feature *F* of a variable v^F if (i) v^F appears next to a λ-abstractor λv^F, and the appearance of λv^F is triggered by an expression with feature *F*, or (ii) v^F is bound by λv^F.
b. λ-abstractors inherit the features of the expressions that trigger their appearance.

(44) In my study group,
a. only Mary did her homework (... therefore John didn't do his).
a'. only Mary λi^{fem} t_i did ~~her~~$_i$ homework
b. only I did my homework (... therefore others didn't do theirs).
b'. only I λi^{1st} t_i^{1st} did ~~my~~$_i$ homework

By contrast, a Syntactically Unconstrained view is stated in (45), according to which redundant elements can be disregarded under ellipsis, whether or not they can be taken to be inherited under binding. This view comes in two versions depending on whether all redundant elements can be ignored, or only features can be.

(45) **Liberal Erasure (informal version)**
If within its local context a complex expression *E* has the same denotation
a. Strong version: as a structurally simpler expression *E' obtained by only deleting features from E*,
b. Weak version: as a a structurally simpler expression *E'*,
then *E* can be replaced with *E'* for purposes of ellipsis resolution and alternative computation. (refined from Schlenker 2014)

To illustrate (following Schlenker 2016), a pronoun *[pro$_i$ fem]* with feminine gender features will fall under (45) if the contribution of *fem* is purely presuppositional, with for instance $[[\text{fem}]]^{c,s,w} = \lambda x$: x is female in c_w . x (i.e. *fem* triggers a presupposition failure unless its individual argument is female in the word of the context; and when it does not trigger a failure, it leaves the value of its argument unchanged). In this case, if the entire pronoun can be used felicitously, the denotation of *pro$_i$* must be female, and hence the contribution of *fem* is redundant. As a result, for purposes of ellipsis resolution and alternative computation, *[pro$_i$ fem]* can be replaced with *pro$_i$*. On the Weak but not on the Strong version, the same rule will also apply to non-featural material. Thus if we are in a context in which it is known that there are exactly four French swimmers, the denotation of *the four French swimmers* is identical to that of *the French swimmers*, and the latter expression can replace the former for purposes of ellipsis resolution and alternative computation.

We will establish that the locative specifications of some individual-denoting loci may be ignored under ellipsis (and the focus-sensitive particle *ONLY*) *when they can be taken*

to be inherited under binding. We will not be able to exclude the more liberal view under which they can be ignored in all circumstances. We will then display a striking phenomenon in which ellipsis can yield readings that are impossible with overt material. The reason is this: as we saw at the outset, indexical pronouns cannot undergo Locative Shift. But for our ASL consultant, bound loci under ellipsis can give rise to locative-shifted readings *even* when the elided clause is under an indexical pronoun. In other words, it appears that overt Locative Shift cannot target indexical pronouns, but that *covert* Locative Shift (under predicate ellipsis) is not so constrained.

One final remark will be useful below. Kuhn (2015) and Schlenker (2016) discuss further cases in which normal loci (situated on the horizontal plane), rather than just locus specifications, can be disregarded under ellipsis. For Kuhn (2015), this behavior arose because loci are not variables, but features; for Schlenker (2016), it arose because loci are variables that sometimes display a featural behavior. We do not review these cases here because our focus is on examples in which locus *specifications* rather than loci themselves must be ignored; but we will sometimes need to appeal to the version developed Schlenker (2016) in what follows (adopting Kuhn's view would require integrating iconic specifications in his analysis of loci as features, a non-trivial endeavor; see fn. 26).

4.2 Locative specifications of individual-denoting loci can be ignored under binding

The acceptability of (46b) contrasts with the deviance of (46d) and suggests that the locative specifications of the locative-shifted locus *c* can be disregarded under ellipsis.

(46) JOHN$_{(b)}$[28] OWN APARTMENT [FRENCH CITY]$_a$ SAME OWN APARTMENT [AMERICAN CITY]$_c$.
'John owns an apartment in a French city and he also owns an apartment in an American city.
a. [6.7] THERE-c POSS-b APARTMENT NICE. THERE-a NOT.
There [= in the American city] his apartment his nice. There [in the French city] it's not.'
b. [7] THERE-c POSS-c APARTMENT NICE. THERE-a NOT.
There [= in the American city] his apartment his nice. There [in the French city] it's not.'
c. [6] THERE-c POSS-b APARTMENT NICE. THERE-a POSS-b APARTMENT NOT NICE.
There [= in the American city] his apartment his nice. There [in the French city] his apartment is not nice.'
d. [4.3] THERE-c POSS-c APARTMENT NICE. THERE-a POSS-c APARTMENT NOT NICE. (Judgments 6, 4, 3)
(ASL, 27, 65; 3 judgments)

This observation does not decide between the views sketched in (42). On a Syntactically Constrained view, we could take the locative-shifted locus to be made of two parts, one of them denoting *JOHN*, and the other bound by *THERE* with locus *c*. On this view, the first sentence of (46b), repeated as (47a), could conceivably be given the analysis in (47b), by analogy with the treatment of bound first person pronouns in (44). However this analysis must be combined with the hypothesis (argued for in Schlenker 2016) that loci can sometimes be inherited in the same way as features, and can remain uninterpreted in the same configurations.

[28] *JOHN* is signed in a neutral position, and thus it might be better to transcribe this as *JOHN* (without a locus) rather than as *JOHN*$_b$ (where locus *b* is in a central position). We use the notation *(b)* to make it clear that the later pointing signs indexing *b* correspond to *JOHN*. This remark also applies to (48) and (49).

(47) a. THERE-c POSS-c APARTMENT NICE.
b. THERE-c λi$^{\epsilon}$ POSS-b$^{i^{\epsilon}}$ APARTMENT NICE.

In (47b), *b* denotes John, *c* denotes the relevant American city, and in addition *c* appears (by agreement, but without being interpreted) on the variable introduced by the λ-operator, hence the struck-through ϵ in: λi^{ϵ} … $b^{i^{\epsilon}}$. Finally, $b^{i^{\epsilon}}$ is spelled out as *c*, and if *i* denotes a city, $b^{i^{\epsilon}}$ denotes a locative stage of John in that city. Of course the acceptability of (46c) and unacceptability of (46d) is expected: in the former case, *POSS-b* just indexes the locus for *JOHN;* in the latter case, the last clause has a semantic mismatch between *POSS-c APARTMENT* (meaning: John's apartment in the American city) and *THERE-a* (meaning: in the French city), and since no ellipsis is involved, no specifications can be disregarded, and a near-contradiction arises.

These observations extend to locative deletion under *ONLY*, as is seen in (48).

(48) JOHN$_{(b)}$ OWN APARTMENT [FRENCH CITY]$_a$ SAME OWN APARTMENT [AMERICAN CITY]$_c$.
'John owns an apartment in a French city and he also owns an apartment in an American city.
a. [6.7] ONLY THERE-c POSS-b APARTMENT NICE.
Only there [= in the American city] is his apartment nice.'
b. [7] ONLY THERE-c POSS-c APARTMENT NICE.
Only there [= in the American city] is his apartment nice.'
(ASL, 27, 64; 3 judgments)

4.3 Can locative specifications be ignored without restriction?

We cannot exclude that, for our ASL consultant, locative specifications can be ignored under ellipsis in a rather unrestricted fashion. Consider the following paradigm:

(49) JOHN$_{(b)}$ OWN APARTMENT (IN)[29] [FRENCH CITY]$_a$ SAME OWN APARTMENT [AMERICAN CITY]$_c$. BEFORE IX-b LIKE POSS-c APARTMENT.
'John owns an apartment in a French city, and he also owns an apartment in an American city. Before, he liked his American apartment.
a. [6.2] NOW **IX-b** NOT.
=> now he doesn't like his American apartment (4/4 judgments)
Now he doesn't (like his American apartment).'
b. [5.2] NOW **IX-a NOT**.
=> now he doesn't like his French apartment (3/4 judgments) or: his American apartment (4/4 judgments)
'Now [while in France] he doesn't (like his French/American apartment).'
c. [5.7] NOW **THERE-a** NOT.
=> now he doesn't like his French apartment (4/4 judgments) or: his American apartment (2 or 3/4 judgments)[30]
'Now, while in France, he doesn't (like his French/American apartment).'
(ASL, 28, 03 (see also 28, 07d); 4 judgments)

[29] *IN* appeared in c. but not in a. and b.
[30] We write *2 or 3* because in one judgment the consultant just wrote in the Supplementary Materials ([JL 14.10.14]): "he doesn't like his apartment, likely the French apartment". This implicates but doesn't state that there is an alternative possibility; depending on how one counts this other possibility, we get a total of 2 of 3 judgments for the "American apartment" interpretation.

In (49a), we obtain a strict reading relative to the locus specification, which is unsurprising given that the second sentence doesn't mention another locative specification. (49b), which is only provided for completeness, is complicated to analyze: ***IX-a*** may be understood as a locative pronoun referring to the French city, or as a locative-shifted individual pronoun referring to John (or rather, to John-in-the-French-city).[31] The sentence of interest is (49c), which is degraded but yields two readings. On one reading, John doesn't like his American apartment. This is expected if the locative features of the possessive *POSS-c* present in the antecedent VP are preserved, since *c* is associated with the American city. But we also obtain a kind of bound variable reading (relative to the locative specification) on which John doesn't like his *French* apartment. Now in the antecedent sentence, the subject is the pronoun *IX-b*. It indexes the neutral locus associated with *JOHN,* which does not come with any locative specification. Thus we cannot argue that the locative features of the possessive are somehow inherited by agreement under binding. The only way to explain their disappearance under ellipsis is to allow for a very liberal process of locative deletion under ellipsis. Still, the fact that (49c) is somewhat degraded might suggest that this mechanism is costly.[32]

Since the further data we have are both complex and somewhat preliminary, they are discussed in the Appendix II.

4.4 Locative specifications of individual-denoting loci can be preserved under ellipsis

Standard theories of ellipsis resolution certainly don't *force* features to be deleted under ellipsis (unless other requirements come into play). The features that appear on the bound variable may trigger a semantic failure, but if they don't, they won't affect the interpretation because the value of the bound variable is fully determined by the binding process. Interestingly, things are different with Locative Shift, since it makes it possible to refer to a situation stage of an individual. In such cases, it can be crucial that locative specifications are preserved under ellipsis. This process was illustrated in the elided part of (27a) above: the elided clause *IX-b NOT ~~SEE SELF-top~~* gave rise to a reading on which the subject-denotation Peter didn't see himself *being at the top*. Several other examples that lead to the same conclusion are discussed in Appendix II.

The same pattern is found in (50), which behaves roughly like the overt control in (51). While one could think that *LOOK* and *FILM* are interpreted with location-denoting pronouns (meaning 'look there', 'film there'), the bound variable interpretation makes this a bit unlikely. More importantly, the second person example in (52) entirely lacks this reading: the last sentence means that the addressee didn't want the signer to watch and film the first gymnast in specific positions. This is expected if (50) and (51) involve Locative Shift, which cannot target indexical pronouns, as we saw in Section 3.2. On the other hand, if the objects of *LOOK* and *FILM* are interpreted as 'there' (i.e. 'look there', 'film there'), it is mysterious why the mechanism of pragmatic strengthening that gives the illusion of a bound variable reading in the third person case is inapplicable in the second person case.

[31] This ambiguity is explicitly noted by our consultant in the Supplementary Materials. He writes in the session [JL 14.09.25] (our emphasis): "**(a)** IX-B is clear – John neutral. **(b) is somewhat vague – IX-A could refer to John (being in France) or "there"**. (c) THERE-A is clear – John being in France."

[32] In 3/4 judgments, our consultant noted that (49b, c) both imply that John is currently in France. But in 1/4 judgment ([JL 14.09.21] in the Supplementary Materials), he noted: "c. likely means John is currently in France, while b. does not really say that". We do not know why this is: we would expect *IX-a* to trigger the inference that John is currently in France.

(50) REMEMBER? TWO-YEAR-AGO GYMNASTICS COMPETITION. BAR SELF BAR-TILT-CL_/.
'Remember? Two years ago there was a gymnastics competition. The bar was tilted.

REMEMBER TWO GYMNAST MUST STAND MOVE-CL-rep JUMP-CL-rep HANG-CL-rep.
Remember - two gymnasts had to stand on the bar, move on it, jump on it, and perform rotations.

|: SO BAR-TILT-CL_/.
So with the bar tilted,

ONE GYMNAST IX-a WANT IX-1 LOOK-… FINISH FILM IX-…. OTHER GYMNAST IX-c NOT.

	LOOK-…	IX-…
a. 5.7	R-high	L-high

__ = one gymnast wanted me to watch him (standing) on the right and then film him standing on the left. The other gymnast didn't (want me to do the same with him).'

b. 6.7	R-high	L-low

__ = one gymnast wanted me to watch him (standing) on the right and then film him hanging on the left. The other gymnast didn't (want me to do the same with him).'

c. 6	R-low	L-high

__ = one gymnast wanted me to watch him hanging on the right and then film him standing on the left. The other gymnast didn't (want me to do the same with him).'

d. 6.7	R-low	L-low

__ = one gymnast wanted me to watch him hanging on the right and then film him hanging on the left. The other gymnast didn't (want me to do the same with him).'
(ASL, 29, 33; 3 judgments. See the Supplementary Materials for interpretive subtleties.)

(51) Same as (50), except for the last sentence.
…OTHER GYMNAST IX-c NOT-WANT[33] IX-1 LOOK-… FINISH FILM IX-… .

	LOOK-…	IX-… (with the same specifications in the penultimate and in the last sentence)
a. 6.3	R-high	L-high

__ = one gymnast wanted me to watch him (standing) on the right and then film him standing on the left. The other gymnast didn't want me to watch him (standing) on the right and then film him standing on the left.'

b. 6.3	R-high	L-low

[33] As our consultant noted when checking the transcriptions, there was a production error in a.: an addition negation was produced, hence *NOT NOT-WANT*. Apparently, this didn't affect the judgments.

__ = one gymnast wanted me to watch him (standing) on the right and then film him hanging on the left. The other gymnast didn't want me to watch him (standing) on the right and then film him hanging on the left.'

c. [6.3] R-low L-high
__ = one gymnast wanted me to watch him hanging on the right and then film him standing on the left. The other gymnast didn't want me to watch him hanging on the right and then film him standing on the left.'

d. [6.3] R-low L-low
__ = one gymnast wanted me to watch him hanging on the right and then film him hanging on the left. The other gymnast didn't want me to watch him hanging on the right and then film him hanging on the left.'
(ASL, 29, 34; 3 judgments. See the Supplementary Materials for interpretive subtleties.)

(52) REMEMBER? TWO-YEAR-AGO GYMNASTICS COMPETITION. BAR SELF BAR-TILT-CL_/.
'Remember? Two years ago there was a gymnastics competition. The bar was tilted.

REMEMBER THE-TWO-2,a MUST STAND MOVE-CL-rep JUMP-CL-rep HANG-CL-rep.

Remember – the two of you had to stand on the bar, move on it, jump on it and perform rotations.

|: SO BAR-TILT-CL.
So with the bar tilted,

IX-a WANT IX-1 LOOK-… FINISH FILM IX-…. IX-2 NOT-WANT IX-1 LOOK-… FINISH FILM IX-….

LOOK-… IX-… (with the same specifications in the penultimate and in the last sentence)
a. [6] R-high L-high
he wanted me to watch him (standing) on the right and then film him standing on the left. You didn't want me to watch him (standing) on the right and then film him standing on the left.'

b. [6] R-high L-low
he wanted me to watch him standing on the right and then film him hanging on the left. You didn't want me to watch him standing on the right and then film him hanging on the left.'

c. [6] R-low L-high
he wanted me to watch him hanging on the right and then film him standing on the left. You didn't want me to watch him hanging on the right and then film him standing on the left.'

d. [6] R-low L-low
he wanted me to watch him hanging on the right and then film him hanging on the left. You didn't want me to to watch him hanging on the right and then film him hanging on the left.'
(ASL, 29, 32; 3 judgments. See the Supplementary Materials for interpretive subtleties.)

4.5 Locative specifications of individual-denoting loci can yield new readings under ellipsis

4.5.1 Data

We turn to cases that are similar to those of the preceding section, except that the elided clause has a first person subject. Remarkably, this gives rise to readings that cannot be obtained with an overt counterpart of the elided clause. The reason is that, as we saw in the preceding section, the elided clause can preserve locative specifications of the antecedent. This leads to cases in which an elided second person subject binds an elided object pronoun *with locative specifications*, despite the fact that overt second person pronouns do not normally undergo Locative Shift, as we saw in Section 3.2 (and again in example (52)).

Let us modify (27) by replacing the third person elided clause *IX-a NOT* with a first person version, *IX-1 NOT*, as in (53). Unsurprisingly, the overt control in (53b), with an attempt to locative-shift a first person locus, is sharply deviant. But strikingly, the target sentence with ellipsis in (53a) yields precisely the reading that one would expect *if* the elided first person reflexive pronoun underwent Locative Shift. In other words, ellipsis yields a reading that cannot be obtained without it.

(53) JOHN$_a$ THE-TWO-a,1 RECENT VISIT PISA FAMOUS BUILDING LEANING-//.
'John and I recently visited Pisa's famous Leaning Tower.

THE-TWO-a,1 WALK LONG TOP.
We took a while to walk to the top.

|: IX-1 PHOTO-rep [wavy line along //], FINISH I took pictures, and afterwards

a. [6.2] IX-a **SEE SELF-top**, IX-1 NOT.
John saw himself being high up, I didn't.'
=> the speaker didn't see himself being high up in the tower (4/4 judgments)
[and likely anywhere in the tower (2/4 judgments)][34]
b. [2.2] IX-a SEE SELF-top, IX-1 NOT SEE SELF-top.
c. [7] IX-a SEE SELF-a, IX-1 NOT.
John saw himself, I didn't.'
=> the speaker didn't see himself (4/4 judgments)
d. [7] IX-a SEE SELF-a, IX-1 NOT SEE SELF-1.
John saw himself, I didn't see myself.'
=> the speaker didn't see himself (4/4 judgments)
(ASL, 20, 80; 4 judgments)

It can be further ascertained that the reading with second person and locative specifications under ellipsis is probably not due to a process of pragmatic enrichment, as the meaning of (54a) (= locative specifications preserved) is very different from that obtained in (54c) (= overt first person reflexive with no locative specifications). One can further check that the attempt to locative-shift the first person reflexive pronoun in (54b) is sharply deviant (the third person case with a difference in locative specification between the subject and the reflexive is degraded, but far less so).

[34] As seen in the Supplementary Materials, even in the two cases in which (in (53a)) the inference was that the speaker didn't himself being high up, *and likely anywhere in the tower*, the second part of the inference was clearly distinguished from the first. By contrast, in (53c) the inference was that the speaker didn't see himself.

(54) JOHN$_a$ IX-2 IX-1 **THE-THREE-a,1,2** RECENT VISIT PISA FAMOUS BUILDING LEANING-//.
'John, you and I recently visited Pisa's famous Leaning Tower.

THE-THREE-a,1,2 WALK LONG TOP. **IX-2** PHOTO-rep [wavy line along //], FINISH
We walked to the top. You took pictures, and afterwards

a. [5.2] IX-a SEE SELF-top, IX-1 NOT. (Judgments: 6, 5, 4, 6)
John saw himself being high up, I didn't.'

b. [2.2] IX-a SEE SELF-top, IX-1 NOT SEE SELF-top. (Judgments: 3, 2, 2, 2)

c. [5.7] IX-a SEE SELF-top, IX-1 NOT SEE SELF-1. (Judgments: 7, 5, 5, 6)
John saw himself being high up, I didn't myself.'

d. [7] IX-a SEE SELF-a, IX-1 NOT. (Judgments: 7, 7, 7, 7)
John saw himself, I didn't [= see myself].'
(ASL, 34, 2726; 4 judgments)

Let us now consider (55), which just involves an elided version of the example discussed in (52). In (52), just as in (53b), Locative Shift could not be applied to an overt second person locus: when the sentences were acceptable, this was on a strict reading on which the elided VP makes reference to the gymnast mentioned in the first sentence. By contrast, the examples with ellipsis in (55) yield exactly the reading that one would expect *if* the addressee-denoting pronouns in the elided VP underwent Locative Shift on a bound reading.[35] In addition, the semantic contrast obtained in (56) suggests that it is genuinely the presence of some locative specifications rather than a pragmatic process of enrichment that is responsible for the spatial inferences obtained.

(55) REMEMBER? TWO-YEAR-AGO GYMNASTICS COMPETITION. BAR SELF CL-TILT-/.
'Remember? Two years ago there was a gymnastics competition. The bar was tilted.

REMEMBER THE-TWO-2,A MUST STAND MOVE-CL-rep JUMP-CL-rep HANG-CL-rep.
Remember – you and he had to stand on the bar, move on it, jump on it and perform rotations.

|: SO BAR-TILT-CL-/
So with the bar tilted,

IX-a WANT IX-1 LOOK-… FINISH FILM IX-…. IX-2 NOT.

	LOOK-…	IX-…
a. [6]	R-high	L-high

he wanted me to watch him (standing) on the right side and then film him standing on the left side. You didn't (want me to do the same with you (3/3 judgments)/ with him (1/3 judgment))'.

[35] Some details of the video make some standing vs. hanging contrasts unclear. As our consultant noted, in this video the right side of the bar is too high to allow for 'standing'-related contrasts (see Supplementary Materials, [JL 14.10.15]).

b. [6.3] R-high L-low
he wanted me to watch him (standing) on the right side and then film him hanging on the left side. You didn't (want me to do the same with you (3/3 judgments)/with him (1/3 judgment))'.

c. [6] R-low L-high
he wanted me to watch him hanging on the right side and then film him standing on the left side. You didn't (want me to do the same with you (3/3 judgments)/with him (1/3 judgment))'.

d. [6.3] R-low L-low
he wanted me to watch him hanging on the right side and then film him hanging on the left side. You didn't (want me to do the same with you (3/3 judgments)/with him (1/3 judgment))'.
(ASL, 29, 31; 3 judgments)

(56) REMEMBER? TWO-YEAR-AGO GYMNASTICS COMPETITION. BAR SELF CL-TILT-/.
'Remember? Two years ago there was a gymnastics competition. The bar was tilted.

REMEMBER THE-TWO-2,A MUST STAND CL- MOVE-CL-rep JUMP-CL-rep HANG-CL-rep.
Remember – you and he had to stand on the bar, move on it, jump on it and perform rotations.

SO BAR-TILT-CL-/
So with the bar tilted,

IX-a WANT IX-1 LOOK-**R-low** FINISH FILM **IX-L-high**.
he wanted me to watch him while he was [hanging] on the on the right (= high) end of the bar, and then film him while he was [standing] on the left (= lower) part of the bar.

a. [6.7] IX-2 NOT.
you didn't (want me to watch you while you were [hanging] on the on the right (= high) end of the bar, and then film you while you were [standing] on the left (= lower) part of the bar.'

b. [7] IX-2 NOT WANT IX-1 LOOK-2 FINISH FILM IX-2.
you didn't want me to watch you and then film you.'
(ASL, 34, 2734; 3 judgments. See the Supplementary Materials for detailed inferences.)

4.5.2 Possible analysis

While the phenomenon is complex, we believe we can posit the tentative generalization in (57).

(57) **Generalization**
a. Overt indexical loci cannot undergo Locative Shift.
b. Covert loci bound by indexical loci can undergo Locative Shift.

One simple way to derive this generalization is to build on the fact that under VP-ellipsis, bound pronouns of the antecedent VP can be copied without their indexical features.

Thus if the constraint against locative-shifted indexical pronouns pertains to a formal incompatibility between indexical and locative specifications (for instance because indexical elements already come with a locative specification, or because indexical and locative specifications compete for the same morpho-syntactic slot), the generalization need not be surprising.[36] On this view, then, the final clauses in (53a, b, c, d) could receive the analyses in (58a, b, c, d) respectively, where as before barred elements are elided.

(58) a. IX-1 NOT SEE ~~SELF-top~~.
b. *IX-1 NOT SEE SELF-top.
c. IX-1 NOT ~~SEE SELF~~.
d. IX-1 NOT SEE SELF-1.
e. *IX-1 NOT SEE SELF-1-top.

In (53a)/(58a), the elided VP includes the reflexive pronoun ~~*SELF-top*~~, devoid of person features (because the antecedent reflexive can be copied without its person features, inherited through agreement). ~~*SELF-top*~~ does carry locative specifications, but these do not co-occur with indexical specifications and thus nothing goes wrong. An overt version of the same structure is deviant, as in (53b)/(58b). The problem is that an unelided pronoun must agree in indexical features with the subject first person pronoun, which is not the case here. No problem arises with the covert structure in (53c)/(58c): the reflexive pronoun ~~*SELF*~~ is devoid of indexical and of locative features; the interpretation is consistent with the absence of locative specifications. The overt structure in (53d)/(58d) is equally unproblematic, as the indexical reflexive pronoun does not carry locative specifications. By contrast, using an overt structure such as (58e) would go against the prohibition against the co-occurrence of locative and indexical specifications.

An alternative (sketched in Schlenker 2011a) is to go back to the rule we posited in (21), which requires that a deictic locus should roughly correspond to the position of its real world denotation (which by assumption is present in the extra-linguistic context). This rule had the benefit of explaining why deictic pronouns cannot undergo Locative Shift (although it does not explain why the facts are less sharp for third person deictic pronouns than for first and second person pronouns). Now one could stipulate that this rule solely applies to *overt* loci. This might make some sense because the rule makes crucial reference to the alignment of the locus relative to the speaker and its denotation: this notion of "alignment" in space makes little sense for covert elements, which might explain why the rule doesn't apply to elided pronouns. As things stand, more work is needed to decide among possible explanations of the generalization in (57).

4.6 Theoretical conclusions

We conclude that, within our ASL data, some aspects of the behavior of locative specifications are clear, and others are not.

1. It is clear that locative-shifted loci can be bound, including by elements that do not have the same locative specifications.
2. The application of Locative Shift may affect meaning. This happens when a locative-shifted locus is dependent on a non-locative-shifted antecedent that is not interpreted with the same locative specification (be it for semantic or pragmatic reasons).

[36] Importantly, however, we should not state that all bound variables are exempt from prohibition against locative-shifted indexical loci. This would incorrectly predict that the overt sentence in (53b) should be acceptable, since the locative-shifted reflexive in the second sentence certainly can certainly be bound by the first person subject.

3. This semantic contribution sometimes appears to be at-issue, although it is too early to tell whether this is so because of the semantics, or because of a pragmatic process of accommodation (e.g. presupposition accommodation).
4. Under ellipsis, locative specifications may be preserved, in which case they may affect interpretation. This is because the binder of a locative-shifted locus may determine which individual it denotes, while the locative specification may determine where this individual is located.
5. There are also cases in which locative specifications are disregarded under ellipsis. In particular, a locative specification may be disregarded under binding by an individual or spatial expression with the same locative specification.
6. Overt indexical pronouns cannot usually undergo Locative Shift. There is suggestive evidence that elided indexical pronouns are not so constrained. It may be because they are devoid of indexical features, or because the prohibition against locative-shifted indexical pronouns is limited to overt elements.
7. There might also be cases in which locative specifications are disregarded under ellipsis although their binder does not carry the same locative specifications. It is too early to tell whether this argues for a very liberal system of erasure (along the lines of (45)), or whether the binder should in such cases be taken to carry covert versions of the relevant specifications (as was advocated in some cases in Schlenker 2014).

5 Locative Shift in gestures?

We will now suggest that some properties of Locative Shift in ASL might be replicated with some uncommon varieties of speech-accompanying gestures in spoken language.[37] While our discussion is explicitly exploratory, this research direction should serve two purposes.[38]

First, from a theoretical and typological perspective, sign language with iconicity should be compared to speech-plus-gestures rather than to speech alone, as intimated by Goldin-Meadow and Brentari (2017). It is thus essential to understand whether Locative Shift can be replicated in spoken language, in particular with gestures.

Second, the gestures we will consider are probably quite rare – although this point would have to be established rigorously. If so, they make it possible to test grammatical/semantic knowledge that speakers have with very little direct evidence for. In case the judgments we discuss are robust, they might conceivably derive from general properties of Universal Grammar and/or iconic representations, which might explain why Locative Shift is found in several sign languages. While our discussion is preliminary, we hope it will pave the way for more systematic (and possibility experimental) investigations in the future.

5.1 Loci in pro-speech gestures

Schlenker and Chemla (2018) argue that a (possibly simplified) version of the locus system of sign language exists with pro-speech gestures. Their study focuses on gestural verbs with object agreement, as illustrated in (59). They note that a gesture with the meaning of *shooting* can be realized in different ways depending on whether it targets the speaker

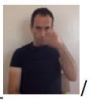
[37] The results of this section are also discussed with more recent data in Schlenker (2018b).

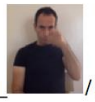
[38] Unless otherwise noted, gestural data reflect the judgments of two linguists that were consulted; they are native speakers of American English and are not signers. Some related French data were assessed by French-speaking linguists but are not reported here.

(glossed as *SHOOT-1*), the addressee (glossed as *SHOOT-2*), or a third person (*SHOOT-a*).[39] The distinction between speaker-, addressee- and third person-denoting loci mirrors one that is found in sign language. Importantly, deviance is obtained when *SHOOT* targets a third person locus to refer to the addressee; this result was confirmed (for different gestural verbs) on the basis of experimental data. (A complicating factor is that the second person form *SHOOT-2* also plays the role of a neutral form, unmarked for person; this is why it is glossed as *SHOOT(–2)*.)

(59) **Gestural examples from Schlenker and Chemla (2018)**

a. I am going to SHOOT-1_  .
"I am going to shoot myself."

b. You, I am going to SHOOT(-2)_  / ?? SHOOT-a_  .
"I am going to shoot you."

c. John, I am going to SHOOT(-2)_  / SHOOT-a_  .
"I am going to shoot John."

5.2 Multiple loci and Locative Shift in gestures

While Schlenker and Chemla (2018) concentrate on cases in which at most one third person locus appears, we will need to consider examples with further loci, some individual-denoting and some location-denoting. We will introduce these loci by way of co-speech gestures, and retrieve them by way of pro-speech gestures, our main target. It is of course noteworthy that besides performance limitations, there does not seem to be an upper limit on the number of loci that can be introduced in this way – which makes spoken language gestures far closer to sign language than is usually thought.

Our initial paradigm is illustrated in (60).

Notation: IX-i refers to a pointing finger towards locus i, *IX-hand-i* to a pointing hand towards i. Pro-speech pointing is represented in normal capital letters. Co-speech pointing is represented in superscripts on the spoken expression it co-occurs with (as in *John*$^{IX\text{-}hand\text{-}a}$).

(60) Since John$^{IX\text{-}hand\text{-}a}$ can't seem to work with you$^{IX\text{-}hand\text{-}2}$, I'll have him transferred to New York$^{IX\text{-}hand\text{-}c}$. And if later I need to downsize, you know who I'll fire?
a. IX-2.
[= you]
b. IX-a.
[intended: John]
c. IX-c.
[= John]

John is associated with locus *a*, the addressee with locus *2*, and *New York* with locus c. Our understanding of the data is as follows:

[39] Several gestural verbs with object agreement involve violent and objectionable actions. They are included in scientific discussions because few gestural verbs have been studied in detail so far, and thus it would be unwise to reduce the database.

– (60a) refers to the addressee, and the answer might be pragmatically odd, as one might expect John to be the one fired later (since he is the one being transferred).
– With one exception, (60c) was found to be acceptable: the gestural locus initially associated with New York is re-used to refer to John-in-New York. In fact, (60b) is sometimes found to be degraded to refer to John in that case.[40]

If the discourse is changed so as to *deny* that John will be transferred to New York, the data change and Locative Shift becomes impossible, as seen in (61c).

(61) Since John$^{\text{IX-hand-a}}$ can't seem to work with you$^{\text{IX-hand-2}}$, I'll **won't** him transferred to New York$^{\text{IX-hand-c}}$. And if later I need to downsize, you know who I'll fire?
a. IX-2.
[= you]
b. IX-a.
[= John]
c. *IX-c.
[= intended: John]

If gestural locus c refers, as in sign language, to the situation stage of John-in-New York, this result is unsurprising: there is no such stage to refer to in this case (more precisely, this sentence presumably violates the presuppositional requirements of (36a, b), since there is no situation w' salient in the context such that John is located in New York in w').

We conclude, very tentatively, that (i) multiple individual or locative loci can be used in speech-accompanying or speech-replacing gestures, that (ii) Locative Shift can target third person loci. But it is clear that a more thorough investigation of Locative Shift with gestures should be conducted, both to confirm these tentative findings, and to test the more fine-grained properties that we unearthed in ASL (including the prohibition of Locative Shift as applied to indexical pronouns). Furthermore, the data reported by Schlenker and Chemla (2018) suggest that person and height specifications of gestural verbs can be disregarded under ellipsis, which mirrors sign language data similar to ones that were discussed above. This should make it possible to investigate the behavior of locative specifications of gestural loci under ellipsis.

6 Conclusions and open questions

6.1 Empirical conclusions

We have shown that, for our ASL consultant at least, (i) some individual loci can undergo Locative Shift, that (ii) this can have semantic consequences, and that (iii) shifting can target highly iconic loci, including ones that were not explicitly introduced. We argued that the readings obtained suggest that a locus that underwent Locative Shift denotes a situation stage of an individual, and hence has a more fine-grained semantics than a locus that hasn't undergone Locative Shift. In addition, (iv) shifting seems to be degraded with indexical loci, and possibly with non-indexical deictic loci as well. This can be explained in at least two ways: if indexical and possibly deictic loci are incompatible with a locative specification (for instance because they intrinsically come with one); or if loci established by iconic means (via the extra-linguistic situation) are fixed, possibly because they are non-arbitrary.

[40] Initial judgments were collected informally. A more formal survey with videos produced by a native English speaker was systematically assessed by our two informants and gave rise to conflicting results. On a 7-point scale, with 7 = best, one informant assessed (60a, b, c) as 7, 6 and 7 respectively. The other (= the exception mentioned in the text) assessed them as 7, 7 and 1, suggesting that this informant didn't accept Locative Shift in this case.

We also studied the interaction between Locative Shift and ellipsis, and concluded the following: (v) Locative Shift can target bound variables, including when the antecedent has different or no locative specifications; and (vi) locative specifications may be preserved or ignored under ellipsis. Concerning cases in which locative specifications are preserved under ellipsis, we saw (vii) that these cases may give rise to bound, elided readings in which locative specifications have semantic consequences, and that (viii) this might include covert indexical loci, which seem to admit Locative Shift (unlike overt indexical loci). Concerning cases in which locative specifications are not preserved under ellipsis, (ix) some clear cases might involve agreement between a locative-shifted locus and an antecedent with the same locative specifications; (x) further cases might involve an antecedent that does not display the same locative specifications, but can be interpreted in accordance with them; and (xi) there might even ben cases that argue for a mechanism of liberal 'deletion' of locative features under ellipsis. It goes without saying that these findings should be tested with further consultants, if possible using comparable (i.e. quantitative and easily replicable) methods.

Points (i)-(iv) as well as (ix) were replicated with our LSF consultant, as discussed in Appendix I, although many questions are left open for that language.

We then speculated that Locative Shift might exist in English with pro-speech gestures, although a more thorough investigation should be conducted to confirm our tentative findings, and to determine whether further properties of Locative Shift can be replicated with gestures.

6.2 Theoretical directions

We turn to some theoretical directions for future research.

(i) An initial question concerns the potential difference between earlier cases of high and low loci, which could be iconically modulated (Schlenker et al. 2013; Schlenker 2014), and instances of Locative Shift. It is not clear to us that there is a difference: once it has been established that a locative locus denoting a situation s may also be used to denote a situation stage of individual i, i_at_s, it might be possible to extend this mechanism to cases in which the position of the individual i is identified with the spatial position of his head or of the upper part of his body. For this to be possible, it is essential that Locative Shift can apply even in the absence of an explicitly introduced locative locus; but we saw examples of precisely this in ASL.[41] In a special case, this mechanism could give rise to the appearance of high and low loci discussed in the literature, including ones that are highly iconic (e.g. "high" loci realized very low because the relevant individual is tall but is upside down).[42] Still, this theoretical direction will have to be developed and tested further in future research.

(ii) Another question is how one should think of locative specifications of loci. There are at least three ways to go. First, they could have the same status as *phi*-features; if so, they are expected to give rise to agreement phenomena. Second, they might be non-featural lexical material. Third, they might be thought of as gestures that are incorporated into some grammatical signs.

[41] As noted in Section 3.5.3, in order to handle high and low loci as instances of Locative Shift, we also needed the auxiliary assumption that a situation stage of an individual may be considered as high or low if the upper part of that individual's body is high or low.

[42] Schlenker et al. (2013) argue that high loci are preferably evaluated with respect to the actual context of utterance, rather than with respect to counterfactual worlds. This might be due to the special cases they considered, in which the height of an individual is not thought of as something that changes quickly. Be that as it may, we have not performed similar tests about standard cases of Locative Shift.

The first two possibilities are self-explanatory (the difference between them is that featural but not non-featural elements can be expected to give rise to agreement phenomena). The third possibility was discussed in a different context by Aristodemo (2017) in connection with the adjective *FULL* in Italian Sign Language (LIS). Aristodemo noticed that this adjective is realized with an iconic element that modifies its contribution, yielding a meaning akin to "completely full". She argued that this contribution is comparable to that of some co-speech gestures, e.g. in Italian. In both types of cases, non-trivial patterns of projection were obtained (within the "cosuppositional" analysis of co-speech gestures in Schlenker 2018a). And in both cases, the iconic component could be freely disregarded under ellipsis, a behavior that was argued to hold of co-speech gestures in general in Schlenker (2015b, 2018a). Thus one could in principle propose a similar analysis with a sign-cum-gesture in the case of locative-shifted loci.

The choice will depend on generalizations about ellipsis in general, and about the behavior of locative specifications under ellipsis. In spoken language, it is relatively uncontroversial that (a) co-speech gestures can be ignored under ellipsis (e.g. Schlenker 2015b; 2018c); (b) non-gestural material can only be ignored under restricted conditions – possibly only featural material can be ignored, and possibly only under agreement. If it turns out that locative specifications can be ignored without restriction, we might have an argument for treating them as incorporated gestures. If they can only be ignored under restricted conditions, we might be able to conclude that they display the behavior of grammatical elements, although the details will depend on one's theory of ellipsis, and on the precise behavior of locative specifications under ellipsis.[43]

(iii) On a conceptual level, we have left open what a situation stage of an individual is. As we noted, time- and world-stages of individuals have an old history, and an extension to situation stages might seem natural. But it would be important to clarify what locative stages of individuals could be (beyond the technical notions that allow the semantics to work, and the paraphrases that allow one to think of those as individuals *qua* associated with certain spatial locations).

6.3 Further issues

We leave three important questions for future research.

(i) *Phonetic realization:* We saw that in ASL (and LSF), a locative locus is fully co-opted to realize a locative-shifted individual locus. As a result, the literature describes cases of ambiguity between an individual and a spatial reading, as we saw in (4). But this needn't preclude the possibility that in some cases signers might still phonetically distinguish between a spatial and an individual reading of a locative-shifted locus. Fine-grained phonetic work would be needed to address this issue.

(ii) *Typology:* Locative Shift involves locative/situation marking on an individual-denoting pronoun. Are there similar cases in spoken language? We do not know of

[43] An important cautionary note should be added. Schlenker and Chemla (2018) argue that pro-speech gestural verbs may carry high locus specifications, which may be disregarded under ellipsis just as is the case for their sign language counterparts. If so, saying that these 'high locus' specifications are "gestures" won't help explain their behavior under ellipsis, since the entire expression they modify is itself a gesture (more specifically, a gestural verb).

clear cases, but some might be found in future research.[44] It could also be that more abstract analogues of Locative Shift will be found when one revisits more closely the extant literature on reference to stages of individuals (e.g. Carlson 1977; Paul 1994; Musan 1997).

(iii) *Processing:* Emmorey and Falgier (2004) asked whether locative-shifted pronouns reactivate their nominal antecedent, their locative antecedent, or both. Given the present analysis, one might expect that *both* the nominal and the locative antecedent should be reactivated, but this is not what the authors found: they concluded that ASL pronouns only activate their antecedent noun phrases. We do not know why this is, and leave this question for future research.

Additional Files

The additional files for this article can be found as follows:

- **Appendix I.** Extending the main findings to LSF. DOI: https://doi.org/10.5334/gjgl.561.s1
- **Appendix II.** Can ASL locative specifications be ignored without restriction under ellipsis? DOI: https://doi.org/10.5334/gjgl.561.s2
- **Supplementary.** Supplementary Materials for 'Locative Shift': Raw Data. DOI: https://doi.org/10.5334/gjgl.561.s3

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[44] Two cases should be mentioned. In online discussions, Martina Wiltschko makes reference to a tense marker that appears on nouns in general and pronouns in particular in Upriver Halkomelem, as described by Galloway's Grammar on upriver Halkomelem (Galloway 1993: 383) [see https://linguistlist.org/issues/14/14-1205.html]. Modern Welsh has a possibly temporal/modal distinction on pronouns (King 1993).

Competing Interests

The author has no competing interests to declare.

References

Aristodemo, Valentina. 2017. *Gradable constructions in LIS*. Paris: EHESS Doctoral dissertation.

Carlson, Gregory Norman. 1977. *Reference to Kinds in English*. Amherst, MA: University of Massachusetts.

Cecchetto, Carlo, Alessandra Checchetto, Carlo Geraci, Mirko Santoro & Sandro Zucchi. 2015. The syntax of predicate ellipsis in Italian Sign Language (LIS). *Lingua* 166. 214–234. DOI: https://doi.org/10.1016/j.lingua.2014.12.011

Cinque, Guglielmo. 1996. The pseudo-relative and ACC-ing constructions after verbs of perception. In Guglielmo Cinque (ed.), *Italian syntax and Universal Grammar*, 244–275. Cambridge: Cambridge University Press.

Cooper, Robin. 1983. *Quantification and Syntactic Theory* (Synthese Language Library 21).

Davidson, Kathryn. 2015. Quotation, demonstration, and iconicity. *Linguistics & Philosophy* 38(6). 477–520. DOI: https://doi.org/10.1007/s10988-015-9180-1

Emmorey, Karen. 2002. *Language, cognition, and the brain: Insights from sign language research*. Mahwah, NJ: Erlbaum.

Emmorey, Karen & Brenda Falgier. 2004. Conceptual locations and pronominal reference in American Sign Language. *Journal of Psycholinguistic Research* 33(4). 321–331. DOI: https://doi.org/10.1023/B:JOPR.0000035104.83502.0b

Galloway, Brent D. 1993. *A grammar of Upriver Halkomelem*. (University of California Publications in Linguistics 96). Berkeley, CA: University of California Press.

Goldin-Meadow, Susan & Diane Brentari. 2017. Gesture, sign and language: The coming of age of sign language and gesture studies. *Behavioral and Brain Sciences*, 1–60. DOI: https://doi.org/10.1017/S0140525X15001247, e46

Heim, Irene. 1991. The first person. Class hand-outs, MIT.

Heim, Irene. 2008. Features on bound pronouns. In Daniel Harbour, David Adger & Susana Bejar (eds.), *Phi-theory: Phi-features across modules and interfaces*. Oxford: Oxford University Press.

Heim, Irene & Angelika Kratzer. 1998. *Semantics in generative grammar*. Oxford: Basil Blackwell.

Kegl, Judy. 2004. ASL Syntax: Research in progress and proposed research. *Sign Language & Linguistics* 7(2). Reprint of an MIT manuscript written in 1977.

King, Garet. 1993. *Modern Welsh: A comprehensive grammar*. London: Routledge.

Koulidobrova, Helen. 2017. Elide me bare: Null arguments in American Sign language. *Natural Language & Linguistic Theory* 35(2). 397–446. DOI: https://doi.org/10.1007/s11049-016-9349-5

Koulidobrova, Helen & Leyla Zidani-Eroglu. 2018. What you see is what you get: Sluicing in American Sign Language. Salt Lake City, Poster: LSA Annual Meeting.

Kratzer, Angelika. 2009. Making a pronoun: Fake indexicals as windows into the properties of pronouns. *Linguistic Inquiry* 40(2). 187–237. DOI: https://doi.org/10.1162/ling.2009.40.2.187

Krifka, Manfred. 1990. Four thousand ships passed through the lock: Object-induced measure functions on events. *Linguistics and Philosophy* 13. 487–520. DOI: https://doi.org/10.1007/BF00627291

Kuhn, Jeremy. 2015. ASL loci: Variables or features? *Journal of Semantics* 33(3). 449–491. DOI: https://doi.org/10.1093/jos/ffv005

Ladewig, Silva. 2011. *Syntactic and semantic integration of gestures into speech: Structural, cognitive, and conceptual aspects*. Frankfurt (a.d. Oder): European University Viadrina.
Lewis, David K. 1979. Attitudes De Dicto and De Se. *The Philosophical Review* 88. 513–43. DOI: https://doi.org/10.2307/2184843
Lewis, David K. 1986. *On the plurality of worlds*. Oxford: Blackwell.
Liddell, Scott K. 2003. *Grammar, gesture, and meaning in American Sign Language*. Cambridge: Cambridge University Press. DOI: https://doi.org/10.1017/CBO9780511615054
Lillo-Martin, Diane & Edward S. Klima. 1990. Pointing out differences: ASL pronouns in syntactic theory. In Susan D. Fischer & Patricia Siple (eds.), *Theoretical issues in sign language research (Linguistics)* 1. 191–210. Chicago, IL: The University of Chicago Press.
Matushansky, Ora. 2008. On the linguistic complexity of proper names. *Linguistics and Philosophy* 21. 573–627. DOI: https://doi.org/10.1007/s10988-008-9050-1
Musan, Renate. 1997. *On the temporal interpretation of noun phrases*. New York: Garland, MIT.
Padden, Carol A. 1988. Grammatical theory and signed languages. In Frederick J. Newmeyer (ed.), *Linguistics: The Cambridge survey* 2. 250–266. DOI: https://doi.org/10.1017/CBO9780511621055.014
Paul, Matthias. 1994. Young Mozart and the joking Woody Allen. Proper names, individuals and parts. *Proceedings of SALT 4*, 268–281. DOI: https://doi.org/10.3765/salt.v4i0.2468
Schlenker, Philippe. 1999. *Propositional attitudes and indexicality: A cross-categorial approach*. Cambridge, MA: Massachusetts Institute of Technology.
Schlenker, Philippe. 2003. A plea for monsters. *Linguistics & Philosophy* 26. 29–120. DOI: https://doi.org/10.1023/A:1022225203544
Schlenker, Philippe. 2011a. Iconic agreement. *Theoretical Linguistics* 37(3–4). 223–234. DOI: https://doi.org/10.1515/thli.2011.017
Schlenker, Philippe. 2011b. Donkey anaphora: The view from sign language (ASL and LSF). *Linguistics and Philosophy* 34(4). 341–395. DOI: https://doi.org/10.1007/s10988-011-9098-1
Schlenker, Philippe. 2013. Temporal and modal anaphora in sign language (ASL). *Natural Language and Linguistic Theory* 31(1). 207–234. DOI: https://doi.org/10.1007/s11049-012-9181-5
Schlenker, Philippe. 2014. Iconic features. *Natural Language Semantics* 22(4). 299–356. DOI: https://doi.org/10.1007/s11050-014-9106-4
Schlenker, Philippe. 2015a. Gradient *and* iconic features in ASL (squib). *Snippets* 29. DOI: https://doi.org/10.7358/snip-2015-029-schl
Schlenker, Philippe. 2015b. Gestural presuppositions (squib). *Snippets* 30. DOI: https://doi.org/10.7358/snip-2015-030-schl
Schlenker, Philippe. 2016. Featural variables. *Natural Language and Linguistic Theory* 34(3). 1067–1088. DOI: https://doi.org/10.1007/s11049-015-9323-7
Schlenker, Philippe. 2017a. Super monsters I: Attitude and action role shift in sign language. In *Semantics & Pragmatics* 10. http://semprag.org/article/view/sp.10.9. DOI: https://doi.org/10.3765/sp.10.9
Schlenker, Philippe. 2017b. Super monsters II: Attitude and action role shift in sign language. In *Semantics & Pragmatics* 10. http://semprag.org/article/view/sp.10.12
Schlenker, Philippe. 2017c. Sign Language and the Foundations of Anaphora. *Annual Review of Linguistics* 3. 149–77. DOI: https://doi.org/10.1146/annurev-linguistics-011415-040715

Schlenker, Philippe. 2018a. Gesture projection and cosuppositions. *Linguistics & Philosophy* 41(3). 295–365. DOI: https://doi.org/10.1007/s10988-017-9225-8

Schlenker, Philippe. 2018b. Gestural grammar. Manuscript, Paris (Institut Jean-Nicod) and New York (New York University).

Schlenker, Philippe. 2018c. Iconic pragmatics. *Natural Language & Linguistic Theory* 36(3). 877–936

Schlenker, Philippe. to appear. Visible meaning: Sign language and the foundations of semantics. *Target article to appear in Theoretical Linguistics.*

Schlenker, Philippe & Emmanuel Chemla. 2018. Gestural agreement. *Natural Language & Linguistic Theory* 36(2). 587–625. DOI: https://doi.org/10.1007/s11049-017-9378-8

Schlenker, Philippe, Jonathan Lamberton & Mirko Santoro. 2013. Iconic variables. *Linguistics & Philosophy* 36(2). 91–149. DOI: https://doi.org/10.1007/s10988-013-9129-1

Supalla, Ted & Patricia Clark. 2015. *Sign language archaeology: Understanding the historical roots of American Sign Language*. Washington, DC: Gallaudet University.

van Hoek, Karen. 1992. Conceptual spaces and pronominal reference in American Sign Language. *Nordic Journal of Linguistics* 15. 183–199. DOI: https://doi.org/10.1017/S0332586500002596

von Stechow, Arnim. 2004. Binding by verbs: Tense, person and mood under attitudes. In Horst Lohnstein & Susanne Trissler (eds.), *The syntax and semantics of the left periphery*, 431–488. Berlin; New York: Mouton de Gruyter.

Zucchi, Sandro. 2011. Event descriptions and classifier predicates in sign languages. *Presentation FEAST in Venice*, June 21, 2011.

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