

# Asymmetries in NP word order

William Croft

Efrosini Deligianni

*University of Manchester, UK*

## 1.1. Symmetric and asymmetric patterns in word order

In most research on word order, the focus of attention has been on symmetric patterns. Symmetric patterns are those in which languages appear to exist in two word order types, an order and its mirror image. By far the best known symmetric word order pattern is that associated with verb-object (VO) and object-verb (OV) orders. Cross-linguistically, both VO and OV word order are very frequent: each order is found in approximately half of the world's languages. The fact that VO and OV orders occur in approximately equal frequency indicates that there is no inherent preference for one order over the other order. We must simply treat the two orders as equally likely, and the choice between the two is essentially arbitrary.

Further research has proposed that other word order patterns are correlated with VO/OV order. In earlier typological research, the following word orders were considered to be correlated with VO/OV order (data from Croft 2003:72, Table 3.2):

Table 1. *The OV and VO word order types (after Lehmann 1973, Vennemann 1973)*

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<i>Clausal orders</i>	OV	VO
	SV	VS
	VAux	AuxV
	VAdv	AdvV
	VSubr	SubrV
	PurpV	VPurp
	OcompV	VOcomp
	SentQ	QSent
	<i>Phrasal orders</i>	Post
GN		NG
RelN		NRel
AN		NA
DemN		NDem
NumN		NNum
AdvA		AAAdv

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Abbreviations: S - subject, O - object, V - verb, N - noun, A - adjective, G - genitive, Poss - possessive adjective, Prep - preposition, Postp - postposition, Dem - demonstrative, Num - numeral, Rel - relative clause, Adv - adverb, M - marker of comparison, Std - standard of comparison, Comp - complements of volition and purpose, Aux - inflected auxiliary, Sent - sentence, Q - interrogative particle

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Much of the word order typology research of the 1970s treated the VO and OV symmetric patterns as the major word order types of languages, disregarding the many counterexamples to these patterns. More recent research in word order typology has treated the symmetric patterns as correlations that need to be accounted for, but

not as absolute word order types. Also, work by Matthew Dryer has demonstrated that the orders of NP modifiers that are not themselves phrases—demonstrative, numeral and adjective—are not actually correlated with VO/OV word order. (However, using Dryer’s method of determining significant correlation, demonstrative, numeral and adjective orders are correlated with each other [Matthew Dryer, personal communication]. That is, there is a correlation of symmetric patterns of Modifier-Noun/Noun-Modifier, in addition to the correlation of symmetric patterns of Object-Verb/Verb-Object, etc.)

However, even the more recent research on word order patterns has focused on the correlations of symmetric patterns and their explanation. For example, Dryer (1992) proposes a Branching Direction Theory for the OV/VO symmetry and related symmetries, namely that phrase structure trees representing the various word order patterns are either consistently right-branching or left-branching, other things being equal. Hawkins (1994) proposes a theory of Early Immediate Constituents, which is a theory of syntactic processing which favors essentially the same structures as Dryer’s Branching Direction Theory, namely consistently right-branching or consistently left-branching phrase structure trees. (No explanation has been offered for the ModN/NMod symmetric pattern as of yet.)

But the fact of the matter is that symmetric word order patterns, for all their inherent interest, are not the end of the story for the typology of word order. To be sure, there are a few word orders in which the cross-linguistic distribution is essentially accounted for by symmetry. These word orders are captured by biconditional universals of the form  $X \equiv Y$  (order X occurs if and only if order Y occurs). Quantitatively, the distribution of the opposing word orders is roughly equal if we examine the number of language genera with the opposing orders in Dryer (1992). (I take ‘roughly equal’ to mean that one order does not occur more than twice as frequently as the opposite order. This is the criterion used by Dryer in evaluating basic word orders in single languages with “free” word order [Dryer 1989]. One reason this loose definition of ‘roughly equal’ is called for is that the number of languages varies to some degree due to the incompleteness of the sources.)

For example, a biconditional universal accounts for the word order correlation between verb - object order and verb - adpositional phrase order (Dryer 1992:92): a language has postpositional phrase - verb order if and only if it has object - verb order, or in symbolic terms,  $OV \equiv PP-V$ . The data from Dryer’s paper is presented as a tetrachoric table (Greenberg 1966) in Table 2:

*Table 2. Data supporting the word order universal  $OV \equiv PP-V$ .*

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	V-PP	PP-V
OV	9	<b>63</b>
VO	<b>59</b>	1
total	68	64

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The numbers in boldface represent the symmetric patterns VO & V-PP and OV & PP-V. The remaining two patterns violate the proposed correlation. Although languages are attested with the uncorrelated pairings of word orders, their numbers are much smaller than for the correlated pairings. Moreover, if one sums up the number of language genera that have V-PP order vs. those that have PP-V order, one sees that the numbers are very close to equal. (The same is true if one sums up the OV genera vs. the VO genera, confirming the general symmetry of those two orders

referred to above.) The same is essentially true of the other biconditional universal supported by the data in Dryer 1992, VO  $\equiv$  Prep (Dryer 1992:83):

*Table 3. Data supporting the word order universal VO  $\equiv$  Prep.*

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	Postp	Prep
VO	12	<b>70</b>
OV	<b>107</b>	7
total	117	77

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However, the vast majority of language universals are one-way implicational universals of the form  $X \supset Y$  (if a language has order X, then it also has order Y). Quantitatively, these implicational universals also reveal a favoring of one order over the other, namely the order that is the implicatum of the implicational universal. Two of the most clearcut examples are given in Table 4 (Dryer 1992:86, 105):

*Table 4. Data supporting the word order universals VO  $\supset$  NRel and OV  $\supset$  SV*

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	NRel	RelN		SV	VS
OV	37	<b>26</b>	VO	62	<b>45</b>
VO	<b>60</b>	1	OV	<b>132</b>	3
total	97	27	total	194	48

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The implicational relationship between the verb - object and noun - relative clause order, and between the verb - object and verb - subject order, implies that there is a correlation of symmetric word order patterns, VO & VS & NRel and OV & OS & RelN. This correlation is confirmed by Dryer's method (see Dryer 1992). The symmetric correlation is indicated in Table 4 by the boldface numbers, as in Tables 2-3. However, the uncorrelated word orders are not equally rare, unlike in Tables 2-3. While VO & RelN order is vanishingly rare, OV and NRel order is in fact rather common. Likewise, while OV & VS order (OVS) is vanishingly rare, VO and SV order (SVO) is quite common. If we compare the overall numbers of language genera with respect to noun - relative clause order, it can be seen that NRel order is more than three times as common as RelN order, regardless of verb - object order. Similarly, SV order is four times as common as VS order, regardless of verb - object order. In other words, there is a powerful ASYMMETRIC word order pattern here, favoring NRel over RelN and SV over VS.

Asymmetric word order patterns also occur in situations where symmetric word order patterns are questionable or absent. For example, the correlation between symmetric verb - object order and noun - genitive (possessive modifier) order is not as strong as the other verb - object correlated orders (Dryer 1992:91). The quantitative data from Dryer is given in Table 5:

*Table 5. Data possibly supporting a word order universal OV  $\supset$  GenN*

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	GenN	NGen
VO	30	<b>63</b>
OV	<b>112</b>	12
total	142	75

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Dryer's statistical method weakly supports the correlation of symmetric word orders represented by the boldface numbers in Table 5. Whatever the significance of that correlation, it is also clear that GenN order is approximately twice as frequent as NGen order, suggesting an asymmetric word order pattern favoring GN.

As noted above, Dryer argues against a correlation of symmetric word orders between verb - object and demonstrative - noun. The data is given in Table 6 (from Dryer 1992:96):

*Table 6. Data on the relationship between verb - object and demonstrative - noun orders.*

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	DemN	NDem
VO	53	43
OV	79	32
total	132	75

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The absence of a symmetric correlation is more or less visible from the figures in Table 6 (see Dryer 1992 for the statistical analysis). However, the totals indicate that DemN order is somewhat less than twice as common as NDem order, suggesting that there is an asymmetric word order pattern here favoring DemN.

These examples indicate that there are a number of asymmetric word order patterns that compete with the symmetric word order patterns where both exist, and motivate an unbalanced distribution of opposite word order types across languages even when symmetric word order patterns do not exist.

## **1.2. Recent accounts of asymmetries in word order**

Although asymmetric word order patterns have not been paid attention to in most of the literature on word order, it has not been left completely unnoticed. In fact, Greenberg discusses asymmetric word order patterns in his seminal paper on word order typology (Greenberg 1966). Greenberg introduces the concept of DOMINANCE, such that one order (e.g., NRel) is dominant over its opposite order (RelN), which in turn is called RECESSIVE. The dominant order may occur no matter what the correlated symmetric order, the HARMONIC order, is. For example, in Table 4 above, NRel order occurs even when OV order occurs, as well as with its harmonic order VO. However, the recessive order occurs only its harmonic order also occurs. For example, in Table 4, RelN order occurs with OV order, but (almost) never occurs with VO order.

The dominant order is the order found in the implicatum of an implicational universal. Greenberg argues that 'the notion of dominance is not based on its more frequent occurrence but on the logical factor of a zero in the tetrachoric table' (Greenberg 1966:97). As a matter of fact, however, the dominant order in logical terms is almost always the more frequent order cross-linguistically (Croft 2003-:60-61; compare Tables 4-6 above). And for the most part, different implicational universals predict the same orders to be dominant, as can be seen in Table 7 (from Croft 2003, Table 3.1):

*Table 7. Dominant word orders and the implicational universals supporting them.*

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<i>Dominance</i>	<i>Universals</i>
SV (?)	5, 17
VO	5, 13, 17, 21, 25
SO	1
Prep (?)	24
GN (?)	IX'
PossN	XXI, XXIII
DemN	V' (= 18), XI'
NumN	VI' (= 18), XII'
NRel	24, IX', XI', XII', XXIII
NA	5, 17, 18, 21, 24, 40, XXI
AdvA (?)	21
VComp (?)	15

Universals supporting hypotheses: Greenberg 1966 (Arabic numerals), Hawkins 1983 (Roman numerals). Universals in italics are counterexamples to the proposed dominance pattern.

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Greenberg's analysis demonstrates that dominance is a phenomenon that underlies a range of implicational universals. Combined with the quantitative evidence, it suggests that there are a general asymmetric word order patterns favoring the orders in Table 8 over their opposites.

Of course, the question is, what is the explanation for these asymmetric patterns? We will only describe previously offered explanations very briefly, since the data to be presented in this paper may cause us to rethink what a plausible explanation of at least some asymmetries in word order are.

A number of linguists have proposed a discourse or information structure account for asymmetries in word order at the clause level. These proposals have been based on languages with relatively "free" word of constituents. For instance, linguists in the Prague School, in particular Firbas (1966), have proposed a principle of communicative dynamism which generally goes under the name of 'Given Before New', based on his analysis of word order variation in Czech. Mithun (1987), Givón (1988) and others have proposed a principle of 'More Important/Unpredictable Before Less', based on the analysis of word order variation in a number of (mostly) Native American languages. The 'Given Before New' and 'More Important/Unpredictable Before Less' principles are attempts to produce a single general principle to account for asymmetries in word order at the clause level. They have met with some criticism (e.g. Hawkins 1994), and also appear to be almost in conflict with each other.

In Croft (1994), the first author has taken a different approach to asymmetries in clause-level word order. Instead of looking for a single general principle, Croft attempts to identify asymmetries for phrases of specific information statuses. And instead of looking at "free" word order languages, which form a small minority of languages, Croft looks at all languages in which information status leads to a CHANGE in word order, which occurs in a larger proportion of languages. In particular, Croft examines asymmetries which are essentially the same in both VO and OV languages. Although Croft's sample is small and unsystematic, it does reflect patterns noted by other linguists, and as such appears to reflect general patterns of information status in

word order at the clause level. The results of this survey are summarized briefly in Table 8:

*Table 8. Information status and word order patterns at the clause level*

<i>Information status</i>	<i>Word order pattern</i>	<i>Position</i>
Continuing Topic	(absent)	
Presentative/Indefinite	symmetric (?)	object position; noninitial?
Shifted/Contrastive Topic	asymmetric	clause-initial
Scene-Setting Element	asymmetric	clause-initial
Afterthought	asymmetric	clause-final
Focus	?	preverbal? object position?
Question/Cleft	asymmetric	clause-initial (?)

We present this data here for general interest, and in order to illustrate the method that will be used in analyzing NP order asymmetry in this paper.

Previous explanations of NP order asymmetry are largely in terms of processing. Hawkins (1983) proposes a Heaviness Hierarchy to account for the relative likelihood of NP modifiers to shift position to the right (heavier modifiers) or the left (lighter modifiers). The Heaviness Hierarchy is given in (1) (Hawkins 1983:90):

- (1) Rel  $\geq$  Gen  $\geq$  Adj  $\geq$  Dem, Num

In more recent work, Hawkins has attempted to subsume both asymmetric and symmetric word order patterns under his Early Immediate Constituents principle, alluded to above. In our paper, however, we will present evidence that there is a consistent asymmetric pattern for NP modifier orders, which may call for a different explanation than heaviness or early immediate constituents.

## **2. Asymmetries in NP modifier patterns across the VO/OV divide**

Croft (1994) proposed the following hypothesis for asymmetrical word order patterns of modifiers:

- (2) *Prenominal Integration*: prenominal modifiers are more tightly integrated into the noun phrase than postnominal modifiers.

Degree of integration can be defined in either syntactic or semantic terms. Croft suggested that the case for greater syntactic integration of prenominal modifiers is much stronger than the case for greater semantic integration of prenominal modifiers.

### **2.1. Degree of uniformity of modifier order**

One piece of evidence for the greater integration of prenominal modifiers is the higher degree of uniformity of prenominal modifier constructions across languages. Specifically, the relative order of demonstrative, numeral and adjective (property concept) modifiers before the head noun is virtually identical across languages, while the relative order of those modifiers after the head noun varies tremendously. The first author collected NP modifier order data from a convenience sample of 46 languages with the aid of the students from a typology class at the University of Michigan, Ann Arbor in 1990, and also drew data from Heine (1980). The data is

summarized in Table 9 (languages in italics are from Heine; numbers indicate alternative orders):

*Table 9. Relative order of prenominal and postnominal modifiers*

Dem-Num-Adj-N	VO: English, German, Norwegian, Russian, Finnish, Syrian Arabic (1), Taiwanese, Mandarin, Palauan
	OV: Turkish, Korean*, Japanese, Alambak (1), Quechuan*
Dem-Adj-Num-N	OV: Alambak (2)
Dem-Num-N-Adj	VO: French, Italian, Spanish, Mam
	OV: Farsi, Abkhaz, Kiowa
Dem-Adj-N-Num	VO: Syrian Arabic (2)
Dem-N-Adj-Num	OV: Lahu (1), Hualapai (1)
Dem-N-Num-Adj	VO: <i>Sampur</i>
	OV: Lahu (2), Hualapai (2), Yidiny (1)
Num-N-Adj-Dem	VO: Irish, Welsh, Hebrew
	OV: Ute
N-Adj-Num-Dem	VO: Yoruba, Igbo, Turkana (?), Lamang (?), Kusaiean
	OV: W. Greenlandic, Amele, Manam (1)
N-Num-Adj-Dem	VO: <i>Gabra, Luo, Lagali</i> , Turkana (?)
	OV: Manam (2)
N-Dem-Num-Adj	VO: <i>Noni</i> (1)
	OV: <i>Rendille</i>
N-Dem-Adj-Num	VO: <i>Noni</i> (2)
N-Adj-Dem-Num	VO: <i>Aghem</i> , Babungo, Woleaian (?)

\* other alternative orders also reported

If more than one modifier occurs before the noun, the order is always Dem < Num < Adj; the only exception to this generalization is an alternative word order in a language that otherwise conforms to the generalization (Alambak), and other possible orders in Korean and Quechuan. If more than one modifier occurs after the noun, however, virtually any order appears to be possible as the basic order of modifiers. Also, most of the attested patterns are found in both VO and OV languages, despite the alleged favoring of prenominal modifiers by OV languages and postnominal modifiers by VO languages. Hence it appears that the asymmetry in behavior between prenominal and postnominal modifiers with respect to relative word order is independent of the VO/OV distinction.

The Khoisan language Nama appears to confirm this hypothesis in a single language. In Nama, modifiers may occur either before or after the noun. The prenominal order of modifiers is always Dem-Num-Adj. However, when the modifiers occur after the noun, they may occur in any order (Hagman 1977:21, 46).

We take the strict ordering of prenominal modifiers and the loose ordering of postnominal modifiers across languages to be evidence that the prenominal modifiers are more tightly integrated as elements of the noun phrase than postnominal modifiers.

## 2.2. Linguistic distance and conceptual distance

A second, more direct way of measuring degree of integration of modifiers is in terms of linguistic distance and conceptual distance (Haiman 1983, 1985). Syntactic integration can be measure in terms of LINGUISTIC DISTANCE. The linguistic distance

between two elements in a construction, such as a modifier and a noun in a noun phrase, is determined by whether or not there is a third morpheme linking the two elements in the construction, and the type of boundary between the elements (morpheme boundary or word boundary). Haiman gives the following illustration of decreasing linguistic distance between two linguistic elements X and Y (Haiman 1985:105, ex. 88; see also Bybee 1985:12):

- (3)
  - a. X # A # B # Y
  - b. X # A # Y
  - c. X + A # Y
  - d. X # Y
  - e. X + Y
  - f. Z [= fusion of X and Y into a single form]

Semantic integration can be measured in terms of CONCEPTUAL DISTANCE (Haiman 1983, 1985). Haiman defines conceptual distance as follows (Haiman 1985:106-107):

- (4) Two ideas are conceptually close to the extent that they
  - a. share semantic features, properties or parts;
  - b. affect each other;
  - c. are factually inseparable;
  - d. are perceived as a unit, whether factually inseparable or not.

In employing linguistic and conceptual distance in testing the Prenominal Integration hypothesis, we are making use of Haiman's definitions for a somewhat different purpose than Haiman does. Haiman's goal is to demonstrate a typological universal relationship between linguistic distance and conceptual distance, which can be summarized as follows (Croft 2003:205):

- (5) If a language has two near-synonymous constructions which differ structurally in linguistic distance, they will differ semantically in (among other things) conceptual distance in a parallel fashion.

The hypotheses that we will investigate, on the other hand, are the ones in (6):

- (6)
  - a. If a language has two modifier constructions that differ in linear order and in linguistic distance, the construction with a prenominal modifier will display the shorter linguistic distance.
  - b. If a language has two modifier constructions that differ in linear order and in linguistic distance, the construction with a prenominal modifier will display the closer conceptual distance.

Croft suggested that hypothesis (6a) was more strongly confirmed than hypothesis (6b). The second author investigated both hypotheses. Hawkins (1983) was consulted for languages in which genitive, adjective, numeral and/or demonstrative occurred both preminally and postnominally. Further languages were investigated by surveying additional reference grammars and language surveys. A total of forty languages were identified in which at least one modifier differed in either linguistic distance or conceptual distance in prenominal vs. postnominal position. The sample is given in the appendix. A summary of the sample's areal and VO/OV distribution is given in (7) and (8):

(7)	Africa	7	17.5%
	Eurasia	20	50%
	SE Asia & Oceania	6	15%
	Australia/New Guinea	3	7.5%
	North America	2	5%
	South America	2	5%
(8)	VO languages	23	57.5%
	OV languages	14	35%
	VO/OV languages	3	7.5%

### 2.3. Prenominal integration and linguistic distance

In testing hypothesis (6a), a further criterion of linguistic distance was identified: degree of phonological reduction of the modifier in one position over another. Six languages exhibited examples of reduction of a prenominal modifier over its postnominal counterpart, confirming hypothesis (6a). No languages displayed the opposite pattern. In French, prenominal adjectives are deaccented, while postnominal adjectives bear full lexical stress (Givón 1984:224-25). In Spanish, the adjective *grande* ‘big’ is reduced to *gran* preminally (with a concomitant change in meaning; see below). In Capanawa, prenominal property words are also phonologically reduced (Loos 1999:235; the difference in gloss attempts to characterize the difference in meaning between prenominal and postnominal modifiers):

(9)    hoa    paʃini  
         flower red  
         ‘the reddish flower’

(10)   paʃī hoa  
         red flower  
         ‘the flower that is red’

In Modern Cornish and Manx, a prenominal adjective plus its head noun is treated as a single word sequence whether this is indicated orthographically or not (Brown 1984:59, 61). In Manx, monosyllabic adjectives tend to precede the noun (Kneen 1973:123-24). In Ute, the prenominal adjective is morphologically compounded with the root (Givón 1984:226):

(11)   kavá sá    ǵa-rų-mų  
         horse white -ADJ-ANIM  
         ‘a white horse’

(12)   sá-       gavà  
         white- horse  
         ‘a white horse’

Differences in linguistic distance between prenominal and postnominal modifiers were found in 23 languages. Of these, 21 displayed a greater linguistic distance between the postnominal modifier and the head noun, as predicted by the Prenominal Integration hypothesis. For example, Komi postnominal modifiers agree in number and case with the head noun, but prenominal modifiers do not (Vilkuna 1998:219):

(13)   kerkajas ydžydös’ da pemydös’  
         house:PL big:PL and dark:PL  
         ‘houses, big and dark’

- (14) ydžyd da pemyd kerkajas  
big and dark house:PL  
'big and dark houses'

In Vlax Romani, postnominal modifiers require repetition of the definite article, but prenominal modifiers do not (Hancock 1995:75):

- (15) o baro raklo  
DEF.ART big boy  
'the big boy'
- (16) o raklo o baro  
DEF.ART boy DEF.ART big  
'the big boy'

In Yagua, a postnominal genitive requires an agreement affix on the head noun but a prenominal genitive does not (Payne & Payne 1989:348):

- (17) sa- rooriy Tomáása  
3SG- house Tom  
'Tom's house'
- (18) Tomáása rooriy  
Tom house  
'Tom's house'

In Persian, the linker is cliticized to the head noun when the modifier follows, but no linker is used when the modifier precedes (Windfuhr 1987:532):

- (19) kàri e xúb -i  
work LNK good -INDEF  
'good work'
- (20) xúb kàri  
good work  
'good work'

Tuvaluan uses a "predicative" construction with a morpheme identical to the nonpast predicate marker for postnominal numeral modifiers, but not for prenominal numerals (Besnier 2000:557):

- (21) ne inu ana pii e lua  
PST drink his drinking.coconut NPST two  
'He drank two coconuts.'
- (22) ne inu ana lua pii  
PST drink his two drinking.coconut  
'He drank two coconuts.'

There were two counterexamples to hypothesis (6a). In Hausa, a prenominal adjective requires a linker but the postnominal adjective does not (Newman 1987:720):

- (23) fàrí -n zánèe  
white -LNK cloth  
'white cloth'

- (23) zánèe farí  
cloth white  
'white cloth'

In Albanian, prenominal adjectives are “substantivized” and express case, gender and number, but postnominal adjectives express only gender and number (Newmark, Hubbard & Prifti 1982:183, 195):

- (24) vajzën e mirë  
girl.F.SG.ACC ART.F.SG.ACC nice.F.SG  
'the nice girl [ACC]'

- (25) të ziun baba  
ART.M.ACC.SG black.M.SG.ACC father.M.SG  
'the wretched father [ACC]'

In sum, phonological reduction or the prenominal modifier is found in 100% of the six cases in the sample, and a shorter linguistic distance is found in 91% (21) of the 23 cases in the sample. These facts, combined with the modifier order facts reported above, represents a strong confirmation of the Prenominal Integration hypothesis with respect to syntactic integration.

#### 2.4. Prenominal integration and conceptual distance

The evaluation of hypothesis (6b) is more problematic, because there is a wide variety of conceptual distinctions that can be identified. Also, reference grammars do not always identify conceptual distinctions between alternative constructions. Nevertheless, the second author identified 32 languages in which some conceptual distinction was found between the prenominal modifier construction and the postnominal modifier construction. Of these 32 languages, 26 conformed to the following tendencies for semantic/pragmatic differences between prenominal and postnominal modifiers given in Table 11:

*Table 11. Tendencies for differences between pre- and postnominal modifiers:*

	<i>Prenominal</i>	<i>Postnominal</i>
<i>Semantics of NP</i>	NP as a unit or whole; member of a subclass of referents	contrast with other referents; individuation/distinguishing of referent
<i>Semantics of head</i>	inherent properties	transitory properties
<i>Semantics of modifier</i>	anaphoric (given)	deictic (new)

Postnominal modifiers tend to be contrastive, including deictic (in the case of demonstratives), or to express more salient information in the utterance. Prenominal modifiers tend to be noncontrastive, and semantic more unified with the head, describing inherent properties and being more compound-like. These semantic characteristics of prenominal modifiers vs. postnominal modifiers implies that prenominal modifiers are semantically more tightly integrated into the noun phrase.

For example, in Tagalog, the second element in a noun phrase is the contrastive one (Schachter 1987:943-44; TRG = trigger particle, required when trigger phrase does not begin with a demonstrative):

- (26) Mahal ito -ng galang. Pero mura ito -ng singsing  
 expensive this -LIG bracelet but cheap this -LIG ring  
 ‘This bracelet is expensive. But this ring is cheap.’
- (27) Mahal ang galang na ito. Pero mura ang galang na iyan  
 expensive TRG bracelet LIG this but cheap TRG bracelet LIG that  
 ‘This bracelet is expensive. But that bracelet is cheap.’

In Swahili, a prenominal demonstrative indicates definiteness (anaphoric function), while a postposed demonstrative indicates deixis (Givón 1984:227; Wald 1987:1009):

- (28) yùle rîtóto  
 DEM child  
 ‘the child’
- (29) rîtóto yùle  
 child DEM  
 ‘that child over there’

A similar pattern is found in Babungo. However, the opposite pattern is found in Lahu and Ute, two of the counterexamples to hypothesis (6b). Since Swahili and Babungo are VO and Lahu and Ute are OV, it has been suggested that the semantic difference between prenominal and postnominal modifiers is symmetric (Givón 1990:475; Croft 1994). However, the broader survey undertaken by the second author found that the six counterexamples to hypothesis (6b) divided evenly between VO and OV languages: Maltese, Modern Cornish and Albanian (VO), and Lahu, Ute and Capanawa (OV). In other words there does not appear to be a symmetric pattern to the counterexamples to hypothesis (6b).

In sum, of 32 cases of a difference in conceptual distance between prenominal modifiers and postnominal modifiers, 26 cases (81%) supported hypothesis (6b) and 6 cases (19%) disconfirmed it. There is thus a strong dominance of semantically more tightly integrated prenominal modifiers in the sample. However, the proportion of counterexamples to hypothesis (6b), prenominal semantic integration, is considerably greater than the number of counterexamples to hypothesis (6a), prenominal syntactic integration. It is possible that the Prenominal Semantic Integration hypothesis will have to be abandoned, or perhaps broken down into separate hypotheses about different types of semantic distinctions, some of which may turn out to reflect a word order asymmetry and others of which may reflect a symmetric pattern (or no pattern at all).

### 3. Conclusion

There is strong evidence of a variety of cross-linguistic universals for asymmetric patterns in word order. This paper presented evidence for a syntactic asymmetry in the word order type of modifiers: prenominal modifiers are syntactically more tightly integrated into the noun phrase than postnominal modifiers. There is weaker but still significant evidence that prenominal modifiers are also semantically more tightly integrated into the noun phrase.

The Prenominal Syntactic Integration and Prenominal Semantic Integration hypotheses merit further investigation. We intend to examine a larger list of languages with both prenominal and postnominal modifiers, kindly provided to us by Matthew Dryer. We also intend to examine languages with only one modifier order,

to see if there is a typological dominance of greater syntactic integration with prenominal modifiers vs. postnominal modifiers.

Nevertheless, we may reasonably speculate why the Prenominal Integration hypotheses appear to hold. It may be that prenominal integration can be explained in a similar way to the suffixing preference. It has been suggested that the suffixing preference can be explained historically, as the consequence of a postposing preference of certain types of grammatical units (Bybee, Pagliuca & Perkins 1990). In the case of prenominal integration, it seems that prenominal position favors integration into the noun phrase. That is, reduction of the explicit morphosyntactic indicators of the modifier-head relation may occur at a faster rate for prenominal modifiers than for postnominal ones.

Of course, one may ask why prenominal modifiers might reduce at a faster rate. A possible explanation may have to do with the function of prosody. Bolinger (1991:229-30) suggests that the prosodic peak represents the central content of the phrase (the 'point'). What comes before the phrase is presupposed or noncontrastive information ('situation'), and what comes after the peak, if anything is purely 'resumptive', repeating information from an earlier utterance. In other words, what comes after the peak is either not very likely to survive—unless it is itself another peak: that is, unless it is contrastive or salient information. On the assumption that the normal peak of a noun phrase is the head noun, this implies that what follows the head noun is likely to be contrastive or salient modifiers, if anything at all. What comes before the peak, the situation, is more likely to survive in an informationally subordinate function, namely, as modifiers integrated into the noun phrase.

Another possible historical explanation might be found in the grammatical origin of modifiers. A common origin of modifiers appears to be appositive phrases. The appositive phrases often have "dummy heads", or their own articles, or independent inflections; that is, appositive phrases are not as integrated syntactically into the phrase. Appositive phrases as modifiers also probably originate as afterthought expressions, and are thus likely to be postnominal (see section 1.2 above). Hence, postnominal modifiers are likely to be less syntactically integrated into the phrase.

These explanations are largely speculative. The main point we would like to conclude with is that asymmetry in word order, and its syntactic and semantic correlates, is an important source of substantive cross-linguistic universals that should be further explored.

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