

The ordering of obliques and adpositional elements

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Abstract. The order of verbs (V) and their object (O) has been of great interest among researchers. However, few studies have examined the order of obliques (X) with respect to V and O. Dryer (with Gensler) (2013) find the asymmetry between VO and OV languages in terms of the position of X: unlike VO languages, all three types of OV languages (XOV, OXV, and OVX) are widely attested. Hawkins (2008) tries to explain this asymmetry by the interaction of three patterns, (i) Verb & Object Adjacency, (ii) Object & X on Same Side of Verb, and (iii) Object before X. Although his analysis is successful in explaining the word order data in the world's languages, there are still some problems. In this paper, we argue that we can predict the possible word orders using only Hawkins's (2004, 2008) Minimize Domains (MiD). We also argue that compared to the prepositional counterparts, postpositions, postpositional clitics, and case suffixes are more likely to be connected to their noun (phrase) complement phonologically and morpho-syntactically. In other words, the juncture between noun and adposition/clitic/affix in head-final languages is tighter than that in head-initial languages. Assuming that adjuncts (X) consist of noun and adposition/clitic/affix, the domain of constituent recognition is different in the possible word orders of O, X and V. We assume that postpositions/postpositional clitics/suffixes need only half of a word ($\wedge = 0.5$) for domain recognition because they are closely attached to the adjacent noun (phrase). We conclude that any ordering of O, X and V is possible if the domain size is less than 4. This analysis has advantages over Hawkins's (2008) analysis because it is simpler and does not need to assume Hawkins's principle of Argument Precedence.

Keywords. word order; oblique; juncture; Minimize Domains; typology; adposition

1. Introduction. The order of verbs (V) and their object (O) has been of great interest among researchers. However, few studies have examined the order of obliques (X) with respect to V and O. One of those studies is Dryer (with Gensler) (2013), who find the asymmetry between VO and OV languages in terms of the position of X: while VO languages are overwhelmingly VOX [210 languages] (cf. XVO [3], VXO [0]), all three types of OV languages (XOV [48], OXV [27], OVX [45]) are widely attested. Each type is illustrated in (1) below:

- (1) a. VOX [210]: English
Mary [_v opened] [_o the door] [_x with a key].
- b. XVO [3]: Mandarin
tāmen [_x zài fángzi-hòumian] [_v xiūli] [_o diànshìjī]
they at house-behind repair television
'They repair televisions behind their house.'
- c. VXO [0]
- d. XOV [48]: Slave
t'eere [_x denq gha] [_o ?erákee?ee] [_v wihsj]
girl REFL.mother for parka 3.made
'The girl made a parka for her mother.'

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- e. OXV [27]: Nagatman
 Na [o mo me] [x ke na] [v huhui-në-taya]
 and fish OBJ these with look.for-1.SUBJ-3PL.OBJ
 ‘And we look for fish with these.’
- f. OVX [45]: Hixkaryana (Derbyshire 1979: 39)
 [o kana] [v yokono] [x maryeya ke]
 fish he-cut-it knife with
 ‘He cut the fish with a knife.’

Dryer (with Gensler) (2013) also discuss the areal distribution of the relevant types of language. While XVO languages and OVX languages show stronger areality (the former is restricted to China and the latter to West Africa, Australia and South America), the others are fairly widely distributed as seen in Figure 1 below:

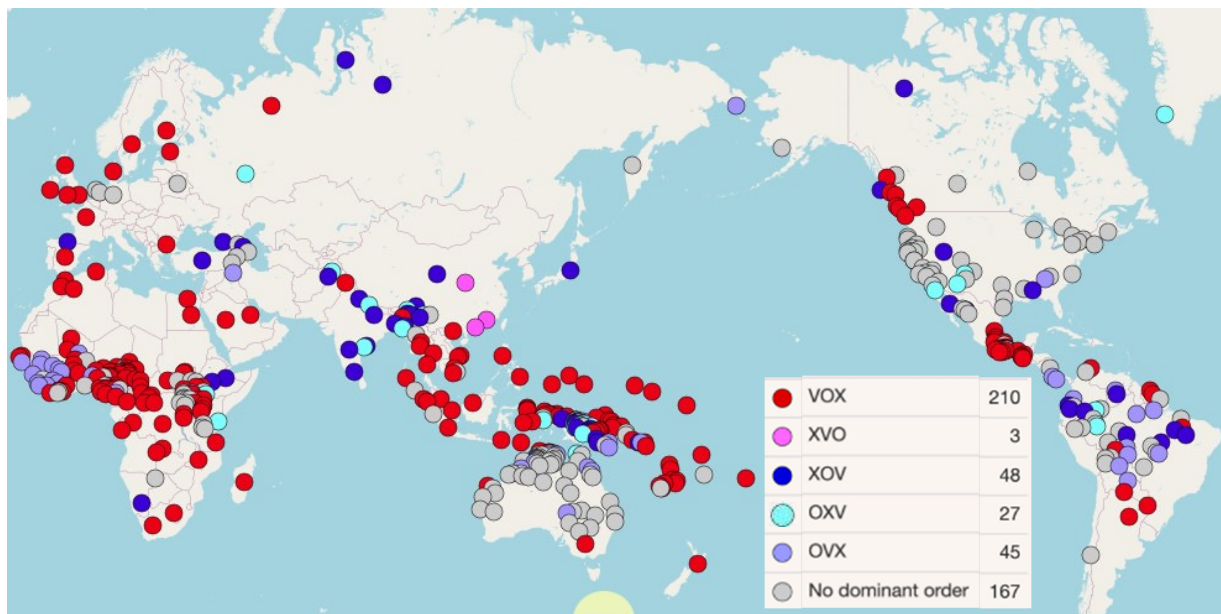


Figure 1. Areal distribution of VO and OV languages in terms of X (Dryer (with Gensler) 2013)

2. A performance analysis. Hawkins (2008) tries to explain this asymmetry by the interaction of three patterns: (i) Verb & Object Adjacency (O is adjacent to V); (ii) Object & X on Same Side of Verb (O and X are on the same side of V); and (iii) Object before X (O precedes X). He also argues that Verb & Object Adjacency and Object & X on Same Side are based on the principle of Minimize Domains (MiD) while Object before X is based on the principle of Argument Precedence. Below, we will review each of the three patterns and their interaction, and we will point out some problems.

2.1. VERB & OBJECT ADJACENCY. Hawkins (2008) argues for Verb & Object Adjacency on the basis of data in English and Japanese. He first discusses his corpus data of the VOX and VXO alternation in English, such as “John opened with the key the door that had been closed for centuries.” Out of 480 instances, he found and examined 22 instances of VXO, claiming that the alternation depends on the relative weight of O versus X; the order of VXO is restricted to cases in which O is heavier than X. VOX, the order with V and O adjacent, is preferred when X is the same as O in weight and even when it is lighter than O. Hawkins goes on to discuss the corpus data of XOV and OXV orders in Japanese, the mirror image of the English VOX and VXO alternation, as in (2) below:

- (2) a. Tanaka-ga [x Hanako-kara] [o sono hon-o] [v katta]
 Tanaka-NOM Hanako-from that book-ACC bought
 ‘Tanaka bought that book from Hanako’

- b. Tanaka-ga [o sono hon-o] [x Hanako-kara] [v katta]
 Tanaka-NOM that book-ACC Hanako-from bought
 ‘Tanaka bought that book from Hanako’

Out of 244 instances, he found 75 instances of OXV. He claims that, although the position of X in Japanese is more variable than that of English, there is a strong tendency for V and O to be adjacent. He argues that these data support Verb & Object Adjacency.

2.2. OBJECT & X ON SAME SIDE OF VERB. Hawkins (2008) argues that according to his principle Minimize Domains (MiD) (see Section 3 below for details), O and X on the same side is much preferred overall. He claims that this general preference makes sense, considering head-order consistency. He discusses OVX languages, which have O and X on opposite sides. He describes this type of language as more like a head-initial language by comparing it with the other types of OV language and VO language in terms of six other head ordering correlations: the position of a noun and an adposition/genitive/relative clause/adjective, the existence of the definite article and its distinctiveness from demonstrative words, and the existence of case affixes and the position of a noun and a case affix/clitic. He attributes the position of X in OVX languages to their VO-like properties.

2.3. OBJECT BEFORE X. Hawkins (2008) proposes the principle, Argument Precedence, stipulating that arguments precede X. He argues that this principle answers such questions as why there are virtually no XVO languages, the mirror image of OVX languages. He notes that Argument Precedence may be motivated by argument NPs being more frequent and accessible than X.

2.4. INTERACTION OF THE PATTERNS. Hawkins (2008) argues that VOX follows all the three patterns while XVO and VXO follow only one of them (V & O Adjacency and O & X on Same Side, respectively), and that XOV, OXV and OVX follow two of the patterns. It is argued that the number of matched patterns (in bold) parallels the number of languages (in *italic*) (VOX **3-210**, XVO **1-3**, VXO **1-0**, XOV **2-48**, OXV **2-27**, OVX **2-45**). See Table 1 below:

	# of languages	# of +	V & O Adjacency	O & X on Same Side	O before X
● VOX	210	3	+	+	+
● XVO	3	1	+	-	-
● VXO	0	1	-	+	-
● XOV	48	2	+	+	-
● OXV	27	2	-	+	+
● OVX	45	2	+	-	+

Table 1. Hawkins’s (2008) performance analysis

2.5. PROBLEMS. Hawkins’s (2008) analysis is successful in explaining the word order data in the world. However, there are still some problems in this analysis. One of them is about the status of Argument Precedence. Hawkins argues that arguments (O) should precede adjuncts (X) because arguments are more frequent and accessible than adjuncts. However, he does not explain why what is frequent and accessible needs to come before what is less frequent and accessible. Moreover, as Hawkins (2008: 186) himself admits, Japanese data suggest that given entities are not always serialized early across languages.

3. Minimize Domains and juncture. In this section, we argue that we can predict the possible word orders using only Hawkins’s (2004, 2008) performance principle Minimize Domains (MiD) and that we can do away with the three constraints, V & O Adjacency, O & X on Same Side and O before X.

- (8) In general, the difference between case affixes and adpositions is that the former are phonologically attached to nouns, while the latter are separate words that combine syntactically with noun phrases. Adpositional clitics are intermediate between these two in that, while they attach phonologically to some word, the word they attach to need not be a noun, and which word they attach to is determined syntactically.

The examples of prepositional clitics and postpositional clitics in Dryer (2008a) are shown in (9).

- (9) a. Cayuvava (Key 1967: 51)
 ji= [ka'reeča dati]
 OBL=[other place]
 'in another place'
 b. Ungarinjin (Rumsey 1982: 58)
 [dambun budaga] =ra
 [camp their] =LOC
 'at their camp'

Here, adpositional clitics are attached phonologically to the adjacent word, which is not the head noun of the noun phrase.

Then, the juncture between a head and its complement is stronger in the oblique phrases with clitic/affix than in those with adposition. The preference of head-final order in adpositional clitics and case affixes (Table 1) shows that a head (P) and its complement (NP) in head-final oblique phrases are more tightly connected than those in head-initial oblique phrases.² If we represent adposition/clitic/affix by P, the difference of juncture between head-initial oblique phrases and head-final oblique phrases can be schematized as (10).

- (10) a. [X P NP]
 b. [X NP-P]

(10) shows that a head-initial oblique phrase consists of two independent constituents, namely P and NP while a head-final oblique phrase is an NP phonologically attached by P.

3.3. THE DOMAIN SIZE OF VP CONSISTING OF O, X AND V. If we assume that an adjunct (X) consists of a noun (phrase) (NP) and an adposition/clitic/affix (P), the domain of constituent recognition is different in the six orders of O, X and V. Considering the strong juncture in head-final oblique phrases, let us assume that postpositions/postpositional clitics/suffixes need only half of a word (0.5, represented as ^) for domain recognition while prepositions/prepositional clitics/prefixes need a word (1, represented as *).³

- (11) a. V O [X P N] (210)
 * * * [3]
 b. [X P N] V O (3)
 * * * * [4]
 c. V [X P N] O (0)
 * * * * [4]
 (12) a. [X N-P] O V (48)
 * * * [3]
 b. O [X N-P] V (27)
 * * ^ * [3.5]
 c. O V [X N-P] (45)
 * * * ^ [3.5]

² In general, the juncture between head and its complement is stronger in head-final constituents than in head-initial constituents. See Tokizaki (2011) and Tokizaki and Kuwana (2013a, b).

³ To simplify the argument, we assume that prepositional clitics and case prefixes are not so tightly connected to their hosts and stems as postpositional clitics and case suffixes. For the difference of juncture between prefixes and suffixes, see Hyman (2008).

The domain size (D) is 3 in (11a) VOX and (12a), 3.5 in (12b) OXV and OVX (12c) OVX, 4 in (11b) and (11c). Then, we can conclude that any ordering of O, X and V is possible if the domain size is less than 4.^{4,5}

Note that if we do not assume the strong juncture between N and P in head-final oblique phrases, OXV and OVX are ruled out because their domain size is 4 rather than 3.5, as shown in (13b) and (13c).

(13) a. [X N P] O V (48)

* * * [3]

b. O [X N P] V (27)

* * * * [4]

c. O V [X N P] (45)

* * * * [4]

Then, we would wrongly predict that OXV in (13b) and OVX in (13c) are impossible. However, these word orders can be seen in 27 and 45 languages respectively in the data of Dryer with Gensler (2008). Thus, the strong juncture in head-final oblique phrase is crucial in allowing the orders other than XO V in OV languages.

In (11) and (12) above, we tacitly assume the consistent head initial/final order in verb phrases (VO/OV) and adpositional phrases (PN/NP): VO languages have prepositional phrases [X P N] while OV languages have postpositional phrases [X N-P]. This is a natural assumption because Dryer (2013d) lists 456 languages with VO preposition and 472 languages with OV & postposition in contrast to 42 languages with VO & postpositions and 14 languages with OV & prepositions.

However, we still need to consider these 42 plus 14 languages with disharmonic word orders. The patterns of word order and the domain size of VP in the languages with the VO order and postpositions are shown in (14).

(14) a. V O [X N-P] (11)

* * * ^ [3.5]

b. [X N-P] V O (0)

* * * [3]

c. V [X N-P] O (0)

* * ^ * [3.5]

Here the domain size would be less than 4 in any of the orders in (14). We predict that languages with VO order and postpositions can have any of these orders. However, our analysis of the data in Dryer (2013b, c) and Dryer (with Gensler) (2013) shows that within the 42 languages

⁴ Following Hawkins's procedure of counting the domain (from a head of a phrase to another head), we assign 3 to (12a): from the head of X (P) to V. We could assign (12a) 3.5 if we start counting the domain at the first word of the VP:

(i) [X N-P] O V (48)

* ^ * * [3.5]

⁵ We should not forget the fact that 167 languages have no dominant order of O, X and V as shown in Figure 1. For example, Tinrin (Oceanic) has VO order and no dominant order of O, X and V (both VOX and VXO occur freely (Osuni 1995: 211). Then, Minimize Domains is not an absolute rule.

(i) a. rri [v tuo] [o wa drae mwâ] [x ru òwò-nrî]
3PL put DET thing M.DIST at place-3SG

'They put it in its place.'

b. rri [v tuo] [x ru òwò-nrî] [o wa drae mwâ]
3PL put at place-3SG DET thing M.DIST

with VO and postposition, 12 languages have VOX order, and 3 languages have no dominant order of O, X and V; there are no languages with the order of XVO and VXO. These languages are problematic for our analysis because the domain size of these languages would be less than 4 in any of the orders, as shown in (14).⁶

However, Heath (1999: 11, 105) gives examples of VXO in (15a) and (15b) as well as VOX in (15c) in Koyra Chiini (Songhay, Mali).⁷

- (15) a. ay na [v guna] [x huu di kuna] [o boro foo]
 1SGS NEG see house DEF LOC person one
 ‘I didn’t see anyone in the house.’
- b. yee [v dam] [x ay wane humbal di ra] [o hari]
 1SGS.IMPH put 1SG POSS waterbag DEF LOC water
 ‘I (will) put water in(to) my waterbag.’
- c. nda i [v dam] [o ga] [x hari kuna]
 if 3PLS put 3SGO water LOC
 ‘if (when) they put it in(to) the water, ...’

As shown in (15), Koyra Chiini has no case markers for object.

Finnish is described as a VOX language in Dryer with Gensler (2013), who refer to Sulkala and Karjalainen (1992: 69). However, Finnish in fact allows VXO as well as VOX, as shown in (16).

- (16) a. Mies [v otti] [o kirjan] [x pöydältä]
 man take.IMPF(3SG) book.ACC table-ABL
 ‘He took a book from the table.’
- b. Mies [v otti] [x pöydältä] [o kirjan]
 man take-IMPF(3SG) table-ABL book-ACC

Although VOX as in (16a) is considered to be the unmarked order, VXO as in (16b) is frequently used.

Then, our prediction in (14c) (VXO [3.5]) is not incorrect. Some languages with the VO order and postpositions may have the VXO order as well as VOX.

As for [x N-P] V O order in (14b), we have not found any examples. There might be another constraint than Minimize Domains. For an idea about such a constraint, see Tokizaki and Kuwana (2023b).

4. Conclusion. We have argued that Hawkins’s (2004, 2008) principle Minimize Domains allows us to distinguish the possible orders of O, X and V (VOX, XO V, OXV and OVX) and rule out the rare orders (XVO and VXO) if we assume that postpositions/postpositional clitics/suffixes are tightly connected to their complement noun (phrase). We can do away with Hawkins’s

⁶ According to the data in Dryer (2013a, c) and Dryer (with Gensler) (2013), there are 6 languages with no case affixes or adpositional clitics, the VOX order and postposition (Adioukrou, Lokono, Grebo, Guaraní, Koyra Chiini, Walman) and 3 languages with case suffixes, the VOX order and postposition (Estonian, Finnish and Komi-Zyrian). These 9 languages are far fewer than the 81 languages with no case affixes or adpositional clitics, VOX and prepositions; 4 languages with prepositional clitics, VOX and prepositions; 4 languages with case prefixes, VOX and prepositions; 2 languages with case suffixes, VOX and prepositions, 81+4+4+2=91. Nonetheless, we need to know why the nine languages have VOX rather than XVO and VXO. Perhaps we need to take into account the case marking of object. We will leave this matter open here (cf. Tokizaki and Kuwana (2022, 2023a) for such an account).

(i) Lokono (Antillean Arawakan, Suriname; Pet 1987: 27)
 [v Thy-fatady-fa] [o to kalhina] [x adadyna abo].
 she-hit-FUT the chicken branch with
 ‘She will hit the chicken with a branch.’

⁷ Heath (1999: 11) observes that “when a verb is followed by two or more complements (NPs and PPs), their linear ordering reflects morphological and discourse considerations as well as pure syntax.”

(2008) three constraints, O & V Adjacency, O & X on Same Side and O before X. This analysis has advantages over Hawkins's (2008) analysis in that it is simpler and does not need to assume Hawkins's principle of Argument Precedence, whose status is not clear. We hope that our analysis may shed light on the study of word orders in the world's languages and the nature of languages in general.

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