

Donkey Anaphora in French Sign Language: A Progress Report¹

Extended Abstract

Philippe Schlenker

(Institut Jean-Nicod and NYU)

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1 The Theoretical Import of Donkey Anaphora

There are two main approaches to the problem of donkey anaphora (e.g. *John owns a donkey. He beats it*). Proponents of Discourse Representation Theory (Kamp 1981, Heim 1982) revise quantification so as to allow an existential quantifier to bind a pronoun which is not within its syntactic scope - which yields a formal link between the quantifier and the pronoun, as is illustrated in (1)a. By contrast, proponents of the E-type approach (Evans 1980, Heim 1990, Elbourne 2005) take the pronoun to go proxy for a definite description such as *the donkey that he has*, with no formal link between the pronoun and its antecedent, as shown in (1)b (where it ~~{donkey that he has}~~ is interpreted as a description; on a strict syntactic construal of this analysis, the pronoun would have to be interpreted as a definite determiner).

- (1) a. John owns [a donkey]_i. He beats it_i.
a. He beats it donkey. He beats it ~~{donkey that he has}~~

Importantly, when it comes to other quantifiers, the two approaches are far more similar. This is because the discourse *John owns less than five donkeys. He beats them.* has truth conditions that could not be obtained by taking *less than five donkeys* to have scope over the entire discourse: it just does not mean that there are less than five donkeys that John owns and beats². So in this case both approaches posit a procedure by which *them* is essentially interpreted as a concealed definite description, tantamount to *the donkeys that he owns* (Kamp & Reyle 1993); in other words, *even* the DRT approach borrows a mechanism from the E-type approach to handle such cases.

In spoken languages, indices are never realized overtly. But sign languages have a device (pointing) which plays a role similar to indices, as was argued by Sandler & Lillo-Martin 2006. We investigated anaphora in French Sign Language (LSF) in order to bring new evidence to bear on donkey anaphora. We focused on donkey anaphora in standard environments, involving (i) sequences of sentences in discourse; (ii) *if*-clauses, using two varieties of *if* in LSF (one is glossed by signers as ‘si’, the other as ‘pi’); (iii) *when*-clauses. The types of anaphora we studied included (a) simple donkey sentences; (b) sentences with indistinguishable antecedents; (c) sentences with non-positive quantifiers; (d) donkey pronouns with disjunctive antecedents; and (e) donkey uses of proper names. We worked with one informant over numerous sessions and checked some examples with one or several other informants; all examples were videotaped (following our examples below, *A*, *B* and *C* refer to the informants, while numbers such as *193* reference the videos).

In almost all cases, the same anaphoric device is used as in simple cases of anaphora: a location is specified for the quantified Noun Phrase, and the donkey pronoun consists in a pointing gesture towards that location³ (we follow the notations of Sandler & Lillo-Martin 2006 to encode locations, represented here with indices *a*, *b*, *c*); in some cases, null pronouns can be used as well. In the following, we attempt to lay out our main empirical findings, which at this point should be considered preliminary (the data would need to be replicated using other informants and other methodologies).

¹ This work is still at its inception. We only aim to give a preliminary statement of some facts that are of particular theoretical relevance. All claims will have to be double-checked. (Special thanks to Jeff Labes for continued help with this project).

² To see this, note that the original discourse entails that John owns less than five donkeys, but the paraphrase entails no such thing. Similarly, the original discourse entails that John beats all the donkeys that he owns, but the paraphrase doesn't.

³ Exceptions concern pronouns with disjunctive antecedents, as is discussed in Section 4.1.

2 Basic Cases

2.1 Pronominal Uses of Pointing

First, it can be ascertained that LSF pronouns share some of the formal properties of pronouns in spoken languages, notably (A) the existence of Condition B effects when coarguments of a given predicate corefer, and (B) the existence of strict and sloppy readings in ellipsis. Both phenomena have been described for other sign languages (Sandler & Lillo-Martin 2006; Meir & Sandler 2007). Thus LSF pronouns display some expected properties with respect to Binding Theory - which makes it all the more interesting to compare their behavior to that of pronouns of spoken languages in the domain of donkey anaphora. (This is emphatically not to say that *all* uses of pointing are pronominal. See in particular Neidle, C., et al. 2000 and Bahan et al. 1995 for relevant discussion of determiner uses of pointing in ASL⁴).

To establish this preliminary point, let us focus on the existence of bound variable readings in constructions involving ellipsis and the focus particle *only*. In English and other languages, pronouns are typically ambiguous between a 'strict' and a 'sloppy' reading, illustrated in (2) and (3).

- (2) John loves his mother, and Peter does too.
a. Strict reading: Peter loves John's mother.
b. Sloppy reading: Peter loves Peter's mother.
- (3) Only John loves his mother.
a. Strict reading: Only John is an x such that x loves John's mother.
b. Sloppy reading: Only John is an x such that x loves x's mother.

Preliminary data suggest that LSF gives rise to similar ambiguities in both environments – and in particular that sloppy readings are available, as one would expect if LSF pronouns can be used as bound variables. In (4)a, the meaning of the sentence strongly biased it in favor of a sloppy reading, whereas (4)b favored a strict reading.

- (4) a. FANTASTIC. PIERRE LIKE WIFE _aPOSS. _bIX JEAN TOO. (Informant A, 369; cf. Informant C, 193)
'It's fantastic. Pierre loves his wife, and Jean does too.'
b. COMPLICATED. PIERRE LIKE WIFE _aPOSS. _bIX JEAN _bIX TOO. (Informant A, 374; cf. Informant C, 201)
'Things are complicated. Pierre loves his wife, and Jean does too.'

In (5), we explicitly asked the informant what the sentence entailed about another character, in order to bring out the possibility of a sloppy reading.

- (5) ONLY _aIX PIERRE LIKE _aPOSS MOTHER. (Informant C; 200)
'Only Pierre likes his mother' (Sloppy reading)
Follow-up: MEANING: _bIX JEAN DOESN'T-LIKE _bPOSS MOTHER.
Meaning: Jean doesn't like his mother.

At first, one informant (Informant B) only obtained strict readings. However we did eventually elicit sloppy readings with different examples (involving quantifiers), or with richer contexts:

- (6) EVERY MOTHER LIKES _aPOSS CHILD. PIERRE TOO.
'Every mother likes her child. Pierre does too.'

Follow-up: PIERRE LIKES _aPOSS CHILD.
'Pierre likes his child.' (Informant B; 353)

With respect to the availability of strict and sloppy interpretations, then, pointing in LSF seems to display the same type of ambiguity as pronouns in spoken languages - an unsurprising finding given the existence of this ambiguity in other sign languages (see for instance Sandler and Lillo-Martin 2004 p. 387 for a discussion of ASL).

⁴ Determiner uses of pointing might lend support to the claim, made by some E-type approaches, that pronouns quite generally can be used as determiners (similar conclusions have been reached on the basis of other constructions, e.g. *we linguists*). What is crucial for the present discussion, however, is whether in donkey examples the pronoun – whatever its syntactic status – establishes a direct formal link with its antecedent.

2.2 Simple Donkey Sentences

With this background in mind, we turn to simple cases of donkey anaphora. The generalization seems to be rather clearly that in all simple cases, there can be a formal link - realized by pointing - between an E-type pronoun and its (non c-commanding) antecedent.

- (7) a. ONE _aCL STUDENT COME PARTY. _aIX HAVE-FUN.
'A student came to the party. He had fun.' (Informant A; 19)
- b. n_____
ONE _aPRIEST COME PARTY. _aIX HAVE-FUN NOT
'One priest came to the party. He didn't have fun.' (Informant A; 20)
- c. WHEN ONE _aCL STUDENT COME PARTY, _aIX HAVE-FUN.
'When a student comes to the party, he has fun.' (Informant A; 21)
- d. WHEN _aCL STUDENT a-MEETS-b _bIX PRIEST, _bIX GREET-b (Informant A; 23)
'When a student meets a priest, he greets him'
- e. WHEN ONE _aCL PRIEST a-MEETS-b STUDENT _bIX, _aIX BLESS-b (Informant A; 27)
'When a priest meets a student, he [=the priest] blesses him [= the student].'
- f. WHEN _aCL PROFESSOR MEETS _bCL STUDENT, _aIX a-GIVE-b BOOK.
'When a professor meets a student, he gives him a book.' (Informant A; 26)

It is interesting to note that the pronoun may sometimes co-occur with the corresponding Noun Phrase, as is the case in (8)b (it might be that this happens in particular when there are multiple potential antecedents in the sentence or discourse):

- (8) a. WHEN I WORK WITH _aCL PSYCHOLOGIST ALSO _bLINGUIST, _bIX HAPPY _aIX UNHAPPY.
'When I work with a linguist and a psychologist, the former is happy and the latter is unhappy.'
(Informant A; 308)
- b. WHEN I WORK WITH _aCL LINGUIST _bCL PSYCHOLOGIST, _aIX LINGUIST HAPPY _bIX PSYCHOLOGIST UNHAPPY.
'When I work with a linguist and a psychologist, the linguist is happy and the psychologist is unhappy.'
(Informant A; 308)

This use of pointing may be likened to the determiner-like behavior discussed in Neidle, C., et al. 2000 and Bahan et al. 1995. What is essential for our purposes, however, is that in this case too pointing establishes a formal link between an element and its non c-commanding antecedent.

2.3 Indistinguishable Antecedents

It is of some interest to consider cases involving 'indistinguishable' antecedents because these have been the focus of considerable attention in the theoretical literature. The basic pattern is illustrated in (9):

- (9) If a bishop meets a bishop, he blesses him. (Heim 1990)

Briefly, these examples present a difficulty for E-type approaches because the two antecedents (*a bishop ... a bishop*) are entirely similar, and cannot easily be distinguished by the thematic role they play with respect to the transitive verb, which is semantically symmetric: *X meets Y* is true if and only if *Y meets X* is true. As a result, the simplest E-type analyses make incorrect predictions in this case:

- (10) If a bishop meets a bishop, he ~~{bishop that meets a bishop}~~ blesses him ~~{bishop that is met by a bishop}~~

If the pronouns *he* and *him* are interpreted as definite determiners, (10) fails to deliver the desired truth conditions, among others because it predicts an automatic presupposition failure (the consequent of the conditional should carry a presupposition that there is exactly one bishop that meets a bishop - which is absurd).

While this objection has been addressed at some length by proponents of E-type approaches (see Elbourne 2005 for a thorough discussion), it is interesting to note that the formal devices used in LSF lend considerable plausibility to the DRT analysis, which posits that each antecedent introduces its own discourse referent, and that each pronoun is then coindexed with one or the other. This is illustrated in (11):

- (11) a. PRIEST _aIX _bIX ONE PRIEST a-MEET-b. _bIX BLESS-a. (Informant B; 323)
 ‘A priest met a priest. He blessed him.’
 b. WHEN ONE PRIEST _aCL MEETS OTHER PRIEST _bCL, a-GIVE-b book (Informant A; 28)
 ‘When a priest meets another priest, he gives him a book.’
 c. IF PRIEST _aIX MEET PRIEST, _aIX bless PART⁵
 ‘If a priest meets a priest, he will bless him.’ (Informant B; 325)

It is also noteworthy that there are two possible indexings of the pronouns with the indistinguishable participants - an unsurprising fact given the DRT perspective:

- (12) a. WHEN _aONE PRIEST MEETS OTHER PRIEST, _aCL a-BLESSES-b (Informant A; 376a)
 ‘When a priest meets another priest, he blesses him.’
 c. WHEN _aONE PRIEST MEETS OTHER PRIEST, _bCL b-BLESSES-a (Informant A; 376b)
 ‘When a priest meets another priest, he blesses him.’

3 Negative Quantifiers

As was mentioned at the outset, standard versions of the E-type approach and of DRT (Kamp & Reyle 1993) agree in positing that in case the antecedent is not an indefinite, the pronoun goes proxy for a definite descriptions. In other words, both analyses adopt a kind of E-type approach in this case. On the other hand, it is interesting to note that LSF appears to use exactly the same formal device in this case as in that of indefinite antecedents: the pronoun appears to be coindexed with its (non c-commanding) antecedent.

- (13) a. LESS FIVE _aSTUDENT COME PARTY. _aIX-plural STAY.
 ‘Less than five students came to the party. They stayed.’ (Informant A; 37)
 b. ONE PRIEST _aCL MEET LESS-THAN FIVE _bCL-plural STUDENT. _aIX BLESS-b
 ‘A priest met less than five students. He blessed them.’ (Informant A; 31)
 c. PIERRE FOUR LESS _bSTUDENTS. _bIX HATE _aIX.
 ‘Pierre has less than 4 students. They hate him.’ (Informant B; 328)
- (14) a. IF LESS FIVE _aSTUDENT COME PARTY, _aIX-plural BE-BORED
 ‘If less than five students come to the party, they will be bored.’ (Informant C; 210)
 b. IF FOUR _aCL-plural LESS COME CLASS DANCE, _aIX-plural HAPPY NOT
 ‘If less than four people come to the dance lesson, they won’t be happy.’ (Informant A; 233)

Although a much longer discussion would be needed, we take these examples to provide an argument against standard DRT, and in favor of more recent dynamic analyses in which *all* quantifiers (not just existential ones) introduce discourse entities - which requires a significantly modified framework (see e.g. van der Berg 1996, Nouwen 2003).

4 Complex Cases

Having established some (coarse) generalizations with respect to donkey anaphora in LSF, it is of some interest to consider cases that involve further theoretical complexities.

4.1 Disjunctive Antecedents

In some cases, a donkey pronoun appears to have a disjunctive antecedent:

- (15) a. If Mary sees a donkey or a horse, she waves to him. (Elbourne 2005 (119))
 b. If Mary sees John or Bill, she waves to him. (Elbourne 2005 (120)).

These examples are difficult to analyze in standard DRT approaches: on the one hand, the singular pronoun appears to have simultaneously two antecedents; on the other hand, its denotation is clearly singular. In

⁵ This appears to be a modal particle, meaning something like: ‘it is possible’.

fact, Stone 1992 takes such examples to be a strong argument in favor of E-type analyses and against DRT approaches.

Here the LSF data are intricate. It does seem possible to replicate such examples with an overt pronoun, in particular when the antecedents have not been given separate positions in signing space (in fact, in the examples we obtained it is not entirely clear that the antecedents were assigned any position).

- (16) a. WILL _{1p}IX INVITE JEAN OR PIERRE. _{1st}IX THINK _aIX HAPPY.
 ‘I will invite Jean or Pierre. I think he will be happy.’ (Informant A, 379; cf. Informant C; 214)
 b. _{1p}IX WANT HIRE JEAN OR PIERRE. I WANT _aIX HELP MY _{1p} WORK
 ‘I want to hire Jean or Pierre. I want him to help me in my work’ (Informant B; 366)
 c. IF _{1p}IX-PRONOUN HIRE PIERRE OR JEAN, _aIX WILL HELP MY _{1p} WORK
 ‘If I hire Jean or Pierre, he will help me in my work’ (Informant B; 335)
- (17) a. _{1p}IX HIRE ONE STUDENT DEAF OR ONE TEACHER DEAF. _{1p}IX WANT _aIX HELP _{1p}POSS WORK.
 ‘I will hire a deaf student or a deaf teacher. I want him to help me in my work.’ (Informant B; 367)
 b. _{1p}IX WILL GIVE ONE BOOK STUDENT OR SEND PROFESSOR. _aIX HAPPY REJOICE
 ‘I will give a book to a student or send one to a professor. He will be very happy’. (Informant B; 338)

By contrast, when an overt pronominal expression is used in a sentence in which the disjunctive antecedents were assigned separate positions in signing space, the standard anaphoric strategy (using pointing) was generally dispreferred by my informants. Instead, they resorted to a paraphrase – e.g. with a sign meaning ‘one or the other’.

- (18) IF _{1p}IX HIRE _aIX PIERRE OR (_bIX) PIERRE, _aONE-OR-THE-OTHER_b HELP _{1p}POSS WORK
 ‘If I hire Pierre or Jean, one or the other will help me in my work.’ (Informant B; 365)

However a pattern that seems closer to that of spoken languages was found with null pronouns. Donkey anaphora with disjunctive antecedents appears to be unproblematic in such cases.

- (19) a. _{1p}IX CAN INVITE ONLY CL. IF _{1p}IX INVITE LINGUIST OR CL PSYCHOLOGIST, WILL HAVE-FUN. IF INVITE _bCL SPECIALIST MATHEMATICS, _bIX WILL BE-BORED. (Informant A, 53)
 ‘I can only invite one person. If I invite a linguist or a psychologist, [he] will have fun. If I invite a mathematician, he will be bored.
 b. IF _{1p}IX HIRE STUDENT DEAF OR TEACHER DEAF, HELP WORK
 ‘If I hire a deaf student or a deaf teacher, [he] will help me in my work’ (Informant B; 357)

The picture gets more interesting, however. Towards the very beginning of this research, Informant A produced a few instances of anaphora with disjunctive antecedents in which (i) the antecedents were assigned different positions in signing space, and (ii) the donkey pronoun consisted in a pointing gesture *in the middle* of the two antecedents. I tried and failed to replicate this pattern with any informant (including Informant A) over the next 8 months or so. But quite recently I got a series of such examples (all videotaped) from Informant A (here I use *c* to refer to a position between *a* and *b*):

- (20) WILL _{1p}IX HIRE _aCL LINGUIST OR _bCL PSYCHOLOGIST. _{1p}IX THINK _cIX HAPPY.
 ‘I will hire a linguist or a psychologist. I think he’ll be happy’. (Informant A; 380, 381)

As a result, it is therefore possible in LSF to give disambiguated versions of *I’ll invite Jean or Pierre. He’ll be happy*: in English, *he* may refer to Jean, or to Pierre, or to whoever it is that I will invite. There are three different translations of the sentence in LSF:

- (21) a. WILL _{1p}IX INVITE _aIX JEAN _bIX PIERRE. _{1st}IX SURE _aIX HAPPY⁶.
 ‘I will invite Jean or Pierre. I am sure he [= Jean] will be happy.’ (Informant A; 389a)
 b. WILL _{1p}IX HIRE _aIX JEAN OR PIERRE _bIX. _{1st}IX CERTAIN _bIX HAPPY.
 ‘I will invite Jean or Pierre. I am sure he [= Pierre] will be happy.’ (Informant A; 389b)
 c. WILL _{1p}IX HIRE _aIX JEAN OR PIERRE _bIX. _{1st}IX CERTAIN _cIX HAPPY.
 ‘I will invite Jean or Pierre. I am sure he [= whichever one I invite] will be happy.’ (Informant A;

⁶ The word *or* is not clearly discernable on the video. The informant might have made a mistake; but the paraphrase he gave after the example suggests he did have a disjunctive meaning in mind.

Further research will have to verify the availability of this peculiar donkey strategy, whose analysis promises to be quite interesting.

4.2 *Bambi Examples*

There have been some discussions in the semantic and in the philosophical literature of ‘donkey’ uses of proper names:

- (22) If a child is christened ‘Bambi’, and Disney Inc. hear about it, then they will sue Bambi’s parents.
(Geurts 1999 p. 205)

Such uses are problematic for standard theories of proper names, according to which these are ‘directly referential’, and hence pick out their referent in the situation of utterance, without any descriptive content. The difficulty in (22) is that there may well be no child named ‘Bambi’ in the situation of utterance. In this case the proper name appears to go proxy for a definite description, namely: *the child christened ‘Bambi’*. Strikingly, the proper name behaves very much like a donkey pronoun in this case; in this example, *they will sue Bambi’s parents* has the same semantic import as *they will sue his parents*.

While there are several ways to form such sentences in LSF, one of them is particularly interesting because it involves the co-occurrence of a donkey pronoun and of the corresponding proper name – a phenomenon we already observed in the case of donkey sentences involving indefinites, as in (8)b.

- (23) a. MARIE THERE TWO SONS. ONE _aCL NAME JEAN. _aOTHER_b NAME NICOLAS. _aIX JEAN HATES PRESIDENT SARKOZY. _bIX NICOLAS ADORE-c. (Informant A, 289)
‘Marie has two sons; one is named Jean and a son named Nicolas. Jean hates President Sarkozy but Nicolas loves him.’
b. USUALLY FRANCE EVERYWHERE WHEN WOMAN TWO CHILDREN _aONE NAME JEAN OTHER_b NAME NICOLAS _aIX JEAN HATES PRESIDENT SARKOZY _aOTHER_b NICOLAS ADORE-c. (Informant A, 289)
‘Usually, in France, when a woman has two children, one named Jean and the other named Nicolas, Jean hates President Sarkozy, but Nicolas loves him’.

This finding may suggest that donkey readings of proper names may arise, quite generally, because proper names have or can associate with a pronominal element – a phenomenon which can appear overtly in LSF.

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