Super Monsters II:

Role Shift, Iconicity and Quotation in Sign Language[*]

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Preliminary Draft, April 25, 2014

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This is Part II of a two-part paper on context-shifting operations in sign language. The abstracts of Part I and Part II are both enclosed below.

Super Monsters I: Attitude and Action Role Shift in Sign Language

Abstract. In sign language 'Role Shift', the signer can adopt another person's perspective to report a propositional attitude ('Attitude Role Shift') or an action ('Action Role Shift', often called 'Constructed Action'); this is overtly marked by various means, such as a rotation of the signer's body and/or eyegaze shift. This operation can be analyzed as an overt instantiation of the 'monstrous' mechanism of 'context shift' postulated for attitude reports in some spoken languages (Schlenker 2003, Anand and Nevins 2004, Anand 2006, Quer 2005). For Attitude Role Shift, we argue that this analysis brings new light to the typology of context-shifting operations: while some sign languages make it possible to 'mix perspectives' under Role Shift (Quer 2005), we argue that ASL and LSF obey the constraint that indexicals should 'shift together' (Anand 2006). Still, in ASL and LSF, data from Attitude Role Shift alone cannot fully exclude an alternative analysis based on quotation without context shift. By contrast, Action Role Shift, which has no known counterpart in spoken language, is not amenable to a quotational analysis because it is used to describe actions that don't involve any speech- or thought-acts; in that respect, the context-shifting operations we find in sign language are 'super monsters' that can shift the context outside of attitude reports. We develop a context-shifting analysis that applies both to Attitude and to Action Role Shift. (Shortcomings of this analysis are discussed in Part II, which extends the theory with an 'iconic component' that addresses them.)

Super Monsters II: Role Shift, Iconicity and Quotation in Sign Language

Abstract. While sign language 'Role Shift' can be analyzed as an overt instance of context shift, we argue that it has two broad properties that require a special treatment. First, Role Shift used to report attitudes ('Attitude Role Shift') has a quotational component which does not follow from a simple context-shifting analysis. Second, Role Shift used to report other actions ('Action Role Shift') has a strong iconic component: properties of signs that can be assigned to the reported situation (e.g. a happy face) must be so interpreted. We argue that both varieties of Role Shift should be analyzed as context shift, but with an important addition: the expressions that appear under Role Shift should be interpreted *maximally iconically*, i.e. so as to maximize the possibilities of projection between the signs used and the situation they make reference to (Role Shift is thus a 'super monster' not just in that it can shift the context outside of attitude reports, as was argued in Part I, but also in that it has an iconic and thus hyperintensional component). This accounts both for the quotational character of Attitude Role Shift (in this case, maximal iconicity reduces to quotation), and for the fact that Action Role Shift has a strong iconic component. Finally, this analysis vindicates the view that some expressions may be simultaneously used and mentioned/demonstrated, as argued for instance in Recanati 2001.

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1   Introduction

Role Shift in sign language can be taken to be an overt instance of context shift, as argued in Quer 2005. In Part I of the present piece (Schlenker 2014a), we suggested that two varieties of Role Shift should be distinguished: *Attitude Role Shift* corresponds closely to context-shifting phenomena that have been described in indirect discourse in spoken languages, and we arguably find the same typology of context-shifting operations within the signed modality as we do within the spoken modality (in both cases, some constructions allow for 'mixing of perspectives' under attitude operators, while others require that indexicals 'shift together'). *Action Role Shift* has no uncontroversial counterpart in spoken languages, and it arises in extensional environments. While it has some of the same overt characteristics as Attitude Role Shift, in ASL and LSF it affects indexicals in a different way: all the indexicals discussed in Part I were acceptable – and had to be shifted – under Attitude Role Shift; by contrast, under Action Role Shift most indexicals triggered an attitude reinterpretation or where deviant, while the first person was acceptable without such a reinterpretation and received a shifted meaning.

We argue in this piece that the context-shifting analysis is insufficient, and that (ASL and LSF) Role Shift has two broad properties that require a special treatment. First, Attitude Role Shift has a *quotational* component which does not follow from a simple context-shifting analysis. Second, Action Role Shift has a strong *iconic* component: properties of signs that can be assigned to the reported situation must be so interpreted – for instance, under Action Role Shift a happy face on the part of the signer is assigned to the *character* whose perspective is being reported. We maintain that both varieties of Role Shift should be analyzed as context shift, but with an important addition: expressions that appear under Role Shift should be interpreted *maximally iconically*, i.e. so as to maximize the possibilities of projection between the signs used and the situations they make reference to. We argue that quotation can be a special and particular stringent case of iconicity, and that our condition of Maximal Iconicity can thus capture properties of both Attitude and Action Role Shift. As we will see at the end, this analysis vindicates the view that some expressions may be simultaneously used and mentioned/demonstrated, as argued for instance in Recanati 2001. (For a discussion of our elicitation methods and transcription conventions, see the beginning of Part I. When judgments by our informants are mentioned and do not appear in Part I, the full ratings appear in Appendix IIII.)

2   The Quotational Dimension of Attitude Role Shift in ASL and LSF

With respect to Attitude Role Shift, we already saw in Part I that in LSF our informant disliked *wh*-extraction out of a role-shifted clause. In ASL, the *wh*-extraction tests worked well with our informant, which suggested that treating the role-shifted clause as an instance of standard quotation was not the way to go. But this did not exclude the possibility that Attitude Role Shift still has a quotational *component*.[1] We show in this section that in ASL and in LSF alike Attitude Role Shift displays genuine quotational effects; we will argue in the end that the context-shifting analysis must be supplemented with an iconic component, a special case of which yields (full or partial) quotation.

2.1   ANY in ASL

As summarized in Part I, in Zazaki *wh*-extraction tests and NPI licensing tests converged to suggest that indexicals can have a shifted interpretation within indirect discourse (Anand and Nevins 2004, Anand 2006). Both tests were intended to block direct discourse readings of the embedded clause by creating a grammatical dependency between an element of the embedded clause (a trace in (1)a, a Negative Polarity Item (NPI) in (1)b) and a licenser in the superordinate clause (*who* in (1)a, *not* in (1)b). In English, such dependencies 'do not cross quotation marks', as shown by the ungrammaticality of (1)a'-b'. In Zazaki, sentences roughly similar to (1)a-b were acceptable, but unlike their (indirect

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[1] In addition, we showed in Appendix II of Part I that in ASL *wh*-extraction is equally possible out of Attitude Role Shift and out of embedded clauses preceded by the quotation operator "".

discourse) counterparts in English, they allowed for readings on which *I* referred to the speaker of the reported speech act.

(1)   a. The girl **who** Hesen said I kissed **t** is pretty.
        a'. #The girl that Hesen 'I kissed' is pretty
        b. Rojda did**n't** say I have **ever** lied.
        b'. #Rojda didn't say 'I have ever lied'

As mentioned, the *wh*-extraction test did not yield the same results for our ASL informant ('acceptable') and for our LSF informant ('unacceptable'). But as we will now see, even for our ASL informant, the NPI test rather clearly *fails* to show that the role-shifted clause isn't quoted. While our informant's use of *ANY* is strongly indicative of an NPI behavior, he finds clear contrasts between *ANY* in standard indirect discourse, where it can be licensed, and under Attitude Role Shift, where it cannot be.

❑   *The NPI behavior of ANY*

The following paradigms strongly suggests that, for our ASL informant at least, *ANY HEART-SOFT* displays the behavior of an NPI: it is acceptable when it appears in a downward-entailing environment, as in (2)a and (3)a but not in controls where the environment is positive, as in (2)b and (3)b.[2]

(2)   IX-a JOHN OFTEN MEET-MEET [INJURED PEOPLE]$_b$,
        'John often meets injured people,
        a. 6 BUT IX-a NEVER SHOW-b ANY HEART-SOFT.
        but he never shows them any kindness.'
        a'. 7 BUT IX-a NEVER SHOW-b HEART-SOFT.
        but he never shows them kindness.'
        b. 2.7   IX-a OFTEN SHOW-b ANY HEART-SOFT.
        b'. 7   IX-a OFTEN SHOW-b HEART-SOFT.
        and he often shows them kindness.'
        (ASL, 14, 123)

(3)   a. 7 IX-1 NEVER SHOW BILL ANY HEART-SOFT.
        'I never show Bill any kindness.'
        a'. 7 IX-1 NEVER SHOW BILL HEART-SOFT.
        'I never show Bill kindness.'
        b. 2.3 IX-1 SHOW BILL ANY HEART-SOFT.
        b'. 6.3 IX-1 SHOW BILL HEART-SOFT.
        'I show Bill some kindness.'
        (ASL, 14, 131)

❑   *ANY in Attitude Reports: Standard Indirect Discourse vs. Attitude Role Shift*

Unsurprisingly, *ANY* can appear in standard indirect discourse if its environment is downward-entailing – though this is somewhat ((4)a) or slightly ((5)a) dispreferred relative to a version without *ANY* ((4)a' and (5)b' respectively). Unsurprisingly, when *ANY* is in a positive environment, as in (4)b and (5)b, it is rather unacceptable.

(4)   IX-a JOHN OFTEN MEET-MEET [INJURED PEOPLE]$_b$,
        'John often meets injured people,
        a. 5.3 BUT IX-a NEVER SAY   IX-a SHOW-b ANY HEART-SOFT.
        but he never says he shows them any kindness.'
        a'. 7 BUT IX-a NEVER SAY   IX-a SHOW-b HEART-SOFT.

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[2] As is the case with English *any*, the existence of negative polarity uses does not rule out the existence of other uses as well, such as free choice ones. But we constructed our examples with this issue in mind, which is why we selected an expression – *HEART-SOFT* – which could not plausibly give rise to free choice readings.

but he never says he shows them kindness.'
b. 3 IX-a OFTEN SAY   IX-a SHOW-b ANY HEART-SOFT.
b'. 7 IX-a OFTEN SAY   IX-a SHOW-b HEART-SOFT.
and he often says he shows them kindness.'
(ASL, 14, 127)

(5)   [PRISON GUARD]$_a$ OFTEN MEET-MEET [INJURED PRISONERS]$_b$,
'Prison guards often meet injured prisoners,'
a. 6 BUT [NO GUARD]$_a$ SAY   IX-a SHOW-b ANY HEART-SOFT.
a'. 7 BUT [NO GUARD]$_a$ SAY   IX-a SHOW-b HEART-SOFT.
'... but no guard said he showed them (any) kindness.'
b. 2 [SOMEONE GUARD]$_a$ SAY   IX-a SHOW-b ANY HEART-SOFT.
b'. 6.7 [SOMEONE GUARD]$_a$ SAY IX-a SHOW-b HEART-SOFT.
'... and some guard said he showed them kindness.'
(14, 133)

     Crucially, however, the facts are different under Attitude Role Shift: there *ANY* is degraded even when it appears in the scope of a negative operator. This is shown by the deviance of (6)a (embedding under *NEVER)* and (7)a (embedding under *NO GUARD)*.

(6)   IX-a JOHN OFTEN MEET-MEET [INJURED PEOPLE]$_b$,
'John often meets injured people,
a.   RS$_a$_____
2.7 BUT IX-a NEVER SAY IX-1 SHOW-b ANY HEART-SOFT.
a'.   RS$_a$_____
6 BUT IX-a NEVER SAY   IX-1 SHOW-b HEART-SOFT.
but he never says: 'I show them kindness.'.'
b.   RS$_a$_____
2.3 IX-a OFTEN SAY   IX-1 SHOW-b ANY HEART-SOFT.
b'.   RS$_a$_____
6.7 IX-a OFTEN SAY   IX-1 SHOW-b HEART-SOFT.
and he often says: 'I show them kindness.'.'
(ASL, 14, 129)

(7)   [PRISON GUARDS]$_a$ OFTEN MEET-MEET [INJURED PRISONERS]$_b$,
'Prison guards often meet injured prisoners,'
a.   RS$_a$_____
3.7 BUT [NO GUARD]$_a$ SAY   IX-1 SHOW-b ANY HEART-SOFT.
a'.   RS$_a$_____
6.7 BUT [NO GUARD]$_a$ SAY   IX-1 SHOW-b HEART-SOFT.
'but no guard says: 'I show them kindness.''
b.   RS$_a$_____
2.3 [SOMEONE GUARD]$_a$ SAY   IX-1 SHOW-b ANY HEART-SOFT.
b'.   RS$_a$_____
7 [SOMEONE GUARD]$_a$ SAY   IX-1 SHOW-b HEART-SOFT.
and some guard says: 'I show them kindness.'
(ASL, 14, 135)

     It is clear that these data raise questions about the non-quotational status of the embedded clause. They could be interpreted in at least two ways.
–One possibility is that even in ASL some elements of a role-shifted clause under an attitude verb are obligatorily quoted, and that *ANY HEART-SOFT* belongs to that category.[3] On this view, (6)a and

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[3] We write *some* rather than *all* elements because our informant allows for *wh*-extraction out of role-shifted clauses, which suggests that *wh*-traces don't have to be quoted (this could be because they are covert, but as we discuss in Section 2.2 elided VPs are equally covert but do give rise to quotational effects). Alternatively, one

(7)a are deviant for the same reason as the quoted sentences in (8)a and (8)b: these statements end up denying that the relevant individuals used an ungrammatical sentence, which is not useful outside of metalinguistic contexts (this is why we mark (8)a and (8)b as *(#)*: they are deviant to express the meanings obtained in (8)a' and (8)b', but metalinguistic contexts can be found in which they make good sense).

(8)   a. (#) John never said: 'I showed any kindness'.
       a'. John never said that he showed any kindness.
       b. (#) None of the guards said: 'I showed any kindness'.
       b'. None of the guards said that he showed any kindness.

A comment made by our informant about (6)b highlights the plausibility of this hypothesis. He explicitly noted that *if* the relevant guard had used an ungrammatical sentence, then the report with the role-shifted clause would have been acceptable in this case.[4]

–An alternative is that the NPI *ANY-HEARTSOFT* is unacceptable because it fails to be licensed. Why this might be so is not clear; but it must be noted that in (negative) Action Role Shift, where quotation cannot be at issue, the same NPI is also deviant. This raises the possibility that Action Role Shift – and possibly Attitude Role Shift as well – create an 'intervention effect' on the licensing of NPIs. The data and a possible analysis are discussed in Appendix I.

2.2   *Ellipsis in ASL and LSF*

A consequence of the fact that 'quotation marks block grammatical dependencies' is that VP-ellipsis cannot really be licensed from outside a quotation. Thus there is a contrast between (9)a and (9)b:

(9)   Context: The speaker has recently had a political conversation with John. The addressee and John have
       never met each other.
       a. You love Obama. John told me that he doesn't.
       b. (#) You love Obama. John told me: 'I don't.'

In (9)a, the elided VP in the second sentence is licensed by the first sentence, and one definitely does not infer that John's words involved an elided VP. The facts are different in (9)b, which clearly attributes to John the use of the very words *I don't* – hence a possible deviance if the context does not explain why John might have used a construction with ellipsis. When some information to this effect is added, the ellipsis within quotation marks becomes of course acceptabe, as seen in (10)b.

(10)   a. I just told John that you love Obama. He told me that he doesn't.
       b. I just told John that you love Obama. He told me: 'I don't'.

❑   *Ellipsis under Attitude Role Shift in ASL*

Interestingly, ASL role-shifted clauses pattern with quoted sentence in English in terms of VP-ellipsis, as is seen in (11)b and (12)b, which offer more controlled versions of (9)b and (10)b respectively. For completeness, we included in the paradigm some examples with the quotation operator ""; they patterns with Attitude Role Shift.[5] Besides lower acceptability ratings (which turned out to be unstable, as seen in Appendix III), VP-ellipsis under Role Shift gave rise to quotational readings, which we established by way of an inferential task (*Can one infer from these sentences which precise words John used? If so, which?[6]*).

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could pursue a syntactic analysis without traces – but as noted in Section 2.2 one would need to find some difference between wh-constructions and ellipsis, since the latter does give rise to quotational readings.

[4] Specifically, he entered in the written version of the judgment task: '[the] judgement for b is based on grammaticality of the entire sentence including John's comment. In real life, if someone made a nongrammatical comment and I quoted it, my entire utterance would be ok, since I'm preserving the nongrammatical quote as it was actually said. However, in this case I judged based on the grammaticality of the quote itself too' [JL 12.10.18].

[5] As we mentioned in Part I, it cannot be excluded that the quotation operator introduces a variety of Role Shift, in which case this observation is unsurprising.

[6] We have more acceptability than inferential judgments because we had started with acceptability ratings only, and added inferential judgments later. The same observation holds of the corresponding LSF data in the next section.

(11)   *Context:* John has never met the addressee.
         a. 7 IX-2 LOVE OBAMA. JOHN$_a$ TELL-1 IX-a NOT.
         => no inference about the precise words John used.
         'You love Obama. John tells me he doesn't.'
         a'. 7 IX-2 LOVE OBAMA. JOHN$_a$ TELL-1 IX-a HATE OBAMA.
         'You love Obama. John tells me he hates Obama.'

         b.   RS$_a$_____
         4.5 IX-2 LOVE OBAMA. JOHN$_a$ TELL-1   IX-1 NOT.
         => John used the (ASL) words: 'I don't'.
         'You love Obama. John tells: 'I don't.'.'
         b'.   RS$_a$_____
         6.7 IX-2 LOVE OBAMA. JOHN$_a$ TELL-1   IX-1 HATE OBAMA.
         => John used the (ASL) words: 'I hate Obama'
         'You love Obama. John tells: 'I hate Obama.'.'

         c. 4.7 IX-2 LOVE OBAMA. JOHN$_a$ TELL-1 "" IX-1 NOT.
         => John used the (ASL) words: 'I don't'.
         'You love Obama. John tells: 'I don't.'.'
         c'. 6.7 IX-2 LOVE OBAMA. JOHN$_a$ TELL-1 "" IX HATE OBAMA.
         => John used the (ASL) words: 'I hate Obama'
         'You love Obama. John tells: 'I hate Obama.'.'
         (ASL, 14, 64)

Unsurprisingly, acceptability ratings improve markedly for (11)b,c if the context makes it clear that the quoted construction with ellipsis had an antecedent in the conversation which is being reported, as in (12); here too, the answers to the inferential question showed that Role Shift and the quotation operator genuinely gave rise to quotational readings (see Appendix III).

(12)   *Context:* I am reporting on a conversation that Mary had with John.

         a. 6.7 MARY$_a$ FINISH TELL-b JOHN$_b$ IX-a LOVE OBAMA. IX-b TELL-a IX-b NOT.
         'Mary told John that she hates Obama. He told her that he doesn't.'
         a'. 7 MARY$_a$ FINISH TELL-b JOHN$_b$ IX-a LOVE OBAMA. IX-b TELL-a IX-b HATE OBAMA.
         'Mary told John that she hates Obama. He told her that he hates Obama.'

         b.   RS$_a$_____   RS$_b$_____
         6.7 MARY$_a$ FINISH TELL-b JOHN$_b$ IX-1 LOVE OBAMA. IX-b TELL-a   IX-1 NOT.
         'Mary told John: 'I hate Obama.'. He told her: 'I don't.'.'
         b'.   RS$_a$_____   RS$_b$_____
         7 MARY$_a$ FINISH TELL-b JOHN$_b$ IX-1 LOVE OBAMA. IX-b TELL-a   IX-1 HATE OBAMA.
         'Mary told John: 'I hate Obama.'. He told her: 'I hate Obama.'.'

         c. 5 MARY$_a$ FINISH TELL-b JOHN$_b$ "" IX-1 LOVE OBAMA. IX-b TELL-a "" IX-1 NOT.
         'Mary told John: 'I hate Obama.'. He told her: 'I don't.'.'
         c'. 5.75 MARY$_a$ FINISH TELL-b JOHN$_b$ "" IX-1 LOVE OBAMA. IX-b TELL-a "" IX-1 HATE OBAMA.
         'Mary told John: 'I hate Obama.'. He told her: 'I hate Obama.'.'
         (ASL, 14, 68)

We conclude that ASL role-shifted clauses under attitude operators give rise to quotational readings.

❑   *Ellipsis under Attitude Role Shift in LSF*
Similar conclusions can be obtained on the basis of LSF data: whenever Attitude Role Shift is used, an inference can be derived as to the precise words that the agent of the report used, and these must be the very words that appear in the role-shifted clause; no such effect arises without Role Shift. As was the case in some but not of all our ASL data, the sentences were deemed acceptable even when the context *failed* to explain why a sentence with ellipsis could have been used in the reported dialogue;

thus in this case inferential judgments are crucial to establish the existence of quotational readings. We include for completeness data involving a quotation operator, which according to our informant is reserved for important statements; for reasons we don't understand, it led to lower acceptability than Role Shift with VP-ellipsis but no so much without it.

(13)   *Context:* The interlocutor and Sarkozy do not know each other.
         SARKOZY IX-2 a,2-THE-TWO DIFFERENT. IX-2 LIKE OBAMA. IX-a SAY
         'You and Sarkozy are different. You like Obama. He says
         a. 6.7 IX-a NOT-LIKE OBAMA.
         he doesn't like Obama.'
         b. RS$_a$_____
         7 IX-1 NOT-LIKE OBAMA.
         'I don't like Obama.'.'
         c. 6.3 "" IX-1 NOT-LIKE OBAMA.
         'I don't like Obama.'.'
         (LSF, 25, 120)

(14)   *Context:* The interlocutor and Sarkozy do not know each other.
         SARKOZY IX-2 1,2-THE-TWO DIFFERENT. IX-2 LIKE OBAMA. SARKOZY / IX-a[7] SAY
         'You and Sarkozy are different. You like Obama. Sarkozy/he says
         a. 7 IX-a NOT.
         => no inference about the precise words that Sarkozy used.
         he doesn't.'
         b. 7 RS$_a$_____
           IX-1 NOT.
         => Sarkozy said 'I don't' ('moi non' in French)
         'I don't.'.'
         c. 4 "" IX-1 NOT
         => Sarkozy said 'I don't' ('moi non' in French)
         'I don't.'.'
         (LSF, 25, 122)

We conclude that in ASL and LSF Attitude Role Shift, if an elided VP appears in the role-shifted clause it cannot be licensed from outside that clause, and is understood to be quoted from the situation which is reported. It should be noted that the ASL data present an interesting contrast between two kinds of gaps:
–As we saw in Part I, our informant accepts *wh*-extraction out of a role-shifted clause, which suggests that a gap corresponding to a *wh*-trace escapes the quotational requirement.
–By contrast, the data we just saw suggest that an elided VP does *not* escape this quotational requirement.
In the end, then, the analysis will have to allow for fine-grained parameterization among constructions (and also among languages, since we saw that wh-extraction was dispreferred by our LSF informant).

2.3   *Quotation of non-grammatical material*

Standard indirect discourse can have a quotational component, as illustrated in (15). Here a non-grammatical property of an embedded expression, the insertion of an extra phoneme in the the word *philosopher*, is attributed to the attitude holder rather than to the speaker.

(15)   My three-year old son believes that I am a 'philtosopher'. (Cappelen and Lepore 1997)

Now Attitude Role Shift appears to differ from standard indirect discourse in that in such cases attribution to the attitude holder appears to be *obligatory* rather than optional. In other words, Attitude Role Shift appears to be interpreted as maximally quotational. We will establish this generalization on the basis of ASL and then of LSF data. We should note at the outset that this generalization need not be surprising from the perspective of sign language research, where Attitude Role Shift is usually

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[7] *SARKOZY* was used in (14)a, *IX-a* in (14)b,c.

treated as quotation, and where the broader category of 'constructed action' is used to refer to cases in which the speaker in some way imitates properties of a a reported speech act or action (see for instance Liddell and Metzger 1998).

❑ *The quotational dimension of Attitude Role Shift in ASL*

In order to assess this quotational component, we asked our informant to sign sentences in which the signer displays a happy face, something we encode as: *:-)*, followed by ---------- over the expressions that were accompanied by this happy face. Importantly, this happy face is not a grammaticalized non-manual expression. We asked our informant to start the happy face at the beginning of the report, to maximize the chance that this would be seen to reflect the signer's (rather than the agent's) happiness. In standard indirect discourse, this is indeed what we found, as shown in (16). In Attitude Role Shift, by contrast, the judgments in (17) suggest that it is more difficult to attribute the happy face to the signer only, *despite* the fact that it starts outside the role-shifted clause, and that the context is heavily biased to suggest that the agent of the reported attitude was anything but happy (note that the judgments varied over time, and that the contrasts were sharper in our initial trials; we do not know why this is).

(16)   SEE THAT ARROGANT FRENCH SWIMMER IX-a? YESTERDAY IX-a ANGRY.
          'See that arrogant French swimmer? Yesterday he was angry.
          a. 7 IX-a SAY IX-a WILL LEAVE.
          He said he would leave. '
          b. :-)--------------------------------
          7 IX-a SAY IX-a WILL LEAVE.
          Rating under the meaning: the SPEAKER is displaying his happiness that the French swimmer said he was leaving
          He said he would leave. '
          (ASL, 14, 231)

(17)   SEE THAT ARROGANT FRENCH SWIMMER IX-a? YESTERDAY IX-a ANGRY.
          a. RS_a_____
          6.2. IX-a SAY   IX-1 WILL LEAVE.
          He said: 'I will leave.'.'
           b. :-)--
                                 RS_a_____
          4.6^8 IX-a SAY   IX-1 WILL LEAVE.
          Rating under the meaning: the SPEAKER is displaying his happiness that the French swimmer said he was leaving
          He said: 'I will leave.'.'
          (ASL, 14, 233)

❑ *The quotational dimension of Attitude Role Shift in LSF*

Similar conclusions can be obtained on the basis of LSF data: in the absence of Role Shift, the happy face is taken to reflect the speaker's rather than the agent's happiness, as seen in (18). By contrast, when Attitude Role Shift is applied, our informant inferred that the happy expression reflected the attitude both of the speaker and of the agent, as shown in (19). (Note that this *both* need not be very surprising, since the sentences were constructed in such a way that the happy face started at the beginning of the report rather than just on the role-shifted clause.) A methodological remark is in order, however: instead of asking our informant to rate the sentence *on a particular reading*, as we did for ASL (with somewhat unstable results, as noted above), we asked for an inferential judgment (in French) pertaining to sentences with the happy face: *Do we understand that the happy expression*

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[8] An additional task was performed by email (its results are discussed for Action Role Shift in fn. 11 and fn. 12). It included, among others, acceptability judgments *without* the imposition of a particular reading, and they are not incorporated in these averages. The scores obtained were: (16)a = 7; (16)b = 7; (17)a = 7; (17)b = 4.

is that (i) of the speaker [= <informant's first name>]? (ii) of the arrogant German swimmer? The acceptability judgments were inconsistent (presumably because the sentence was grammatically acceptable but pragmatically odd), but the inferential judgments were rather stable.

(18)   IX-2 IX-a SWIMMER GERMAN ARROGANT? YESTERDAY IX-a FURIOUS.[9]
        'You see that arrogant German swimmer? Yesterday he was furious.

        a. 7 IX-a SAY   IX-a WILL LEAVE.
        He said he would leave.'
        b. :)--
        7   IX-a SAY   IX-a WILL LEAVE.
        => the happy face is the signer's
        'He said he would leave.'
        (LSF, 25, 100)

(19)   IX-2 IX-a SWIMMER GERMAN ARROGANT? YESTERDAY IX-a FURIOUS.[10]
        'You see that arrogant German swimmer? Yesterday he was furious.

        a. RS_a_____
        7 IX-a SAY   IX-1 WILL LEAVE.
        He said: 'I will leave.'.'
        b. :)--
                            RS_a_____
        4   IX-a SAY   IX-1 WILL LEAVE.
        => the happy face is both the signer's and the German swimmer's (4 trials) or just the German swimmer's (1 trial)
        He said: 'I will leave.'.'
        (LSF, 25, 102)

Thus there is a sharp difference between standard indirect discourse and Attitude Role Shift: in the latter, but not in the former, a happy face is preferably (or obligatorily) attributed to the agent of the reported speech act.

❑   *Consequences*

We take these examples to show that, in a sense to be made more precise below, expressions under Attitude Role Shift must be interpreted as 'maximally quotational': non-grammatical material such as the 'happy face' used above must be attributed to the agent of the attitude under Attitude Role Shift, whereas this is not obligatory in standard indirect discourse.

        Importantly, context-shifting theories cannot account for this fact without addition. The reason is that for a pure context-shifting theory, Attitude Role Shift differs from standard indirect discourse solely in the types of parameters that get shifted. To make things concrete, consider the two operators defined in (20)a-b to analyze the Logical Forms in (21)a-b, the first of which involves Role Shift while the second involves standard indirect discourse (with a De Se reading). The Role Shift operator (written as RS_i) manipulates the context parameter and the world parameter, while the standard De Se operator (written as Op_i) manipulates the assignment function parameter and the world parameter. Neither operator has the power to capture quotational effects, which would involve that the right-hand side of (20)a-b make reference to the *form* of the words used rather than just to thir semantic values.

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[9] For consistency, we compute averages over 4 sessions with our main informant. Judgment from 1 session with another informant are provided in Appendix III.
[10] For consistency, we compute averages over 4 sessions with our main informant. Judgment from 1 session with another informant are provided in Appendix III.

(20) For any clause F, context c, assignment function s and world w, and index i,
    a. $[\![RS_i \, F]\!]^{F, \, s, \, w} = \lambda x' \, \lambda w' \, . \, [\![F]\!]^{<x', \, w'>, \, s, \, w}$
    b. $[\![Op_i \, F]\!]^{F, \, s, \, w} = \lambda x'. \, \lambda w'. \, [\![F]\!]^{F, \, s[i \, -> \, x'], \, w'}$

(21) a. Role Shift
    IX-a SAY RS$_a$ [IX-1 WILL-LEAVE]

    b. No Role Shift, De Se Reading
    IX-a SAY Op$_a$ [IX-a WILL-LEAVE]

       It is interesting to note that there are two initial differences between our ASL data and the Zazaki data described in Anand 2006.
–As announced in Part I, in Zazaki NPIs that co-occur with shifted indexicals can be licensed from outside the relevant embedded clause.
–Anand 2006 argues that there is no general requirement that Zazaki clauses with shifted indexicals should be interpreted quotationally, as shown in (22)a. (By contrast, he notes that English constructions that allow for partial quotation – *confess* in (22)b – force a reading on which the partially quoted expression was in fact used in the denoted situations). More research would be particularly useful on this topic; we will come back to this issue in Section 7.

(22) Anand 2006
Fatima is enamored with Hesen, the brother of her friend Rojda, though Fatima thinks they are merely friends.

S$_1$: One day, Fatima asks about Hesen, and Rojda tells her, "Hesen is very rich."

S$_2$: Rojda tells her, "my brother Hesen is very rich."

  a. Rojda va   kE braya mI dewletia
     Rojda say-PERF that brother I-EZ rich   be

     'Rojda$_i$ said that her$_i$ brother was rich.' [✓S$_1$, ✓S$_2$]
  b. Fatima continued to pester her for some detail about Hesen, and finally Rojda was forced to confess how rich 'my brother' was. [# S$_1$, ? S$_2$]

3   The Iconic Dimension of Action Role Shift in ASL and LSF

Since Action Role Shift serves to report actions rather than attitudes, we do not expect it to have a quotational component. But we will see that in ASL and LSF alike, Action Role Shift comes with a requirement that it be interpreted 'maximally iconically', in a sense to be made precise below.This requirement will turn out to suffice to explain the quotational component of Attitude Role Shift as well. Intuitively, iconic requirements have the effect that some geometric properties of signs are taken to 'resemble' properties of the situations referred to. Quotational effects can be seen as iconic effects of a particular sort: some expressions are taken to be *identical* to some elements of the situations described by the report. We will advocate in Section 4 a formal approach to iconic effects, one in which an expression is interpreted iconically if a structure-perserving map can be established between its form and certain properties of the situations of which it is true. In quotation, the map in question is just type-identity: the very words uttered in the report must be present in the denoted situation as well. We cannot expect to find such maps in the case of Action Role Shift, since the reported action usually does not involve words. But less stringent iconic requirements will still be see in force in Action Role Shift; this is what we will now see with the example of the speaker's 'happy face'. Here too, our generalizations need not be surprising from the perspective of the sign language literature, since the very notion of 'constructed action' was developed to account for the fact that the signer may imitate some aspects of a scene he is attempting to describe (see for instance Liddell and Metzger 1998 for a discussion framed in Mental Space Theory).

3.1   *Iconic effects with Action Role Shift in ASL*

Let us consider ASL first. In (23), which does not involve Role Shift, it is possible to understand the signer's happy face as reflecting the speaker's rather than the agent's attitude. Things are different in (24), where under Role Shift the signer's happy face is naturally taken to reflect the agent's attitude. Importantly, we do not claim that in general, in the absence of Role Shift, this happy face cannot be

attributed to the agent. This prediction would be too strong, and uncalled for: iconic effects are pervasive with or without Role Shift; our only claim is that *under Action Role Shift, a happy face on the agent's part is normally attributed to the agent.*[11]

(23)   SEE THAT ARROGANT FRENCH SWIMMER IX-a? YESTERDAY IX-a ANGRY.
'See that arrogant French swimmer? Yesterday he was angry.
a. 7 IX-a a-WALK-WITH-ENERGY(CL-ONE).
He left with energy. '
b. :-)--
6.2 IX-a a-WALK-WITH-ENERGY(CL-ONE).
Rating under the meaning: the SPEAKER is displaying his happiness that the French swimmer was leaving
He left with energy.'
(ASL, 14, 231)

(24)   SEE THAT ARROGANT FRENCH SWIMMER IX-a? YESTERDAY IX-a ANGRY.
a. RS_a_____
7 IX-a   1-WALK-WITH-ENERGY(CL-ONE).
He left with energy.'
 b. :-)--
                        RS_a_____
3.6^{12} IX-a   1-WALK-WITH-ENERGY(CL-ONE).
Rating under the meaning: the SPEAKER is displaying his happiness that the French swimmer was leaving
He left with energy.'
(ASL, 14, 233)

While more work would be needed to establish these contrasts more securely (especially in view of the fact that iconic readings are certainly not *prohibited* in the absence of Role Shift)[13], we take them to suggest that iconic material is preferably understood to reflect properties of the reported action under Role Shift.

3.2   *Iconic effects with Action Role Shift in LSF*

Our LSF data are complex. On the one hand, we replicate the effects we just saw in ASL: under Action Role Shift, a happy face must be assigned to the agent of the action rather than to the signer; in that sense, it seems that expressions under Role Shift must be interpreted 'maximally iconically'. On the other hand, there are surprising constraints on Action Role Shift, discussed in Part I, which might suggest that our LSF informant obeys a stronger constraint, according to which *every element that appears under Role Shift must have an iconic component.*

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[11] Importantly, in a follow-up task conducted by email, we checked that (23)b and (24)b were both interpreted as action reports, and in particular that the latter did not give rise to an attitude reinterpretation (or at least not to an obligatory one). The results pertaining to (23)b and (24)b within that later task are reproduced in Appendix III. Somewhat surprisingly, for (23)b the informant took in that task the happy expression to be attributed to the speaker; he added that it would be understood to be that of the French swimmer, 'but *ANGRY* prevents this typical interpretation'. (24)b did not contrast much in this respect; the informant wrote that the happy face could be either assigned to the speaker or to the French swimmer, but that *ANGRY* conflicted with the latter interpretation.

[12] As mentioned in fn. 11, an additional judgment task was conducted by email, *without* imposition of particular readings; they are not incorporated to these averages. The ratings obtained were: (23)a = 7; (23)b = 4; and (24)a = (24)b = 2.

[13] Our caution is in part warranted by the fact that we have one paradigm (video 14, 235) in which a paradigm similar to (23)-(24) with the addition of *WONDERFUL* at the beginning of the thrid sentence gave rise to a null effect: the addition of the happy face (starting on *WONDERFUL*) gave rise to lower ratings both with and without Role Shift. We do not know why this is so.

We mentioned in Part I that it seems that Action Role Shift must be *motivated* by something – possibly by the existence of some iconic element in its scope. In the ASL example we quoted above, the signer used a classifier construction to realize the embedded verb; specifically, the index finger classifier effected a movement in signing space, one which could be taken as a representation of the angry German swimmer moving in space. Our LSF informant could not find a similar construction that would have been appropriate in this context, and therefore we constructed different examples, some of which worked under Action Role Shift and some of which didn't (we come back to this point below). Focusing on one that *did* work, we found the result we expected on the basis of our ASL data:

–In action reports without Role Shift, the addition of a happy face starting before the Role Shift is acceptable and can be taken to reflect the speaker's rather than the agent's attitude, as seen in (25)b.

–Under Action Role Shift, the addition of the happy face starting before the Role Shift leads to lower acceptability, and it tends to be taken to reflect (at least in part) the agent's attitude, as seen in (26)b. This semantic fact might explain the lower ratings, as in the relevant sentences the agent is taken to be both happy and angry.[14]

(25)   SEE IX-2 / IX-2 SEE[15] SWIMMER GERMAN ARROGANT? YESTERDAY FURIOUS.
        'You see that arrogant German swimmer? Yesterday he was furious.
        a. 7 FOR-THIS DOOR $\boxed{\text{IX-a}}$ BREAK OPEN.
        'That's why he broke open a door.'
        b. :)---
        7 FOR-THIS DOOR $\boxed{\text{IX-a}}$ BREAK OPEN.
        => the happy expression is the speaker's (4 trials)
        => the arrogant German swimmer in fact broke the door (4 trials)
        'That's why he broke open a door.'
        (LSF, 31, 230[16])

(26)   SWIMMER GERMAN ARROGANT? YESTERDAY FURIOUS.
        'You see that arrogant German swimmer? Yesterday he was furious.
        a.   RS$_a$_____
        7 (or 6)[17] FOR-THIS DOOR $\boxed{\text{IX-a}}$ BREAK OPEN.
        'That's why he broke open a door.'
        b. :)---
                        RS$_a$_____
        4.2 FOR-THIS DOOR $\boxed{\text{IX-a}}$ BREAK OPEN.
        => the happy expression is both the speaker's and the arrogant German swimmer's (3 trials) / is the speaker's (1 session)
        => the arrogant German swimmer in fact broke the door (4 trials)
        'That's why he broke open a door.'
        (LSF, 31, 231[18])

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[14] Having fully controlled paradigms is very difficult: there exists in principle the possibility that the lower ratings are due to the fact that the happy face was improperly realized in (26)b but not (26)a.

[15] *SEE IX-2* was used in a., *IX-2 SEE* was used in b.

[16] A technical problem occurred when videos were transferred from the camera to the computer, witht the result that video numbers got increased by 1. As a result, judgment videos 31, 232 and 31, 233 [according to the final numbering] discuss 'video 229' (in lieu of video 230) and 'video 230' (instead of video 231). The necessary corrections have been made in this piece.

[17] As seen in Appendix III, in one trial the informant noted that *IX-a* was ambiguous and could be taken to refer to the addressee or to a third person; in the former case, the rating was 3, and in the latter a 7. Since the intended reading was a third person reading, we computed 7 in the 'official' average. An average of 6 is obtained if 3 instead of 7 is taken into account for that trial.

[18] See fn. 16.

3.3   *Maximal Iconicity and Exhaustive Iconicity*

We conclude that Attitude and Action Role Shift both have an iconic component. Our generalization is tentatively stated in (27).

(27) Maximal Iconicity
      In ASL and LSF Action Role Shift, expressions that can be interpreted iconically must be so interpreted.

We will develop the theory in two steps. First, in Section 4 we define a semantics in which iconic requirements can be integrated to an interpretation procedure. Second, in Section 5 we posit that the Role Shift operator comes with a pragmatic requirement of maximal iconicity, and we show how this derives the main results we have seen.

   Before we develop our analysis, it is worth pausing to revisit some LSF contrasts that remained mysterious in Part I. One pertained to the difference between the 'normal' verb *SHOW* and the classifier verb *SHOW-CL* under (apparent) Action Role Shift: the former regularly triggered an attitude reinterpretation, whereas the latter didn't, as shown in (28) (repeated from Part I):

(28)   RECENTLY WOLF$_b$ IPHONE FIND HAPPY. SHEEP IX-b b-CALL-a.
        'Recently the wolf was happy to find an iPhone. He called the sheep.
        a.   RS$_b$___
        4.3 IX-b IPHONE SHOW.
        => unclear inference
        He [= the wolf] showed [or: said/thought he was showing/would show] the iPhone to him.'
        b.   RS$_b$_____
        7 IX-b   IPHONE   SHOW-CL.
        => the wolf in fact showed the iPhone to the sheep
         He [= the wolf] showed the iPhone to him.'
        (LSF, 39, 26)

It was clear from our informant's explanations that there is a semantic difference between the two verbs: *SHOW* is compatible with many different ways in which the object could have been shown, whereas *SHOW-CL* requires that the object be held with an open, C-shaped hand – which is the very shape of verb itself.[19] We tentatively make the following hypotheses:
Hypothesis 1.   The interpretation of *SHOW-CL* has an iconic component, whereas that of *SHOW* doesn't.
Hypothesis 2. Under Attitude Role Shift, any word can be interpreted iconically as long as it is interpreted quotationally (a connection we will make formally below).
Now we hypothesize that our LSF informant obeys the constraint in (29):

(29) Exhaustive Iconicity[20] (LSF informant; tentative)
      In LSF, every word under Role Shift must have an iconically interpreted component.

For *SHOW-CL*, the condition in (29) is easily satisfied by virtue of Hypothesis 1. For *SHOW* this isn't the case, but an attitude reintepretation does make it possible to satisfy the condition by virtue of Hypothesis 2.
   Let us see some possible consequences of Exhaustive Iconicity. In (30)a, an attitude reinterpretation is triggered once again, and it targets both the noun and the verb that appear under Role Shift. In (30)b, a more subtle phenomenon is found: as before, *SHOW-CL* is interpreted as an action report, presumably because it has an iconic component that justifies its appearance under Role Shift. But *IPHONE* doesn't have such an iconic component, and thus gives rise to an attitude or quotational reinterpretation, with the mixed effect seen in the inferential judgments: the word

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[19] In a session in which we explicitly asked our informant to explain the difference between *SHOW* and *SHOW-CL*, he gave three examples for the former in the context of the wolf showing an iPhone he had just found; the action could be performed by pointing towards iPhone, by holding it in one's mouth, or by holding it in one's hand; by contrast, only the latter possibility was open for *SHOW-CL*.
[20] Note that as a first approximation Exhaustive Iconicity is stronger than Maximal Iconicity; we will see in the implementation that for technical reasons this isn't quite the case, but for present purposes the approximation suffices.

IPHONE is taken to have been *signed* in the reported situation, but the *action* of showing it is understood to have been *performed* (rather than described).

(30)   RECENTLY WOLF_b IPHONE FIND HAPPY. SHEEP IX-b b-CALL-a.
'Recently the wolf was happy to find an iPhone. He called the sheep.
a.   RS_b_____
6.7 IX-b IPHONE SHOW.
=> the wolf said/thought he was showing/would show the iPhone to him
He [= the wolf] said/thought he would show/was showing the iPhone to him.'
b.   RS_b_____
7 IX-b   IPHONE SHOW-CL.
=> the wolf said 'iPhone' and showed the iPhone (see full ratings in Appendix IV).
He [= the wolf] said '(an) iPhone' and showed it.'
 (LSF, 39, 37; see also LSF, 39, 27)

Still, not all nouns that appear under (apparent) Action Role Shift in LSF trigger an attitude reinterpretation: this doesn't seem to be the case in (31), where *HOUSE DOOR BREAK OPEN* is compatible with an action reading. At this point, we can only hypothesize that the entire expression has an iconic component, as the verb *BREAK* targets the position determined by the sign *DOOR*, which is itself collocated with the sign *HOUSE*.

(31) IX-2 SEE SWIMMER GERMAN ARROGANT? YESTERDAY FURIOUS.
'You see that arrogant German swimmer? Yesterday he was furious.
                                  RS_a_____
6.5 FOR-THIS IX-a GO-BALLISTIC IX-a   HOUSE DOOR BREAK OPEN.
=> the arrogant German swimmer in fact broke the door
That's why he went ballistic and broke open the house door.'
(LSF, 36, 72; see also 35, 62; from Part I, (45)a)

Be that as it may, more work is needed to determine whether there are independent grounds for thinking that this partly iconic interpretation is real, and whether it is indeed responsible for the action reading we obtain in this case. We leave this issue for future research.

4   Iconic Functions

In this section, we sketch a treatment of iconic effects, which will be crucial to our final analysis of Role Shift.

4.1   *Simple iconic effects[21]*

But what do we mean by 'iconic effects'? To see an intuitively clear example, consider the verb *GROW* in (32), which can be realized in a variety of ways, six of which were tested in (33).

(32) POSS-1 GROUP GROW.
'My group has been growing.' (8, 263; 264) (Schlenker et al., to appear)

(33) Representation of *GROW*

	Narrow endpoints	Medium endpoints	Broad endpoints
Slow movement	small amount, slowly	medium amount, slowly	large amount, slowly
Fast movement	small amount, quickly	medium amount, quickly	large amount, quickly

The sign for *GROW* in (32) starts out with the two hands forming a sphere, with the closed fist of the right hand inside the hemisphere formed by the left hand; the two hemisphere then move away from each other on a horizontal plane (simultaneously, the configuration of the right hand changes from closed to open position). The signer varied two main parameters in (33): the distance between the

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[21] This section borrows from Schlenker et al, to appear (Section 1.2) and Schlenker 2013.
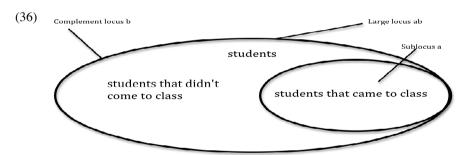
endpoints; and the speed with which they were reached.[22] All variants were entirely acceptable, but yielded different meanings, as shown in (33). Intuitively, there is mapping between the physical properties of the sign and the event denoted: the broader the endpoints, the larger the final size of the group; the more rapid the movement, the quicker the growth process.[23]

Such effects are pervasive in sign language. While 'iconicity' is sometimes treated as a pre-theoretical resemblance between a sign and its denotation, within a formal framework it must be analyzed more precisely as the existence of a structure-preserving map between a message and the situations it refers to. A particularly simple example is afforded by plural loci in ASL (Schlenker 2012, Schlenker et al. 2013). In a nutshell, plural loci can be realized as circular areas in signing space, and as a first approximation they have very much the readings of English plural pronouns – with one exception, which is due to the fact that when two loci are embedded within each other, the geometric relations of inclusion and relative complementation among the areas they make visible must be preserved by the interpretation function. More specifically, the range of readings available for the English plural pronouns in (34) is replicated in ASL when a single default locus is used, but that the deviance of the 'complement set' reading can be obviated when embedded loci are used, as is illustrated in (35) (the main data were replicated for LSF in Schlenker et al. 2013). As before, ratings are given on a 7-point scale (with 7 = best; we refer the reader to Schlenker et al. 2013 for raw scores).

(34) a. *Complement Set Anaphora:* #Most students came to class. They stayed home instead.
     b. *Maximal Set Anaphora:* Most students came to class, and they asked good questions.
     c. *Restrictor Set Anaphora:* Most students came to class. They are a serious group.

(35) POSS-1 STUDENT IX-arc-ab MOST IX-arc-a a-CAME CLASS.
     'Most of my students came to class.' (8, 196; 8, 197; 8, 206; 8, 224)
     a. 7 IX-arc-b b-STAY HOME   'They stayed home.'
     b. 7 IX-arc-a a-ASK-1 GOOD QUESTION 'They asked me good questions.'
     c. 7 IX-arc-ab SERIOUS CLASS. 'They are a serious class.'

(36)

In (35)a, a large locus notated as *ab* (but signed as a normal plural locus) represents the set of all students. A sublocus *a* represents the set of students that came to class. And once the large locus *ab* and the sublocus *a* have been made available, the complement locus *b* becomes automatically available, and it denotes the students who didn't come to class.

Schlenker et al. 2013 hypothesized that assignment functions assign values to loci, and they further assumed that:

R1. geometric properties of plural loci (*qua* areas of space) guarantee that if a locus *A* and a sublocus *a* have been introduced, a complement locus *(A-a)* thereby becomes available;

R2. relations of inclusion and relative complementation among loci are preserved by the interpretation function *via* constraints on assignment functions.

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[22] The paradigm was not fully minimal, in the sense that further aspects of the sign tended to be modified as well.

[23] Wilbur 2003 explored broadly 'iconic' ideas in her ground-breaking analysis of aspect. Crucially, however, she takes iconicity *not* to be a primitive linguistic condition; rather, according to her analysis sign language just happens to make *visible* certain (discrete, non-iconic) primitives for which there is independent evidence in spoken language. We come back to this point in the conclusion.

To account for these data, Schlenker et al. posited that the grammar makes available (i) a discourse referent for the maximal set and the restrictor set, but (ii) no discourse referent for the complement set (see Corblin 1996, Geurts 1997, Nouwen 2003). In this respect, the grammar of ASL is similar to the grammar of English, as analyzed by Nouwen 2003. For this reason, when a default locus is used, ASL roughly behaves like English, and complement set anaphora is highly restricted (because of (ii)). In case embedded loci are used, however, ASL allows for complement set anaphora. But this is not due to an essential grammatical difference between sign and spoken language. Rather, the rules in R1 and R2 conspire to make available a locus that denotes the complement set. The reasoning is as follows:

–If a is a proper sublocus of a large locus ab, we can infer by R1 that $(ab\text{-}a)$ (i.e. b) is a locus as well.

–By R2 we can infer that $s(a) \subset s(ab)$ [= preservation of inclusion by assignment functions] and that $s(b) = s(ab)\text{-}s(a)$ [= preservation of relative complementation].

4.2 Introducing Iconic Functions

The example of plural loci has the advantage of being particularly simple, in part because we could simply postulate that the set of loci and the assignment function that interprets them satisfy some iconic requirements. Once these are in place, the interpretation of variables can proceed as in standard frameworks. Things are different with the example of *GROW*, where the assertive component of the sentence will depend on the particular realization of the sign. To handle this case, we assume that the context of utterance c makes available an iconic function f_c which specifies the meaning of iconically interpreted expressions depending on their precise realization; since different tokens of the very same expression might receive different iconic interpretations depending on the environment, we will add a superscript on tokens of iconically interpreted expressions, allowing the iconic function f_c to assign different values to different tokens of a given expression (hence it could be that $f_c(GROW^1)$ $\neq f_c(GROW^2)$, for instance). The mere presence of these superscripts will be sufficient to 'tell' the interpretation function that the symbols they appear on must be interpreted iconically.

4.2.1 Motivations

Two examples are given in (37). In (37)a, *GROW* appears without a superscript and thus gets its normal interpretation, taking as argument *MY GROUP*, which we take to denote a certain group g. In (37)b, $GROW^i$ carries an iconic superscript, and as a consequence its normal interpretation is enriched with an iconic component f_c, which may be specified as in (38) (many further specifications could be imagined). For reasons we will get to below, we take the iconic enrichment to be effected when function application takes place; this is the reason we do not just give the strengthened meaning of a verb, but of an entire proposition.

(37) a. Normal meaning
     $[\![\, [MY\ GROUP]\ GROW]\!]^{f,\,s,\,w} = [\lambda x.\ grow'_w(x)](g) = grow_w(g)$

   b. Iconic meaning
   Assume that the normal and the iconic meaning of *GROW* are total functions.
   $[\![GROW^i]\!]^{f,\,s,\,w}(g)$ $\quad = [\lambda x.\ [\![GROW]\!]^{f,\,s,\,w}(x) = 1$ and $f_c(GROW^i)(w)(x) = 1](g)$
   $\qquad\qquad\qquad = 1$ iff $grow'_w(g) = f_c(GROW^i)(w)(g) = 1$

(38) Example of requirements on f_c
   We assume that the context of utterance c makes salient an 'amount' function a_c and a 'speed' function s_c, used as follows:
   a. For every situation w and individual x,
   $f_c(GROW^i)(w)(x) = 1$ iff x grows in w and x grows by amount $a_c(GROW^i)$ and at speed $s_c(GROW_i)$.
   b. Preservation requirements on the functions a_c and s_c
   (i) If the endpoints of $GROW^i$ are more distant than the endpoints of $GROW^k$, $a_c(GROW^i) > a_c(GROW^k)$.
   (ii) If the speed of $GROW^i$ is greater than the speed of $GROW^k$, $s_c(GROW^i) > s_c(GROW^k)$.

Try to get rid of the condition on index 0 - possibly by having iconic indices on larger constituents count as 'greater' than iconic indices on smaller constituents.

4.2.2   *Definitions*

To analyze iconic effects, we must enrich the standard definition of a language, and of its rules of interpretation. From a base language L, we will obtain an iconically enriched language L^+ by adding to the grammar that generates L productions of the form $w \rightarrow w^i$ for the relevant values of the superscript i. This procedure is defined more formally in (39), where for simplicity we assume that the base language is given by a Phrase Structure Grammar.

(39)   Iconic Enrichment of a Language
Let L be a language obtained on the basis of a phrase-structure grammar G. The iconic enrichment of L is the language L^+ generated by the grammar G^+ obtained by adding to G all the rules of the form

$L \rightarrow R^i$ for $i \in \mathbb{N}$ and $L \rightarrow R$ a rule of G **and R is an expression whose type 'ends in t'.**

Terminology: a constituent of a sentence of L^+ which is superscripted with an iconic index is said to be 'interpreted iconically'.

Importantly, iconic enrichments can be added at the level of words or of entire constituents: we do not require that iconic enrichments should only arise at the lexical level.
To analyze the semantics of the enriched language L^+, we will assume that iconic enrichments are only introduced by function application, more specifically by (i) functors whose type 'ends in t' (i.e. have a 'conjoinable type'[24]) and by (ii) their arguments. The reason for this is that we take iconic requirements to be added conjunctively to normal meanings; and thus it is only at the level of conjoinable elements (hence constituents whose 'type ends in t') that the enrichment can be achieved. Now for constituents whose type 'ends in t', a strengthened iconic meaning can be directly defined by way of generalized conjunction (i.e. by adding an iconic component to the literal meaning). But for arguments this is not so, as it is not clear what it would mean to directly enrich their meanings. This is the reason we take strengthened iconic meanings to only arise when some version of function application is applied. A possible procedure is sketched in (40). In a nutshell, functors of a type that 'ends in t' are conjoined with their iconic contribution by way ofgeneralized conjunction; and when the argument of a functor of a type that 'ends in t' has an iconic component, the latter is also 'fed' to that functor, and the two results are conjoined. We add a non-technical explanation of our choices at the relevant points – though we are aware that other choices could have been made as well (we leave a formal study of iconicity per se for future research).

(40)   **Iconically enriched interpretation**
Let $[\![\, . \,]\!]^{c, s, w}$ be a partial type-driven[25] interpretation function defined on derivation trees of a language L, and relativized to a context parameter c, an assignment function parameter s and a world parameter w (for reasons that are discussed below, we allow some items to have simultaneously several types). We encode semantic failure as #, and assume in particular that all instances of type mismatch result in semantic failure.
Suppose that $[\![\, . \,]\!]^{c, s, w}$ has only two types of composition rules, Function Application and Abstraction (the latter may come in several varieties). We extend $[\![\, . \,]\!]^{c, s, w}$ to an interpretation $[\![\, . \,]\!]^{+\,c, s, w}$ for the derivation trees of L^+ in the following way.

We assume that for every context c, world w, assignment function s, for every constituent E whose type 'ends in t', and for every index i, either
(1) $f_c(E^i)$ is not quotational, and for every world w, $f_c(E^i)(w)$ is of the same type as $[\![E]\!]^{c, s, w}$, or
(2) [preliminary version[26]] $f_c(E^i)$ is quotational, and for every world w, $f_c(E^i)(w)$ is of type e and $f_c(E^i)(w) =$

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[24] See for instance Rooth and Partee 1982. The definition of conjoinable types (= of types 'that end in t') can be given as in (i):

(i)   a. t is a conjoinable type
            b. If b is a conjoinable type, then for any type a, <a, b> is a conjoinable type.
[25] By 'type-driven', we mean that the linear order of constituents plays no role for the interpretation function; this is standard assumption in several contemporary accounts (e.g. Heim and Kratzer 1998).
[26] This will have to be modified in Section 6.1 when we analyze the contrast between ASL (which allows for 'partial quotation') and LSF (which apparently doesn't).

E^i (in other words, the iconic contribution of E^i is a particular object that happens to be that very expression).

Terminology: We say that an index i on an expression E is *quotational* if $f_c(E^i)$ is quotational.
Notation: Whenever possible, we reserve the index 0 for indices that are interpreted quotationally.[27]

a. Iconic Function Application
If E be an expression of L of a type that 'ends in t'[28] and needs n arguments of types $\tau_1 \ldots \tau_n$ (in that order) to yield a truth value, if F is an expression of L of type τ_1, then:

for any context c, assignment function s and world w, for any indices $i, j \in \mathbb{N}$,

(0) $[\![E\ F]\!]^{+\,c,s,w} = [\![[E\ F]^i]\!]^{+\,c,s,w} = [\![E]\!]^{+\,c,s,w}([\![F]\!]^{+\,c,s,w})$
(= nothing remarkable happens when neither the functor nor the argument carry iconic indices on their own; when the entire constituent *[E F]* carries an iconic index, it is ignored in the computation of the meaning of *[E F]*, though if *[E F]* as a whole is composed with something else, this iconic index may have consequences)

(i) $[\![E^i\ F]\!]^{+\,c,s,w} = \lambda x_{\tau_2}\ldots\ \lambda x_{\tau_n}.\ \#$ iff $[\![E]\!]^{s,w}([\![F]\!]^{s,w})(x_{\tau_2})\ldots(x_{\tau_n}) = \#$ or $f_c(E^i)(w)([\![F]\!]^{s,w})(x_{\tau_2})\ldots(x_{\tau_n}) = \#;\ = 1$ iff $[\![E]\!]^{s,w}([\![F]\!]^{s,w})(x_{\tau_2})\ldots(x_{\tau_n}) = 1$ and $f_c(E^i)(w)([\![F]\!]^{s,w})(x_{\tau_2})\ldots(x_{\tau_n}) = 1$
(= when the functor carries an iconic index, its iconic component applied to the value of its argument enriches the overall eaming)

(ii) $[\![E\ F^j]\!]^{+\,c,s,w} = \lambda x_{\tau_2}\ldots\ \lambda x_{\tau_n}.\ \#$ iff $[\![E]\!]^{s,w}([\![F]\!]^{s,w})(x_{\tau_2})\ldots(x_{\tau_n}) = \#$ or $[\![E]\!]^{s,w}(f_c(F^j)(w))(x_{\tau_2})\ldots(x_{\tau_n}) = \#;\ = 1$ iff $[\![E]\!]^{s,w}([\![F]\!]^{s,w})(x_{\tau_2})\ldots(x_{\tau_n}) = 1$ and $[\![E]\!]^{s,w}(f_c(F^j)(w))(x_{\tau_2})\ldots(x_{\tau_n}) = 1$
(= when the argument carries an iconic index, the overall meaning is conjunctively enriched by also applying the meaning of the functor to the iconic contribution of the argument)

(iii) $[\![E^i\ F^j]\!]^{+\,c,s,w} = \lambda x_{\tau_2}\ldots\ \lambda x_{\tau_n}.\ \#$ iff $[\![E]\!]^{s,w}([\![F]\!]^{s,w})(x_{\tau_2})\ldots(x_{\tau_n}) = \#$ or $f_c(E^i)(w)([\![F]\!]^{s,w})(x_{\tau_2})\ldots(x_{\tau_n}) = \#$ or $[\![E]\!]^{s,w}(f_c(F^j)(w))(x_{\tau_2})\ldots(x_{\tau_n}) = \#;\ = 1$ iff $[\![E]\!]^{s,w}([\![F]\!]^{s,w})(x_{\tau_2})\ldots(x_{\tau_n}) = 1$ and $f_c(E^i)(w)([\![F]\!]^{s,w})(x_{\tau_2})\ldots(x_{\tau_n}) = 1$ and $[\![E]\!]^{s,w}(f_c(F^j)(w))(x_{\tau_2})\ldots(x_{\tau_n}) = 1$.[29]
(= when both the functor and the argument have an iconic meaning, the two enrichment mechanisms of (i) and (ii) are applied; in the present implementation we do not require that the iconic meaning of the functor be applied to the iconic meaning of the argument)

b. Iconic Abstraction
For any expressions E' and F' such that for some types $\tau_1 \ldots \tau_n$, for some function A, $[\![E'\ F']\!]^{c,s,w} = \lambda x_{\tau_1}\ldots \lambda x_{\tau_n}.\ [\![F']\!]^{A(c,s,w,x_{\tau_1},\ldots,x_{\tau_2})}$ where $A(c, s, w, \tau_1 \ldots \tau_n)$ is a triple of the form <context, assignment function, world>,
$[\![E'\ F']\!]^{+\,c,s,w} = [\![[E'\ F']^i]\!]^{+\,c,s,w} = \lambda x_{\tau_1}\ldots \lambda x_{\tau_n}.\ [\![F']\!]^{+\,A(c,s,w,x_{\tau_1},\ldots,x_{\tau_2})}$

(= rules that involve lambda-abstraction are preserved in the same form under the iconic interpretation; when the entire constituent *[E F]* carries an iconic index, it is ignored in the computation of the meaning of *[E F]*, though if *[E F]* as a whole is composed with something else, this iconic index may have consequences)

c. Nodes of type t
For any expressions E, if $[\![E]\!]^{c,s,w}$ is of type t, for any index i,

$[\![E^i]\!]^{+\,c,s,w} = \#$ iff $[\![E]\!]^{c,s,w} = \#$ or $f_c(E^i)(w) = \#;\ = 1$ iff $[\![E]\!]^{c,s,w} = 1$ and $f_c(E^i)(w) = 1$.

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[27] This convention is for legibility only, and not an 'official' part of the system. (If it were, it would lead to problems when two occurrences of the same basic word – say *GROW* – have different quotational contributions in one and the same sentence; we would be forced to give both the representation $GROW^0$, despite the fact that their quotational contributions could be different if they are signed differently.)
[28] See fn. 24.
[29] For simplicity we do not require that the iconic contribution of the functor be applied to the iconic contribution of the argument. The repercussions of adopting this condition as well are left for future research.

(= expressions of type t denote properties of worlds that take the world of evaluation as implicit argument, hence a modified version of rule (i) is needed for this case)

d. For any terminal node E that does not fall under (c),

$[\![E]\!]^{+\,c,\,s,\,w} = [\![E^i]\!]^{+\,c,\,s,\,w} = [\![E]\!]^{c,\,s,\,w}$

(= all other terminal nodes have the same value under the iconic interpretation as under the normal interpretation)

In our discussion of *GROW* in (37), we took the insertion of an iconic index to be optional. This can be interpreted as follows: some properties of signs can be taken to accidental variations in the realization of an abstract word, or they can be taken to have an iconic contribution; only in the latter case is this represented with an iconic index. We further assume that iconic indices are not used in vain, as specified in (41); this entails in particular that only expressions that have a plausible iconic use can carry an iconic index, and that the semantic enrichment this gives to is non-trivial.

(41) **Economy condition on iconic indices**
An iconic index i can appear on an expression E in a sentence *S[E]* uttered in a context only in case:
(i) the context provides an iconic interpretation for E^i, i.e. $f_c(E^i)$ is defined;
(ii) this inconic contribution affects the truth conditions of S in the context, i.e.
$[\![S[E^i]]\!]^{+\,c,\,s,\,c_w} \neq [\![S[E]]\!]^{+\,c,\,s,\,c_w}$ where c_w is the world coordinate of c.

4.2.3   Examples

Consider first the sentence *POSS-1 GROUP GROW*, as in (32). It is safe to assume that the sentence is generated by Phrase Structure Rules such as the simplified ones in (42):

(42) S → DP VP
      DP → D N
      VP → V_i
      D → POSS-1
      N → GROUP
      V_i → GROW

Among the rules that (39) allows us to add are all rules of form (43).

(43) N → $GROUP^k$ for k ≥ 0
      V_i → $GROW^k$ for k ≥ 0

If *GROW* carries no superscript, the interpretation proceeds as it normally does. If *GROW* carries a superscript k, as in (44), we get the derivation of the truth conditions in (44).

(44) Let c be a context, s an assignment function and w a situation. We assume that grow' and $f_c(GROW^k)$ are bivalent, and that in w the author of c has exactly one group, called g, i.e. that $[\![POSS\text{-}1\ GROUP]\!]^{f,\,s,\,w} = g$

$[\![[POSS\text{-}1\ GROUP]\ GROW^k]\!]^{+\,c,\,s,\,w}$
= [λx. 1 iff $[\![GROW]\!]^{f,\,s,\,w}(x) = 1$ and $f_c(GROW^k)(w)(x) = 1$; 0 otherwise](g)   (by (40)a(i))
= 1 iff grow'$_w$(g) and $f_c(GROW^k)(w)(g) = 1$; = 0 otherwise   (by the assymption that grow' and $f_c(GROW^k)$ are bivalent)

We can now make use of the specifications in (38) to obtain truth conditions that depend on the iconic requirements introduced by the form of *$GROW^k$*.

Suppose now that the iconic component to be interpreted is a happy face on the entire clause; for reader-friendliness, we will put both an index on the sentence and the happy face symbol we used above. Using (39), we can make use of syntactic rules such as those in (45). Using rule (40)c, we can provide the derivation in (46).

(45) S → $[DP\ VP]^k$ for k ≥ 0

(46) a. :-)-------------------------
          $[[MY\ GROUP]\ GROW]^k$

b. $[[(46)a]]^{+\,c,\,s,\,w} \neq \#$. Furthermore, $\quad [[(46)a]]^{+\,c,\,s,\,w} = 1$ iff grow$'_w$(g) and $f_c((46)a)(w) = 1$

It remains to specify what the iconic component of (46)a is, or in other words under what conditions $f_c((a))(w)$ is true. A natural assumption is that the meaning is very underspecified – maybe with the contribution that some salient person in the relevant context is happy in the relevant world. With this assumption we can complete the derivation of the truth conditions, as shown in (47).

(47) If $f_c((46)a)(w) = 1$ iff some salient person in c is happy in w, and $= 0$ otherwise,
$[[(46)a]]^{+\,c,\,s,\,w} \neq \#$. Furthermore, $[[(46)a]]^{+\,c,\,s,\,w} = 1$ iff grow$'_w$(g) and some salient person in c is happy in w.

4.3   Quotation as iconicity

By construction (clause (40)(2)), iconicity can have quotational effects. An example will make this clear, but to appreciate it we should first consider a case of Attitude Role Shift without quotation. The definitions in (48)-(49) are borrowed from Part I, and make it possible to handle a case without iconic conditions such as (50), whose truth conditions are derived in (51). By the definitions in (40), these rules of the base interpretation $[[\,.\,]]^{c,\,s,\,w}$ can be extended to rules of the iconic interpretation $[[\,.\,]]^{+\,c,\,s,\,w}$.

(48) $\qquad\qquad\qquad RS_{i\,\underline{\quad}}$
Semantics of $\qquad IP \qquad$, written as $RS_i\ IP$
Let c be a context, s an assignment function and w a world. Then for any index i and clause *IP*,
$[[RS_i\ IP]]^{c,\,s,\,w} = \lambda x'\ \lambda w'\ .\ [[IP]]^{<x',\,w'>,\,s,\,w'}$

(49) Original definition
Let SAY$_w$(x) be the set of contexts compatible with what individual says in world w.
For any object p of type $<e, <s, t>>$ (where s is the type of worlds), for any object x of type e, for any context c, assignment function s and world w,

$[[SAY\ ]]^{c,\,s,\,w}(p)(x) = \#$ iff for some $c' \in SAY_w(x)$, $p(c'_a)(c'_w) = \#$. If $\neq \#$, $[[SAY\ ]]^{c,\,s,\,w}(p)(x) = 1$ iff for every $c' \in SAY_w(x)$, $p(c'_a)(c'_w) = 1$

(50) $\qquad\qquad\qquad RS_{a\underline{\qquad\qquad\qquad}}$
a. IX-a SAY $\qquad$ IX-1 WILL LEAVE
b. IX-a SAY RS$_a$ [IX-1 WILL-LEAVE]

(51) $[[(50)b]]^{c,\,s,\,w}$
$= [[SAY\ ]]^{c,\,s,\,w}([[RS_a\ [IX-1\ WILL-LEAVE]]]^{c,\,s,\,w})([[IX-a]]^{c,\,s,\,w})$
$= [[SAY\ ]]^{c,\,s,\,w}(\lambda x'.\ \lambda w'.\ will\text{-}leave'_{w'}(x'))(s(a))$
$\neq \#$; $= 1$ iff for every $c' \in SAY_w(s(a))$, will-leave$'_{w'}(c_a) = 1$; $= 0$ otherwise.

In order to develop an analysis with quotational effects, we will have to modify the lexical entry of *SAY* so as to allow it to take sentential (in addition to propositional) arguments. Importantly, on the new definition *SAY* evaluated at a world w has two types: it can take as argument a centered proposition (of type $<e, <s, t>>$), and thus it has the type $<<e, <s, t>>, <e, t>>$; but it can also take as argument a sentential argument (of type e), and for this reason it must *also* have the type $<e, <e, t>>$.[30]

(52) Revised definition
Let SAY$_w$(x) be the set of contexts compatible with what individual says in world w.
For any object p of type $<e, <s, t>>$ (where s is the type of worlds) or e, for any object x of type e, for any context c, assignment function s and world w,
$[[SAY]]^{c,\,s,\,w}(p)(x) = \#$ iff p is of type e and p is not a sentence, or p is of type $<e, <s, t>>$ and for some $c' \in$

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[30] An argument for this dual type assignment might be provided by sentences in (i), where *said* takes as objects both a propositional and a sentential argument.

(i) John said that I should leave, not 'I should leave'.

$SAY_w(x)$, $p(c'_a)(c'_w) = \#$.[31] If $\neq \#$, $[\![SAY]\!]^{c, s, w}(p)(x) = 1$ iff p is of type e and x utters p in w, or p is of type $<e, <s, t>>$ and for every $c' \in SAY_w(x)$, $p(c'_a)(c'_w) = 1$

We can now provide an account of the quotational use of a role-shifted sentence.

(53) a. IX-a SAY [RS$_a$ [IX-1 WILL-LEAVE]]^0
b. Suppose that $f_c($[RS$_a$ [IX-1 WILL-LEAVE]]$^0)$ is quotational, as specified in (40)(2). Then:

$[\![(53)a]\!]^{+, c, s, w}$
$= [\![SAY [RS_a [IX-1 WILL-LEAVE]]^0]\!]^{+ c, s, w}([\![IX-a]\!]^{+ c, s, w})$
$= [\lambda x.$ 1 iff $[\![SAY]\!]^{c, s, w}([\![RS_a [IX-1 WILL-LEAVE]]\!]^{c, s, w})(x) = 1$ and $[\![SAY]\!]^{c, s, w}(f_c($[RS$_a$ [IX-1 WILL-LEAVE]]$^0)(w)) = 1$; $= 0$ otherwise$](s(a))$ since by assumption $f_c($[RS$_a$ [IX-1 WILL-LEAVE]]$^0)$ is quotational, and the expressions involved do not contain presupposition triggers;
$= 1$ iff for every $c' \in SAY_w(s(a))$, will-leave$'_w(c_a) = 1$ and in w s(a) utters [RS$_a$ [IX-1 WILL-LEAVE]]^0; $= 0$ otherwise.

In the end, we see that the role-shifted expression is both used and mentioned – it has both a standard meaning with a context-shifting operator, and a quotational meaning. At this point, it must be noted that what we have formally treated as a Role Shift operator is in fact just a rotation of the signer's body, and thus that a quotational analysis of the entire role-shifted clause provides a plausible reading, one whereby the reported speaker just used the words *IX-1 WILL-LEAVE* (if *RS$_a$* were realized as an operator, we would attribute to the reported agent the use of this operator, which would be incorrect).

5   Role Shift and Maximal Iconicity in ASL

We will now propose that in Attitude and Action Role Shift alike, the role-shifted clause comes with a requirement that it should be interpreted 'maximally iconically'. The basic idea is sketched in Section 5.1; it is applied to Action Role Shift in Section 5.2 and to Attitude Role Shift in Section 5.3. At this point, we only seek to derive the ASL data. Necessary refinements for LSF are discussed in

5.1   Basic Idea

We start by defining the conditions under which a clause *S* is interpreted 'maximally iconically'. As first approximation, this happens if it is impossible to 'add' iconic indices or to turn existing ones into quotational indices without triggering a presupposition failure. For technical reasons that will become clear in Section 5.3, we need to assume that a quotational index is 'more iconic' than a normal iconic index; but this makes some conceptual sense as well, as quotational interpretation forces *identity* between the relevant expression and an element of the situations referred to – whereas standard iconic interpretation just requires the existence of a appropriate *mapping* between them.

(54) **Maximally Iconicity**
A clause *S* is interpreted maximally iconically relative to a syntactic environment *a_b*, a context c, an assignment function s and a situation w just in case
(i) *aSb* interpreted relative to c, s, w does not give rise to a failure and satisfies the condition in (41);
(ii) it is impossible to
a. add iconic superscripts on expressions of *S* that are not already contained within an iconically interpreted constituent within *S*, or to
b. turn some iconic supserscripts on expressions of *S* that are not already contained within an iconically interpreted constituent within *S* into quotational indices,
so as to obtain a 'more iconic' expression S^+ such that aS^+b does not yield a failure relative to c, s and w and aS^+b satisfies the condition in (41).

We then take the Role Shift operator to introduce a requirement according to which its sister is interpreted maximally iconically. This revised interpretive rule is stated below:

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[31] We could add an additional source of failure if x is not the type of entity that's capable of producing speech acts – but such a refinement wouldn't bring anything for present purposes.

(55) **Maximal Iconicity of Role Shift**
RS$_i$ IP is only acceptable relative to a syntactic environment a_b, a context c, an assignment function s and a world w if *RS$_i$ IP* is interpreted maximally iconically

We will now illustrate the workings of the system in both Action Role Shift and Attitude Role Shift.

5.2 Action Role Shift

We can now provide a derivation of the truth conditions of a simple sentence involving Action Role Shift, as in (57). To simplify the discussion, we will assume a simple iconic contribution for the happy face, as in (56):

(56) *Assumption:* for every context c, individual x, world w and constituent *E*, if $[\![E]\!]^{c, s, w}$ is of type <e, t>, if $f_c(E^i)(w)$ is of type <e, t> and if E^i involves happy face,

$f_c(E^i)(w)(x) = 1$ iff x smiles in w; = 0 otherwise.

With these tools in hand, we can provide a derivation of the truth conditions for simple cases of Action Role Shift with an iconic component, as in (57) (on a technical level, it will be recalled from Part I that we assumed that the distinguished world term *w** always denotes the world of evaluation, i.e. $[\![w^*]\!]^{c, s, w} = w$).

(57) Let
```
        :-)------------------------------------
```
$E^1 = [RS_a \varnothing_1 \text{ 1-WALK-WITH-ENERGY}]^1$.

For any context c, assignment function s and world w,

```
            :-)---------------------------------------
```
$[\![w^* \text{ IX-a} \quad [RS_a \varnothing_1 \quad \text{1-WALK-WITH-ENERGY}]^1]\!]^{+ c, s, w}$

$= [\![\text{IX-a} \quad E^1]\!]^{+ c, s, w}(w)$

$= [\lambda w' . \# \text{ iff } [\![E]\!]^{+ c, s, w}(s(a))(w') = \# \text{ or } \mathbf{f_c(E^1)(w')(s(a)) = \#}; 1 \text{ iff } [\![E]\!]^{+ c, s, w}(s(a))(w') = 1 \text{ and } f_c(E^1)(w')(s(a)) = 1](w)$

$= \# \text{ iff } [\![E]\!]^{+ c, s, w}(s(a))(w) = \#; 1 \text{ iff } [\![E]\!]^{+ c, s, w}(s(a))(w) = 1 \text{ and } f_c(E^1)(w)(s(a)) = 1$ (since the iconic contribution in (56) is bivalent)

$= \# \text{ iff } [\![\varnothing_1 \text{ 1-WALK-WITH-ENERGY}]\!]^{+ <s(a), w>, s, w} = \#; 1 \text{ iff } [\![\varnothing_1 \text{ 1-WALK-WITH-ENERGY}]\!]^{+ <s(a), w>, s, w} = 1 \text{ and } f_c(E^1)(w)(s(a)) = 1$

$= 1 \text{ iff } [\![\text{1-WALK-WITH-ENERGY}]\!]^{+ <s(a), w>, s, w}(s(a)) = 1 \text{ and x smiles in w; } = 0 \text{ otherwise}$ (since by construction the argument *Ø$_1$* denotes the agent of the context, and hence satisfies the presupposition of *1-WALK-WITH-ENERGY*)

$= 1 \text{ iff walk-with-energy}'_w(s(a)) = 1 \text{ and x smiles in w; } = 0 \text{ otherwise}$.

It remains to check that the role-shifted sentence is interpreted maximally iconically, as this is mandated by Condition (55). Since the entire clause has an iconic index, the only way for it to be interpreted 'more' iconically would be for the iconically interpreted constituent to get a quotational index, say 0 (as things stand, the index 1 does not give rise to a quotational interpretation, since $f_c(E^1)(w')$ as defined in (56) clearly doesn't denote a sentential expression). But this would immediately yield a type mismatch: $f_c(E^0)(w)$ would be of type e (with $f_c(E^0)(w) = E^0$), and thus we would have that $f_c(E^0)(w)(s(a)) = \#$. We would obtain (with a different index) a version of the boldfaced condition in (57), and the sentence would end up in a failure. Thus the interpretation we *do* have in (57) is maximally iconic.

5.3 Attitude Role Shift

Let us turn to Attitude Role Shift, with the goal of deriving its quotational or near-quotational character. We consider the sentence in (58)a, analyzed as (58)b, where the index 0 gives rise to a quotational interpretation.

(58)
$$\text{:-)----------------------}$$
$$\text{RS}_a\underline{\hspace{3cm}}$$
a. IX-a SAY   IX-1 WILL LEAVE

b. IX-a SAY [RS$_a$ IX-1 WILL-LEAVE]^0

(59) Let $E^0 = [\text{RS}_a$ IX-1 WILL-LEAVE]^0, and let us assume that $f_c(E^0)$ is quotational, and hence that for every world w, $f_c(E^0)(w)$ is of type e and $f_c(E^0)(w) = E^0$.[32]

$[\![(58)b]\!]^{+\,c,\,s,\,w}$
$= [\![\text{SAY} [\text{RS}_a \text{ IX-1 WILL-LEAVE}]^1]\!]^{+\,c,\,s,\,w}(s(a))$
$= [\lambda x . \# \text{ iff } [\![\text{SAY}]\!]^{+\,c,\,s,\,w} ([\![E]\!]^{+\,c,\,s,\,w})(x) = \# \text{ or } [\![\text{SAY}]\!]^{+\,c,\,s,\,w} (f_c(E^0)(w))(x) = \#; 1 \text{ iff } [\![\text{SAY}]\!]^{+\,c,\,s,\,w} ([\![E]\!]^{+\,c,\,s,\,w})(x) = 1 \text{ and } [\![\text{SAY}]\!]^{+\,c,\,s,\,w} (f_c(E^0)(w))(x) = 1](s(a))$
$= \# \text{ iff } [\![\text{SAY}]\!]^{+\,c,\,s,\,w} (\lambda x' \lambda w'. \text{ will-leave}'_{w'}(x'))(s(a)) = \# \text{ or } [\![\text{SAY}]\!]^{+\,c,\,s,\,w}(f_c(E^0)(w))(s(a))) = \#; 1 \text{ iff } [\![\text{SAY}]\!]^{+\,c,\,s,\,w}(\lambda x' \lambda w'. \text{ will-leave}'_{w'}(x'))(s(a)) = 1 \text{ and } [\![\text{SAY}]\!]^{+\,c,\,s,\,w}(f_c(E^0)(w))(s(a))) = 1$
$= 1 \text{ iff for every } c' \in \text{SAY}_w(s(a)), \text{ will-leave}'_{c'_w}(c'_a) = 1 \text{ and in } w \text{ } s(a) \text{ utters } E^0; = 0 \text{ otherwise.}$

It is immediate that we obtain a fully quotational reading for the embedded clause, and hence that the happy face that appears on it will be assigned to the agent of the reported speech act – as is intended. Furthermore, since the entire embedded clause is interpreted iconically, and since its iconic index is quotational, it is clear that the role-shifted clause is interpreted 'maximally iconically', as is mandated by (54) – the interpretation we obtain is thus predicted to be acceptable. Finally, because a quotational index on the entire embedded clause is acceptable, such an index is obligatory: by (54)(ii)a, the entire embedded clause must contain an iconic index; and by (54)(ii)b, this iconic index must be quotational; thus *only* a quotational reading is available.

5.4 Distinctions among attitude verbs

Given the present analysis of Attitude Role Shift, we expect that attitude verbs that can select role-shifted clauses should establish relations between individuals and propositions *as well* as sentences: in the truth and failure conditions we derived in (59), it was essential that the verb *SAY* could take a *sentence* (rather than just a proposition) as argument. This leads one to expect that attitude verbs that can select role-shifted clauses can also introduce direct discourse. As we wrote in Part I, it is not yet obvious what one should take as a the baseline of a direct discourse in ASL and LSF, as the quotation operator introduces difficulties of its own (it might conceivably be analyzed as a variety of Role Shift, though without some of its usual hallmarks). Still, it is interesting to note that within ASL our informant preferred to apply Role Shift with speech verbs, though some verbs of thought allowed for it as well. The data in (60) and (61) are based on contrasts between constructions with and without Role Shift. All verbs of speech verbs allowed for both constructions with equal acceptability, whereas for verbs of thought Role Shift was often slightly dispreferred. We take this to be compatible with the present analysis, since verbs of speech presumably introduce direct discourse a bit more easily than verbs of thought. A more detailed typology and analysis are left for future research.

(60)   JOHN$_a$ <verb of speech>
(i) IX-a WILL LIVE WITH MARY
(ii) RS$_a$\underline{\hspace{5cm}}
     IX-1 WILL LIVE WITH MARY
(ASL, 19, 37)

<verb of speech> =	(i) No Role Shift	(ii) Role Shift

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[32] Note that for type reasons, $f_c(E^0)(w)$ (of type e) does not fall under the assumption in (56).

1. SAY	7	7
2. TELL-1	7	7
3. ANNOUNCE	7	7
4. TELL (story)	7	7
5. EXPLAIN	7	7
6. INFORM	7	7

(61) JOHN$_a$ <verb of thought>
   (i) IX-a WILL LIVE WITH MARY
   (ii) RS$_a$_____
        IX-1 WILL LIVE WITH MARY
   (ASL, 19, 38)

<verb of speech> =	(i) No Role Shift	(ii) Role Shift
1. THINK	7	5.5
2. THINK 2 (deeply)	7	5
3. KNOW	7	6
4. WONDER	7	6
5. IMAGINE	7	6.5
6. FEEL	7	5.5

6   Necessary Refinements: ASL vs. LSF

6.1   Strict or non-strict quotation?

We saw in Part I that there is a difference between our ASL and our LSF data with respect to *wh*-extraction: our ASL informant allowed for a variety of strategies of extraction out of a role-shifted clause under an attitude verb, whereas our LSF informant disallowed extraction under Attitude Role Shift. Given the present framework, the simplest way to analyze the data is to posit that iconic functions that are quotational are more permissive in ASL than in LSF, in that the former ignore *wh*-traces while the latter do not, as stated in (62).

(62) Quotational iconic functions
   a. Strict version - LSF
   $f_c(E^i)$ is quotational just in case for every world w, $f_c(E^i)(w)$ is of type e and $f_c(E^i)(w) = E^i$ (in other words, the iconic contribution of E^i is a particular object that happens to be that very expression).

   b. Liberal version - ASL
   $f_c(E^i)$ is quotational just in case for every world w, $f_c(E^i)(w)$ is of type e and for some expression E* obtained from E^i by replacing *wh*-traces with expressions of the same syntactic and semantic type,

   $f_c(E^i)(w) = E*$[33]

Consider for instance the case of wh-extraction in (63)a, discussed for ASL sentences in Part I; we take it to have the Logical Form in (63)b, and we only provide a derivation of its truth conditions under a particular assignment function s.

(63)
                          RS_____
   a. WHO IX-a SAY   IX-1 WILL LIVE WITH HERE[34]
   b. WHO λi **[IX-a SAY [RS$_a$ IX-1 WILL LIVE WITH t$_i$ HERE]^0]**

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[33] We could consider adding a requirement that a trace t_i should be replaced by an expression that denotes the same thing as t_i, but this would require a more sophisticated analysis where possible replacement are considered *relative to an assignment function*.

[34] The full sentence is reproduced in (i):

(i)   *Context:* The speaker is in NYC; the listener was recently in LA with John.
      BEFORE IX-a JOHN IN LA [= while in LA],
                          RS_____
      6.7 WHO IX-a SAY   IX-1 WILL LIVE WITH HERE WHO
      'While John was in LA, who did he say he would live with there?' (ASL, 14, 91)

(64)   a. IX-a SAY [RS$_a$ IX-1 WILL LIVE WITH t$_i$ HERE]^0
   b. We write E^0 = [RS$_a$ IX-1 WILL LIVE WITH t$_i$ HERE]^0, and we assume that for every c', s', w',
   [[IX-1 WILL LIVE WITH t$_i$ HERE]]$^{+ c', s', w'}$ = will-live-with'(s'(i))(c'$_a$)(c'$_l$), where live-with' is triadic, c'$_a$ is
   the agent of c' and c'$_l$ is the location of c'.

   [[(64)a]]$^{+ c, s, w}$
   = 1 iff for every c' ∈ SAY$_w$(s(a)), will-live-with'$_{c'_w}$(s(i))(c'$_a$)(c$_l$) = 1 and in w for some expression E*
   obtained from E^0 by replacing t_i with of the same syntactic and semantic type, s(a) utters E*; 0 otherwise
   = 1 for every c' ∈ SAY$_w$(s(a)), will-live-with'$_{c'_w}$(s(i))(c'$_a$)(c$_l$) = 1 and in w for some nominal expression n of
   type e, s(a) utters *IX-1 WILL LIVE WITH d HERE*; 0 otherwise

Thus the wh-trace does not have to be quoted, though the rest of the clause does – which appears to be adequate for this particular case.[35]

   In effect, the liberal version of quotational iconic functions allows for a kind of 'mixed quotation' in which wh-traces are selectively ignored. It would be tempting to make the liberal version a bit more general by stating that *all* empty categories can be ignored in this way. But this requires some caution: as we noted in Section 2.2, in ASL and LSF alike an elided VP under Attitude Role Shift is interpreted quotationally, in the sense that it gives rise to the inference the original speech act involved an ellipsis as well. Thus we do not want the liberal version of quotational iconic functions to treat elided elements in the same way as *wh*-traces. Pending further investigation, then, we stick to this somewhat restrictive version of the liberal principle.

6.2   *ASL vs. LSF II: Exhaustive Interpretation*

Consider again Action Role Shift. In ASL, some sentences with Role Shift have no obvious iconic component – and this is permitted by our analysis: if no iconic functions are present in the context because the signs are not conducive to an iconic enrichment, the sentence should still be acceptable, as was the case of (65):

(65)   IX-a JOHN OFTEN MEET-MEET [POOR PEOPLE]$_b$, IX-1 KNOW LOTS PEOPLE IX-arc-b IX-a
   FINISH
   'John often meets poor people. I know lots of people that he
   RS$_a$_____
   7 1-GIVE-b-rep MONEY.
   has given money to.' (ASL, 18, 98; from Part I)

Now this might be overly liberal – signers' intuition is often that Role Shift should be properly justified, which might argue for a condition such as (66), which requires at least one element under Role Shift should be interpreted iconically; in the case of (65), it could for instance be that the rate of repetition of the verb is iconically mapped to the rate of repetitions of giving events.

(66)   **Economy condition on Role Shift (ASL and LSF)**
   Role Shift should be justified by something – usually, at least one role-shifted expression should have an iconic component.

   Be that as it may, even this condition won't be enough to account for the LSF data discussed in Part I, which suggested that under ill-understood conditions expressions that don't have a proper iconic component trigger an attitude reinterpretation. In our data, this was for instance the case of (67)a: neither *IPHONE* nor the general verb *SHOW* has an iconic component, and the entire role-shifted clause was understood to be in the scope of a covert attitude operator. In (67)b we obtained a mixed reading in which *IPHONE* was cited but *SHOW-CL* corresponded to an action.

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[35] We must note, however, that in the general case this account will have to be made more sophisticated. This is because in sentences in which the subject is quantified – e.g. *Who did every student he would share an apartment with?* – we must allow for the possibility that different students used different descriptions in sentences of the form *I will share an aparment with X*. As it stands, our account fails to allow for this provision. We leave this question for future research.

(67) RECENTLY WOLF$_b$ IPHONE FIND HAPPY. SHEEP IX-b b-CALL-a.
      'Recently the wolf was happy to find an iPhone. He called the sheep.
      a.   RS$_b$_____
      6.7 IX-b   IPHONE SHOW.
      => the wolf said/thought he was showing/would show the iPhone to him
      He [= the wolf] said/thought he would show/was showing the iPhone to him.'
      b.   RS$_b$_____
      7 IX-b   IPHONE SHOW-CL.
      => the wolf said 'iPhone' and showed the iPhone (see full ratings in Appendix IV).
      He [= the wolf] said '(an) iPhone' and showed it.'
       (LSF, 39, 37; see also LSF, 39, 27)

In (68)a we have copied our tentative generalization, made in (29) above; it could be implemented in the present framework as in (68)b.

(68) Exhaustive Iconicity (LSF informant; tentative)
      a. *Informal version:* In LSF, every word under Role Shift must have an iconically interpreted component.
      b. *Formal version:* In LSF, every word under Role Shift should be included in a constituent with an iconic index.

(Note that in LSF (68)b makes (66) redundant. But despite initial appearances (68)b as it stands cannot fully replace 'Maximal Iconicity' as stated in (54). The reason for this is the latter includes a requirement that quotational indices be used whenever possible, whereas (68) is silent on this issue.)
        As things stand, we can only make the following suggestions about (67):
–In (67)a, neither *IPHONE* nor *SHOW* has a plausible iconic, non-quotational component. If only 'Maximal Iconicity' as in (54) were in force, the sentence would be acceptable, since given this Logical Form the sentence is interpreted as iconically as it could be: no non-quotational iconic functions are available given the signs that appear under Role Shift, and adding quotational indices would presumably give rise to presupposition failure (or at least to very odd meanings).[36] But given Exhaustive Iconicity as stated in (68), the only way out is to apply a rescue strategy that consists in introducing a concealed attitude operator (this is similar to the strategy discussed in Part I to 'save' indexicals that appear under Role Shift in the absence of an overt attitude operator). This leads to the Logical Form in (69), which is now compatible with the insertion of an iconic index 0 on the entire role-shifted constituent – which leads us back to the situation we discussed in (58)b.

(69) IX-b ~~SAY~~   [RS$_b$ IPHONE SHOW]^0

–We cannot account for the mixed interpretation which is apparently found in (67)b. If we assign to *IPHONE* a quotational index 0 and to *SHOW-CL* an iconic, non-quotational index 1, we will have satisfied Exhaustive Iconicity as stated in (68). But the iconic contribution $f_c(\text{IPHONE})^0$ is just the word *IPHONE* (by (40) (2)), and by Iconic Function Application ((40) a(iii)) the normal meaning of *SHOW-CL* will have to be applied to that object – with the inference that the agent showed a word, and in fact did so by holding it – clearly an undesirable result. Both the facts and the analysis are left for future research.

(70) IX-b   RS$_b$ IPHONE^0 SHOW-CL^1

7 Conclusion

Several conclusions can be drawn from the present study.

(i) In Part I, we emphasized that Role Shift makes overt an operation of 'context shift' which was postulated on the basis of somewhat indirect evidence in spoken language. We further argued that the cross-linguistic typology of Attitude Role Shift – with some languages allowing for mixing of

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[36] If a quotational index is inserted on the entire role-shifted clause, it could not compose with the pronoun; if it is inserted on *SHOW* only, the quotational value of the latter, of type e, couldn't compose with *IPHON;* finally, if a quotational index is inserted *IPHONE* only, we would infer that the agent showed an expression, which is a bit odd.

perspectives, and others disallowing it – a typology also found in spoken language. In the case of ASL and LSF, it proved difficult to exclude a quotational analysis of Attitude Role Shift. But for Action Role Shift, a context-shifting analysis turned out to be mandatory: because the relevant constructions described actions rather than attitudes, it just wasn't feasible to take the role-shifted clause to be mentioned rather than used. (As we emphasized in Part I, the theory of indexicals must be parametrized to capture the fact that all indexicals are shifted under Attitude Role Shift, whereas most indexicals are unacceptable or lead to an attitude reinterpretation in Action Role Shift.)

(ii) Still, we now understand why quotational analyses of Attitude Role Shift are hard to disprove – quite simply, they are partly correct. However the quotational effects found in ASL and LSF Attitude Role Shift are part of a more general phenomenon: in all cases, Role Shift is interpreted maximally iconically; quotation is just a special case of iconicity, one in which the iconically interpreted words are type-identical to words uttered in the denoted situations. The existence of contrasting judgments between our ASL and our LSF informants with respect to *wh*-extraction out of Attitude Role Shift that what counts as an appropriate iconic/quotational contribution must be parameterized. We did so in the pragmatics, by postulating that 'iconic quotational functions' are more liberal in ASL than they are in LSF. We also suggested – tentatively – that our ASL informant just obeys a rule of 'Maximal Iconicity' under Role Shift, whereas for our LSF informant a rule of 'Exhaustive Iconicity' is also in place, whereby each word under Role Shift must have an iconic component.

(iii) Due to the complexity of the subject matter, many important empirical and theoretical questions are left for future research.
–On a theoretical level, our formal semantics with iconicity is in a very preliminary stage, and the procedure outlined in (40) will have to be improved.[37] In addition, the *structure* of our theory might leave something to be desired. In effect, we had to postulate two independent mechanisms to account for sign language Role Shift: on the one hand, we needed an operation of *context shift*; on the other, we posited a principle of *iconicity maximization;* but these are logically independent from each other. It might seem more desirable to reduce one principle to the other, but achieving this result is non-trivial.[38]
–On an empirical level, we only have the beginning of an understanding of the discourse conditions that license Role Shift, and we have been silent on further constraints that might limit its scope (for instance, there is a common impression that Role Shift is less acceptable under negation; we come back to this issue in Appendix I). And we only have the beginning of an understanding of possible contrasts between ASL and LSF Role Shift.
–On a methodological level, the facts would need to be replicated and extended with further signers; at this point, our generalized are just based on in-depth, long-term fieldwork with one ASL signer and one LSF signer.

(iv) While our formal analysis of iconic meaning is very preliminary, a key component of it is that the meaning of an expression can be enriched with a contribution derived from its form. When applied to Attitude Role Shift, this has the consequence that some expressions are *both* used (with their normal meaning) and quoted. This result echoes some recent themes in the theory of quotation. As Recanati (2001, 2008) emphasized, it was traditionally thought that all quotations are 'closed', in the sense that they are singular terms denoting certain strings of words, as in (71).

(71) a. 'It is raining' contains three words.
　　　b. And then Greta Garbo said 'I want to be alone'. (Recanati 2001, (3))

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[37] One of its conceptual flaws is that we had to posit a disjunctive condition to handle quotational iconicity and 'standard' iconicity.

[38] One might want to reduce apparent context shift to iconicity, along the lines of Maier's quotation-based reanalysis of shifted indexicals (Maier, to appear); but extengin this analysis to Action Role Shift is non-trivial. Alternatively, one might wan to reduce iconicity maximization to context shift. But the difficulty is that (some) iconic effects appear to enrich the 'normal' assertive component of words, as in the case of *GROW* in (32). In our implementation, this ends up putting constraints on the world rather than on the context of evaluation, and it is the latter that would be crucial for a context-shifting analysis to directly account for iconic effects.

In contrast to this tradition, Recanati argues that there are many cases in which quotations do not function as singular terms, but rather are used as 'open quotations', in which "words are ostensively displayed, but their syntactic and semantic type remains unaffected", and hence where "the quotation is *not* grammatically recruited as a singular term" (Recanati 2008 p. 443); this is illlustrated in (72).

(72) 'I am fed up with all this'. Don't you have anything more constructive to say? (Recanati 2008, (3))

Following Clark and Gerrig 1990, Recanati argues that quotations can both be used and have an iconic component.[39] We reach similar conclusions on the basis of different data. Action Role Shift makes it virtually necessary to develop an analysis in which expressions can be used *and* have an iconic component simultaneously. But once a theory has been developed for Action Role Shift, the analysis of Attitude Role Shift almost follows as a special case, and it becomes entirely natural to posit that in that environment expressions are both used and quoted.[40]

(v) This study raises new questions about the comparison between sign and spoken languages.

–Do the quotational effects we found in Attitude Role Shift have counterparts in some indirect discourse constructsion in spoken language? Pearson 2012 (p. 448, fn. 123) notes some quotational effects in some Ewe constructions that involve logophoric pronouns – which are a hallmark of indirect rather than direct discourse.[41] It might be useful to revisit in some detail different varieties of indirect discourse (especially with logophoric pronouns and with shifted indexicals) to determine whether some of them display the kind of 'iconicity maximization' that we saw at work in Attitude Role Shift.

–Does Action Role Shift have counterparts in spoken language? We do not know of clear cases, but it might well be that some will be found. In case none are, one might ask whether the difference in modality might be responsible for this. We suggested in the 'economy condition' in (66) that Role Shift has to be justified by *something* – usually the fact that at least one element has an iconic component. This might explain why it is sometimes difficult to find 'good' examples of Action Role Shift – the reason might be that we had to find signs that could plausibly have an iconic component in the relevant situations. This hypothesis might also explain why under *SAY* Role Shift is systematically easier, as in this case the economy condition can be satisfied by treating the role-shifted clause as quoted. If it turns out that context shift in spoken language is subject to the same economy condition as Role Shift in sign language, the 'economy condition' might also explain the absence or near-

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[39] In Recanati's terms (2001 p. 681), 'what the demonstration conveys in virtue of its pictorial meaning can be incorporated into the utterance's truth-conditional content – or at least, into the content of the speaker's assertion – through the process of pragmatic enrichment'.

[40] Our formal treatment of the connection between quotative and non-quotative iconic effects is suboptimal. In (40)(1)-(2) we have a disjunctive treatment of that contrast: in quotative uses, the iconic component contributed by an expression is just that expression itself; in non-quotative uses, it is a meaning of the same type as the 'normal' meaning of that expression. A more unified account should be explored in the future.

[41] Pearson observed that for her informant (i) was 'acceptable, but only if it reports the addressee's words faithfully. For instance, (i) is unacceptable in a scenario where the verb used by the addressee was *yi*, 'go' rather than *dzo*, in which case (ii) should be used instead'.

(i)	O	gblon	be		yè	dzo.
	2SG	say	COMPL?		LOG	leave
	'You said that you left.'					
(ii)	O	gblon	be		o	dzo.
	2SG	say	COMPL?		LOG	leave
	'You said that you left.'					

She tentatively concludes that 'in addition to its use in indirect discourse, a (semi-) quotational use of *yè* may be marginally available'.

absence of an equivalent of Action Role Shift in spoken language. Due to the medium, iconic possibilities are very restricted in spoken language, *except* when it comes to quotational effects. Hence the requirement that role-shifted clauses should have an iconic component should be easy to satisfy in (potential) spoken language counterparts of Attitude Role Shift, but not of Action Role Shift. This might explain the typological absence of the latter. Still, this hypothesis can be maintained only if it can be shown that spoken language has fine-grained counterparts of Attitude Role Shift, i.e. indirect discourse constructions that must be intepreted maximally quotationally. Hence the importance of the question addressed in the previous paragraph.

Appendix I. ANY under Action Role Shift in ASL

In the data we have, *ANY* is degraded in Action Role Shift even if environment in which it appears is (apparently) negative, as is shown in (73)a. The data aren't entirely clear because the control condition we used in (73)b (with Role Shift but without *ANY*) isn't perfect to begin with. Still, *ANY* makes the sentence less acceptable. The theory developed in the text explains why *ANY* cannot be licensed from outside *Attitude* Role Shift: since the latter comes with a requirement that it should be interpreted quotationally, *ANY* should be as unacceptable as in the English sentence: *The guard didn't say: 'I showed the prisoners any kindess'* (= only acceptable if the guard is claimed to have used an ungrammatical sentence). But this analysis does not extend to Action Role Shift, since 'maximal iconicity' does not translate into quotation in that case.

(73)   IX-a JOHN OFTEN MEET-MEET [INJURED PEOPLE]$_b$,
         'John often meets injured people,'
         a.   RS$_a$_____
         3 BUT IX-a NEVER   SHOW-b ANY HEART-SOFT.
         a'.   RS$_a$_____
         5 BUT IX-a NEVER   SHOW-b HEART-SOFT.
         'but he never shows them (any) kindness.'
         b.   RS$_a$_____
         2 IX-a OFTEN   SHOW-b ANY HEART-SOFT.
         b'.   RS$_a$_____
         6.7 IX-a OFTEN   SHOW-b HEART-SOFT.
         'and he often shows them (any) kindness.'
         (ASL, 14, 125

As can be seen in (74), these are approximately the types of contrasts that we obtained with Attitude Role Shift.

(74)   IX-a JOHN OFTEN MEET-MEET [INJURED PRISONERS]$_b$,
         a.   RS$_a$_____
         2.7 BUT IX-a NEVER SAY IX-1 SHOW-b ANY HEART-SOFT.
         a'.   RS$_a$_____
         6 BUT IX-a NEVER SAY   IX-1 SHOW-b HEART-SOFT.
         b.   RS$_a$_____
         2.3 IX-a OFTEN SAY   IX-1 SHOW-b ANY HEART-SOFT.
         b'.   RS$_a$_____
         6.7 IX-a OFTEN SAY   IX-1 SHOW-b HEART-SOFT.
         (ASL, 14, 129)

        The deviance of the control sentence with Action Role Shift and a negative expression might give us a hint as to the reason. It might be that in Action Role Shift, a presupposition-like[42] inference is triggered to the effect that the iconically interpretable features of the role-shifted clause can be mapped to a situation in the world of evaluation. If this inference is preserved in the scope of negative expressions, we might obtain two effects:
–First, a negative sentence such as (73)a' should be somewhat deviant to begin with. The reason is that it could only make sense with the help of local accommodation, for otherwise the sentence would both (i) assert that John never shows any kindness in the relevant situations, and (ii) that there is an iconic map between the role-shifted clause and some aspects of the situations that verify it.
–Second, we would expect to find the same problems in (73)a, together with another one specifically triggered by *ANY*: when the positive inference triggered by Action Role Shift is taken into account, *ANY* is presumably not in a negative environment any more. Now it could be thought that this

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[42] Note that we speak of a 'presupposition-like' inference to refer to one that projects from the scope of negative expressions. But for the analysis which is sketched in this paragraph, we do not need for it to be literally a presupposition; the only important point is that it should project out of the scope of negation.

problem reduces to the first one, namely to the need to appeal to local accommodation to make the example coherent. But in other languages this is not so: intervention effects triggered by presuppositions, studied in great detail in Homer 2010, do seem to make their effects felt *even* in examples that facilitate local accommodation. A French example is given in (75):

(75)   a. Pierre ne s'aperçoit pas que Marie a une chance de gagner, parce qu'elle n'a aucune chance.
Pierre NE SE notice not that Marie has a chance to win, because that she NE has no chance.
'Pierre doesn't notice that Marie has a chance to win, because she has no chance to win.'
b. Pierre ne s'aperçoit pas que Marie a la moindre chance de gagner, parce qu'elle n'a aucune chance.

Pierre NE SE notice not that Marie has the slightest chance to win, because that she NE has no chance.
Intended: 'Pierre doesn't notice that Marie has a (literally: any) chance to win, because she has no chance to win.'

Now in Section 2.1 we assumed that *ANY* in Attitude Role Shift was prohibited because of the quotational component of the sentence, rather than because of an intervention effect triggered by a presupposition-like inference. If the present analysis of the deviance of *ANY* in Action Role Shift is on the right track, we will have to (i) extend it to Attitude Role Shift, and thus lose an argument for the quotational component of the latter; or alternatively (ii) explain why the intervention effect is not expected to arise in Attitude Role Shift. Our data do not allow us to decide: if (ii) is correct, we would expect that (74)a' is significantly better than (73)a'. While there is a contrast, our data are certainly not sufficientl to license a firm conclusion.

Appendix II. Role Shift Operators and Quotation

In Part I (Appendix IV) of the present study, we defined an alternative Role Shift operator, which unlike our 'official' one is extensional, i.e. triggers abstraction over an individual argument but not abstraction over a world argument. We now explain why this alternative operator – which is in some respects simpler than the one we used – would yield difficulties in the statement of our iconic conditions.

The semantics of the alternative operator is defined in (76). Because it is purely extensional, in attitude reports it must be combined with an intensional operator, which we notated *Op*.

(76) RS_i ___

Semantics of   IP   , written as $RS_i IP$

Let c be a context, s an assignment function and w a world. Then for any index i and clause *IP*,
$[\![RS_i\ IP]\!]^{c, s, w} = 1$ iff $[\![IP]\!]^{<s(i), w>, s, w} = 1$

(77) For any clause *F*, context c, assignment function s and world w,

$[\![Op_i\ F]\!]^{c, s, w} = \lambda x'.\ \lambda w'.\ [\![F]\!]^{c, s[i\text{ -> } x'], w'}$

With these operators in place, our analysis of Attitude Role Shift relied on Logical Forms such as that in (78):

(78) IX-a SAY Op_a RS_a [IX-1 WILL-LEAVE]

But a difficulty arises when we posit that role-shifted clauses must be interpreted maximally iconically. Unless we give a rather odd statement of this maximization rule, we will get the result that the role-shifted clause *excluding* the operator *Op* is interpreted maximally iconically, hence a Logical Form such as (79), where the index 0 is quotational (for legibility, the iconically interpreted part is boldfaced).

(79) IX-a SAY Op_a $[\textbf{RS}_\textbf{a}\ \textbf{[IX-1 WILL-LEAVE]}]^0$

To interpret the embedded clause, we need to apply our rule of Iconic Abstraction, copied in (80) (from (40)b), to the abstraction operator defined in (77); this yields the interpretation in (81).

(80) Iconic Abstraction
For any expressions *E'* and *F'* such that for some types $\tau_1 \ldots \tau_n$, for some function A, $[\![E'\ F']\!]^{c, s, w} = [\![[E'\ F']^i$
$]\!]^{c, s, w} = \lambda x_{\tau_1} \ldots \lambda x_{\tau_n}.\ [\![F]\!]^{A(c, s, w, x_{,1}, \ldots, x_{,2})}$ where $A(c, s, w, \tau_1 \ldots \tau_n)$ is a triple of the form <context, assignment function, world>,
$[\![E'\ F']\!]^{+ c, s, w} = \lambda x_{\tau_1} \ldots \lambda x_{\tau_n}.\ [\![F']\!]^{+ A(c, s, w, x_{,1}, \ldots, x_{,2})}$

(81) $[\![Op_i\ F]\!]^{+ c, s, w} = \lambda x'.\ \lambda w'.\ [\![F]\!]^{+ c, s[i\text{ -> } x'], w'}$

But when we apply (81) to (79), we obtain the meaning in (82). And the difficulty is that the iconic component of the role-shifted clause will now be computed 'too low', within the scope of the attitude report (for brevity, we write E^0 for *[RS$_a$ [IX-1 WILL-LEAVE]]^0*):

(82) $[\![Op_a\ [\textbf{RS}_\textbf{a}\ \textbf{[IX-1 WILL-LEAVE]}]^0]\!]^{+ c, s, w}$
$= \lambda x'.\ \lambda w'.\ [\![[\textbf{RS}_\textbf{a}\ \textbf{[IX-1 WILL-LEAVE]}]^0\ ]\!]^{+ c, s[a\text{ -> } x'], w'}$ (by (40)b)
$= \lambda x'.\ \lambda w'. \#$ iff $[\![E]\!]^{c, s, w} = \#$ or $f_c(E^0)(w) = \#$; $= 1$ iff $[\![E]\!]^{c, s, w} = 1$ and $\boxed{f_c(E^0)(w) = 1}$ (by (40)c, because with the semantics for *RS* in (76) the clause *RS$_a$ [IX-1 WILL-LEAVE]* is of type t)

–If we apply our rules literally, we will already obtain an absurd result at this point: $f_c(E^0)(w)$ is assumed to denote an object of type e, namely the expression E^0, and certainly the latter isn't equal to the truth value 1 – hence the boxed condition in (82) will never be satisfied.
–If we provide an *ad hoc* rule to the effect that $f_c(E^0)(w) = 1$ if and only if the expression E^0 was used by a salient individual in wolrd w, we still get an incorrect result. The heart of the matter is that the quotational contribution of the embedded clause will be computed *within* the scope of the attitude operator, with the effect that (78) will yield at best the inference that the individual denoted by *a said that he was using the words 'I will leave'*. Intuitively, this is not the right result: we want an inference

that this individual *in fact* used these words. The source of the problem is that even though the role-shifted clause is interpreted quotationally, it is in the scope of the intensional abstraction operator Op_a, with the effect that its semantic contribution cannot be computed with respect to world of utterance but rather with respect to the worls compatible with what the agent said.

　　Importantly, the extensional Role Shift operator in (76) must be in the scope of an abstractor over individuals in order to yield a De Se reading, and hence a version of the problem we noted above is bound to arise with this particular definition. By contrast, the problem could be circumvented if we gave the Role Shift operator the semantics in (83), supplemented with one of the intensional operators defined in (84)a-b. With the Logical Form in (85), the corresponding meanings for the embedded clause are derived in (86)a-b. The key for our purposes is that in (85)a the Role Shift operator is *above* the abstraction operator, hence if the entire role-shifted clause carries a quotational index, as in (85)b, we will obtain the same kind of result as in our 'official' system, namely that the agent uttered the role-shifted expression (rather than said that he uttered it).

(83)　For any clause *IP*, context c, assignment function s and world w,
　　　$[\![RS_i\ IP]\!]^{F,\,s,\,w} = \lambda x'.\ [\![IP]\!]^{<x',\,c_w>,\,s,\,w}$

(84)　For any clause *F*, context c, assignment function s and world w,
　　　a. $[\![Op^*\ F]\!]^{F,\,s,\,w}$　　　　$= \lambda w'.\ [\![F]\!]^{<c_a,\,w'>,\,s,\,w'}$
　　　b. $[\![Op^{**}\ F]\!]^{F,\,s,\,w}$　　　$= \lambda w'.\ [\![F]\!]^{c,\,s,\,w'}$

(85)　a. IX-a SAY RS_a Op [IX-1 WILL-LEAVE]
　　　b. IX-a SAY [RS_a Op [IX-1 WILL-LEAVE]]^0

(86)　a. $[\![RS_a\ Op^*\ [IX\text{-}1\ WILL\text{-}LEAVE]\ ]\!]^{F,\,s,\,w}$
　　　$= \lambda x'.\ [\![Op^*\ [IX\text{-}1\ WILL\text{-}LEAVE]]\!]^{<x',\,c_w>,\,s,\,w}$
　　　$= \lambda x'.\ \lambda w'.\ [\![[IX\text{-}1\ WILL\text{-}LEAVE]]\!]^{<x',\,w'>,\,s,\,w'}$

　　　b. $[\![RS_a\ Op^{**}\ [IX\text{-}1\ WILL\text{-}LEAVE]\ ]\!]^{F,\,s,\,w}$
　　　$= \lambda x'.\ [\![Op^{**}\ [IX\text{-}1\ WILL\text{-}LEAVE]]\!]^{<x',\,c_w>,\,s,\,w}$
　　　$= \lambda x'.\ \lambda w'.\ [\![[IX\text{-}1\ WILL\text{-}LEAVE]]\!]^{<x',\,c_w>,\,s,\,w'}$

The meaning obtained in (86)a is just a centered proposition, and could be directly integrated into standard analyses of De Se readings and shifed indexicals; note that the overall effect of the operators is to manipulate the individual and world coordinates of the context of evaluation of the embedded clause, as well as its world of evaluation. But this is obtained at the price of a somewhat non-standard meaning for the intensional operator in (84)a, which simultaneously the world parameter and the world coordinate of the context parameter. The entry in (84)b is definitely more common, but the meaning it gives for the embedded clause in (86)b is less standard: the overall effect of the abstraction operators is to manipulate the individual but not the world coordinate of the context of evaluation of the embedded clause, as well as its world of evaluation; some adaptations would be needed to integrate this meaning into standard analyses of De Se readings and shifted indexicals.

　　Be that as it may, the definition in (83) has the advantage of yielding a simple and elegant treatment of Action Role Shift, with Logical Forms such as (87)a: because the Role Shift operator triggers an individual abstraction, the role-shifted clause can take an individual argument.

(87)　a. IX-a　　　　　　　RS_a [1-WALK-WITH-ENERGY $\emptyset_1$]
　　　b. IX-a　　λa　　RS_a [1-WALK-WITH-ENERGY $\emptyset_1$]
　　　c. w* IX-a RS_a [1-WALK-WITH-ENERGY(CL-ONE) $\emptyset_1$]

By contrast, with the extensional operator defined in (76) and in Appendix IV of Part I, we had to posit the Logical Form in (87)b, where an additional individual abstraction operator is needed to guarantee that the role-shifted clause can take an individual argument. The present implementation also differs from the 'official' analysis given in the main text, where the role-shifted clause can take an individual argument, but must be provided with a world argument in order to yield a truth value, as in (87)c.

Appendix III. Ratings

See the beginng of Part I, Appendix IV, for an explanation of the conventions used below.

(2)a.	14, 124	[JL 12.10.18]=	6	17, 46	[JL 13.05.07-2]=	6		18, 61	[JL 13.07.16]=	6	
a'.			7			7					7	
b.			3			3					2	
b'.			7			7					7	

(3)a.	14, 132	[JL 12.10.18]=	7	17, 50	[JL 13.05.07-2]=	7		18, 65	[JL 13.07.16]=	7	
a'.			7			7					7	
b.			3			2					2	
b'.			7			6					6	

(4)a.	14, 128	[JL 12.10.18]=	5	17, 48	[JL 13.05.07-2]=	6		18, 63	[JL 13.07.16]=	5	
a'.			7			7					7	
b.			3			3					3	
b'.			7			7					7	

(5)a.	14, 134		[JL 12.10.18]=		6	17, 51		[JL 13.05.07-2]=		6		18, 66	[JL 13.07.16]=		6	
a'.					7					7					7	
b.					2					2					2	
b'.					7					7					6	

(6)a.	14, 130		[JL 12.10.18]=		2	17, 49		[JL 13.05.07-2]=		3		18, 64	[JL 13.07.16]=		3	
a'.					7					6					5	
b.					3					2					2	
b'.					7					7					6	

(7)a.	14, 136		[JL 12.10.18]=		4	17, 52		[JL 13.05.07-2]=		3		18, 67	[JL 13.07.16]=		4	
a'.					7					7					6	
b.					2					2					3	
b'.					7					7					7	

Meaning: Can one infer from these sentences which precise words John used? If so, which?

(11)a.	14, 65	[JL 12.10.14]=	7	17, 53	[JL 13.05.07-2]=	7		18, 94	[JL 13.07.17]=	7	no	19, 10	[JL 13.08.15]=	7	No
a'.			7			7					7	no			7	No
b.			2			4					5	yes: "I not"			7	Yes: "I (do) not"
b'.			6			7					7	yes: "I hate Obama"			7	Yes: "I hate Obama"
c.			3			5					5	yes: "I not"			6	Yes: "I (do) not"
c'.			7			6					7	yes: "I hate Obama"			7	Yes: "I hate Obama:

Meaning: Can one infer from these sentences which precise words John used? If so, which?

(12)a.	14, 69	[JL 12.10.14]=	6	17,	[JL 13.05.07-2]=	7		18, 96	[JL 13.07.17]=	7	no	19, 12	[JL 13.08.15]=	7	No		
a'.			7			7					7	no			7	No		
b.			6			7					7	yes: "I not"			7	Yes: "I (do) not"		
b'.			7			7					7	yes: "I hate Obama"			7	Yes: "I hate Obama"		
c.			4			5					6	yes: "I not"			5	Yes: "I (do) not"		
c'.			6			5					6	yes: "I hate Obama"			6	Yes: "I hate Obama:		

Meaning: Can one infer which precise words Sarkozy used? If so, which?

(13)a.	25, 121	[LD 12.12.12]=	6	29, 53	[LD 13.03.01]=	7	31, 233 + 31, 237	[LD 13.07.08]=	7	non car 'il'
b.			7			7			7	oui 'jaime pas OB'
c.			7			7			5	les guillemets sont peut etre un peu bizarre dans le dialogue- oui 'jaime pas OB'

Meaning: Can one infer which precise words Sarkozy used? If so, which?

(14)a.	25, 123	[LD 12.12.12]=	7	29, 54	[LD 13.03.01]=	7	31, 234 + 31, 238	[LD 13.07.08]=	7	non
b.			7			7			7	oui 'moi non'
c.			3			7			2	guillemts = citation importante - oui "moi non"

(16)a.			14, 232	[JL 12.10.22]=	7	17, 56	[JL 13.05.08]=	7	18, 91	[JL 13.07.17]=	7	19, 7	[JL 13.08.15]=	7	20, 1	[JL 13.10.15]=	7
b. under the meaning: the SPEAKER is displaying his happiness that the arrogant French swimmer said he was leaving					7			7			7			7			7

(17)a.			14, 234	[JL 12.10.22]=	6	17, 57	[JL 13.05.08]=	6	18, 92	[JL 13.07.17]=	6	19, 8	[JL 13.08.15]=	6	20, 2	[JL 13.10.15]=	7
b. under the meaning: the SPEAKER is displaying his happiness that the arrogant French swimmer said he was leaving					4			3			6			5			5

Meaning (b. only): Does one understand that the happy expression is that (i) of the speaker [= <informant's name>]? (ii) of the arrogant German swimmer?

(18)a.[43]	25, 101	[LD 12.12.06]=	7	25, 127	[LD 12.12.12]=	7	29, 57	[LD 13.03.01]=	7	30, 2	[YC 13.03.06]=	6	31, 172	[LD 13.06.27]=	7	
b.			7	i			7	i			7	i			6	i			7	Locuteur

Meaning (b. only): Does one understand that the happy expression is that (i) of the speaker [= <informant's name>]? (ii) of the arrogant German swimmer?

(19)a.	25, 103	[LD 12.12.06]=	7	25, 128	[LD 12.12.12]=	7	29, 58	[LD 13.03.01]=	7	30, 3	[YC 13.03.06]=	6	31, 173	[LD 13.06.27]=	7	
b.			1	i et ii			1	i ii			7	i et ii			5	ii			7	les deux i et ii

(23)a.			14,	[JL	7	17,	[JL	7	18,	[JL	7	19,	[JL	7	20,	[JL	7

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[43] We also include judgments from another informant, YC, who did not otherwise provide judgments used in the text.

	232	12.10.22=		56	13.05.08=		91	13.07.17=		7	13.08.15=		1	13.10.15=	
b. under the meaning: the SPEAKER is displaying his happiness that the arrogant French swimmer was leaving			5			7			6			6			7

Email question about (23)b: 1. Does one understand that the happy expression is that: (i) of the speaker? (ii) of the arrogant French swimmer? 2. Does one understand that the arrogant French swimmer: (i) in fact walked away? (ii) said that he was walking away/had walked away/would walk away?	[13.11.26-by email]	7; 4	1. i (would be ii, but ANGRY prevents this typical interpretation) 2. i

(24)a.	14, 234	[JL 12.10.22]=	7	17, 57	[JL 13.05.08]=	7	18, 92	[JL 13.07.17]=	7	19, 8	[JL 13.08.15]=	7	20, 2	[JL 13.10.15]=	7
b. under the meaning: the SPEAKER is displaying his happiness that the arrogant French swimmer was leaving			2			2			5			5			4

Email question about (24)b: 1. Does one understand that the happy expression is that: (i) of the speaker? (ii) of the arrogant French swimmer? 2. Does one understand that the arrogant French swimmer: (i) in fact walked away? (ii) said that he was walking away/had walked away/would walk away?	11/26/13	7;2	1. ii/i (again, ANGRY conflicts with this but the facial expression has more effect here) 2. i

Meaning (b. only): 1. Does one understand that the happy expression is that: (i) of the speaker? (ii) of the arrogant German swimmer? 2. Does one understand that the arrogant German swimmer: (i) in fact broke the door? (ii) said he was breaking the door?

(25)a.	~~31, 231~~ 31, 232 due to numbering problem	[LD 13.07.01]=	7		33, 36	[LD 13.08.09]=	7		34, 1	[LD 13.11.22]=	7		41, 14	[LD 14.04.21]=	7	
b.			7	1. i 2. i	Original appears as 31, 230		7	1. loc 2. i act			7	1. i locuteur 2. i action			7	1. i 2. i

Meaning (b. only): 1. Does one understand that the happy expression is that: (i) of the speaker? (ii) of the arrogant German swimmer? 2. Does one understand that the arrogant German swimmer: (i) in fact broke the door? (ii) said he was breaking the door?

(26)a.	~~31, 232~~ 32, 233 due to numbering problem	[LD 13.07.01]=	7		33, 37	[LD 13.08.09]=	7	34, 2	[LD 13.11.22]=	confusion pointage du doigt : si lui 7, si toi : 3		41, 15	[LD 14.04.21]=	7	
b.			5	expressin joyeuse en frappant = bizarre 1. i et ii 2. i	Original now appears as 31, 231	3	1. i et ii 2. i act			4	1. locuteur et nageur 2. i action			5	1. i 2. i

(60)1 i	19, 39	[JL 13.08.17]=	7		19, 56	[JL 13.08.20]=	7	
1 ii			7				7	
2 i			7				7	
2 ii			7				7	
3 i			7				7	
3 ii			7				7	
4 i			7				7	
4 ii			7				7	
5 i			7				7	
5 ii			7				7	
6 i			7				7	
6 ii			7				7	

(73)a.	14, 126	[JL 12.10.18]=	3	17, 47	[JL 13.05.07-2]=	3	18, 62	[JL 13.07.16]=	3	
a'.			5			5			5	
b.			2			2			2	
b'.			7			6			7	

(74)a.	14, 130	[JL 12.10.18]=	2	17, 49	[JL 13.05.07-2]=	3	18, 64	[JL 13.07.16]=	3	
a'.			7			6			5	
b.			3			2			2	
b'.			7			7			6	