

Donkey Anaphora in French Sign Language (LSF)

There are two main approaches to the problem of donkey anaphora (e.g. *John owns a donkey. He beats it*). Proponents of DRT (Kamp 1981, Heim 1982) revise quantification so as to allow an existential quantifier to bind a pronoun that 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*, or *the donkey that he owns*, as shown in (1)b, where *it* ~~*donkey (that he has)*~~ is interpreted as a definite description; without further refinement, no formal link is established.

- (1) a. John owns [a donkey]_i. He beats it_i. [*the elements that are connected by the formal link are boxed*]
 a. He beats it donkey. He beats it ~~donkey that he owns~~

Importantly, when it comes to negative quantifiers, the two approaches are far more similar. *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 does not mean: there are less than five donkeys that John owns and beats); in this case both approaches posit a rule by which *them* is interpreted as a concealed definite description, tantamount to *the donkeys that he owns* (Kamp & Reyle 1993).

In spoken languages, indices are not realized overtly. But sign languages have a device, pointing (= ‘indexing’), which plays a role similar to indices (Sandler & Lillo-Martin 2006). We investigated anaphora in French Sign Language (LSF) to bring morphological evidence to bear on the debate between DRT and E-type approaches. We argue for three main conclusions: **I.** The coindexing relations posited by DRT, and denied by E-type approaches, are morphologically realized in LSF. **II.** The same relations hold even in the case of negative quantifiers, which argues against both accounts and in favor of more recent versions of dynamic semantics (e.g. van der Berg 1996, Nouwen 2003). **III.** LSF data bring new light on (A) ‘Bambi’ examples and (B) pronouns with disjunctive antecedents. **I.** The initial generalization is 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 (*IX* refers to indexes / pronouns):

- (2) a. ONE [CL] STUDENT COME PARTY. [IX] HAVE-FUN¹.
 ‘A student came to the party. He had fun.’ (Informant A; 19) [*elements connected by the formal link are boxed*]
 b. EACH-TIME [LINGUIST] [PSYCHOLOGIST]_{b,a,1st} ALL-THREE_{b,a,1st} TOGETHER WORK [IX] HAPPY BUT [IX] HAPPY NOT.
 ‘Whenever I work with a linguist and a psychologist, the linguist is happy but the psychologist is not happy.’ (Informant E; 2, 63)

Still, these examples are not a knock-down argument against E-type approaches: on other grounds, these must posit some formal link between a pronoun and its donkey antecedent, e.g. to account for (3):

- (3) a. Every man who has a wife is sitting next to her.
 b. ?* Every married man is sitting next to her

Elbourne 2005 takes the donkey pronoun to be a determiner with an elided NP, whose antecedent must be provided by the preceding discourse – as is the case in (3)a but not (3)b. So it could be argued that pointing in LSF realizes the *syntactic* relation between an elided NP and its antecedent. But this analysis would make incorrect predictions in sentences with ‘indistinguishable participants’ such as (4):

- (4) a. WHEN [ONE] PRIEST MEETS OTHER [PRIEST]_b, [IX] a-BLESSES-b (Informant A; 376a)
 ‘When a priest meets another priest, he blesses him.’
 b. WHEN [ONE] PRIEST MEETS OTHER [PRIEST]_b, [IX] b-BLESSES-a (Informant A; 376b)
 ‘When a priest meets another priest, he blesses him.’

Syntactically, any overt occurrence of *priest* in the *when*-clause could serve as an antecedent for the elided occurrences in the main clause, analyzed as *he priest blesses him priest*. In particular, both pronouns could in principle point towards the *same* NP of the *when*-clause while still yielding the truth conditions of the translation given in (4). But in fact, although two indexings are possible, the pronouns must be indexed with *different* antecedents – exactly as is predicted by DRT approaches.

¹ We follow the glossing conventions of Sandler & Lillo-Martin 2006. In particular, locations in space are written as subscripts, and pronouns are written as *IX* (for ‘index’), where *i* is the location towards which the pronoun is pointing. *a-BLESSES-b* is an agreement verb, which involves a gesture that starts from location *a* and moves towards location *b*. *CL* refers to a classifier (very roughly meaning ‘person’).

II. It is notable that LSF uses exactly the same anaphoric device for negative antecedents as for indefinites: in all cases, the pronoun is coindexed with its antecedent, as is shown in (5)-(6):

- (5) a. LESS FIVE $\boxed{\text{STUDENT}}$ COME PARTY. $\boxed{\text{IX}}$ -plural STAY.
 ‘Less than five students came to the party. They stayed.’ (Informant A; 37)
 b. ONE PRIEST $\boxed{\text{CL}}$ MEET LESS-THAN FIVE $\boxed{\text{CL}}$ -plural STUDENT. $\boxed{\text{IX}}$ a- $\boxed{\text{BLESS}}$ - $\boxed{\text{b}}$
 ‘A priest met less than five students. He blessed them.’ (Informant A; 31)
 c. PIERRE FOUR LESS $\boxed{\text{STUDENTS}}$. $\boxed{\text{IX}}$ HATE aIX .
 ‘Pierre has less than 4 students. They hate him.’ (Informant B; 328)
- (6) a. IF LESS FIVE $\boxed{\text{STUDENT}}$ COME PARTY, $\boxed{\text{IX}}$ -plural BE-BORED
 ‘If less than five students come to the party, they will be bored.’ (Informant C; 210)
 b. IF FOUR $\boxed{\text{CL}}$ -plural LESS COME CLASS DANCE, $\boxed{\text{IX}}$ -plural HAPPY NOT
 ‘If less than four people come to the dance lesson, they won’t be happy.’ (Informant A; 233)
 c. LESSON DANCE IF $\boxed{\text{PEOPLE}}$ FEW $\boxed{\text{IX}}$ HAPPY NOT
 ‘If few people show up at the dance lesson, they won’t be happy’ (Informant E; 2, 73c)

Such indexing relations are unexpected both for E-type approaches and for standard DRT, but they are in line with more recent dynamic analyses in which *all* quantifiers (not just existential ones) introduce discourse entities (see e.g. van der Berg 1996, Nouwen 2003). This can derive the correct semantic facts if the discourse referent introduced by a negative quantifier such as *fewer than five students* denotes the *maximal* set of students who came. It can be checked that once this step is taken, an analysis with a kind of existential quantification over the entire discourse becomes feasible, as in (7)b:

- (7) a. Fewer than 5 students came. They got bored.
 b. $\exists X [X = \text{STUDENT} \cap \text{CAME} \ \& \ |X| < 5 \ \& \ X \ \text{GOT-BORED}]$

III. A) Sentence like (8) 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 – a condition which is not satisfied here:

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

Strikingly, the proper name behaves very much like a donkey pronoun in this case, as was in particular suggested by Geurts 1999. His analysis is confirmed by LSF data, in which the proper name can overtly co-occur with a donkey pronoun; this suggests that in spoken languages too proper names might have a covert pronominal component:

- (9) USUALLY FRANCE EVERYWHERE WHEN WOMAN TWO CHILDREN $\boxed{\text{ONE}}$ NAME JEAN
 OTHER b NAME NICOLAS $\boxed{\text{IX JEAN}}$ 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’.

III. B) In *I’ll invite Jean or Pierre. He’ll be happy, he* may refer to Jean, or to Pierre, or to *whoever it is that I will invite* (‘disjunctive antecedent’). These readings can be distinguished in LSF²:

- (10) a. WILL 1pIX INVITE $\boxed{\text{IX JEAN}}$ bIX PIERRE. 1stIX SURE $\boxed{\text{IX}}$ HAPPY.
 ‘I will invite Jean or Pierre. I am sure he [= Jean] will be happy.’ (Informant A; 389a)
 b. WILL 1pIX HIRE aIX JEAN OR PIERRE $\boxed{\text{IX}}$. 1stIX CERTAIN $\boxed{\text{IX}}$ HAPPY.
 ‘I will invite Jean or Pierre. I am sure he [= Pierre] will be happy.’ (Informant A; 389b)
 c. WILL 1pIX HIRE aIX JEAN $\boxed{\text{OR}}$ PIERRE bIX . 1stIX CERTAIN $\boxed{\text{IX}}$ HAPPY.
 ‘I will invite Jean or Pierre. I am sure he [= whichever one I invite] will be happy.’ (Informant A; 389c)

Importantly, in the case of a donkey pronoun with a disjunctive antecedent, as in (10)c, it appears that pointing must be towards the word for *or* (between the two disjuncts) rather than towards any the disjuncts. This might suggest that a disjunction can introduce a discourse referent of its own, and thus behave like an existential quantifier (i.e. *Jean or Pierre* is analyzed as *one of {Pierre, Jean}*).

² In order to ascertain that (10)c [which was much harder to elicit] does indeed involve a donkey pronoun, the two informants were asked after each of (10)a-c: *Who is happy?* In the case of (10)a, both pointed towards Jean; in the case of (10)b, they pointed towards Pierre; and in the case of (10)c, they used a paraphrase to say that one or the other was happy.