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AN SVO ANALYSIS OF VSO LANGUAGES AND PARAMETERIZATION: A STUDY OF BERBER*

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Ø. Introduction

In this paper, it is argued that VSO (V = verb, S = subject, and O = object, hereafter) languages are related to SVO languages, and that VSO basic surface order is due to S-adjunction, which leads to parametric variations among VSO languages.

In Greenberg (1963), the following implicational generalizations for VSO languages are proposed. (Underlining is ours.)

Greenberg Universals

3. Languages with dominant VSO order are <u>always</u> prepositional. [PP]
6. <u>All</u> languages with dominant VSO order have SVO as an alternative or as the only alternative basic order.[1] [VP]
12. If a language has dominant order VSO in declarative sentences, it <u>always</u> puts interrogative words or phrases first in interrogative word questions; .... [CP]
16. In languages with dominant order VSO, <u>an inflected auxiliary always</u> precedes the main verb. .... [IP]

Under a certain version of X'-theory which adopts the schema (1) (cf.Chomsky (1984/5)), it can be argued that VSO languages are <u>all</u> head-initial, given Greenberg's universals above which imply that there are no exceptions.

(1) a. X" (= XP) ----> Spec X' (X = lexical, INFL(I), or COMP(C))
b. X ----> X comp (order irrelevant)

It is easy to see why VSO languages are problematic, given universal 6 and a restricted theory under (1). There is no way to get a VP since surface word order is VSO. Suppose, as universal 6 implies, that VSO is related to SVO, then, a VSO language simply has a complicated system or a parameter which leads to a variant of SVO word order. Now, the following question immediately arises: How is VSO related to SVO?

To explain VSO languages, there have been at least two different approaches:

(2) a. the 'flat' structure approach,(Anderson and Chung (1977) for Samoan,Tongan,and Breton, Anderson (1984) for Kwakwala, Chung (1983) for Chamorro, and McCloskey (1979) for Irish
b. the 'I-fronting' approach (Sproat (1985) for Welsh/Irish)

The flat structure approach (2a) does not capture Universals 3,6,12 and 16 in a systematic or unified way and therefore (2a) misses one generalization, namely that VSO languages are head-initial. Most studies on VSO languages agree that S and O should be distinguished with respect to extraction, Case-assignment, government, or binding. In addition, recent works such as Anderson and Chung (1977) (A/C,hereafter), McCloskey (1983) and Sproat (1983/5) show that there must be a VP node even in VSO languages. In short, it seems best to assume that a VSO language has a VP node and the head-initial parameter.

One SVO analysis of VSO languages along the lines of Emonds (198Ø) and Toreggo (1984) is due to Sproat (1985). Sproat suggests that the VSO word order of Welsh/Irish is due to I(NFL)-fronting:(from Sproat (1983/5) with modification)

(3) a. [(Vi + INFLj) Gwelodd [Siôn [ej [ei y tŷ]]]] [VSO]
saw+3sg IP I' VP the house
'John saw the house.'
b. [(do + INFLj) Gwnaeth [Siôn [ej [weld y tŷ]]]] [ISVO]
did+3sg IP I' VP see the house
c. [Y maej [Siôn [ej [yn gweld draig]]]] [ISVO]
PTCL is-3sg IP I' VP PROG.PTCL see dragon
'John is seeing a dragon.' (PROG.PTCL = progressive particle)
d. Dyunai Wyn i Ifor ddarlleny llyfr [SVO]
wanted for read(Vn) the book
'Wyn wanted for Ifor to read the book.' (=75 in Sproat (1985))

In Welsh, INFL is fronted and then either 'do' is inserted (3b) or V is fronted (3a). Sproat suggests that since INFL must be supported by some [+V,-N] element, after the application of I-fronting, either V moves to support INFL or do is inserted to

satisfy this requirement. The auxiliary may also be a form of the verb to be in a progressive (or passive) construction as in (3c). When V is [-TENSE] (and therefore lacks AGR), SVO word order is observed as in (3d). Why, then, is English not a VSO language even though English has auxiliary inversion which might be explained in terms of I-fronting? To answer this, Sproat proposes, as shown in (4), that I-fronting in VSO languages is due to a restriction on the directionality of Case assignment, assuming that INFL[+TENSE] is a Case-assigner:(from Sproat (1983), () are ours.)

(4) a. SVO languages; [-N] (assigns Case) rightward, others free
b. VSO languages; all categories (assign Case) rightward

Given the X'-schema (1), there is another logically possible way to get VSO word order in addition to I-fronting: S-lowering. In this paper, it is proposed that moving S instead of I gives a better account for languages like Berber (Chamorro, or Samoan) and Irish and Welsh as well. It is also proposed that VSO word order is due to the directionality of Ø-role assignment and of predication, in addition to the directionality of Case assignment (cf.Travis (1984) who proposes directionality parameters). Related to these proposals, it is argued that [+V]AGR but not INFL[+TENSE] is responsible for Nominative Case (NOM). It is shown that the position of (phonetically realized) AGR is important for VSO word order, and that VSO languages may typologically differ according to the position of AGR (I or V). The language which will be discussed in detail in this paper, Berber,[2] is typologically different from Welsh and Irish which are described in terms of I-fronting. Accordingly, the purpose of this paper is to give a proper description of Berber, and our strategy is to show that Berber is incompatible with the I-fronting approach and to propose an S-adjunction approach for Berber and for Irish/Welsh as well.

1. The 'S-adjuction' approach to Berber

1.1. Some relevant facts of Berber

An important fact in Berber is that the basic surface order is (I)VSO as shown in (5); Berber is strictly head-initial:

(5) a.(cf. 65a in Guerssel (1983))

T - ttcu	(Tifa)	iselman	[VSO]
3fs - ate		fish	'Tifa/she ate fish.'

b.

Lla t - ttett	Tifa	iselman	[IVSO]
IMP 3fs-eat-imp		fish	'Tifa is eating fish.'

It is important to note that the main verb(V) but not the auxiliary lla (IMP = imperfactive) is inflected and the auxiliary is just a reflection of TENSE, unlike Welsh(cf.(3b/c)). This Berber fact suggests that Greenberg's universal 16 should be modified as follows;

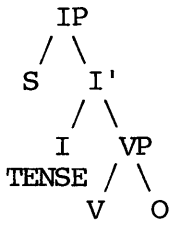
universal 16' --- In languages with dominant VSO, an auxiliary always precedes the main verb. ....

Another important point is that Berber has no ISVO or SVO basic surface order. Finally, Berber is a 'pro-drop' language in that pronominal subjects are phonetically null (cf.'inflectional subject' in McCloskey and Hale (1984)).

1.2. S-adjunction to VA

We first assume, since V but not I is inflected in Berber, that AGR is adjoined to V (say, by rule R' (cf.Chomsky (1981)) or it is base-generated with V, as shown below: (The choice is not critical.)

(6) a.



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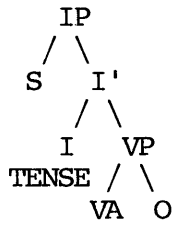


((6b) will be assumed here just for convenience's sake.)

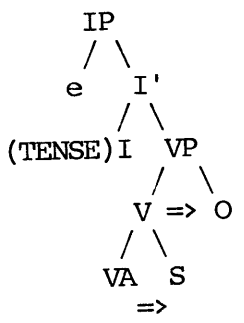
Given the above, there are two choices: I(V)-fronting or S-lowering. One motivation for movement may be a Case reason (4) as Sproat suggests. If I([+TENSE]) moves to assign Case to S, then there is no motivation for V-fronting since V moves even when I contains the auxiliary verb which does not need to be supported as shown in (5b) (cf.3c). If V moves to assign Case to S, there seems to be no reason why I should also move. Thus, neither I-fronting nor V-fronting works for Berber unless other stipulations are added. On the other hand, S-lowering could account for the IVSO order in Berber. The following descriptive facts of Berber and Welsh/Irish support an S-lowering approach. Unlike Welsh/Irish, no clauses lack AGR in Berber ([+V]'s with AGR are underlined).

(7)	Berber	Welsh/Irish
a.	basic surface order	
	IVSO or VSO [*ISVO/*SVO]	ISVO, VSO, or SVO [*IVSO]
b.	AGR goes with V	AGR goes with I

Two implicational generalizations can be obtained, given the facts in (7). One is that IVSO or ISVO word order is related to the position of AGR; S comes immediately after [+V] with AGR. The other is that the existence of AGR triggers VSO word order (cf.SVO vs. VSO in Welsh/Irish). These generalizations can be captured under S-lowering to [+V](AGR) but not under I-fronting. Let us assume that S-lowering is S-adjunction, which is 'structure-preserving' in the sense of May (1985). S-adjunction to [+V]AGR is motivated if [+V]AGR but not I[+TENSE] is resposible for

NOM and if S moves in order to be assigned Case from VA as in (8).

(8)



(8) explains the lack of ISVO in Berber as (8) is motivated by two assumptions: (cf.4)

(9) a. (In all VSO languages), Case is assigned strictly rightward
b. NOM to S is assigned by [+V](AGR).

After the application of rule R', INFL without AGR becomes just a place holder for IP and plays no role with respect to Case assignment. A question one might raise is why adjunction is rightward but not leftward. One of the following principles of adjunction site may be proposed.

(10) When Xmax adjoins (to X),
a. the adjunction site of Xmaxs follows from the head parameter,
or b. the adjunction site of Xmaxs follows from the directionality of Case assignment.

In Berber, both the directionality of Case assignment and that of the head parameter suggest that Xmaxs are adjoined rightward. However, there is no reason to choose (10b) over (10a) since there are syntactic adjunction processes which are not related to Case and they are all rightward adjunctions. In short, Berber structures have the form [(SPEC) X ...]a but not [.... X]a, where a is X or Xmax (also, see Shlonsky and Sigler (1985)). Thus, (10a) is adopted in this paper.[3]

One theoretical problem with (8) is that the chain (S,e) does not satisfy the following chain conditions which are widely assumed, given the notion 'chain' - a linear history of move-α (cf.Chomsky (1981)).

(11) Given chain (a1,...,an)
a. ai c-commands ai+1 where i<n
b. a1 is in a unique Case position and an is in a Ø-position.

e (an) is in a Ø-position and S (a1) is in a Case position. However, S does not c-command e. Suppose that S-adjunction (or 'downward' adjunction, in general) does not form a chain, but

creates a relation or a pre-chain where the external Ø-role assigned by VP (through I) is transmitted to S. (Technically, it will be assumed that the transmission of Ø-role to S is a way of assigning Ø-role rightward.) e then becomes like an expletive. Since S is in a Ø-position instead, e and S form a CHAIN (which satisfies the same conditions for chains) through expletive-arguement linking at S-structure (cf.Burzio (1981), Safir (1982) and Chomsky (1984)). Suppose further that S moves to the e position to eliminate the expletive at LF, then, at LF, the chain (S,t) is obtained. This chain ,however, does not satisfy one of the chain properties, (11b), since t is in a Case and Ø-position. There are two ways to get around this problem: One is to propose that the following is a weak requirement for CHAINs instead of (11b).

(12) an is in a Ø-position

CHAINs then have a more or less complicated relation with respect to chains at LF. The other is to assume that the directionality of Ø-role assignment at LF can be different from that of Ø-role assignment at D/S-structure. In other words, even though the directionality of predication can be rightward through the relation (e,S) at D/S-structure, it may be leftward (by VP though I) at LF, since LF reflects universal tendencies of languages (cf.Universal 1 in Greenberg (1963)). The chain (S,t) at LF, then, has the following property:

(11b') a1 is in a Ø-position and an is in a Case position.

(11b) can be restated as (13), which combines (11b and b'):

(13) a1 is in a Ø-/Case position and an is in a Case/Ø-position.

For syntatic chains, the second part (=11b) is available, but the first part (=11b') cannot be available, because of the projection principle or the definition of D-structure (Chomsky (1981)). For LF chains, the second part(=11b) may be available, if the motivation of LF movements is to eliminate the expletive (as in English 'there' constructions). However, the first part (=11b') may also be available if the requirement that a1 is in a unique Case position (cf.11b) is due to a purely morphological reason; every phonetically realized NP bears a morphological case only if it is in a Case position. In LF, this morphological requirement is not necessary. In other words, the e position may be refilled by S (by S-movement to the e position) at LF without violating anything. Here, we assume the latter solution which adopts (13) under an assumption that the directionality of predication may differ depending on levels of representations. To sum up, under the latter solution, the relation (e,S) is a CHAIN at S-structure but a chain at LF which obeys (11a) and (13).

As for the lack of SVO in Berber, it can be said that the directionality of Ø-role assignment is also strictly rightward at D/S-structure in Berber. In other words, the external Ø-role is not assigned by VP through I leftward, but instead, the external Ø-role is assigned by VP (through the relation (e,S)) rightward. Berber, thus, has the following additional requirement (9c):

(9c) Ø-role is assigned strictly rightward at D/S-structure.

(9c) implies that every clause must be VSO (which means that every clause has to have AGR, given (9a/b). This is, in fact, what we find in Berber. Now, let us assume that (8) is the starting structure for all syntactic processes in Berber. This is on a par with saying that the directionality of Case/Ø-role assignments can readjust a structure. In fact, $\bar{e}$ and S are mutually supplementary: $\bar{e}$ is not in a Case position and S is in a Case position, and Ø-role is transmitted from $\bar{e}$ to S. In short, it will be assumed that $\bar{e}$ and S jointly form an $\bar{A}$-position (i.e.,an object) with a Case and a Ø-role and that the relation (e, NP) derived by 'downward' adjunction is a way to illustrate one A-position at a certain level of representation.

The S-adjunction proposal itself raises one more question with respect to binding. If $\bar{e}$ and S are linked at S-structure, which one is responsible for or visible for binding? In order to answer this question, let us consider (14) where 'there' and 'two men' are linked at S-structure.

(14) There appeared **two men** in **each other**'s countries.

It is possible to have a coreferential reading between 'two men' and 'each other.' Given that reciprocals are pure anaphors (cf.Yang (1983)), 'each other' should be bound in its governing category (cf.Chomksy(1985,class lectures)). Since PP in (14) is not a complement,[4] 'two men' does not c-command 'each other.' Thus, it may be assumed that the head of the CHAIN, namely, there is visible for binding. The same is true of Berber; the $\bar{e}$ position instead of the S position is visible for binding. Even though Berber is a VSO language, S should be hierarchically higher than O. In general, S-O asymmetry with respect to binding and weak crossover effects[5] (cf.Koopman and Sportiche (1982) and Chomsky (1977)) are observed.

(15)
a. *Y - utu - tj wrbaj
3ms-hit-himj boyj *'The boyj hit himj.'
b. Y - utu wrbaj ixfennsj
3ms-hit boyj himselfj 'The boyj hit himselfj.'
c. *Y - utu ixfennsj arbaj
3ms-hit himselfj boyj *'Himselfj hit the boyj.'

(16) a. *Wij t - utu ymma-sj ej?
whomj-that 3fs-hit hisj-mother *'Whoj did hisj mother hit?'
b. T - utu ymma - sj arbaj

3ms-hit mother-his boy 'Hisj mother hit the boyj.'

(15 and 16b) show that Berber obeys binding conditions a, b and c and that S c-commands O but not vice versa. In (16a), a typical WCO effect appears (cf.16b).

So far, we have claimed that VSO word order is due to S-adjuction to VA because of (9) and we have explained the relation (e,S) derived from S-adjunction by analogy with expletive-argument linking (CHAIN) in 'there' constructions. We proposed (A) that in Berber, Ø-role assignment is rightward through the relation (e,S),but leftward (through I) at LF, and (B) that $\underline{e}$ and the adjoined S form a CHAIN at S-structure, and that S moves to the $\underline{e}$ position to form a chain at LF.[6] We also suggested that at some level of representation, $\underline{e}$ and S form one A-position. Let us assume that this level of representation is actually D-structure. One alternative way to look at the relation (e,S) is to say that (e,S) is an A'-chain. But this is immediately ruled out since $\underline{e}$ is not in a Case position (variables should be Case-marked or A-Chain should have Case). To sum up, the following picture is obtained:

(17) head parameters
X'-schema -----> pre D-structure
|
|-------> the directionality of Case or
| Ø-role assignment
D-structure with the relation (e,S)
|
| Syntax
|
S-structure with CHAIN (e,S)
|
LF with chain (S,t)

The picture suggests that Case and Ø-role are D-structure properties. In the next section, we provide evidence in favor of S-adjunction and LF movement, which leads us to believe that the picture given (17) is necessary.

1.3. Facts in favor of the 'S-adjunction' approach

1.3.1. I and V

While in Welsh/Irish, I and V are sometimes amalgamated into one word, in Berber, I and V are independent: Berber pronominals are clitics, and clitics can intervene between I and V. Under the I-fronting approach, I and V are not independent or at most form a low level constituent. In addition, as we have discussed, the I-fronting approach does not account for the IVSO order in Berber.

1.3.2. AGR and the lack of SVO in Berber

Under the S-adjunction approach, if clauses have no AGR, the word order may be S(I)VO. Since Berber employs (9c), AGR should appear in every clause to trigger adjunction (equivalently, the word order must be VSO in every clause). In fact, Berber shows no SVO basic surface order; in Berber, even tenseless clauses have AGR and show VSO order. One example is from coordination constructions:

(18) Y-ttcu Mohand aysum t-ettc Tifa aghrum
3ms-ate meat 3fs-eat(AOR) bread
'Mohand ate meat and Tifa ate bread.'

In (18), the second coordinate takes the aorist tense (tense-neutral form = AOR). The tense of the second clause is controlled or bound by the tense of the first clause. The important point is that even with an AOR form, AGR always appears and the word order is VSO. Thus, it seems clear that[+V] AGR but not INFL[+TENSE] is responsible for NOM, given (9a). This clearly suggests that the S-adjunction approach is on the right track for Berber (cf.7).

1.3.3. Subject clitics vs nonsubject clitics

In Berber, clitic hosts are heads which contain terminal strings or phonological features. Berber has a rule of cliticization as follows, assuming the Elsewhere Condition of Kiparsky (1973):

(19) [... X .... [-V,+pro]] (where there is no
[(-lexical),F] **a** Y[-lexical,F] in **a**)

(F = phonetic features)

PP can be cliticized (cf.2Ø below), and reflexives are not (cf.15b). (19) is read as follows: a [-V] pronominal is cliticized to the nearest [-lexical,F]X, otherwise, to the nearest [+lexical,F]X. Cliticizations are in general clause-bound (strictly speaking, they are CP-bound) since every clause contains V or I(or C).

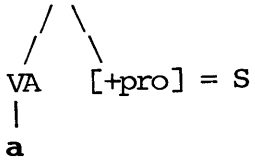
Related to this, the S-adjunction approach gives a reasonable account of the fact that Berber does not have a subject clitic or an O clitic out of PP. Consider (2Ø).

(2Ø) a. Iwy - x - dd tisemmuqqal i Amar zi Boston gher Seattle
took-1s-PROX glasses to from to
'I brought Amar glasses from Boston to Seatle.'
b. Iwy - x - as - tent - idd - zzis - ghers
took-1s-to him-them-PROX-from it-to it
'I brought them for him from it to it.'
c. Seattle a-gher - as - tent - idd - zzis iwy - x

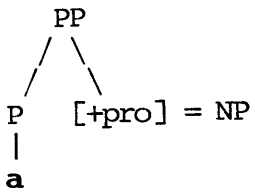
that-to -to him-them-PROX-from it took-1s
'It is Seattle that I brought them for him from it to.'

A host element can have at most five nonsubject clitics, as shown in (20b). The order of clitics is not our concern here.[7] But, it is important to note that AGR comes first. In (20b) where V is a host, one might imagine that there are six clitics. When C is a host (20c), a pro-form (as) of PP from which NP is clefted is attached to the host ay\a first, and then clitics are attached after as. AGR, however, appears on V and is never cliticized to C (a host). In addition, there are no O clitics out of PP. Thus, a question arises; why can't a pronominal S or a pronominal O out of PP be a clitic like other pronominal elements? In order to answer this question, consider PP and V more closely.

(21) a.



b.



where **a** is a terminal string

Both S and O of PP are in Case and Ø-positions. Suppose that when NP is [+pro], it is cliticized to its head in the configuration of (21). Then, a [+pro] object of P is cliticized to P. PP in turn becomes a pronominal PP since Berber allows PP clitics. Likewise, a [+pro] subject is cliticized to VA and AGR becomes a pronominal AGR. In short, the configuration of (21) is responsible for a 'configurational' cliticization which is not subject to (19) and the cliticized element is not further cliticized. A pronominal PP is cliticized, subject to (19), but V in (21), which is [+V], is not cliticized. This is enough to explain why Berber shows no subject clitic and why PP itself but not the object out of PP is cliticized. In short, given (21), it can be generalized that S and O of PP share the same property; they are cliticized to VA and P, respectively, before the application of (19) (cf.20c). The distinction of cliticizations between (19) and (21) and a systematic account of the lack of subject clitic and O clitic out of PP may not be available under the I-fronting approach.

If this approach (21) is right, then, the 'pro-drop' property of Berber is indeed due to cliticization; when [+pro] is cliticized to VA, AGR becomes a pronominal subject and VA is, thus, a combination of V and a pronominal subject. Chomksy (1981) has suggested, basically along the lines of Taraldsen (1978), that the existence of rule R (INFL(AGR)-movement to V) in the Syntax determines 'pro-drop' languages under the following logic:"AGR in the pro-drop languages is a 'weaker' rather than a 'stronger' governor for the subject position."(p.256) One problem with this logic is that because of S-adjunction, S is actually strongly geverned by AGR in Berber even though Berber is a 'pro-drop'

language, which means that Berber 'pro-drop' cannot follow from the logic in Chomsky (1981). Chomksy (1982) has also suggested that a property of AGR which can be specified with Case at D-structure can allow 'pro-drop,' which means that pro is a null element with Case (unlike PRO) and has a specific reference. This logic relys on the character of AGR in 'pro drop' languages. Following this logic,[8] it can be assumed that when a subject is cliticized to AGR and it can behave like a subject, 'pro-drop' is possible.[9] For instance, in Turkish, there are two types of AGR: alternating and nonalternating AGR (in Kornfilt (1984)) and only alternating AGR licenses null subjects. Under this account, only alternating AGR triggers cliticization and acts like a pronominal subject.

1.3.4. The construct state

NPs show some morphological difference according to their positions. Under a theory of Abstract Case (cf.Chomsky (1981)), it may be said that this is due to Case realization. Guerssel (1983) states that "the phonological shape of nouns is to some extent determined by syntactic considerations. When a noun functions as the subject of a preceding verb, when it functions as the object of a preposition or ..., it is said to be in the construct state." The following is a small set of data from Guerssel. The underlined parts in (22b) are in the construct state.

(22) a.

free state	construct state	
t-a-mttut-t	t-emttut-t	'woman'
a-ryaz	w-ryaz	'man'
t-a-brat-t	t-brat-t	'letter'

b. Y-uzn wryaz tabratt i temttutt
3ms-sent the man letter to the woman.
'The man sent a letter to the woman.'

In short, the object of P and the subject share the same morphological shape. Under this approach (cf.21), it is easy to see that NPs in the construct state are strongly governed by VA, or P. Thus, the following generalization is captured, assuming that AGR is [+N,-V]:

(23) NP are in the construct state iff they are strongly governed by [-V]

To conclude, the distribution of the construct state supports (21) and therefore the picture given in (17).

1.3.5. VS idioms

In Berber, VS idioms are common while VO idioms are rare. Consider the following examples of VS idioms.

(24) a. T - utu tfaccit arba
3fs-hit toe-stub the boy 'The boy stubbed his toe.'
b. Y - utu Mohand arba
3ms-hit the boy 'Mohand hit the boy.'

(25) a. Hac- t ayu t - uru - t -- id dax
here-him(cl) this\that 3fs-give birth-him(cl)-to again
'Here he comes again.'
b. T - uru Tifa arba
3fs-gave birth to the boy. 'Tifa gave birth to the boy.'

In (24a), even though the English translation says that boy is the subject, arba (=boy) is not in the construct state, which says that it is not a subject. Instead, tfaccit is in the construct state. Also, AGR agrees with tfaccit(3f) but not with arba(3m). Even if O is replaced with 'the man,' an idiomatic expression is still available - 'The man stubbed his toe.' On the other hand, when S is replaced with Mohand, only a literal meaning is possible as in (24b). Thus, it is clear that V and S but not V and O form an idiom. There is one more kind of idiom which makes use of impersonal 'it.' In Berber, 'it' is 3fs. Since pronominals are clitics in nature, there is no overt 'it' even though, under our view, there is one, i.e., a pronominal AGR. In (25a), the object is cliticized because it is pronominal; it can be replaced with any other NP and the sentence meaning is 'NP comes.' However, when a lexical S appears, the expression is no more idiomatic as shown in (25b). VS idioms in Berber strongly support the S-adjunction approach. It is reasonable to say that in order for VS to be an idiomatic expression, VS should form a constituent at a certain level of representation - preferably at D-structure.[10] In fact, Berber is double-faced; it needs VP because of binding and it also needs a constituent that consists of V and S because of VS idioms. Under (8), this double-faced property, which is not captured under the I-fronting approach, is nicely captured.

At this point, we have shown how the adjunction approach is empirically supported by showing reasonable analyses of various morphological or syntactic phenomena. The existence of VS idioms (and (21) which is crucial to the description of the construct state) especially suggest that S-adjunction is prior to D-structure or that it is not syntactic at any rate.

1.4. Other VSO languages and parameterization

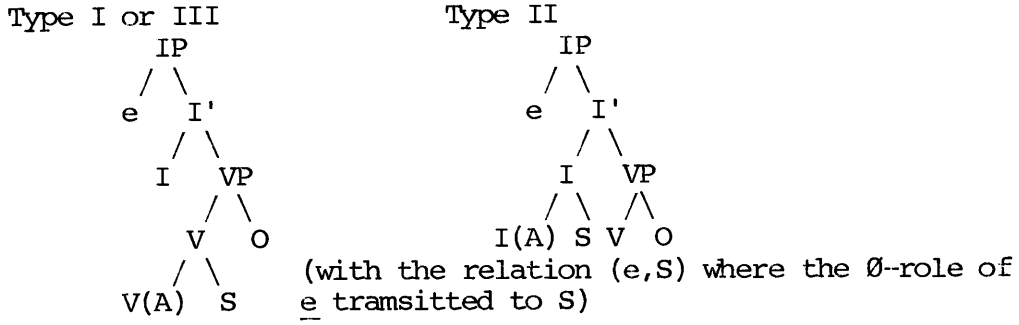
Under our approach, VSO languages may differ in whether I or V contains AGR: In Berber, V obligatorily contains AGR (rule R') and in Welsh, I[+TENSE] contains AGR. The most plausible assumption under this approach is that Welsh employs only (9a) and therefore S adjoins to I and V optionally moves in order to support I. Welsh and Irish may not employ (9c) since when I is [-TENSE], it lacks AGR and therefore no S-adjunction is motivated. As in (3d), Welsh shows SVO word order when clauses lacks AGR; Ø-role may not be assigned to S (through a relation (e,S)) rightward. Thus,

Welsh/Irish do not employ (9c). On the other hand, Berber does employs (9c) since it does not show SVO basic surface order. However, why does Berber employ rule R'? Is it related to the lack of SVO or to (9c)? There is a possibility that (9c) and Rule R' are independent and responsible for further language variations. Samoan (cf.A/C) apparently has rule R' but SVO word order is possible as shown in (26).

(26) E mānana'o tagata i le pālota 'ia manuia (= 4Sb in A/C)
fut want-pl people at the election irreal be-well
'People want the election to turn out well.'

In Samoan, AGR appears with V like in Berber, but like in Welsh, when the word order is SVO, P is employed as a complementizer which can be a Case assigner to S. In short, Samoan employs rule R' but not (9c); Samoan suggests that (9c) and rule R' are independent. Thus, VSO languages may be parameterized depending on the position of AGR or depending on the existence of rule R' as follows.(When languages do not employ (9c), the directionality of Ø-role assignment may be leftward at D/S-structure unless S-adjunction is applied.)

(27) Type I ; employs (9a),(9c) and rule R'
Type II; employs (9a)
Type III; employs (9a) and rule R'



(with the relation (e,S) where the Ø-role of e tramsitted to S)

Under this analysis, VSO languages are divided as follows:

Type I ; Berber, Chamorro (cf.Chung (1983))
Type II ; Welsh, Irish (cf.Sproat (1985) and McCloskey (1983)), Kwakwala (cf.Anderson (1984)), Breton (cf.A/C)
Type III; Samoan (cf.A/C)

To summarize, there is a basic requirement for VSO languages, i.e., (9a), but the existence of rule R' or (9c) makes parametric variations among VSO languages. The parameter implies empirical and theoretical consequences. We discuss six of them below. First, it predicts that in a language like Welsh (type II), there is no evidence for the constituency of V and S, (in fact, VO idioms but not VS idioms are common in Welsh according to Richard Sproat (p.c.)) while in a language like Berber (type I), there is strong

evidence for the VS constituency - namely VS idioms. However, VS idioms may or may not be possible in type III languages. Secondly, since V(A) and S or I(A) and S form a constituent, it may be reasonable to say that VSO languages tend to be 'pro-drop' languages: S is easily cliticized to AGR. In fact, Kwakwala, Irish, and Welsh (also Berber, Chamorro, and Samoan) are all 'pro-drop' languages.

Thirdly, the parameter predicts that there are rules which refer to VP in type II but not in type I (or III). Berber, for example, has no rule like VP topicalization or VP preposing. However, there are some arguments that type II languages show rules that refer to VP. A/C, for instance, show that Breton (type II) employs VP topicalization (however, see Anderson (1981) for a different analysis of Breton VP topicalization). In addition, McCloskey (1983) and Sproat (1985) show that Irish and Welsh (type II) have VP cleftings.

Fourthly, under our parameterization, one expects that type I languages like Berber or Chamorro would not show S-O asymmetry with respect to the ECP since S is lexically governed by VA, but that type II languages like Welsh or Irish would since S is governed by nonlexical I(A). In fact, while Sproat (1983) argues that Welsh (type II) shows S-O asymmetry with respect to the ECP, Chung (1983) argues that Chamorro (type I) shows no that-t effects (=no S-O asymmetry with respect to the ECP). These facts are consistent with our analysis. Berber (and Irish) show no positive evidence in favor of or against S-O asymmetry with respect to the ECP. However, Berber (and Irish) do not go afoul of our prediction.

Fifthly, the parameter predicts that type I languages have no SVO word order and no exceptional Case marking; because of (9c), these languages require AGR which triggers S-adjunction in every clause. This is the case in Chamorro and Berber. However, type II or III may allow SVO if clauses lack AGR since there is no restriction on the directionality of Ø-role assignment. Thus, type II or III may have exceptional Case-marking as in Irish (McCloskey (1983)) or Kwakwala (Anderson (1984)) or may employ the P complemetizer like Welsh (cf.3d) or Samoan (cf.A/C). Consider the following Samoan data:

(28) a. Sā mana'o Tupu e 'emo le uila (= 3Sa amd 4Sa in A/C)
past want fut flash the lightening
'Tupu wanted the lightening to flash.'
b. Sā mana'o Tupu i le uila e 'emo
past want at the lightening fut flash

In Samoan, which is type III, because of the P complementizer, SVO word order is allowed ,(28b), but there is also a VSO clause corresponding to (28b) as in (28a). This may show that type III is in between type I and type II.

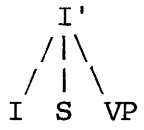
Finally, it has been noted that some SVO languages historically used to be VSO languages (cf.Hebrew). The parameter predicts that type I languages are more unlikely to be subject to this diachronic change than type II or III languages since they employ one more condition for VSO word order. In addition, from a learnability point of view, the fact that (9c) leads to the lack of SVO implies that SVO basic surface order is not available to language learners at all. In our opinion, Berber or Chamorro, which is type I, is a typical or real VSO language which is likly to be immune to diachronic change to an SVO language.

2. Conclusions

In this paper, it has been argued that so-called VSO word order is derived from SVO by S-adjunction. We proposed that S is adjoined to I or V which contains AGR in VSO languages because of (9a). Thus, (9a) is basic, but depending on the existence of (9c) or rule R', languages show parametric variations which result in many consequences. We suggested that the subject (e) position is an expletive position by assuming that an external Ø-role is transmitted through the relation (e,S) to S. (This 'downward' adjuction creates a chain at LF.) Under the approach proposed here, we assumed that in VSO languages, the directionality of Ø-role assignment in addition to the directionality of Case assignment plays a role in language variation. Also, we proposed that the pro-drop property of VSO languages, is due to a cliticization of a pronominal subject to AGR which can act like a pronominal subject (cf.21).

Travis (1984) proposes a tripatite structure for VSO languages:

(29)



Thus, she needs the following X'-schema: X' ---> X SPEC comp, where X = I. The above structure is derived from her basic position that the directionality of Case assignment may determine D-structure; if Case assignment is strictly rightward, then all Case assigners are base-generated on the left side. However, we have seen that Berber provides strong evidence in favor of the structure (8), which employs only (1), and that the directionality of Case assignment (and that of Ø-role assignment) may just readjust the structure which is derived from the X'-schema (1) with the head parameter. As with the I-fronting approach, there is no way for (29) to capture the VS constituency and the similar configurational properties of V ([VA,S]) and PP ([P,NP]). Suppose that S-adjunction applies to the structure (29), then there is no reason to assume (29) where I precedes S. Obviously, there is no reason to employ an additional schema for I. Thus, the tripartite structure

for VSO languages is both unnecessary (if S-adjunction to V applies) and irrelevant to Berber (if no S-adjunction to V applies). In short, it can be concluded ,unlike Travis (1984), that the X'-schema with the head parameter are necessary or responsible for (pre-)D-structure, prior to the directionality of Case or Ø-role assignment.

Emonds (198Ø) suggests, under his 'structure-preserving' hyphothesis, the following implicational generalization (3Ø), assuming generalization (31), which Emonds attributes to den Besten (1977):

(3Ø) If a language is VSO, then it has a sentence initial COMP
(31) All instances of movement to a pre-subject position by a grammatical transformation are attractions to a sentence initial COMP node.

He assumes that V moves to a COMP position, which is a head to head movement. However, we have seen that I-fronting is incompatible with Berber which is a typical VSO language. Since syntactic adjuctions are not under the scope of Emonds's 'structure preserving' hypothesis, if our approach is correct, (3Ø) does not have any theoretical implications. Under this approach, the generalization shown in (3Ø) may not be coincidental; this is because there are few theoretical or empirical motivations for deriving VSO from SOV (which is head-final) within a certain restricted theory.

FOOTNOTES

*We'd like to thank Joseph Aoun, Noam Chomsky, Ken Hale, James Higginbotham, Howard Lasnik, Joseph Emonds, Richard Sproat and Lisa Travis among others for comments or discussions which help us avoid misleading analyses. We especially thank Mohamed Guerssel for helping us understand Berber. Berber facts discussed here are largely from discussions in Ken Hale's Berber class at MIT (Spring,1985). Any remaining errors are ,however, our own.

[1]It is not clear what Greenberg means by 'basic order.' As will be shown, there are two sources for the SVO alternative in VSO languages: (i) the SVO alternative through syntactic processes like S-clefting or S-topicalization and (ii) the SVO alternative when clauses lack AGR. If universal 6 holds for (ii), then strictly speaking, it is false for languages like Berber or Chamorro, which do not have SVO alternatives which are due to the lack of AGR.

[2] Berber (Tamazight group) is one branch of the Afro-Asiatic family of languages.

[3]If (1Øa) is universal, then, English LF adjunction of May may be rightward. (Kyle Johnson (p.c) independently reaches the similar generalization for different reasons.) Consistent with

(10a), in Korean, which is head-final, syntactic adjunctions (cf.Choe (1985)) are all leftward. Howard Lasnik (p.c.) ,however, notes that English Topicalization may be due to syntactic leftward adjunction. If (10a) is right, one might assume Topicalization in terms of operator movement along the lines of Chomksy (1977).

[4]If the idea that only P of subcategorized PP is stranded (cf.Hornstein and Weinberg (1981)) is more or less right, then PP in (14) is not a complement.

(i) *Which country did there appear two men in ?

[5]S has a different morphological shape from O as will be discussed below.

[6]Sproat (1983) implicitly assumes that Spanish 'V-preposing' in Torrego (1984), and Welsh 'I-fronting' are the same sort of rules - preposing. They are ,however, different in the following way: V-preposing is triggered by a certain class of (= thematic) wh-phrases in COMP, and categories which can be preposed are VP, V, or a certain type of I. On the other hand, I-fronting is triggered because of (4), and only I moves. If our approach is right, Spanish word order variants (VOS, ISVO, or VSO) in certain environments and inversion in Romance languages as well may be explained by S-adjunction, which are motivated for other reasons. It may be assumed that 'downward' adjunctions create the relations which are interpreted as chains at LF. Our approach implies that 'downward' adjunction is not available at PF.

[7]The order between clitics is not free. It must be in the order X-IO-DO-[Directional particle]-PP1-PP2 (D-structure order is X-S-DO-IO-PP1-PP2) (cf.G). Why this must be so is another interesting question.

[8]There is a third approach to 'pro-drop' in Adams (1985); the directionality of government is responsible for the existence of pro. 'Pro-drop' in VSO languages already satisfies this requirement. However, the directionality is not crucial under this approach. Also, see Roberge(forthcoming) for a different parametric approach to 'pro-drop.'

[9]French has a cliticization of S when S is inverted with INFL: Est-elle petite. This might suggest that the aux inversion (in French) is actually S-adjunction to I. (However, what triggers S-adjunction to [+V,(AGR)] (auxiliary or V) should be independently motivated.) Also note that French has proniminalized PP's like y or en. Since French is a non-'pro-drop' language, AGR in French does not behave like a pronominal subject. Note that French inflection is almost as rich as Italian or Spanish, which is a 'pro-drop' language. It is already a well-known fact that rich agreement is not exclusively responsible for 'pro-drop.'

[10]Constituency seems to be a crucial factor for idiomatic expressions:

(i) -- take advantage of --
(ii) ---- kick the bucket

(i) and (ii) form constituents at D-structure, but no Ø-role assignment is involved between elements; take and kick do not assign Ø-role to advantage and the bucket, respectively. Interestingly, VS show the same property; V and S form a constituent but V does not assign Ø-role to S. Thanks to James Higginbotham for calling our attention to this point.

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