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https://doi.org/10.15017/6796268

出版情報：言語科学. 25, pp.1-45, 1990-03-01. The Institute of Languages and Cultures, Kyushu University
バージョン：
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WORD ORDER UNIVERSALS AND LEHMANN'S STRUCTURAL PRINCIPLE

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1. Word Order Universals

1.1. Three Word Order Types

Joseph Greenberg (1966) has revealed that there are some "universals" of language with regard to the order of meaningful elements at the level of sentence in particular. He captures the universals in the form of correlations between orderings of the basic sentence elements S, V and O, and those of other elements.

Out of the six possible orderings of the basic elements, three have emerged as main types: (I) VSO, (II) SVO, and (III) SOV. Other types have been attested, or are claimed to have been (Keenan, 1976, 1978; Pullum, 1977; Derbyshire, 1977, 1981; Derbyshire and Pullum, 1981, for instance.), but we can still say with Greenberg that they are "excessively rare" (Greenberg, 1966: 76).

Word order parameters which are correlated with these three order types are orderings of the elements accompanying S, V or O. They are: (1) placement of adpositions in relation to the nouns they accompany, i.e., whether to use prepositions or postpositions (prep. or postp.), (2) placement of adjectives in relation to the nouns they modify (i.e., NA or AN), (3) placement of genitives in relation to the nouns they modify

『言語科学』 第25号 (1990) P.1−45

(i.e., NG or GN), and (4) placement of auxiliary verbs in relation to the main verbs they accompany (i.e., vV or Vv).

1.2. Word Order Correlations

The correlations between the basic word order and the parameters from (1) to (4) above are examined by Greenberg with regard to a sample of 30 languages (Greenberg 1966). Some of the most interesting results can be seen in Tables 1-3 below.

1.2.1. Placement of Adpositions and Adjectives

Table 1

Correlations between the Basic Word Order and Placement of Adpositions and Adjectives

		I. VSO	II. SVO	III. SOV
postp	AN	0	1	6
	NA	0	2	5
prep	AN	0	4	0
	NA	6	6	0

(Adapted from Greenberg, 1966: 77)

Table 1 shows correlations among the three basic word order types, the placement of adpositions (i.e. use of prepositions or postpositions) and the placement of adjectives.

We can see that all the VSO languages in the sample use prepositions (prep N) and place adjectives after nouns (NA),

while all the SOV languages use postpositions (N postp) and a majority of them place adjectives before nouns (AN). The VSO languages and the SOV languages show quite the opposite features.

The SVO languages, on the other hand, show mixed or ambivalent features. Some of them use prepositions while others use postpositions, and even those which use prepositions are divided with regard to placement of adjectives: some place them after nouns while others place them before nouns. However, a majority of the SVO languages use prepositions (prep N) and place adjectives after nouns (NA). The SVO languages as a group shows more similarity to the VSO type than to the SOV type.

1.2.2. Placement of Genitives

Correlations between placement of genitives and use of prepositions or postpositions can be seen in Table 2. This is a table constructed from the relevant data found in Greenberg (1966: 78) with some corrections in the statistics.

Table 2 Correlations between Placement of Adpositions and Genitives

	NG	GN
prep	15	1
postp	0	14

(Based on Greenberg, 1966: 78)

The corrections are as follows. Greenberg says: "Of the 14 prepositional languages 13 have the genitive following the governing noun. The only exception is Norwegian, in which the

genitive precedes." It seems, however, that "14" in this quotation should be read as "16", and that "13" should be read as "15". That this should be so is clear both from Table 1 above and from Appendices I and II in Greenberg (1966: 107-110). Table 1 shows that 16 out of the 30 languages examined are prepositional, and not 14. And from Appendix I we see that these 16 languages are Berber, Fulani, Greek, Hebrew, Italian, Malay, Maori, Masai, Maya, Norwegian, Serbian, Swahili, Thai, Welsh, Yoruba, and Zapotec. And Appendix II shows that all of these except Norwegian have NG order.

From this table we can see that almost all of the prepositional languages place the genitive after the noun, while all of the postpositional languages place the genitive before the noun.

1.2.3. Placement of Auxiliaries

Table 3a below gives the correlations between placement of auxiliaries and the three basic order types, while Table 3b shows the correlations between placement of auxiliaries and use of adpositions.

Table 3a

Correlations between Placement of Auxiliaries and the Basic Word Order

	I	II	III
	VSO	SVO	SOV
vV	3	7	0
Vv	0	1	8

Table 3b

Correlations between Placement of Auxiliaries and Use of Adpositions

	prep	postp
vV	9	1
Vv	0	9

(Adapted from Greenberg, 1966: 84, Table 4)

We can see that vV order is predominant in the VSO and SVO types and in the prepositional types, while Vv order is predominant in the SOV type and in the postpositional type.

1.3. Word Order Universals

From the correlations observed above, Greenberg has deduced a number of "universals." The following are some of the most important. (Greenberg, 1966: 77-85)

1.3.1. Basic Elements

In the first place, in relation to the basic sentence elements, we have:

> "Universal 1. In declarative sentences with nominal subject and object, the dominant order is almost always one in which the subject precedes the object." (i.e., ..SO, S..O, or SO..)

The symbol added here in the parentheses represent the word orders implied by the universal. In these and other symbolic formulations here adopted, whether the "universals" apply "always," "almost always," or "with more than chance frequency,"

etc. is ignored for the sake of simplicity, and the symbol " ~ " is employed to mean that the existence of the word order coming before it "more or less implies" the existence of the word order coming after it.

1.3.2. Adpositions

Secondly, in relation to adpositions, we have:

> "Universal 2. In languages with prepositions, the genitive almost always follows the governing noun, while in languages with postpositions it almost always precedes." (i.e., prep ~ NG; postp ~ GN)
>
> "Universal 3. Languages with dominant VSO order are always prepositional." (i.e., VSO ~ prep.)
>
> "Universal 4. With overwhelmingly greater than chance frequency, languages with normal SOV order are postpositional." (SOV ~ postp.)

1.3.3. Adjectives

In relation to the placement of adjectives, we have:

> "Universal 5. If a language has dominant SOV order and the genitive follows the governing noun, then the adjective likewise follows the noun." (i.e. SOV & NG ~ NA)
>
> "Universal 17. With overwhelmingly more than chance frequency, languages with dominant order VSO have the adjective after the noun." (i.e., VSO ~ NA.)

1.3.4. Auxiliaries

As for auxiliary verbs, we have:

"Universal 16. In languages with dominant order VSO, an inflected auxiliary always precedes the main verb. In languages with dominant order SOV, an inflected auxiliary always follows the main verb." (i.e., VSO ~ vV, SOV ~ Vv.)

1.4. Characteristics of the Three Word Order Types

The word order universals we have seen in the above allow us a character description of the three basic word order types.

1.4.1. The SOV Type

The SOV languages generally have postpositions instead of prepositions, AN order rather than NA (except when they have NG order), GN order rather than NG, and Vv order instead of vV.

1.4.2. The VSO Type

The VSO languages generally have prepositions instead of postpositions, NA order instead of AN, NG order instead of GN, and vV order instead of Vv.

1.4.3. The SVO Type

The SVO type has a mixture of the features of the VSO type and those of the SOV type. A majority of them (10 out of 13, i.e., 77%) have prepositions while the others have postpositions. Most of them (8 out of 13, i.e., 62%) have NA order while the others have AN order. Most of them (9 out of 12, i.e., 75%) have NG order while the others have GN order. Almost all of them (7 out of 8, i.e., 88%) have vV order while the other has Vv order. We see that while being intermediate between the VSO type and the SOV type, the SVO type is closer to

the former than to the latter.

We must add here, however, that the SVO type should still be regarded as a type of its own both by the fact that it is intermediate between the two polar types in terms of the position of S and by the fact that it is ambivalent with regard to other word order parameters. Especially, we regard the position of S as being very important as we will see later (Sections 4.2.4 & 5.3 below). Accordingly, I do not agree with Siewierska when she says that SVO languages do not constitute a word order type (Siewierska, 1988: 16), but agree with her when she says that the neglect of S in typology deserves criticism (Siewierska, 1988: 18).

1.4.4. Generalizations

The characteristics of the three types observed above can be generalized as in Table 4:

Table 4

General Characteristics of the Three Word Order Types

(I) VSO: prep; NA; NG; vV

(II) SVO: prep > postp; NA > AN; NG > GN; vV > Vv

(III) SOV: postp; AN; GN; Vv

(The symbol > means 'more often than.')

It can be assumed that all languages tend to have one of these three sets of word order characteristics. If so, those which do not conform to any of the three can be regarded as being temporarily inconsistent, and being probably in the process of shifting from one type to another. This view has

been suggested by many. (Lehmann, 1973 & 1978; Vennemann, 1974 & 1975; Dik, 1980; and Hawkins, 1980 & 1983.)

1.4.5. Typical Languages

Examples of the VSO type include Hebrew, Celtic languages such as Irish and Welsh, some Polynesian languages like Easter Island, while those of the SOV type include Japanese, Korean and Turkish.

It might be argued, on the other hand, that the SVO type could be represented by Romance languages rather than Germanic languages on the ground that they are greater in number. If so, the defining features of this type would be prep-NA-NG-vV correlations. This set of correlations, however, too closely resembles that of the VSO type, and the only difference would be the placement of S itself. And if so, there would be little meaning in setting up the SVO type as intermediate.

We should perhaps rather say that the essential features of the SVO type lie in its ambivalence and intermediateness. From this point of view, then, Germanic languages such as English, Norwegian, Swedish and Danish, which have prep and vV order as in the VSO type but GN and AN orders as in the SOV type, can be more appropriately regarded as representative of the SVO type, even though they are small in number.

2. Lehmann's Structural Principle

2.1. Explaining Word Order Universals

Several attempts have been made so far to find a principle

to explain the word order universals observed in the above. The most important of these attempts are: Lehmann, 1973 & 1978; Vennemann 1974; Keenan 1979; and Hawkins 1980 & 1983. (Cp. Comrie, 1981: 90ff., and Mallinson & Blake, 1981: 384ff.)

In this paper I will review Lehmann's principle without specific reference to the others, and examine some of its problems in the hope that they will help point to the right course we should pursue.

2.2. Lehmann's "Structural Principle"

2.2.1. Lehmann's Principle as a Theory of Word Order

Lehmann (1973) has proposed what he calls "a structural principle of language" in order to explain not only universals in word order but also those in morphology. He notes that many languages which have dominant OV order are agglutinative in morphology while many with VO order are inflectional. He goes on to say that "the correlation noted above between contrasting syntactic patterns and characteristic morphological structures is so great as to require explanation," and proposes "to explain it on the basis of a fundamental principle of placement for categorial entities which represent modifires." (Lehmann, 1973: 48.)

His structural principle is thus supposed to explain both morphological and syntactic structures of consistent OV and consistent VO languages, and this position is maintained in his later article (Lehmann, 1978) as well.

We are not, however, concerned with morphological

structures here. We are concerned with his principle as one which proposes to explain universals in word order, i.e., as a principle comparable to those proposed by Vennemann (1974), Keenan (1978), and Hawkins (1980 & 1983).

Supports for our treatment of his principle as such can be found in Comrie (1981), who says:

> "Lehmann also proposes a formal explanation, or rather generalization, of the observed correlations [i.e., those between OV or VO word order and use of postpositions or prepositions, and the adjunct-head or head-adjunct arrangement, etc.]." (Comrie, 1981: 91)

and also in Mallinson & Blake (1981), who say:

> "Lehmann (1978a, but see 1973b) [i.e., Lehmann (1978) and Lehmann (1973) in our discussions] proposes a general 'fundamental principle' that governs the word order of a consistent language." (Mallinson & Blake, 1981: 392-3.)

It is mentioned as such also in Krifka (1987: 75). He criticizes Hawkins (1983) for not including it in his report of the works on word order, and says:

> "In a monograph like this, the inclusion of some other important works, like of Tesnière (1959) and Lehmann (1973), would have been appropriate...."

More recently, it is also regarded as such by Siewierska (1988: 17), who says,

> "Lehmann's hypothesis is stated in the Fundamental

> Principle of Placement which is: 'modifiers are placed on the opposite side of a basic syntactic element from its primary concomitant.'"

We are thus justified in treating his principle as a theory of word order universals.

2.2.2. Lehmann's Structural Principle

Let us now see what Lehmann's "principle" is like. It is:

> "a fundamental principle of placement for categorial entities which represent modifers,"

and is stated as:

> "modifiers are placed on the opposite side of a basic syntactic element from its primary concomitant." (Lehmann, 1973: 48)

With regard to "verbal modifiers" and noun modifiers, the principle can be formulated as a rewrite rule as in the following:

$$\#QV(Nobj)\ \ (Nmod)\# \longrightarrow \begin{cases} \#QV(Nobj)\ \ (Nmod)\# \\ \\ \#(Nmod)\ \ (Nobj)\ \ VQ\# \end{cases}$$

(Lehmann, 1973: 49, note 1.)

In this formulation, Q stands for a verbal qualifier or modifier, Nobj for a noun as object of V, and Nmod for a modifier of a noun. Both V and Nobj are basic syntactic elements. The primary concomitant of V is O, and that of O is V. Examples of Q are auxiliaries, and those of Nmod are adjectives. His notation system, however, is not a very happy

one, because the same symbol N is used to represent two different lexical categories in such a way that Nobj refers to a noun, and Nmod refers to an adjective.

2.2.3. Consistent and Inconsistent Languages

As we have noted earlier, Lehmann says that his principle "applies in its strict form to consistent languages." (Lehmann, 1973: 49, note 1.) It does not propose to explain word orders of inconsistent languages. He says, "we may assume that the non-conforming features of such languages indicate that they are undergoing change." (loc. cit.)

Inconsistent languages are probably in the process of change from one consistent type to another because of certain changes in the mental attitude of the people. Languages change and fluctuate because men as living creatures change and fluctuate by nature. However, it can be assumed that there is always a force even in inconsistent languages to make them consistent in one way or another because men as creators and users of language prefer consistency to inconsistency. A structural principle which applies to consistent languages may not be able to fully explain the current features of inconsistent languages, but it always points to the goal towards which they are drifting. In this sense, a structural principle remains a principle even for inconsistent languages.

In the following sections, I will treat Lehmann's principle as one such, and will attempt to determine to what extent it can explain the word order correlations. I will mainly treat the

correlations set out in Table 4 (except for the position of G, which can be represented by that of A), but will also discuss some others.

3. How Lehmann's Principle Works

3.1. With the Placement of Qualifiers in Relation to V

3.1.1. Q as Qualifiers of V

Lehmann uses the symbol Q to represent "verbal qualifiers." By this term he means markers of question, negation, causation, tense, etc. which acompany the verb V. These are also called "verbal modifiers." (Lehmann, 1973: 49, note 1.) They modify verbs, and their placement in relation to verbs is an important word order parameter.

Lehmann thinks that his principle can explain the placement of Q quite neatly, for he uses this parameter for his demonstration of the principle. (Section 2.2.2.) Let us now see whether this is the case.

3.1.2. With SOV Languages

According to the principle, the primary concomitant of V is O. Therefore, verbal qualifiers should be placed on the opposite side of V from O. The order should then be: O + V + Q. This is what is found in SOV languages as is evident from Table 3 above. The following is an example from Japanese given by Lehmann:

(1) Yoma-se-nai = 'He does not cause to read.'

(Or rather, "He does not let [me, her, etc.] read.")

This is an example of a verb phrase which generally comes after O. Yoma- is a verb stem, se- a causative auxiliary verb while nai is a negative auxiliary. The structure of this verb phrase is: V + causative + negative. If the two auxiliaries are represented by v2 and v1 respectively, the ordering of these will be:

(2) O V v2 v1

In this structure, auxiliaries v2 and v1 as qualifiers of V are placed on the opposite side of V from its primary concomitant O, and this is in accordance with the principle.

3.1.3. With VSO Languages

The principle can explain the placement of Q in VSO languages as well. In these languages, the primary concomitant of V is O, and the opposite side of V from O is to the left of V. According to the principle, therefore, auxiliary verbs should be placed to the left of V. And this is what actually happens in these languages as we have seen in Table 3 above.

Easter Island, for example, has a past tense marker he as a verbal qualifier. Lehmann's principle demands that this marker should be placed to the left of V, because this is the opposite side of V from its primary concomitant O. This is exactly what happens in this langauge as in sentence (4), where the past tense marker he is placed to the left of the main verb to'o:

(3) He to'o te tenito i te moni.
v[PAST] V[take] S[the Chinese] O[ACC the money]
("The Chinese took the money.")

(From Chapin, 1978: 145.)

3.1.4. With SVO Languages

We find the same rule of placement even in English as an SVO language, which Lehamnn calls "an inconsistent VO language" (Lehmann, 1973: 50).

In sentence (4), for instance,

(4) He has been nagging her for three hours.

the auxiliary of the perfect, has (v1), and that of the progressive aspect, be (v2), are placed to the left of the main verb nagging, conforming to Lehmann's principle perfectly.

The ordering of verbal qualifiers in VO languages thus observes the principle, and shows the following structure:

(5) v1 v2 V O

3.2. With the Placement of Adjectives in Relation to Nouns

3.2.1. Adjectives as Modifiers of Nouns

Lehmann assumes that the primary concomitant of O is V. This might be quite logical, for if the primary concomitant of V is O as we have seen in section 3.1, then the reverse should also be the case. He says,

> "Verbs are the primary entities which accompany objects; therefore qualifiers of objects and of nouns in general are placed before nouns in OV languages." (Lehmann, 1973: 48)

According to this line of analysis, the placement of adjectives in relation to nouns can be explained by his principle fairly well.

3.2.2. With SOV Languages

In SOV languages, adjectives are more often than not placed before their head noun (as O or otherwise) as we have seen in Table 1. This is in accordance with Lehmann's principle, because the place is the opposite side of O from its primary concomitant V, as in:

(6) A O V

In Japanese, for instance, adjectives are regularly placed before nouns as in:

(7) utsukushii hana

A〔beautiful〕 N〔flower〕

3.2.3. With VSO Languages

In VSO languages, the opposite side of O from its primary concomitant V is to the right of O. According to Lehmann's principle, therefore, adjectives as modifiers of O should be placed after O, as in:

(8) V S O A

And this pattern seems to be regular in VSO languages, as we can see from Table 1. All the six VSO languages in the table have NA order instead of AN.

In example (9) from Easter Island, for instance, the adjective marite ("American") comes after the noun moni ("money"), following the pattern NA.

(9) Hoki he moni marite tokurua?

〔Q〕 〔Exist.〕 N〔money〕 A〔American〕 〔your〕

("Do you have American money?")

(Chapin, 1978: 155.)

("Q" here represents a question marker, and "Exist" an existential marker, corresponding perhaps to the English expression "there is.")

Also in example (10) from Welsh, the adjective da ("good") follows the noun frecwast ("breakfast").

(10) Fe fytodd Tom frecwast da.

〔Aff〕〔ate〕〔Tom〕O〔breakfast〕A〔good〕

("Tom ate a good breakfast.") (Aff=affirmative marker)

(Rhys Jones, 1977: 167.)

3.2.4. With SVO Languages

In most SVO languages too, adjectives are placed after the noun as we can see from Table 1. The general tendency is to have NA order rather than AN, and this conforms to Lehmann's principle.

This NA order in the SVO type can be seen in many Romance languages. In French, for instance, although adjectives can be placed before nouns as in un beau garçon, un bel enfant, etc., they are more often placed after the noun when they form a distinguishing mark, as in examples (11) and (12):

(11) les enfant terrible.

("the terrible children.")

(12) Donnez-moi de l'encre rouge.

("Give me some red ink.")

In English, however, the general rule is to place adjectives before nouns, as in examples (13) to (15):

(13) a lovely boy

(14) a terrible child

(15) red ink

This placement of adjectives in English does not conform to Lehmann's principle. And this is perhaps one of the reasons why Lehmann says that English ia an inconsistent language. (Lehmann, 1973: 50) But English is not an exception in this respect.

Indeed, a number of SVO languages fail to conform to the principle in their placement of adjectives in relation to nouns. Out of the 13 SVO languages in Greenberg's sample, 5 have dominant AN order contrary to the principle, accounting for nearly 40% of the total. Moreover, in many NA-order SVO languages, the reverse AN order is also possible.

One characteristic of SVO languages, therefore, is that their adjectives tend to come before as well as after the nouns they modify. The tendency to have NA order is stronger, but the opposite tendency is also considerably strong.

The question to be raised, therefore, is: why are there two contradictory tendencies coexistent in many of the SVO languages? Reducing the three word order types to the dichotomous VO and OV, thereby neglecting the difference between the VSO type and the SVO type, or simply classifying non-conforming languages as inconsistent, will not give us any clues to solving this problem. We should squarely face the SVO type, and try to find a principle which can explain its

characteristics. Lehmann's "principle" fails to be one such.

3.3. With the Placement of Adverbs in Relation to Adjectives

3.3.1. Adverbs as Modifiers of Adjectives

If Lehmann's principle is to be a general structural principle, it should be able to explain orderings of "categorial entities which represent modifiers" in general. It has been observed in the above that his principle can explain reasonably well the word order of auxiliaries in relation to main verbs. It has also been seen that it can explain the position of adjectives in relation to the noun they modify, though not completely. And these are the two word order parameters which are used by Lehmann in his demonstration of the principle.

There are other important word order parameters which should be explained by any overall structural principle. One of them is the position of adverbs as modifiers of adjectives. Lehmann's principle should be able to explain this if it is to be really worth the name. We will now see how it works with regard to the placement of adverbs (ADV) in relation to adjectives (A).

3.3.2. Placement of Adverbs in Relation to Adjectives

We assume here that the primary syntactic concomitant of an adjective is a noun. The position of adverbs as modifiers of adjectives can then be explained by Lehmann's principle fairly well.

In languages with dominant word order AN, the principle would require that ADV as modifier of A should be placed before

A, because this is the place opposite of A from N. The order will then be as in (16):

(16) ADV A N

In languages with dominant word order NA, on the other hand, the principle would require that ADV should be placed after A, because this is the place opposite of A from N. The order then will be as in (17):

(17) N A ADV

And these two types of ordering of adjective-modifying adverbs seem to constitute fairly general types in languages, because we find the following data from Greenberg:

Table 5

Correlations between Placement of Adverbs
in Relation to Adjectives
and Placement of Adjectives in Relation to Nouns

	AN	NA
Adverb--Adjective	11	5
Adjective--Adverb	0	8
Adj.--Adv & Adv.--Adj.	0	2

(Greenberg, 1966: 87.)

In Table 5, all the 11 languages with AN order have ADV-A order. As for those with NA order, 8 out of 15 (53%) have the reverse order A-ADV, while two others can have both A-ADV and ADV-A orders. If these two ambivalent languages are added to the 8 with regular A-ADV order, the number of the NA languages which can have A-ADV order will be 10 out of 15, accounting for

66% of all. The non-conforming languages, on the other hand, are only 5 out of 15, accounting only for 33%.

This means that languages with dominant AN order tend to have ADV-A order, while those with dominant NA order are more likely to have A-ADV order. This conforms reasonably well to what is prescribed by Lehmann's principle. The principle manages to be valid here.

3.4. With the Placement of Adverbs in Relation to V

3.4.1. Adverbs as Modifiers of Verbs

Another word order parameter with regard to adverbs is their placement in relation to verbs. Adverbs are used as modifiers of verbs, and specify the time, place, manner, etc. of the events denoted by the verbs. How can the position of these verb-modifying adverbs be explained?

According to Lehmann, the primary concomitant of V is O. (See section 3.1.) Therefore, Lehmann's principle would require that adverbs as modifiers of V should be placed on the opposite side of V from its primary syntactic concomitant O. Let us examine whether this is the case.

3.4.2. With SOV Languages

According to the principle, adverbs in SOV languages should be placed after V, because this is the place opposite of V from O. The place of adverbs would then have to be as in (18):

(18) * O V ADV

However, this O-V-ADV structure does not generally occur in OV languages. Since these languages are verb-final by

definition, adverbs do not come after V. They are placed somewhere before V as in (19):

(19) O ADV V, or ADV O V

This can be illustrated by the following examples from Japanese.

(20) Kare-wa kanojo-wo netsuretsuni aishita.
〔he-NOM〕 O〔she-ACC〕 ADV〔passionately〕 V〔love-PAST〕

(21) Kare-wa netsuretsuni kanojo-wo aishita.
ADV O V

The adverb netsuretsuni comes either after or before O, but it always comes before V, except as an afterthought or for emphasis.

Thus Lehmann's principle does not explain the placement of ADV in relation to V in OV languages.

3.4.3. With VSO Languages

With VSO languages, on the other hand, Lehmann's principle would require that adverbs should be placed before V, because this is the place opposite of V from its primary concomitant O, as in (22):

(22) * ADV V S O

Adverbs, however, do not come before V in these languages because V occupies the initial position. Adverbs are regularly placed after V as in (23), for instance:

(23) V ADV S O or V S O ADV

as can be seen in examples (24) and (25) from Easter Island:

(24) i tu'u mai ai etahi miro o te harani
〔PERF〕 V〔arrive〕 ADV〔here〕〔PVD〕〔one boat GEN the France〕

mai Tahiti.

〔from Tahiti〕

("A French boat arrives here from Tahiti.")

(Chapin, 1978:148.)

In (24), the adverb of place mai ("here") is placed to the right of the verb tu'u ("arrive") contrary to what would be required by the principle. The adverbial phrase mai Tahiti is also placed to the right of the verb. (The symbol PVD means postverbal demonstrative.)

(25) Kai hakahoki mai te ki mai Tire ...

〔NEG〕 V〔return〕 ADV〔here〕 〔the say〕 ADV〔from Chile〕

He noho, he tiaki mai, ina kai hakahoki

〔PAST〕〔sit〕〔PAST〕 V〔wait〕 ADV〔here〕 〔NEG〕〔NEG〕 V〔return〕

atu i te ki.

ADV〔away〕 〔ACC the say〕

("No word came back from Chile ... 〔He〕 sat and waited,

〔but they〕 didn't send back word.")

(Chapin, 1978: 157.)

In (25), the adverbs and adverbial phrase, mai ("here"), mai Tire ("from Chile"), and again mai and atu ("away") are placed after the verbs hakahoki ("return") and tiaki ("wait"). Lehmann's principle cannot explain this post-verbal position of adverbs and adverbial phrases in VSO languages.

3.4.4. With SVO Languages

With SVO languages as well, Lehmann's principle would require that adverbs should be placed to the left of V because

this is the opposite of V from its primary concomitant O. However, the normal position of most adverbs in this type of language is to the right of V. In French, for example, adverbs normally come after V, as in example (26):

(26) J'aime beaucoup mon métier.

S V ADV O

(I love my job very much.)

It is the same with adverbs of frequency, as in (27):

(27) On ne fait pas toujour ce qu' on vent.

S V ADV O

(One doesn't always do what one wants.)

As for Englsih, on the other hand, Lehmann's principle might seem to apply to some extent as far as the placement of adverbs is concerned, because this language places adverbs of frequency, relative time and degree to the left of the main verb, as can be shown by examples (28) and (29):

(28) One doesn't always do what one wants.

ADV V

(29) They rarely speak their mother tongue.

ADV V

However, these adverbs form a minority, and they do not really modify verbs per se, but rather they modify the whole predicate. A majority of adverbs, such as those which denote manner, place or definite time, are placed to the right of the verb, and this is the dominant position of adverbs in English. The apparent applicability of Lehmann's principle to adverb ordering in

English is restricted to a minority of cases.

3.5. With the Placement of Adpositions in Relation to N

3.5.1. Placement of Adpositions as a Word Order Parameter

Lehmann's principle, if it is to be a general "structural principle of language," should be able to explain the placement of adpositions in relation to nouns. Use of prepositions or postpositions is a very important parameter in word order typology, because many word order features are correlated with it as can be seen from Tables 1 and 2.

It might be argued that Lehmann's principle should not be applied to the placement of adpositions. For it can be questioned whether an adposition and a noun form a modifier-modified relationship. Even if they do, it is not obvious which is the modifier and which the modified.

As far as Lehmann's system is concerned, however, we should assume that an adposition and a noun form a modifer-modified structure and that the adposition should be regarded as the modifier of the noun. The reason is as follows.

3.5.2. Adpositional Phrases as Modifier-Modified Structures

In Lehmann's system, auxiliaries and particles of question, negation, causation, etc. are called verbal qualifiers or modifiers. (Sections 2.2-3.1.) If auxiliaries are treated as a kind of modifier, then adpositions should equally be treated as a kind of modifier, because they accompany and qualify nouns in a way similar to that in which auxiliaries accompany and qualify verbs. (A different view of the syntactic function of

adpositions is suggested in section 4.2.1.3.)

It naturally follows that if Lehmann's principle applies to the position of auxiliary verbs and negative particles as modifiers of verbs, then it should also be applicable to the placement of adpositions as "modifiers" of nouns.

3.5.3. Applying the Principle

According to Lehmann's principle, an adposition as a modifier of a noun should be placed on the opposite side of its primary concomitant. The question here is: What is the primary concomitant of the noun in this case?

When Lehmann applied his principle to the adjective-noun modification structure, he regarded V as the primary concomitant of the noun on the ground that nouns typically function as O in the basic sentence.

Therefore, in the case of a noun accompanied by an adposition too, we should assume that its primary concomitant is a verb. In Japanese, for instance, nouns accompanied by adpositions function as O of verbs as can be seen from sentences (20) and (21). So nothing is wrong with regarding V as the primary concomitant of a noun. If Lehmann's principle ever applies to adpositions, it should explain their placement in relation to O.

3.5.4. Placement of Adpositions with O

3.5.4.1. With SOV Languages

The primary concomitant of O is V, and in OV languages the opposite side of O from V is to the left of O. Therefore,

adpositions in these languages should be placed on the left side of O, as in (30):

(30) * S adp O V (where "adp" represents 'adposition.')

And this would mean prepositions. SOV languages, however, regularly use postpositions instead, as we have seen in Table 1. In Japanese, for instance, O is regularly followed by a postposition which marks its status as object, either direct or indirect, as in (31) and (32):

(31) Kare-wa shiken -ni gokakushi-ta.
S[he-NOM] O[exam] postp[DAT] V[pass-PAST]
(He passed the examination.)

(32) Kare-wa shiken -wo akirame-ta.
S[he-NOM] O[exam] postp[ACC] V[give up-PAST]
(He gave up the examination.)

In these examples, the postpositions ni and wo mark the indirect and direct objects respectively. They are placed not on the opposite side of O from its primary concomitant V, but on the same side as V. This is against Lehmann's principle.

3.5.4.2. With VSO Languages

The difficulty is no less serious in the case of VSO languages. In these languages, O comes after V. Therefore, according to the principle, adpositions as modifiers of O should be placed to the right of O, because this is the opposite side of O from its primary concomitant V. In the case of VSO languages, the placement would be as in (33):

(33) * V S O adp

And this would mean postpositions. VSO languages, however, characteristically use prepositions. Lehmann's principle cannot explain this fact.

3.5.4.3. With SVO Languages

It is the same with SVO languages. In these languages too, O is placed after V. The principle would require that adpositions should be placed after O, because this is the opposite side of O from its primary concomitant V, as in (34):

(34) * S V O adp

This would also mean postpositions. However, SVO languages, including English, generally use prepositions instead. Lehmann's principle cannot accommodate this fact.

It is true that prepositions are often employed to mark nouns in other functions than as O, but it is more critically the case that their position should be explained in relation to their function as basic sentence element O (and S as well, which will be treated in the next section). But this cannot be done by Lehmann's principle.

3.5.5. Placement of Adpositions with S

3.5.5.1. Adpositions with S

It should theoretically be possible for languages to have adpositions accompanying S as well, because S is typically a noun. In many languages, S is not marked with any adposition, but in many others including Japanese, it is followed by adpositions. At least, a principle of word order universals should be able to explain the possibility of using adpositions

in relation to S. And it should be noted here that the primary concomitant of S is still V in Lehmann's principle, because, otherwise, there would be no other basic element to think of.

3.5.5.2. With SOV Languages

With SOV languages, Lehmann's principle would require that adpositions should be placed in front of S, because this is the opposite side of S from its primary concomitant V. The ordering would then be as in (35):

(35) * adp S O V

And this would mean prepositions. But this is against the fact, because postpositions are the rule with this word order type.

In Japanese, for instance, the postposition wa or ga is used to mark S as in (36) and (37):

(36) Kare -wa kinou udedokei -wo
S[he] postp[NOM] [yesterday] O[wrist watch] postp[ACC]
nakushita.
V[lose-PAST]
("He lost his wrist watch yesterday.")

(37) Ame -ga furi-hajime-ta.
S[rain] postp[NOM] V[fall-begin-PAST]
("It began to rain.")

The subject is marked with the postposition wa in (36), and with ga in (37). Lehmann's principle cannot explain the use of postpositions in relation to S in SOV languages.

3.5.5.3. With VSO Languages

In VSO languages, S comes after V together with O.

Lehmann's principle would require that adpositions as modifiers of S should be placed after S, because this place is the opposite side of S from its primary concomitant V. The position then would be as in (38):

(38) * V S adp O

And this would mean that this type of language should have postpositions instead of prepositions. The fact, however, is the opposite. Use of prepositions is the rule in these languages.

3.5.5.4. With SVO Languages

In the case of SVO languages, Lehmann's principle would require that adpositions should be placed before S, because this is the opposite side of S from its primary concomitant V. Their position would then be as in (39):

(39) * adp S V O

And adpositions in this case would mean prepositions. The principle would require that SVO languages should have prepositions. These languages do not use prepositions to mark S, but they do indeed use them to mark other functions of nouns. Therefore, in predicting the use of prepositions in this type of language, Lehmann's principle would appear to work.

However, this apparent applicability is a mere accident. It is merely due to the fact that these languages have S and O on the opposite side of V from each other, inviting two contradictory requirements from the principle. The principle requires that prepositions should be used in relation to S as we

see in this section, but it also requires that postpositions be used in relation to O as we have seen in the previous section. If the principle applies to adpositions of S, it fails with those of O, and if it applies to those of O, then it fails with those of S. It has to be one or the other. Lehmann's principle fails to explain why prepositions are used in most SVO languages.

This problem could be avoided if we labeled all SVO languages as "inconsistent" in spite of the fact that they form a major part of the VO languages, thus leaving them out of the application of the principle. But if we do so, the principle could hardly be called a principle of word order universals.

4. Why Lehmann's Principle Fails

4.1. Successes and Failures: Summary

We have seen in the foregoing sections that Lehmann's "sturctural principle" can explain:

1) the position of auxiliaries as qualifiers of verbs,

2) the position of adjectives as modifiers of nouns,

and, to a lesser extent,

3) the position of adverbs as modifiers of adjectives.

However, we have also seen that it cannot explain:

1) the position of adverbs as modifiers of verbs, and

2) the use of prepositions in VO languages, and the use of postpositions in OV languages.

Lehmann's principle thus fails to provide us with a

satisfactory explanation of the most important of the word order universals.

4.2. Some Theoretical Inadequacies

From the foregoing discussions, it is clear now that Lehmann's "structural principle" has a considerable number of theoretical inadequacies. These can be classified into three broad kinds:

1. The meaning of "modifier", which involves the status of auxiliaries, adverbs and adpositions, is not clear.
2. There is something wrong with the "opposite side" principle.
3. The meaning of "primary concomitant" is not clear.
4. The status of "S" in relation to V and O is ignored.

These four points will be discussed in this order in the following subsections.

4.2.1. The Meaning of "Modifier" Not Clear

The terms "modifier" and "qualifier" as are used in the formulation of the principle are not clearly defined. This inadequacy involves the following problems: (a) Is there a modifier-modified relationship between auxiliaries and verbs in the same way as found between adjectives and nouns? and (b) If auxiliaries are modifiers of verbs, how are they different from adverbs as modifiers of verbs?, and (c) Is there any modifier-modified relationship between adpositions and nouns?

4.2.1.1. Auxiliaries: Qualifiers or Heads?

In Lehmann's principle, adjectives as modifiers of nouns

and auxiliaries as "qualifiers" of verbs are treated in the same way as if they were not essentially different.

The two different terms are employed to refer to the two categories, but they are not strictly differentiated in his formulation of the principle. Qualifiers are often called "verbal modifiers." (Lehmann, 1973: 49.) "Qualifiers" and "modifiers" are treated alike as if they belonged to one broad category "modifier," and are regarded as following the same rule of placement as formulated in the principle.

However, adjectives which "modify" nouns on one hand, and auxiliaries which accompany verbs on the other, are different in syntactic function. Auxiliaries are not modifiers or qualifiers in the same way as adjectives are modifiers of nouns. It is rather adverbs that are modifiers of verbs in a similar way to that in which adjectives are modifiers of nouns.

In an adjectival modification and an adverbial modification, the noun and the verb respectively are the head, and the adjective and the adverb are their modifiers respectively. A structure consisting of a noun and an adjective is still a kind of noun, a noun phrase. A structure consisting of a verb and its adverbial modifier is still a kind of verb, a verb phrase. The noun phrase and the verb phrase with a noun and a verb as head respectively do retain all the grammatical functions of a noun and a verb respectively.

It is the noun rather than the adjective that bears number and case markers for the entire noun phrase. Likewise, it is

the verb, and not the adverb, that bears markers such as modality, tense and aspect for the entire verb phrase. Adjectives and adverbs modify nouns and verbs respectively in an analogous way.

In an auxiliary-main verb construction, on the other hand, the relationship is different. The main verb cannot be called head of the phrase, because it no longer has the essential grammatical functions of tense and other markings. These functions are tranferred to the auxiliary. The main verb is no longer a predicate finite verb.

When we change the sentence He reads the book into He has read the book or into He had read the book, for instance, the tense marker is shifted to the auxiliary. One of the most essential grammatical functions of the verb—tense marking—is performed by the auxiliary. It is the auxiliary that performs the function of predication which should otherwise be performed by the 'main' verb V in a basic sentence where no auxiliaries are employed, whether the sentence is in the form of VSO, SVO or SOV.

From the syntactic point of view, therefore, the auxiliary is the head of the verb phrase, and the main verb its dependent. The auxiliary is not the modifier or qualifier of the main verb as far as syntax is concerned. Syntax and semantics should not be confused in discussions of word order correlations. A principle which confuses the two levels is destined to fail.

4.2.1.2. Adverbs: Not Modifiers of Verbs?

Lehmann's principle does not refer to the status of adverbs as modifiers of verbs. We have already seen this in section 4.2.1.1 in relation to the distinction between adjectives as modifiers of nouns and auxiliaries as what Lehmann calls "qualifiers" of verbs. We have confirmed there that adverbs modify verbs in a way similar to that in which adjectives modify nouns.

4.2.1.3. Adpositions: Modifiers or Heads?

In Lehmann's principle, the syntactic status of adpositions in relation to nouns is not defined at all. We must ask: What is the status of adpositions in terms of modifier-modified relationship? Should they be regarded as modifiers of nouns? We assumed in section 3.5.2 that this is his view on the ground that he regards auxiliaries as a kind of modifier of main verbs.

And this might be the case if we take a semantic point of view. Semantically speaking, the main verb may be the main element, and the auxiliary verb subordinate to it. Similarly, the noun may be the main element, and the adposition the subordinate. To Keenan (1979), for instance, an adposition is the function in relation to a definite noun phrase as argument in the same way as an adjective is the function in relation to a common noun phrase as argument. This is based on a semantic distinction between function and argument.

However, we ought to be speaking in syntactic terms here, because we are concerned with finding a principle governing the

three word order types that express the same semantic proposition in different word orders. And from this syntactic point of view, we have seen that auxiliaries, not main verbs, should be regarded as head of verb phrases.

With regard to adpositions as well, we should take a similar line of argument. In an adpositional phrase, the adposition is the head, and the noun its dependent. Adpositional phrases, which consist of adpositions and nouns, are not noun phrases. They function as adjectival or adverbial phrases by virtue of the adposition, and as such are essentially dependent on some other element in the sentence. The adposition is the leading element in the phrase, and in this sense, it governs the noun. Lehmann's principle, however, does not give any definition of the status of adpositions in relation to his modifier-modified framework.

4.2.2. The "Opposite Side" Principle Not Quite Valid

The essence of Lehmann's principle is the "opposite side" principle. This, however, does not seem to hold good. It does not seem to hold good with regard to the placement of adverbs as modifiers of verbs, as we have seen in section 3.4.

In OV languages, the principle would require that adverbs should be placed on the right hand side of V as: * O V ADV, because this is the opposite side of V from its primary concomitant O. The fact is, however, that they are generally placed on the left of V, on the same side as O as in: O ADV V or ADV O V. In VO languages, likewise, adverbs are generally

placed on the same side of V as O as in: V O ADV or V ADV O.

His "opposite side" principle can be interpreted as an "uninterruptibility" principle, since according to him his principle means that "the central sequence, whether VO or OV, must not be interrupted." (Lehmann, 1978: 19.) This "uninterruptibility" principle, however, does not seem to work well with regard to the placement of adverbs as modifiers of verbs in structures like O-ADV-V, because here the ADV interrupts the OV sequence.

Moreover, this "uninterruptibility principle" also fails with regard to the placement of adpositions in relation to nouns. Adpositions in OV languages interrupt the OV sequence in the structure O-postp-V, where O is followed by an accusative marker postposition, as we have seen in Japanese examples above, in section 3.5.2. in particular. In VO languages too, adpositions interrupt the VO sequence in the structure V-prep-O, where O is preceded by an accusative marker preposition as is found in Easter Island. (See example (25) above.)

The "opposite side" principle, or "uninterruptibility" principle, does not seem to be a valid principle for the placement of modifiers or qualifiers. It is invalid at least when it is applied in conjunction with the criterion of "primary concomitant."

4.2.3. The Meaning of "Primary Concomitant" Not Clear

Lehmann's "opposite side" principle crucially depends on what the "primary concomitant" of an element is. However, this

notion is not clearly defined in his principle.

There may be no problem in saying that the primary concomitant of O is V. Is it then also true that, conversely, the primary concomitant of V is O, as Lehmann thinks it is? It would so appear as long as our concern is restricted to the V-O/O-V structure.

When we come to deal with the V-S-O / S-V-O / S-O-V structures, however, it is not necessarily obvious that the primary concomitant of V should be O rather than S. For one thing, V often goes without O while it regularly goes with S, and, for another, in VSO languages, S is more closely placed to V than O is. Therefore, wouldn't it seem more probable that the primary concomitant of V is S rather than O, contrary to what Lehmann seems to want us to believe? Or can V have two "primary" concomitants in the forms of O and S?

Or might it be argued that there is a layer of structures in such a way that V and O are the primary concomitants of each other while S is the primary concomitant of V and O combined? Or could it be argued conversely that S and V are the primary concomitants of each other while O is the primary concomitant of S and V combined?

Lehmann's formulation of the principle, however, cannot give us any clear answers to these questions. The concept of "primary concomitant" is not clearly defined in Lehmann's principle.

4.2.4. The Status of S Not Defined

4.2.4.1. VO / OV Dichotomy and S

Lehmann's principle is based on the dichotomy of languages into the VO and OV types, so it does not take the position of S into account in its formulation. However, I believe that we cannot ignore the position of S when we deal with word order typology.

This neglect of the status of S is closely related to the lack of precise definition of the concept of "primary concomitant" as mentioned in section 4.2.3. In Lehmann's framework, there is no place to talk about S when we talk about primary concomitants of basic elements. Without taking the position of S into consideration we cannot fully deal with word order correlations in the three types.

4.2.4.2. Peculiarities of the SVO Type

As we have seen in section 3.2.4 in relation to the placement of adjectives as modifiers of nouns, SVO languages show a considerable amount of nonconformity with, and violation of, the principle—an amount of ambivalence not found in VSO or SOV languages. While these two types have both S and O on the same side of V, either after or before, SVO languages have S and O on the opposite side from each other.

Just treating this type as a class of inconsistent languages, and restrict the applicability of a structural princple to VSO and SOV languages necessarily restricts the explanatory power of the principle.

An adequate principle of word order, therefore, should not

ignore the position of S in the sentence. Indeed, Lehmann's principle, which ignores it and contends that the VO/OV sequence should not be interrupted, flatly goes against the fact that the VO sequence is in fact interrupted by S in the VSO languages, as has aptly been pointed out by Mallinson and Blake (1981: 393).

Lehmann's principle, based on a typology which collapses Greenberg's VSO and SVO types into a single VO type by ignoring the status of S, cannot be an adequate structural principle for languages in general.

Hawkins (1983: 65) argues that the VSO type and SVO type cannot be collapsed into one VO type:

> "It is not possible to collapse VSO and SVO into the more general antecedent, VO, ... because all the four noun modifier co-occurrences [i.e. NA & NG, AN & NG, AN & GN, and NA & GN] are found in SVO languages."

A key to an adequate structural principle might lie with this ambivalent type. It is very probable that the location of S on the opposite side of V from O has a lot to do with the ambivalent features of SVO languages. I will pursue the possibility of this line of argument elsewhere.

5. Conclusion: Conditions for an Adequate Structural Principle

The inadequacies of Lehmann's "structural principle" as revealed in the foregoing sections point to some of the conditions which should be satisfied by an adequate structural principle.

5.1. An adequate structural principle should be based on a solid and well-defined theory of syntactic relationships among sentence elements. When the "modifier" - "modified" concept is employed, it should be strictly and clearly defined. A more solid framework for this than in Lehmann's principle is found in Vennemann's "operator"-"operand" relationship, for instance. (Vennemann, 1972, 1973, and others.)

5.2. An adequate structural principle should be based on a clear distinction between syntax and semantics, and essentially be formulated in syntactic terms.

When Lehmann says that auxiliaries are qualifiers of main verbs, he is speaking in semantic terms. Arrangement of words in a sentence, however, is essentially a matter of syntax, even though closely related to semantics. It is precisely because word order is a matter of syntax rather than semantics that there are different orders VSO, SVO and SOV to express the same semantic relations. We should therefore be talking in syntactic terms instead of semantic terms when we deal with the typology of basic word orders.

5.3. An adequate structural principle should take into account the position of S. Without reference to it, some of the important word order correlations, particularly those in SVO languages, cannot be explained satisfactorily.

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