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Diane Lillo-Martin

UCSD and The Salk Institute

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**NULL PRONOUNS AND VERB AGREEMENT
IN AMERICAN SIGN LANGUAGE***

Diane Lillo-Martin

UCSD and The Salk Institute

1. Introduction

In American Sign Language (ASL), for a large set of verbs, subject and object relations are not signified by word order nor by case markings. Rather, they are marked by the movement of the verb in relation to specific points in space. This spatially expressed syntactic system has been called 'verb agreement' by researchers working on ASL.¹ This paper will examine the null arguments of verbs that use this system to mark agreement, and null arguments of verbs that do not mark agreement. It will be shown that the null arguments to these two types of verbs are differentially distributed and in fact should be explained in different ways. Specifically, if an inflectional marker is present, the effect even when the pronoun 'agreed with' is null is the same as if an overt pronoun were present, indicating that the empty category should be pronominal, pro. However, when there is no inflectional marker, then the appearance of null arguments is much more limited, and the empty category will be analyzed as a nonpronominal (wh-trace) empty topic.

2. Verb Agreement in ASL

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American Sign Language is the visual-gestural language used by most of the deaf community in the United States and parts of Canada. The position taken in this paper is that when the surface effects of modality are stripped away, ASL will be seen to follow many of the patterns proposed as universals for human language. For this reason, the study of ASL can be vital for proposed theories of universal grammar.

ASL uses the hands and face as articulators for a language perceived by the eyes. The space in front of the signer is the medium in which the language is articulated. However, that space is also used in crucial ways in the grammar. Loci in space can be identified as associated with particular NPs. This is accomplished by signing the NP at some arbitrary locus in space, or making the sign and then pointing to the locus with the index finger, or by gazing in the direction of the locus while making the sign. Once NPs are associated with loci in this way, the signer can then refer to these loci in space in order to refer to the NPs established there.

Pronominal reference in ASL depends on the use of loci in space arbitrarily established by this system, along with non-arbitrary loci for referents physically present. First person pronominal reference is made by the signer pointing to her own chest, second person pronominal reference is made by pointing to the addressee's chest. Third person pronouns, when the referents are actually present, are likewise made by pointing to the appropriate persons. For non-present referents, pronouns depend upon the NP establishment described above. For example, after a signer has associated 'John' with a locus on her right side, she can then use her index finger (or another handshape for different kinds of reference), pointing to that point in space, as a pronoun for John.

An important fact about this system is that it is theoretically unlimited. If there are three participants in a discourse the signer is relating, then three loci will be established in space. If there are five or seven or ten participants, the signer could divide up the space with that many distinct loci, but this tends not to be done because of perceptual and memory factors. This system thus more resembles overt referential indices than it does pronouns in spoken languages (Lacy 1974).

Grammatical relations are often expressed in ASL using these non-categorical spatial loci, both the

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arbitrary abstract ones and the loci of present referents. If the onset location of one of a large set of inflecting verbs is made at a point in space to which an NP has been associated, then the verb agrees with that NP as its subject; and if the endpoint location of the verb is at another established point, the verb agrees with the NP associated with that point as the direct or indirect object, depending on the verb. This verb agreement serves as the strongest kind of cue for grammatical relations (Wilbur 1979).

Not all verbs, however, can be marked for agreement in this way. With non-inflecting verbs, called 'Plain' verbs by Padden 1983, word order usually serves to mark grammatical relations, and the word order is SVO. Deviations in SVO order, with both plain and inflecting verbs, occur via a productive process of topicalization, which is also marked in ASL by a specific facial gesture and by the timing of the signs.

As is often the case with languages with rich agreement systems, in ASL subject and object NPs (and other arguments) can be "phonologically" null (non-overt). For example, once NPs have been assigned to loci, inflecting verbs can occur, showing agreement with these loci, without the NPs overtly renamed either in full or in pronominal form. It is also possible in ASL for an overt pronoun or nominal to cooccur with an agreeing verb, as opposed to languages such as Irish (McCloskey & Hale 1984), Chamorro (Chung 1984), and others, in which an overt pronoun cannot occur with certain types of verb agreement.

As will be argued in this paper, when agreement is present in ASL the effect is in several ways the same as if an overt pronoun were present, in that structures which otherwise would need an overt pronoun are grammatical, and structures in which island violations would have occurred are 'saved'. The arguments given here will show the parallel behavior of sentences with null arguments and agreement compared to sentences with overt arguments and no agreement.

3. pro in Irish

McCloskey and Hale (1984), using data from Irish which shows null arguments with verb agreement behaving like overt pronouns, postulate that there is, in these cases, a syntactically real though non-overt argument, which they call the 'inflectional argument'.

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In Irish, for example, a variety of suffixes and enclitics attach to basic pronouns to make other kinds of pronouns. These elements also attach to the 'inflectional argument'. The inflectional argument behaves like an overt resumptive pronoun with respect to the syntax of relative clauses and constituent questions. The inflectional argument can function as the head of a relative clause. It can even be conjoined with a lexically-specified NP. All of these facts, and additional facts about government, semantics, and binding requirements, show how a non-overt pronoun, whose presence is sanctioned by a particular agreeing verb form, behaves like an overt pronoun, and is therefore most plausibly analyzed as the null analogue to overt pronouns. McCloskey and Hale therefore suggest that this null element is the empty category pro, because this is the empty category which is predicted to behave exactly like an overt pronoun.

It will be argued in this paper that the facts of ASL agreement likewise indicate the presence of an 'inflectional argument'. I propose that this empty category is pro, sanctioned by verb agreement and properly governed by an INFlection which is marked [+AGR].

4. pro in ASL

In ASL, null subjects and objects can occur in tensed finite clauses. Some examples with 'plain' (1-2) and inflecting (3-4) verbs follow.²

- _____hn
- (1) aJOHN aFLY_b bCALIFORNIA LAST-WEEK.
ENJOY SUNBATHE[*dur*].
"John flew to California last week. (He's) enjoying a lot of sunbathing."
- (2) A. Did you eat my candy?
B. YES, EAT-UP
"Yes, I ate it up."
- (3) A. Did John send Mary the paper?
(In which John has been established at "a" and Mary at "b".)
B. YES, aSEND_b
"Yes, (he) sent it to (her)."
- (4) i. aJOHN KNOW-WELL PAPER FINISH aGIVE_b
"John_i knows (he_i) gave the paper to (her)."

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- ii. aJOHN KNOW-WELL PAPER FINISH bGIVE_a
 "John_i knows (she) gave the paper to
 (him_i)."

Both inflecting and plain verbs can have null subjects and objects, though the appearance of null arguments with plain verbs is more limited. In section 5 I will discuss the null arguments of plain verbs, and show that they are due to a different strategy from those of inflecting verbs. In this section I will be concerned with the occurrence of null arguments with inflecting verbs in structures for which null arguments do not occur with plain verbs, and I will provide evidence that those sentences with an inflectional argument and no overt pronoun are comparable to sentences with plain verbs and an overt pronoun.

One way in which the inflectional argument is like an overt pronoun is that the inflectional argument can associate NPs with loci in space. As mentioned above, there are several ways with which to indicate the association of an NP with a point in space. Recall that one such way was to produce the sign, and then point with the index finger to some locus. An additional method, not mentioned above, is to produce the sign (in neutral space) and then to produce an inflecting verb for which the onset location is a locus in space which is not associated with an NP. That onset locus is now associated with the nominal, and can participate in further verb agreement and pronominal reference. Sentence (5) is an example of this association by the inflectional argument.

- (5) SICK[id], MOTHER aPREACH₁[cont].
 aINDEX aTELL₁ CLEAN ROOM.
 "I'm so sick of my mother preaching at
 (me). Now she's telling (me) to clean my
 room."

The inflectional argument also patterns like an overt pronoun in topicalization, which is a highly productive process in ASL. When a constituent is topicalized, it is marked by a particular combination of raised eyebrows and slight backward head tilt, and a lengthening of the topicalized sign (Liddell 1977). The topicalized constituent usually appears at the beginning of the sentence. Sentences (6-7) show examples of topicalization.³

- (6) t
 aTHAT aBOOK, bJOHN aREAD
 "That book_i, John read (it_i)."

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can also serve to "save" a sentence from being an island violation.

Sentence (11) is a violation of the Wh Island Constraint. However, the sentence can be saved when a resumptive pronoun marks the site of extraction, as in (12). Example (13) shows that with agreeing verbs, the inflectional argument can 'save' the sentence.

- (11) $\frac{t}{a}$ MOTHER, $\frac{1}{INDEX}$ DON'T-KNOW "WHAT" LIKE
 "Mother_i, I don't know what t_i likes."
- (12) $\frac{t}{a}$ MOTHER, $\frac{1}{INDEX}$ DON'T-KNOW "WHAT" $\frac{a}{INDEX}$ LIKE
 "Mother_i, I don't know what she_i likes."
- (13) $\frac{t}{a}$ MOTHER, $\frac{1}{INDEX}$ DON'T-KNOW "WHAT" $\frac{a}{SEND}$ ₁
 "Mother_i, I don't know what (she_i) sent me."

Sentence (14) is a violation of the Sentential Subject Constraint. Again, (15) shows that a resumptive pronoun can save the sentence, and (16) shows that agreement can also save the sentence.

- (14) $\frac{t}{a}$ BILL, $\frac{br}{b}$ MARY KNOW, NOT^NECESSARY
 "As for Bill_i, that Mary knows t_i is not necessary."
- (15) $\frac{t}{a}$ BILL, $\frac{br}{b}$ MARY KNOW $\frac{a}{INDEX}$, NOT^NECESSARY
 "As for Bill_i, that Mary knows him_i is not necessary."
- (16) $\frac{t}{a}$ BILL, $\frac{br}{b}$ MARY $\frac{br}{GIVE}$ _a PAPER, NOT^NECESSARY
 "As for Bill_i, that Mary gives (him_i) the paper is not necessary."

Sentence (17) is a violation of the Coordinate Structure Constraint.

- (17) $\frac{t}{a}$ MOTHER, $\frac{1}{INDEX}$ $\frac{1}{HIT}$ _b SISTER, $\frac{c}{INDEX}$ TATTLE_a
 (Padden 1983)
 "His mother_i, I hit my sister and he told t_i ."

ASL does allow Across the Board extractions (Ross

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- (22) WHICH BOY a-cINDEX dINDEX EXPECT lINDEX
whq
 LOVE, WHICH
 "Which boy_i does he_j expect me to love t_i?"

However, ASL can evade a crossover violation by base-generating a pronoun in object position, and moving the wh-word from subject position. Although a crossover analysis of (23) would lead to an ungrammatical sentence, it would be fine under a subject extraction analysis, and as such, the sentence is good.

- (23) WHICH BOY a-cINDEX bINDEX EXPECT lINDEX LOVE
whq
bINDEX, WHICH
 "Which boy_i does he_j expect me to love him_i?"

The same evasion strategy can be used with agreeing verbs. And, in these cases, the object pronoun governed by agreement need not be overt. This is shown in example (24).

- (24) WHICH BOY a-cINDEX bINDEX EXPECT lINDEX
whq
lBEAT_b, WHICH
 "Which boy_i does he_j expect me to beat-up (him_i)?"

This is another construction in which the inflectional argument functions comparably to an overt pronoun.

5. Null Arguments as Null Topics

There is a second type of null argument in ASL, which appears with nonagreeing verbs. This type of null argument is illustrated in example (25), taken from a signed narrative.

- (25) ONE DAY, aDAUGHTER NOTHING #D-O, DECIDE WALK
b-cWOODS. b-cWALK dINDEX SEE_d dFLOWER,
PICK-UP_d, SEE_e eWATERFALL, c-eWALK,
FASCINATED_e, LOST[d:resultative].

"One day, the daughter had nothing to do, so (she) decided to take a walk in the woods. (She) walked around, and saw there some flowers, and picked (them) up; (she) saw a

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waterfall, and walked (near it); and (she) was so fascinated by everything that (she) became lost."

In this example, DECIDE, WALK, SEE, PICK-UP, FASCINATED, and LOST all appear with at least one null argument. DECIDE and LOST are both verbs which do not take verb agreement. SEE, PICK-UP, and FASCINATED agree only with their objects (indicated by the subscripts at the end of the verbs). WALK is what Padden (1983) calls a 'spatial' verb; it agrees with points representing location rather than points representing NP arguments. Notice that all of the null pronouns (except for the object of 'PICK-UP', which is governed by agreement with 'the flowers', and therefore *pro*), refer to the same person: the daughter. It is also clear that in this passage, the daughter is the topic of the narrative. This fact will play a role in the analysis suggested.

An account that will work well for this type of null argument is that given by Huang (1984) for Chinese. Huang claims that Chinese null arguments, which are never governed by verb agreement, are in fact wh-traces left by movement of the argument into topic position. It is the topic which is thus null. Null topics are a common characteristic of "discourse oriented" or "topic prominent" languages, such as Chinese and Korean. Other characteristics of topic prominent languages are topic-comment structures, discoursally-bound anaphors, and no pleonastic elements such as 'it' and 'there'. These characteristics are also manifested in ASL, which has also been called a topic prominent language.⁵ Examples are given in (26). (Compare 26a,b to 27a,b, which are from Huang.)

- (26) a. $\frac{t}{\text{MEAT, } \subscript 1 \text{INDEX LIKE LAMB}}$
 "As for meat, I like lamb."
 (Padden 1983)
- b. A. $\frac{\text{yng}}{\text{aJOHN aFORCE bMARY bGOc}}$
 "Did John force Mary to go?"
- B. $\frac{\text{neg}}{\text{NO, aSELF aGOc}}$
 "No, himself went."
- c. YESTERDAY, RAIN
 "Yesterday it rained."

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- (27) a. neichang huo, xingkui xiaofangdui
 that fire fortunately fire-brigade
 lai de zao.
 come COMP early
 "That fire, fortunately the fire brigade
 came early."
 (Chinese; Huang 1984 #56)
- b. A. John-i salam-il pona-e-əss-ni?
 John-NOM man-ACC send-PAST-Q
 'Did John send the man?'
- B. ani, caki-ka cikcəp o-əss-ta.
 no self-NOM in-person come-PAST-DECL
 "No, himself came in person."
 (Korean; Huang 1984 #57)

Discourse-oriented languages, Huang proposes, have a discourse coindexation rule which allows null topics to appear. Given this rule in ASL, null arguments should be able to occur in ASL with nonagreeing verbs in just the same places in which null arguments occur in Chinese. This seems to be the case. Huang gives a list of examples (his 65, a-f repeated here as 28 a-f), showing positions in which empty categories might be found, and he explains which of these could be theoretically interpreted as null pronouns in Chinese, and which null topics.

- (28) a. e came.
 b. John saw e.
 c. e saw e.
 d. John said that e saw Bill.
 e. John said that Bill saw e.
 f. John tried e to come.

In ASL, as well as Chinese, the empty category in 28a,b,c, and e can be an empty topic but not an empty pronoun. In 28d, it can be either an empty topic or an empty pronoun coreferential to John; in 28f it can be only an empty pronoun coreferential to John.

Examples in ASL of (28a-f) are given in (29a-f).

- (29) a. e THINK.
 b. JOHN LIKE e.
 c. e LIKE e.
 d. JOHN SAY e LIKE BILL.
 e. JOHN SAY BILL LIKE e.
 f. JOHN TRY e THINK.

Of course, the above distribution is only valid

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for non-agreeing verbs. For agreeing verbs, the AGR will properly govern the empty category, allowing all of the gaps in (28a) through (28f) as empty pronouns.

6. Discussion and Conclusion

There are three additional issues that the data discussed here bear on. The first is the analysis of resumptive pronouns in ASL: should they be considered basegenerated pronominals which are interpreted as variables at LF, as Chomsky (1982), and Borer (1984) claim for English and Hebrew; or phonetically spelled-out traces which are variables at S-structure, as Engdahl (1983) and Zaenen, Engdahl, & Maling (1981) claim for the Scandinavian languages, and Georgopoulos (1984) claims for Palauan? The evidence given here is consistent with either claim, assuming that Chomsky's account could be extended beyond the relative clauses for which he originally formulated it.

A potentially strong test for the status of the resumptive pronouns in ASL would be whether or not they can license parasitic gaps. Unfortunately, parasitic gap structures are very difficult to elicit in ASL, and the precise test cases do not seem to be available. Another possible test would be the coordination of a sentence containing a gap with one containing a resumptive pronoun, for the case in which both verbs are non-inflecting. This type of sentence, such as "What movie_i did Bill dislike it_i and John like it_i," would be parallel to one type of data reported by those authors supporting an S-structure variable analysis. If these sentences are grammatical in ASL, this could support the S-structure variable analysis. However, although the judgements are not entirely strong, the data indicates that this type of sentence is bad in ASL, thus supporting the base-generated pronominal, LF-variable analysis for ASL.

Since my main thrust in this paper has been to show constructions in which resumptive pronouns and the inflectional argument function similarly, since I have proposed that the inflectional argument itself is *pro*, a pronominal, and because of the coordination data discussed in the above paragraph, it is best at this point to assume that in ASL resumptive pronouns are pronominals at S-structure, which are coindexed with their A'-binders in LF'.

The second issue which this paper bears on is that ASL provides evidence of cliticization distinct from agreement. This is because the structure and the

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distribution of clitics differs from that of agreement. The morphological form of clitics is different from agreement: in agreement, the verb moves from one locus to another with its root handshape throughout; whereas clitics retain the pointing /l/ handshape of pronouns. As for distribution, clitics can attach to plain verbs, or inflecting verbs marked with agreement. However, clitics cannot cooccur with an overt pronominal argument, although as mentioned before, agreement can.

Thus, the analysis that McCloskey and Hale give for Irish, in which they state that there does not seem to be a difference between clitics and agreement, does not hold for ASL. Since Welsh differs from Irish in that it allows agreement and overt pronouns to cooccur, McCloskey and Hale suggest that Welsh allows 'clitic doubling'. A clitic doubling analysis, however, would not work for ASL. Such doubling would have to be allowed for the appearance of clitics or overt pronouns with agreement, but disallowed for the nonappearance of these clitics with overt pronouns. Rather, in ASL cliticization appears to result from S-structure overt pronouns attaching to the verb in the phonetic form component.⁶

The third issue is the nature of the Null Subject Parameter. I have shown that there are at least two different explanations for null subjects: *pro* governed by verb agreement as in Irish, and null topics as in Chinese; and that both of these types are also found in ASL. Other accounts of Null Subjects have also been put forth, including Chomsky 1981, Jaeggli 1982, and Rizzi 1982, based on languages like Italian and Spanish. From these languages, a range of common phenomena were posited as characteristic of Null Subject Languages. These characteristics included null subjects, free subject-verb inversion, lack of pleonastic subjects, long extraction, and lack of that-trace effects.

Rizzi (1982) postulated that free subject-verb inversion is a basic characteristic of null subject languages, tied to all of the other characteristics given. However, his analysis would not work for ASL. Most importantly, ASL does not allow free subject-verb inversion. An analysis of null subjects with inversion, when inversion is not freely allowed in ASL, would be unmotivated and ad hoc. In addition, many of the other so-called characteristics of null subject languages do not hold for ASL. Since ASL has no complementizer, lack of that-trace effects is irrelevant; long extraction is not free; and the lack of pleonastic elements could be associated with ASL's being a discourse oriented

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language, as described above. Furthermore, this analysis would not be able to explain the difference between null arguments of inflecting and non-inflecting verbs.

For these reasons, Rizzi's analysis for Italian would not extend to cover ASL. If an analysis for Italian was proposed which is divorced from the inversion data, perhaps this analysis could also account for ASL. One such analysis is that given by Hyams (1983), which preserves Rizzi's idea that the inflection is in some sense pronominal, but differs from it in the mechanics and in the separation of inversion from null subjects. This analysis, if properly extended to account for null objects as well as null subjects, perhaps could be used for the ASL data as well.

The evidence given here supports the hypothesis that verb agreement can, in some languages, sanction the presence of null arguments. It has been argued that these null arguments are members of the empty category *pro*, which meet the ECP by being properly governed by an INFL which is [+AGR]. As such, these inflectional arguments function in much the same way that overt pronouns do, appearing in similar constructions and preventing island violations. Furthermore, in some languages, null arguments can be generated by *wh*-movement to topic position followed by topic deletion, allowing null arguments of the variable category. Thus there is evidence from a variety of languages for these two types of null arguments, each of which depends on some other factors also existing in the language.

ASL is a visual-gestural language which on the surface seems strikingly different from the spoken languages which have so far been used to develop the current theories of linguistics. However, ASL has null arguments which pattern like those of Irish, and those of Chinese, and this paper shows that an analysis which incorporates syntactically real non-overt elements will account for ASL along with these more well-known spoken languages. This position thus lends support to the linguistic theories which incorporate such elements and attempt to account for their distribution.

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FOOTNOTES

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1. These include Fischer (1974), Kegl, Lentz, & Philip (1976), Lacy (1974), Liddell (1977), and Padden (1983).

2. I follow the general practice of writing ASL using upper-case English glosses to stand for signs with approximately the same meaning as the English word. Subscripts from the beginning of the alphabet (a,b,c) are used in the glosses to indicate spatial location, such that nouns are marked with a subscript at the beginning of the gloss to indicate the locus in space at which they are signed, and inflecting verbs are marked with a subscript at the beginning to indicate the onset location, and/or a subscript at the end to indicate the endpoint location. Similarly, subscripts 1 and 2 are used to indicate first and second person.

3. In these and future examples I am using terms such as "extraction" and "extraction site" without meaning to necessarily imply a movement analysis.

4. Fischer (1974) shows this for the Complex NP Constraint, and Padden (1983) for the Coordinate Structure Constraint.

5. Several authors have claimed that ASL word order can only be described in terms of topic-comment at the sentence level, which is not what I am claiming here. (See Coulter 1979 for a review.) This section, rather, is claiming a topic prominence structure at the discourse level, following Huang's discussion.

6. A further argument that clitics are distinct from agreement in ASL comes from equi-type sentences. In these sentences, an overt pronoun is not allowed in the embedded subject position. Neither is a clitic of the type I have described. However, the verb in the embedded clause can be marked for subject agreement.

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