Journal of West African Languages XII, 2 (1982)

SWITCH REFERENCE IN BANTU LANGUAGES[1]

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Clauses are said to be linked by Switch Reference when they contain a morpheme indicating that the subject of the dependent clause is the same as (SS marking) or different from (DS marking) that of the main clause. Such languages are not only found in North and South America, Australia and New Guinea, but also among the Bantu languages which have so-called consecutive (SS marked) and sequential (DS marked) constructions.

The main characteristics of the Switch Reference System include:

a) the markers carry, in addition to the SS/DS information, either person distinctions or clause connection distinctions (or both);

b) the linked clauses are grammatically dependent but may be semantically coordinated or subordinated;

c) the linking mechanism can distinguish between different degrees of grammatical dependency, dividing the clause chain into medial-final chains and subchains, or skipping clauses which are peripheral to the chain, leaving them unmarked;

d) the subject of the linked clauses can be numerically same or different, provided that the singular subject is always included in the plural subject.

Les propositions dans une langue sont liées par le système de "switch reference" quand elles contiennent un morphème qui indique soit que le sujet de la proposition dépendante est identique au sujet de la principale (marquée SS), soit qu'il en est différent (marquée DS). On trouve ce système parmi les langues de l'Amérique du Nord et du Sud, en Australie, et en Nouvelle Guinée. On les trouve aussi parmi les langues bantoues, pour lequelles on a décrit des constructions consécutives (SS) et séquentielles (DS).

Les principales caractéristiques du système "switch reference" sont:

a) les morphèmes qui indiquent SS ou DS donnent également les indications de personnes ou/et des informations sur la relation des procès entre eux;

b) les propositions liées sont dépendantes grammaticalement, mais sémanticalement elles sont soit coordonnées soit subordonnées;

c) par ce système on peut différencier plusieurs degrés de dépendance grammaticale: on peut trouver des séquences principales comprenant des sous-groupes, ou alors on peut distinguer certaines propositions comme étant moins centrales à la chaîne que les autres, par le fait qu'elles ne sont pas marquées par SS/DS;

d) les sujets des propositions liées peuvent être identiques en nombre (singulier/pluriel) ou non, pourvu que le sujet singulier soit inclu dans le sujet pluriel.

1. Introduction

In human communication one important preoccupation is to know who is doing what (when and where). In order to keep participants properly indexed in any particular text a number of linguistic devices have been developed. One of these devices is the logophoric pronoun reference. It has been extensively described for many Niger-Congo languages, the latest and most comprehensive description being that of the Gokana System described by Hyman and Comrie (1981). It is, however, also found in Chadic languages (to be reported by Wiesemann in a forthcoming description).

Another linguistic device is the so-called switch reference system, first reported for North American Indian languages by Jacobsen (1967) who coined the term and defined it as follows: "Switch-reference consists simply in the fact that a switch in subject or agent is obligatorily indicated in certain situations by a morpheme, usually suffixed, which may or may not carry other meanings in addition" (240). It has since been reported and extensively described for a number of Amerindian languages in North and South America, for languages spoken in New Guinea, and for many Australian languages.

It is the purpose of this paper to show that the same mechanism is used by a number of Bantu languages, particularly of the Grassfields region of Cameroun. In some languages it is used alongside of the logophoric indexing device, in others there is no logophoric marking but switch reference only.

2. Switch Reference Defined

The term Switch Reference is actually confusing, for it focuses on one device only: the possibility of indicating, in a sequence of two (or more) clauses, the fact that the following clause has a different subject than that of the preceding clause. In actual fact, however, the languages reported as having this indexing device fall into three groups:

a) languages which overtly indicate a switch in subject (DS marking);

b) languages which overtly indicate co-reference of subject (SS marking);

c) languages which have, depending on the type of clauses linked, both DS and SS marking.

These will now be exemplified:

Kanite of New Guinea (Longacre 1972:5) indicates a switch of subject in the following clause by the verbal suffix -ke which is followed by a pronoun foreshadowing the subject of the following clause. The foreshadowing pronoun is also present when the subject is the same as the preceding clause, but then the -ke is absent:

(1) ɦi-s-u'a-ke-'ka naki a'nemo-ka hoya aɬi-'ka naki aɬi
do-INT-1p-DS-2p so women-2p garden work-2p so work

ha'noma hu-ne'ataɬe-'ka.....
finish do-COMPL-2p.....

'If we do this, you women work in the garden, when it is finished you.....'

The foreshadowing pronoun in this example is -'ka '2p' following the verbs ɦi- 'do-INT', aɬi- 'work' and hu- 'do COMPL'. Only in the first instance is it preceded by -ke.

A language which indicates SS marking by a special pronoun and DS by the 'normal' third person pronoun in linking main and subordinate clauses is Kaingáng (Jê, Brazil, Wiesemann 1972). The subordinated clause may precede or follow the main clause, so the use of the SS marking pronoun may be anaphoric or cataphoric (in Kanite it seems to be cataphoric only):

(2) ã tỹ tí ve kỹ tóg fỹ 'when he$_i$ saw him he$_i$ cried'
SS by 3s see when 3s-S cry

(3) tí tỹ tí ve kỹ tóg fỹ
3s by 3s see when 3s-S cry 'when he$_i$ saw him he$_j$ cried'

Grammatically the subordinated clause in Kaingáng cannot have a subject, but the agent is encoded in an instrument (post-positional) construction: ã tỹ 'by him - coreferent with subject of main clause (in this case tóg)' ti tỹ 'by him - non-coreferent with subject of main clause'. ti is the 3s pronoun in any grammatical function (but it may have case markers; tóg is a fusion of ti + tóg 'subject marker').

In Kobon (Papua New Guinea, Davies 1981:181-183) both SS and DS are marked by a completely different set of pronouns in non-finite clauses. The pronoun subject markers in finite clauses contain additional information about tense (distinguishing remote past, simple past, perfect, present and future), while the non-finite clause subject pronouns do not contain this information. The person/number categories are the same in finite and non-finite clauses. There are different sets, though, for contrafactual clauses, one marker is used in purpose clauses, and another in simultaneous time clauses. The other linked non-finite clauses use the following pronouns to indicate SS or DS:

	SS			DS		
	singular	dual	plural	singular	dual	plural
1	-em	-uɨ	-un	-nö	-ɨo	-no
2	-mön	-miɨ	-mim	-ö	-ɨö	-be~ -pe
3	-öm	-miɨ	-öm	-ö	-ɨö	-ɨö

Examples (Davies, 67a and 460):

(4) kabö mɨjanu ɨau-ö ɨn-a 'He heated the stones and they were hot' (DS marking)
stone that heat-DS3s hot-REM3s

(5) yad kaj pak-em ram ud ar-nab-ɨn
is pig strike-SS1s house take go-FUT-1s
'I will kill a pig and take it home' (SS marking)'

Switch reference, or, as it may be more appropriately called, SS/DS marking consists of a morphological device which indicates that the grammatically subordinate clause (or clauses) has (have) the same as or a different subject than the dominant clause with which it is (they are) linked.

Grammatically the clauses linked by such marking are dependent on the clause they are linked to. Davies (182) describes it this way:

"Medial coreferential person-number suffixation of the verb of a clause render it grammatically subordinate to (i.e. grammatically dependent on) the final (i.e. finite) clause of the sentence..... The basic purpose of medial verb forms is to conjoin clauses..... The semantic relationship between the clauses may be one of coordination or subordination."

The distinction between grammatical subordination on the one hand and semantic coordination or subordination on the other seems to be a crucial one in understanding the SS/DS marking mechanism.

Another peculiarity is the fact that a whole string of clauses (up to 20 in Kobon according to Davies) can be subordinated to the same main clause, leaving open the question whether such a string is a sentence or a whole paragraph. Longacre (1972:II) finds evidence for both in the languages he describes. He calls paragraphs 'medial-final chains' which 'encode sizable discourse-level chunks'; sentences he equates with 'devices which break up such chains into subchains' (50, footnote 1).

Longacre also describes a situation in which SS marking may refer to a clause further down in the chain rather than the adjacent one (which, however, may be marked as DS, in relation to its adjacent clause). He concluded that the skipped-over clauses are marginal to the chain. My interpretation would be that there are different degrees of grammatical subordination in some SS/DS marking languages. One example he cites comes from Gahuku (Longacre:13):

(6) nagamiq zeu-ke, goiini zeka-go, numukuq minuve
water after-I-hit rain after-it-hit house-in I-stayed

'After I washed it, after (because) it rained, I stayed in the house'

In this example -ke foreshadows a following same subject. The second clause, however, actually has a different subject, and is marked by -go which foreshadows a different subject in the following clause. It is in the third clause that the subject is 'I' again. The reason clause is therefore bypassed in the SS marking. He reports this same feature for a number of the languages in New Guinea.

This illustrates the fact that the SS/DS marking system allows for indicating varying degrees of grammatical dependency, which are in some measure independent of the semantic relationship between the linked clauses.

3. Person Oriented and Clause-Connection Oriented Markings

Languages with SS/DS marking can be subdivided into two groups:

a) languages in which the markers contain (overtly or covertly), in addition to the SS/DS marking, person categories. The clauses thus linked are often not restricted as to the type of grammatical or semantic subordination - these will be discussed in Section 3.1;

b) languages in which the markers contain, in addition to the SS/DS marking, such semantic clause connection categories as their logical or temporal relations, including sequencing - these will be discussed in Section 3.2.

There are also certain number restrictions in SS/DS markings which will be discussed in Section 3.3.

3.1 Person Oriented Markings

The examples given above from Kanite (New Guinea) and Kaingáng (Brazil) belong to this group. In Kanite the -ke cannot occur without a foreshadowing subject pronoun which contains the person categories, and is therefore closely linked to the person differentiating system. There seems to be no restriction as to the type of clauses linked. The relationships between the linked clauses are indicated by separate morphemes.

In Kaingáng, on the other hand, the SS indicating pronouns ã 'SSsg' and ãjag 'SSpl' can refer to a 3rd person subject only, and the marker has to agree with that subject in number. There are no other restrictions, i.e. any subordinated clause contains this SS/DS marking. The type of subordination is expressed by other markers.

This is not quite so in Kobon, which seems to be a language combining both a) and b) characteristics. As has been shown above, some clauses are linked using separate sets of pronouns for SS and DS markings. Purpose clauses, on the other hand, are linked by -n̈g when in coreferential relationship (Davies 80a):

(7) yad kaj pau-n̈g ar-ab-in r̈bö yaŋ
1s pig strike-PURP-SS go-PRES-1s river below

'I am going down to the river to kill a pig'

-n̈g does not express person categories but does contain the fact that the two clauses are in purpose relationship. So in that respect Kobon is like the languages that will be described in the next section.

3.2 Clause-Connection Oriented Markings

The second group of SS/DS marking languages uses markers that do not contain person categories, but rather such information as to the relative timing of the two (or more) actions linked, or their modality relationship. One such language is Kashaya (Pomo, Oswalt 1976:297):

(8) ca·bíćba ca·du' '(A bird)$_i$ having flown up, it$_i$ flew away'

(9) ca·bí'ɬi ca·du' '(A hawk)$_i$ having flown up, it$_j$ (another bird) flew away'

In these examples the suffixes -ba 'SS' and -ɬi 'DS' also contain the information that the action of the subordinate clause precedes that of the main clause in time. Oswalt reports five such pairs, each pair giving information on modality and relative timing of the two actions linked.

The marking system is somewhat different for Cashibo (Pano, Peru, data from Olive Shell). In some contexts, depending on the tense or mode of the verbs linked, both SS and DS are marked by a special affix. In other contexts only SS is marked, DS being implied by the absence of the SS marker:

(10) ñu 'aru-tan-cë-xun cana pi-a-n
things cook-SS-PAST-TR 1s-AFFIRM eat-PAST-1/2s

'After I cooked, I ate'

(11) 'ën 'aru-cë-xun ca pi-a-xin
1s-TR cook-PAST-TR 3s-AFFIRM eat-PAST-3s

'After I cooked he ate'

The SS suffix -tan occurs in past tense only, though the past tense is separately indicated by the suffix -cë in the subordinate clause (the crossreferencing devices above include the foreshadowing of a transitive or intransitive verb, which is marked both on the pronoun 'ën and on the suffix -xun of the verb of the subordinated clause).

3.3 Number Restrictions

As mentioned earlier, in Kaingáng the subject of the main clause and that of the subordinated clause have to agree in number. This is not the case in all SS/DS marking languages. For Diyari (Australia) Austin (1981) reports that SS marking "may be employed where strict coreference does not hold, provided that the referent(s) of the main clause subject is/are included among those referred to by the subordinate-clause subject." As examples he cites (316):

(12) nhulu nganthi pardaka-rna warrayi, thanali thayi-lha
he-ERG meat-ABS bring-PART AUX they-ERG eat-SS

'He brought the meat for them (him and others) to eat' (SS marking)

(13) nhulu nganthi pardaka-rna warrayi, thanali thayi-rnanthu
eat-DS

'He brought the meat for them (others) to eat' (DS marking)

Longacre reports for the languages of New Guinea with which he worked (1972:14): "a set of participants and a partition of that set are treated as the same subject." He gives examples similar to the Diyari one but also the opposite, where at first a plural subject is introduced, and then one member of that group is singled out, the transition being indicated by the SS marker. The example is from Nasioi (15):

(14) Otoro-kotaa', bioko pora' nanuu'nung
stay-SS-after their-mother bush she-went

'They stayed there for a while and then their mother went to the bush.'

Examples 12-14 illustrate that for SS marking there are different restrictions as to number:

a) both subjects linked must agree in number (Kaingáng);

b) the main subject may be singular and the subordinated one plural, provided that the main is included in the subordinate (Diyari);

c) the main subject may be singular or plural, and the subordinated one may also be singular or plural, provided that the singular one is always part of the group signalled by the plural (Nasioi).

4. SS/DS Markings in Bantu Languages

The mechanisms described above seem to hold in a number of Bantu languages, specifically in relation to three features: the consecutive clauses, the sequential clauses, and the serial verbs. The most recent publication which features among other things consecutive and sequential clauses is by Hyman (1981): Noni Grammatical Structure. His findings will be discussed as they relate to the SS/DS markings.

Noni has basically high tone verbs and low tone verbs. Superimposed on the basic tone Hyman finds four different tone patterns which he labels A,B,C,D. These tonal patterns cooccur with certain

tense-aspect-mood markers. A is the most frequent pattern and occurs in the P_1 tense, the past that relates events occurring the day in which they are reported. It also occurs whenever a focus marker is present in the verb phrase. It also occurs in most of the progressive forms (i.e. imperative, future, negative past and future but not positive P_0, P_2 or P_3 tenses). Non-progressive future and negative forms have tonal pattern C. Tonal pattern B is found in the P_0, P_2 and P_3 tenses, i.e. for actions that have just occurred as they are being reported (P_0), or that occurred one or several days earlier (P_2), or that occurred a long time ago (P_3). As for tonal pattern D, it is reserved for the consecutive form that is subordinated to a past tense. In consecutive clauses subordinated to future or negative clauses the verb carries tonal pattern C, and if it is subordinated to any one of the progressive tenses the verb carries tonal pattern A.

The following chart summarizes the occurrences of the tonal patterns (this is a simplified version of the chart Hyman presents on p.73):

A	B	C	D
+ P_1	$P_{0,2,3,\pm}$ PROG	+F -PROG	+CONS (+P)
+ FOC		+NEG -PROG	
+ PROG			

There are other markers for the consecutive clause. P_0, P_1, and P_2 dominated consecutive clauses contain the SS marker $\underline{\grave{\varepsilon}}$ in place of any other pronoun. When any other tense dominates the consecutive clause the SS marker is zero. Hyman states (69): "The term 'consecutive' refers to verb conjunction without an overtly expressed subject" - in other words consecutive clause subjects all are coreferential with the subject of the main clause. He gives the following examples to illustrate the consecutive clauses (tonal patterns are marked after each verb):

(15) bɔ́ cí nɔ́ɔ̀ yèm̄ / è-bɪ̌n 'they sang and danced'
3p P_2 *FOC* *sing-A* *SS-dance-D*

(16) bɔ́ cí nɔ́ɔ̀ mɛ̀sè / è-dɛè bèŋkfù
3p P_2 *FOC* *finish-A* *SS-cook-D* *yams*
'They finished cooking yams'

(17) bɔ́ cí nɔ́ɔ̀ lewtɛ̀ / è-gɛ̄ǹ fɔ̀wǎy
3p P_2 *FOC* *run-A* *SS-go-D* *market*
'They ran to market'

(18) bɔ́ cí nɔ́ɔ̀ lewtè / è-ghǎw me
3p P_2 *FOC* *run-A* *SS-overcome-D* *1s*

'They ran faster than I'

This illustrates several semantic relationships: simple sequence in (15), end point of the cooking process indicated by the verb 'finish' in (16), direction in (17), and comparison in (18). These kinds of relationships are often expressed by serial verb constructions, an observation we shall return to later.

In contrast to the consecutive clauses in the sequential ones the subjects of main and sequential clause are not coreferential. The subject is marked by what Hyman calls the 'sequential' form: when subordinated to P_0, P_1, or P_2, the subject of the sequential clause is followed by the morpheme ɛ̲; when subordinated to P_3, Future or Progressive tenses the morpheme ɛ̲ precedes the subject. The tonal patterns are also important to note: when subordinated to P_0, P_1 or P_2 the sequential verb carries tonal pattern A; when subordinated to P_3 it takes tonal pattern D; when subordinated to non-progressive futures or negative it takes tonal pattern C; when subordinated to any of the progressive tenses it takes tonal pattern A. These characteristics can be summarized in the following chart:

subordinated to: $P_{0,1,2}$		P_3	PROG {+FUT, +NEG}	+PROG
CONS (SS)	ɛ̲-, D	#, D	#, C	#, A
SEQ (DS)	S ɛ̲, A	ɛ̲ S, D	ɛ̲ S, C	ɛ̲ S, A

Before discussing this any further, examples will now be given, contrasting consecutive and sequential clauses - a task made easy by the systematic way in which the data are chosen and presented by Hyman. Only one example will be given for each of the possible tonal patterns.

(19) bɔ́ yém lɔ̀ è-kfūǹ bɔɔm
3p *sing-B* *just* *SS-hit-D* *children*

'They have just sung and hit children (P_0)'

(20) me nɔ́ɔ̀ nyèm̄, wàn̄ ɛ kfùn wè
1s *FOC* *sing-A* *child* *DS* *hit-A* *someone*

'I have sung and a child has hit someone (P_0)'

(21) bɔ́ tɔ̀ yěm kfūǹ bɔɔm
3p P_3 *sing-B* *hit-D* *children*

'They sang and hit children (P_3)'
(The ˇ tone on 'sing' has to do with the preceding L tone.)

(22) me ntɔ̀ nɔ́ɔ̀ nyèm̄, ɛ wan kfūǹ wè
1s P_3 *FOC* *sing-A,* *DS* *child* *hit-D* *someone*

'I sang and a child hit someone (P_3)'

(23) bɔ́ nú géé yém kfun bɔɔm
3p *F* F_1 *sing-C* *hit-C* *children*

'They will sing and hit children (F_1)'

(24) me nú ŋgéé nyém, ɛ wvùú kfun wè
1s *F* F_1 *sing-C* *DS* *3s* *hit-C* *someone*

'I will sing and he will hit someone (F_1)'

(25) bó yemté kfùnè bɔɔm
3p *sing-PROG-B* *hit-PROG-A* *children*

'They are singing and hitting children (P_0)'

(26) me nyemté ɛ wvù kfùnè wàn̄
1s *sing-PROG-B* *DS* *3s* *hit-PROG-A* *child*

'I am singing and he is hitting a child (P_0)'

The nasal prefixes on the tense markers and verbs in the DS clause examples are agreement prefixes with first person singular subject. The difference between the SS and DS clauses following the main clauses (i.e. between the even and odd numbered examples) are:

a) in DS clauses there is always a subject, preceded or followed by the DS marker $\underline{\varepsilon}^2$;

b) in SS clauses there is never a subject; but in those clauses subordinated to $P_{0,1,2}$ there is an SS marker $\underline{\grave{\varepsilon}}$;

c) in clauses subordinated to $P_{0,1,2}$ the tonal pattern is different: in SS clauses it is D (the consecutive tonal marking), in DS clauses it is A, the tonal pattern expected for focalized forms. Hyman says that it is A whether it is subordinated to focalized or non-focalized forms, but the examples he gives are all focalized. This might be an indication that whereas DS clauses subordinated to P_3 retained the original tonal pattern D, DS clauses subordinated to $P_{0,1,2}$ are developing into less tightly knit units than those with tonal pattern D. It might be significant that P_3 is the story telling tense, which is more likely to retain an old form

than other tenses. This looks like a developmental process: at first SS/DS are equivalent, then some DS clauses become less tightly bound to the main clause (in Noni this seems to be compensated for, however, by a similar difference between $P_{0,1,2}$ dominated clauses on the one hand, and P_3 dominated clauses on the other, where the former have the SS indicator è, the latter have #).

Such a development could then also go in the other direction. In the same measure in which DS constructions become more independent, SS constructions become more tightly bound to each other, until they become serial verbs as defined, for example, by Stahlke (1970) who explains that they must agree as to subject, tense, auxiliaries, negation, interrogatives, and mood. If serial verbs have developed out of an originally SS/DS marking system, this would also explain why similar semantic relationships can be observed in both, and why it is difficult to determine if they derive from grammatically coordinate or subordinate clauses. One of the characteristics of the SS/DS marking system, as shown above, is that though the clauses are subordinated grammatically to a main clause, the semantic relationship may be that of coordination or subordination. This could also explain the findings of Bamgbose (1974); his 'linking type' serial verb constructions being derived from originally semantically coordinated structures, whereas his 'modifying type' would be derived from semantically subordinated clauses being SS linked and in a further grammaticalization process having become serial verbs.

Once SS linked clauses have become serial verbs, the grammaticalization process might well continue the way Lord (1973) and Givón (1975) have suggested.

To complete this section, mention shall be made of SS/DS marking in other Bantu languages, though the material available is not as extensive as that for Noni. In Bafut, a Grassfields language of the Mbam-Nkam cluster, consecutive clauses are subordinated to a main clause, either immediately preceding or at the beginning of a paragraph. Whenever subordinated to past tenses, the SS clauses have N- to indicate SS and the verb carries high tone. When subordinated to future tenses the verb carries high tone, but there is no N- prefix, only absence of subject. The DS clauses have a (pronoun or noun) subject; when subordinated to a past tense clause they carry high tone. Examples are (data from Joseph Mfonyam):

(26) á-ghéè̀ n̄dá ŋ́-kwɛ́rə́ fórə́
3s-go house SS-take rat

'He then went to the house and took a rat'

(27) á-ghéè̀ n̄dá ŋgwà á-kwɛ́rè fōrə̄
3s-go house N. 3s-take rat

'He then went to Ngwa's house and then he (Ngwa) took a rat'

When in a larger context there seems to occur what Longacre (1972:50) calls subchains within a chain of clauses subordinated to one main clause. So the following sentence can be found within a paragraph in a story, where the whole paragraph is subordinated to a clause containing a P_3 tense verb:

(28) ǹ-tsō ń-tó'ó ŋ̀kǐ 'he then went and carried water'
SS-go SS-carry water

where for some reason the first SS marker carries low tone in the first (main) clause (causing the following high tone to be down-stepped to mid), whereas the second SS marker carries high tone. Since the whole system and particularly the tone rules are not yet fully understood for Bafut, no adequate explanation can be given here.

Similar systems but different in details have been reported for Aghem (Anderson 1979) and Ngyembɔɔn (Anderson, ms.). It is also similar to the consecutive constructions reported for Kikuyu and Swahili by Bennett (1975)- and undoubtedly can be found in many more Bantu languages.

Another detail worthy of note is the fact that Noni, Bafut and Aghem (but apparently not Ngyembɔɔn) have, in addition to the SS/DS marking, the logophoric indexing system which is used for identifying coreferentiality between speaker and agent (or other argument) in the reported speech act (as well as for other purposes, see the recent discussion by Hyman and Comrie 1981). These three languages also have a well developed personal pronoun system with pronouns containing the simple categories of first, second or third person singular and plural, as well as the possibility of combining these categories into 1+2, 1+3, 2+3, 3+3 and even 1+2+3 categories, each one (but the last) having a minimum (i.e.dual) as well as a plural form. Thus these languages combine within their system a number of subsystems which allow a most explicit cross indexing of participants at any level of communication.

5. Generalizations and Conclusion

Some generalizations can now be made concerning the SS/DS marking systems, which might be tested as universals. They will presented in the form of implicational hierarchies. To adequately describe SS/DS marking, at least the following categories have to be taken into account:

a) Person categories - these are relevant to the person oriented markings. The implicational hierarchy seems to be:

3 > 2 > 1 or possibly 3 > 2,1

that is, no language has been found in which only first or second person is SS/DS marked, though some languages have only third person so marked.

b) Number categories - these are relevant to all languages with SS/DS marking. Three different situations have been noted:

   1. main and subordinated subject must agree in number (mS=sS);

   2. main subject is equal to or may be included in subordinated subject ($mS \supseteq sS$);

   3. main subject may be equal to or included in subordinated subject, or vice versa ($mS \overset{?}{\subseteq} sS$).

This leads to the implicational hierarchy:

$$mS = sS > mS \supset sS > mS \subset sS$$

that is, in all languages both subjects may agree in number, and there is no language in which the subordinated subject may be included in the main subject, if the reverse is not also true.

c) Grammatical function - SS/DS marking is essentially limited to linking subjects[3]. For one language linking between instrumental and subject is reported, where instrumental encodes the agent. This suggests that for some languages the rôle hierarchy is more important than the grammatical one. The limitations do not permit postulating an implicational hierarchy.

Further categories may well be relevant. Austin (1981) shows for the Australian languages a difference between languages that link what he calls relative clauses only, and those that link both relative and implicated-purposive clauses. Both features seem to be areal features. Restrictions in the formal linking of types of clauses need to be investigated and stated for other SS/DS marking languages before generalizations can be made.

FOOTNOTES

[1]The research for this article was in part supported by Grant No. 4088 from the Wenner-Gren-Foundation for Anthropological Research. The article was originally presented as a paper at the 15th Congress of the West African Linguistic Society, in April 1982, in Port Harcourt, Nigeria. The work in the languages of Cameroun was done under the auspices of the Délégation Générale à la Recherche Scientifique et Technique. For linguistic data from unpublished sources I'm indebted to colleagues of S.I.L. and students of the University of Yaoundé. This paper has profited from helpful suggestions by Dr. Olive Shell and Dr. John Watters. My sincere thanks go to all of them.

[2]This (probably same morpheme) ɛ also seems to have a highlighting function for the subject in exclamations. Hyman cites the example:

me ɛ ŋkfùn wàn̄ 'oh, I've just hit the child!'

He also shows that it combines with what he calls auxiliary verbs to give them additional focalized meanings:

nú 'be' + ɛ ⟶ nɔ́ɔ̀ 'FOC'

bé 'P_1' + ɛ ⟶ bɛ́ɛ̀ 'P_1 FOC'

cí 'P_2' + ɛ ⟶ cɛ́ɛ̀ 'P_2 FOC'

[3]For Warlpiri, a language spoken in Australia, Austin (1981:325) reports a special marker for linking objects in addition to the SS/DS linking marker: mS=sS: -karra
mO=sS: -kurra

His example is:

(54) ngajulu-rlu rna yankirri pantu-rnu, ngapa nga-rninja-kurra
1s-ERG AUX emu-ABS spear-PAST water-ABS drink-INF-mO-sS

'I speared the emu_i while it_i was drinking water'

Warlpiri being an ergative language, this is clearly an extended use of SS marking (extended from absolute case subjects to absolute case objects), a process quite different from the one suggested for the development of serial verbs.

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