

Verb-Initial Word Orders, Primarily in Austronesian and Mayan Languages

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Abstract

This chapter presents several approaches to the syntax of verb-initial (V1) languages with a special emphasis on Mayan and Austronesian languages. Some V1 languages are strictly VSO, others are VOS, and a significant number combine both orders. This chapter focuses on data from VSO/VOS languages and the factors that underlie these alternations. A number of V1 languages can be more adequately characterized as predicate-initial, with V1 representing just a subset of possible clause-initial predicates. The chapter presents a number of structural properties that are or may be associated with V1 and discusses possible implicational relations between such properties and V1. While there are certain common characteristics observed across V1 languages, it is also clear that there are several distinct subtypes of V1. These subtypes call for different syntactic analyses; main approaches include the derivation of V1 via phrasal movement (VP-raising) and via head-movement (verb-raising). Other syntactic approaches to the derivation of V1 include the parametrization of specifier direction within a single language, non-configurational syntax, and subject lowering. In addition to these purely syntactic analyses, several recent approaches place the derivation of V1 outside syntax or at the syntax–PF interface. Careful, in-depth analyses of individual languages are required to test the different approaches to V1; in quite a few cases such analyses are still lacking.

Keywords: generative grammar; syntax; theoretical linguistics

1 Introduction

Although verb-initial (V1) clauses occur in non-V1 languages, this chapter focuses on V1 clauses in V1 languages, because languages with dominant V1 order exhibit a number of common characteristics, such as VOS/VSO alternations, that are crucial to many analyses of V1 structures (cf. Carnie and Guilfoyle 2000; Carnie, Harley, and Dooley 2005; Chung to appear). Austronesian and Mayan languages receive particular focus due to their diversity and typological overlap. The Mayan and Austronesian languages are also relatively familiar, as a large portion of the V1 literature focuses on these two families.

The Austronesian language family, with over 1,000 members, is spread over a large geographical area and is very diverse (see Blust 2009 for an overview). The Mayan family is less so, with approximately 30 members located primarily in Guatemala and Mexico (Suaréz 1983; Campbell 1997; England 1994). Both families include languages with different V1 patterns – predominantly VSO, predominantly VOS, and VSO/VOS-alternating – and both share typologically unusual properties that extend beyond those expected for V1 languages. For example, both Austronesian and Mayan languages have unique extraction asymmetries that are nearly mirror images of each other. Broadly speaking, in many Austronesian languages only subjects can extract freely, while in many Mayan languages only non-subjects can (see section 3.1.1 for the “subject-only restriction” in Austronesian and Stiebels 2006 for the “agent focus” construction in Mayan). The extent to which this property and others are coincidental or derivative of other linguistic attributes has yet to be determined.¹

The remainder of this section introduces common characteristics of V1 languages and the main analyses of V1 clauses. Sections 2–4 discuss specific analyses of V1 phrase structure, subdivided according to the underlying word order and movement operation assumed by each analysis. Sections 5–8 widen the net to consider analyses based on EPP, tertiary-branching structures, and post-syntactic operations. Section 9 concludes.

1.1 Overview of V1 languages

According to typologists, 12–19% of the world’s languages have dominant V1 word order (Tomlin 1986; Van Everbroeck 2003; Dryer 2005). V1 languages come from a diverse group of families, and include languages of Africa (Afro-Asiatic: Berber, Biu-Mandara; a number of Semitic languages; Nilo-Saharan: Surmic languages, Turkana); Europe (Indo-European: Celtic); Central America (Mayan; Oto-Manguean: Zapotecan and Chinantecan); North America (Salish; Wakashan; Tsimshianic); South America (Arawakan); South East Asia and the Pacific (Austronesian).

It is difficult to determine the dominant word order of many languages.² This is particularly true for V1 languages (Steele 1978): some V1 languages are rigidly VSO – for example, Q’anjob’al (Mayan) or Māori (Austronesian); while others are rigidly VOS – for example, Tzotzil (Mayan), Malagasy or Old Javanese (Austronesian); but many are VOS/VSO-alternating – for example, Ojibwe (Algonquian).³

(1) Q’anjob’al VSO

Max-Ø	y-uk’	ix	ix	kapey.
PRFV-3ABS	3ERG-drink	CL	woman	coffee

‘The woman drank coffee.’

(2) Malagasy VOS

N-ahita	ny	voalavo	ny	akoho.
PST-see	DET	rat	DET	chicken

‘The chicken saw the rat.’

(3) Ojibwe VSO/VOS alternation

- a. VSO
- | | | | |
|-------------------------|-------|-----------------|----------------|
| W-gii-sham-a-an | kwe | miin-an | binoojiiny-an. |
| 3ERG-PST-feed-3ANIM-OBV | woman | blueberries-OBV | child-OBV |
- ‘The woman fed the blueberries to the child.’
- b. VOS
- | | | | |
|-------------------------|-----------------|-------|----------------|
| W-gii-sham-a-an | miin-an | kwe | binoojiiny-an. |
| 3ERG-PST-feed-3ANIM-OBV | blueberries-OBV | woman | child-OBV |
- ‘The woman fed the blueberries to the child.’

(Rhodes 1994, 437)

1.1.1 Common properties of V1 languages

Because so many V1 languages exhibit VSO/VOS alternations, researchers commonly treat VSO, VOS and VSO/VOS-alternating languages as a single class. And in fact, even rigidly VOS and rigidly VSO languages share attributes beyond major sentential constituent word order. For example, whereas both prepositions and postpositions are attested in non-V1 languages, to our knowledge postpositions are unattested V1 languages. Similarly, while non-V1 languages use both prenominal and postnominal relative clauses, there is a strong tendency for V1 languages to rely exclusively on postnominal relative clauses. Taken together, these two properties suggest that V1 languages share a strong left-headedness feature.

(4) Headedness in relative clauses (a) and adpositions (b)

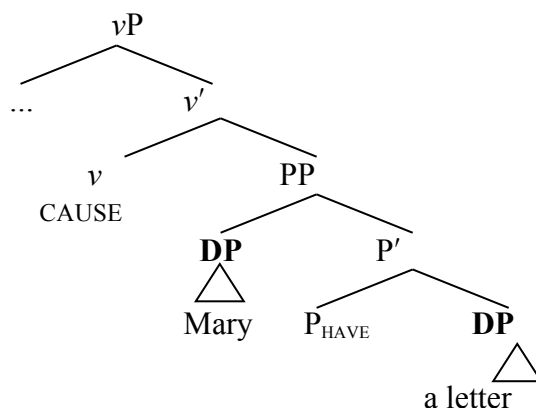
a.	V1	non-V1
Rel-N	*	✓
N-Rel	✓	✓
b.	V1	non-V1
Po	*	✓
Pr	✓	✓

The syntactic structure of the few exceptions to (4) is not entirely clear, and they warrant further study. In particular, Chung (1998, 311, 393) indicates that not all Chamorro relative clauses fit the familiar V1 profile; some relative clauses appear to be prenominal. Aldridge (2004b) argues that the verb-initial Seediq also has pre- and postnominal clauses, and similar claims have been made for several other Formosan languages (see Comrie 2008, 725–727 for an overview). Davis (2010) argues that all nominal modification in St’át’imcets (Lillooet, Northern Interior Salish) originates prenominally and suggests that the top left corner of (4a) is more generally counter-exemplified by Salish (p.c.). It is not entirely clear whether or not these prenominal relative clauses in Austronesian languages can be analyzed uniformly as internally headed relatives, in which case they do not contradict the generalization offered here. In particular, Aldridge (2004b) suggests that Seediq has a distinction between internally headed relatives proper and true prenominal relatives. Possible exceptions aside, V1 languages have a stronger (left-)headedness feature than non-V1 languages do.

Other common tendencies of V1 languages include the lack of a nonfinite verb form (Myhill 1985); absence of an overt copula (Carnie 1995); ergative alignment (Chung 2005, to appear; Polinsky 2016), and a common absence of a verbal expression meaning ‘have’ (Freeze and Georgopoulos 2000).⁴ These final two properties may be related: morphologically ergative languages generally lack the verb HAVE (Kayne 1993; Mahajan 1997). HAVE is taken to be composed of BE plus an incorporated empty adposition, which originates as the sister of the external argument (Freeze 1992; Kayne 1993). However, incorporation requires adjacency, and BE cannot be adjacent to an empty adposition in languages where the verb is peripheral in the clause.

Assuming that double-object constructions are also contingent upon the presence of an abstract HAVE morpheme (Harley 1996; 2002), as shown in (5), few if any V1 languages should allow double-object constructions with verbs of transfer.⁵ At the writing of this chapter, no counterexamples to this prediction have been observed, but more empirical work in this area is necessary.

(5) ... gave Mary a letter.



Next, V1 languages have clause-initial *wh*-words (Wh1). This property was described in Greenberg’s work as Universal 12 and further refined by Keenan (1978) and Hawkins (1983).

- (6) *Universal 12*: If a language has dominant order VSO in declarative sentences, it always puts interrogative words or phrases first in interrogative word questions. (Greenberg 1963, 83)

The linear position of the *wh*-word may reflect various syntactic phenomena. It may be fronted through movement, or it may be the predicate of a cleft or pseudo-cleft, where the remaining constituent is or includes a headless relative clause. For further discussion, see Potsdam (2009); Potsdam and Polinsky (2011); and section 6 below.

Finally, most V1 languages have SVO as a widely available alternative word order. We would like to underscore that SVO in V1 languages is not derived uniformly for all languages or all structures within a given language. In particular, SVO may be only apparent, with “S” actually being part of a nonverbal predicate (section 2.1.1). SVO can also arise from the base-generation of a preverbal topic in a high clausal position, from movement into that position, or in structures so small that verb movement is impossible. In the discussion below, we will address some of the derivations of SVO under V1.

1.1.2 V1 and predicate-initiality

Many researchers prefer to characterize V1 languages as predicate-initial (for Austronesian: Paul 2000; 2001; Potsdam 2009; Potsdam and Polinsky 2011, and references therein; Aldridge 2012; for Mayan: Norman and Campbell 1978; England 1991; Aissen 1992; and recently Coon 2014; for Salish: Jelinek and Demers 1994; Davis and Matthewson 1999; for Wakashan: Wojdak 2008). Several considerations support this perspective.

First, nonverbal predicates surface in clause-initial position in many V1 languages.

(7) Tagalog nonverbal predicates

- a. AP Predicate
Ma-taas si Juan.
AV-tall HON Juan
‘Juan is tall.’
- b. PP Predicate
Tungkol sa balarila ang libro.
about DAT grammar DEF book
‘The book is about grammar.’
- c. NP Predicate
Guro si Maria.
teacher HON Maria
‘Maria is a teacher.’

(Richards 2010, 11–12)

Nonverbal predicates may also display a mixed pattern. For example, prepositional and adjectival predicates are clause initial in Tagalog, but nominal predicates only surface in initial position if they are based on NPs (rather than DPs) (Richards 2010; see also Armstrong 2009 and Coon 2014 for Mayan).

(8) Tagalog DP predicate

- a. Si Gloria ang pangulo.
HON Gloria DEF president
‘Gloria is the president.’

- b. *Ang pangulo si Gloria.
 DEF president HON Gloria
 ('Gloria is the president.')

(Richards 2010, 12)

According to Richards' theory of Distinctness (Richards 2010), the examples in (8) do not serve as counterevidence to the predicate-initial nature of these languages. Distinctness dictates that a linearization statement $\langle \alpha, \beta \rangle$ is only interpretable if α and β are adequately distinct from one another. If DP predicates surfaced in the canonical predicate position in these languages, it would result in the unlinearizable statement $\langle \text{DP}, \text{DP} \rangle$. If the DP predicate is not clause initial, functional heads intervene between the subject and the predicate, making the subject-initial word order linearizable. Thus, the need to satisfy a well-formedness condition at the syntax–phonology interface masks the predicate-initial nature of the syntax in these cases.

Additionally, evidence for a morphosyntactic division between the primary lexical categories (N, V, Adj) is weak for many V1 languages. A number of researchers have proposed that these languages lack a distinction between verbal and nominal categories, either at the level of the root or the word (e.g., Tozzer 1921; Jelinek and Demers 1994; Kaufman 2009; and works cited therein). Other researchers argue that lexical category distinctions exist, but the evidence for these distinctions may be quite subtle (Davis and Matthewson 1999; Lois and Vapnarsky 2006; Richards 2009; Chung 2012).

1.2 Main analyses of V1

Some analyses of V1 derive all surface order from phrase structure; others locate certain properties of linearization at the syntax–phonology interface.

Most purely syntactic accounts preserve the constituency of the VP and use binary branching. These approaches can be categorized according to whether they (i) base-generate VOS and derive VSO, or (ii) base-generate SVO and derive both VSO and VOS. Within the accounts that base-generate SVO, some achieve the final verb-initial configuration via phrasal movement of the VP or equivalent, while others use head movement of V^0 .

Section 2 addresses accounts that base-generate VOS by orienting some or all specifiers to the right. The right-side specifier account of VOS can be extended to VSO/VOS-alternating languages by incorporating a theory of object postposing (section 2.2). Section 3 discusses VP-raising accounts, which base-generate SVO and derive V1 by phrasal movement. In the most basic case, the VP moves to a position higher than the subject, which results in a VOS structure. Remnant movement is posited to account for VSO where necessary (section 3.2). Section 4 discusses V^0 -raising analyses, which base-generate SVO and derive VSO by head movement. To adopt a V^0 -raising account for VSO/VOS-alternating languages, it is necessary to postulate an independent mechanism which reorders the subject and object. This is generally done via scrambling (section 4.2). Sections 2–4 give particular attention to the following themes: the use of movement diagnostics to support specific proposals; the nature of VOS/VSO alternations; the complications that arise when adverbs, oblique arguments, and particles are taken into consideration.

The analyses discussed in sections 2–4 preserve VP constituency. Section 6 discusses two approaches that do not do so: the flat-structure approach and the Pronominal Argument Hypothesis (Jelinek 1984; Baker 1996). Analyses that place some attributes of word order at the syntax–phonology interface are presented in section 7.

2 Base-generating VOS and deriving VSO

Certain syntactic accounts of V1 start with a right-side specifier, base-generated VOS structure, and derive VSO. These accounts rely on the following related assumptions:⁶

- (9) *Phrase structure parameterization*: Phrase structure rules are parameterized, rendering the linear order of a head and its complement under X', and the linear order of X' and its specifier under XP, cross-linguistically flexible.
- (10) *Word order in narrow syntax*: The major constituents of the hierarchical structure achieve their final linearization in narrow syntax.

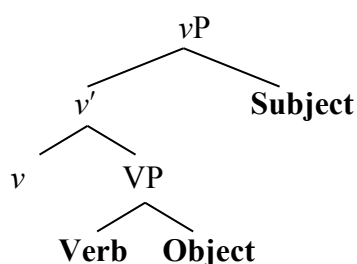
Both assumptions have been questioned. (9) is a traditional principle of X-bar theory: phrase-structure rules are parameterized, rendering the linear order of certain structural elements cross-linguistically flexible. Many researchers have moved away from this approach to a universalist view of phrase structure informed primarily by Kayne (1994), who observes that certain specifiers, for example those associated with *wh*-movement and V2 phenomena, are invariably on the left. Likewise, post-syntactic linearization, where sister nodes are unordered until PF, has proven to be a viable alternative to (10) (see Chomsky 1995; Fox and Pesetsky 2005; among others).

In general, there is more word order variation in V1 languages than just in the relative position of the subject and the object. This variation is important to our understanding of how and why the verb surfaces in clause-initial position. This section presents the right-side specifier and object-postposing accounts of V1 in the context of other word-order variations, such as genuine SVO, “apparent” SVO, and variation in adjunct placement.

2.1 VOS and right-branching specifiers

Base-generating VOS word order *and* preserving the constituency of the VP can only be achieved if the subject originates in a right-branching specifier. Such an analysis has been proposed for Mayan (England 1991; Aissen 1992), for languages in the Malayo-Polynesian branch of Austronesian (Chung 1998 for Māori; Guilfoyle, Hung and Travis 1992 and Paul 2000 for Malagasy) and for Salish languages (Davis 2005 for St'át'imcets; Wojdak 2008 for Nuu-chah-nulth).⁷

- (11) Right-side specifier



Right-side specifier accounts of V1 are either uniform for all projections (see below on Chung’s 1998 analysis of Māori) or may apply only to the specifiers of lexical phrases. In what follows we will refer to the latter account as “parameterized right-branching specifier” approach (see Aissen 1992 for Tzotzil, Jakaltek, and Tz’utujil; see also Guilfoyle, Hung and Travis 1992 for the opposite setting in Austronesian, with functional specifiers to the right and lexical specifiers to the left).

The choice between the uniform and parameterized approaches interacts with the status of a common word-order alternative for V1 languages: SVO. Researchers take two approaches to deriving SVO in V1 languages: the first analyzes preverbal material as belonging to the A’-domain, which the parameterized right-side specifier approach handles easily by moving the subject out of the rightward specifier of the verbal domain into a left-side specifier position (section 2.1.1); the second reduces SVO to predicate-initial structures, which uniform right-side specifiers are well equipped to handle (section 2.1.2).

2.1.1 Subject as an A-bar position

Aissen (1992) proposes that specifiers associated with the projection of lexical categories in Tzotzil, Jakaltek, and Tz'utujil are ordered to the right, while specifiers of functional categories are ordered to the left. Non-V1 structures are a consequence of movement to or base-generation in a left-side specifier associated with topic or focus:

(12) Tz'utujil VOS/VSO alternation

a. VOS

X- Ø-kee-tij tzyaq ch'ooyaa'.
 COMPL-3SG.ABS-3PL.ERG-eat clothes rats
 'Rats ate the clothes.'

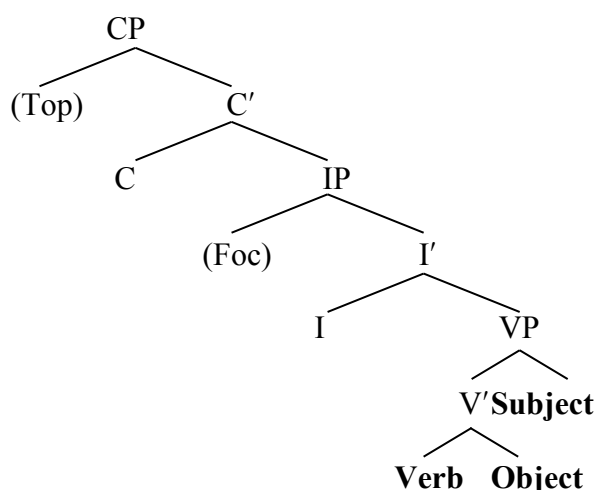
b. VSO

Ja ch'ooyaa' x-Ø-kee-tij ja tzyaq.
 DEF rats COM-3SG.ABS-3PL.ERG-eat DEF clothes
 'The rats ate the clothes.'

(Dayley 1985, 305–306)

Arguments are base-generated in the positions marked “subject” and “object,” but may subsequently move into the positions labeled “topic” and “focus.”⁸

(13) Parameterized specifier account



Aissen’s proposal captures the general observation that Mayan arguments follow the verb in pragmatically neutral clauses, but surface preverbally when they are associated with topic or focus (England 1991). Aissen associates the distinction between left- and right-side specifiers with a contrast between lexical and functional categories. For a related proposal about specifier direction and information structure see Travis (2008).

2.1.2 “SVO” order as predicate-initial order

Mayan languages and Austronesian languages allow nonverbal predicates. This property accounts for why some instances of SVO as apparent clause-initial subjects in V1 languages turn out to be heads of predicate phrases or constituents of larger predicates (see also our discussion of Tagalog examples (7a)–(7c) above). Thus, an apparent SVO structure can be reduced to a predicate-initial structure, as illustrated in (14a) and (14b), with constituency shown:

(14) Māori *he*-construction

- a. [_{PredP} He paatai aahua pakeke ake] [_{DP} teenaa].
 CLS question somewhat difficult up that
 ‘This is a rather difficult question.’

(Bauer 1993, 488)

- b. [_{PredP} He tamariki] [_{DP} raatou].
 CLS children 3PL
 ‘They are children.’

(Bauer 1993, 144)

In Māori, evidence that the fronted nominal is a predicate (thus located in the same position as initial verb phrases) and the second constituent is the subject, comes from negation (see Bauer 1993, 144–145). Māori negative expressions are unaccusative verbs with the general meaning ‘to be false’ (Hohepa 1969; Waite 1987; Bauer 1993, 139–146). An affirmative sentence is embedded under such verbs; its subject then undergoes movement into the main clause to become the surface subject of the negative predicate. The negative form of (14b) is given in (15), where the embedded clause is introduced by *i te* (an exponent of dependent clauses); the subject *raatou* raises and the predicate phrase is part of the embedding:

(15) Māori negation

- Eehara raatou_i [i te tamariki t_i].
 NEG.PRED 3PL DEP.CLAUSE children
 ‘They are not children.’

(Bauer 1993, 144)

A similar analysis in terms of generalized predicate-initial structure has been proposed for the Polynesian actor-emphatic construction (see Chung 1978, 175ff. and Clark 1976, 119ff for Māori; Potsdam and Polinsky 2012 for Tahitian; Harlow 1986 for Eastern Polynesian in general), for constructions with fronted nominal predicates in Isbukun Bunun (Wu 2013), and for focus constructions and *wh*-questions in Yucatec (Tonhauser 2003). While it is unlikely that all seemingly SVO structures in V1 languages can be reduced to predicate-initial structures, this is a common option that should be kept in mind for analytical considerations.

Compared to Austronesian, there is a dearth of predicate-initial analysis of apparent preverbal A'-elements (topic, Wh1, focus) in the Mayan literature (exceptions include Ayres 1983; Tonhauser 2003; and Polian 2012); but it is worth further pursuing particularly for the theoretical parsimony it would add to the right-side specifier analysis of V1. Obstacles to this approach for Mayan come from differences between genuine nominal predicates and apparent SVO. For example, nominal predicates in Yucatec Maya cannot surface with a definite article (16), while preverbal subjects can (17):⁹

(16) Yucatec Maya nominal predicate

- a. Ts'akyaj-ech.
 doctor-2SG.ABS
 ‘You’re a doctor.’
- b. *Le ts'akyaj-o'-ech (teech).
 DM doctor-DIST-2SG.ABS 2SG
 (‘You are the/that doctor.’)

(Armstrong 2009, 11)

(Armstrong 2009, 13)

(17) Yucatec Maya preverbal definite subject

Le	áak-o'	t-u	jaan-t-aj-Ø	su'uk.
DM	turtle-CLF	COMPL-3SG.ERG	eat-S-PRF-3SG.ABS	grass
'The turtle ate grass.'				

(Avelino 2011, 64)

The status of (apparent) SVO clauses is important to right-side specifier accounts of V1. Uniform specifiers offer a more elegant approach than parameterized specifiers, as language-internal variation must be independently motivated in the latter (e.g., via a lexical/functional distinction, as in Aissen 1992). However, uniform specifiers make the strong prediction that preverbal nominals are never located in specifier positions.

Some apparent SVO structures reportedly attribute a special emphasis to the element in initial position (see Keenan 1976 for Malagasy; Schachter and Otanes 1983 and Kroeger 1993 for Tagalog; previous references for the actor-emphatic construction in Polynesian). A uniform right-side specifier account could not reflect this property as straightforwardly as a parameterized account could, since only the latter allows specifiers of higher (CP-area) functional projections such as topic and focus to be placed on the left.

2.1.3 VSO derived by rightward-oriented subject with object postposing

Some approaches to V1 assume VOS as the base order and then move the object to a VP-external position, thus maintaining VP constituency. In her extensive study of word-order patterns in Mayan languages, England (1991) concludes that VSO tends to occur in VSO/VOS-alternating languages when objects are animate, specific, definite, or phonologically heavy.¹⁰ She proposes that Mayan languages are basically VOS, but that certain semantic variables, such as specificity, motivate the displacement of the object out of the VP to the right of the subject (see also Norman and Campbell 1978). Examples (18a) and (18b) show that a specific, animate subject can occur in either postverbal position, but a specific animate object is possible only under VSO order.

(18) K'iche' VSO/VOS alternation

a. VSO

X-Ø-u-q'aluj	le	achi	le	ala.
COMPL -3SG.ABS-3SG.ERG-hug	DEF	man	DEF	youth
'The man hugged the youth.'				
Impossible: The youth hugged the man.'				

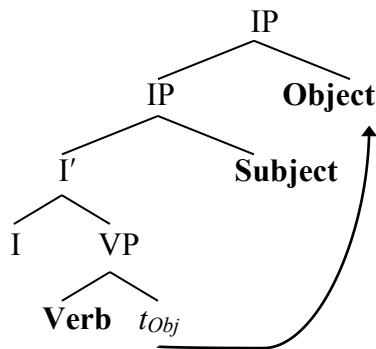
b. VOS

X-Ø-u-q'aluj	jun	achi	le	ala.
COMPL-3SG.ABS-3SG.ERG-hug	one	man	DEF	youth
'The youth hugged a man.'				
Impossible: 'A man hugged the youth.'				

(England 1991, 466–467)

Chung (1998) similarly proposes that VSO is derived from VOS in Māori, where VSO/VOS alternations are affected by agency and the (pro)nominal status of the DP (see also Bauer 1993). In Chung's analysis, VOS is base-generated, and objects move into a rightward functional projection.

(19) Object postposing



Chung (1998) observes that if VSO were derived via rightward movement of the object, the object should behave like a moved constituent, which means it should be an island to subextraction (see also section 3.1.1 below). In Māori, sentential objects must follow the subject, even though Māori is generally VSO/VOS-alternating. Extraction out of certain sentential subjects seems to be possible, but extraction out of sentential objects is banned entirely (Bauer 1993; Chung 1998).

As long as all of the apparent SVO clauses in Māori are predicate-initial, the implementation of object postposing is relatively straightforward for the right-side specifier account of Māori. It follows from Chung's (1998) analysis that movement of the object to a higher specifier position would result in rightward movement, because all specifiers are located on the right side. Accounting for the direction of displacement is more complicated when the specifier direction is parameterized. One way to illustrate this point is to consider clauses with adjuncts.

2.2.1 Cases of VSO that challenge object postposing

England (1991), in line with Norman and Campbell (1978), hypothesizes that some Mayan languages have generalized the postposing of objects to become strictly VSO. Indeed, some Mayan languages, primarily those in the Q'anjob'alan and Mamean subfamilies, are rigidly VSO and do not impose specificity, animacy, or phonological weight restrictions on their objects, although reflexive constructions may surface in VOS (Mateo Toledo 2008). The examples in (20) show that Q'anjob'al maintains VSO word order regardless of the specificity or animacy of the object.

(20) Q'anjob'al VSO

- | | | | | | | |
|----|--------------------------------------|----------------|-----|-------|----------|-------|
| a. | Max-Ø | y-il-a' | naq | winaq | naq | unin. |
| | COMPL-3SG.ABS | 3SG.ERG-see-SS | CLF | man | CLF | boy |
| | 'The man saw the boy.' | | | | | |
| | Impossible: 'The boy saw the man.' | | | | | |
| b. | Max-Ø | y-il-a' | naq | winaq | jun-tzan | unin. |
| | COMPL-3SG.ABS | 3SG.ERG-see-SS | CLF | man | INDF-PL | boy |
| | 'The man saw some boys.' | | | | | |
| | Impossible: 'Some boys saw the man.' | | | | | |
| c. | Max-Ø | y-il-a' | naq | winaq | te' | na. |
| | COMPL-3SG.ABS | 3SG.ERG-see-SS | CLF | man | CLF | house |
| | 'The man saw the house.' | | | | | |

A synchronic analysis of VSO in Mayan languages without an alternative VOS word order is missing from the literature. Simply adopting the object-postposing account for VSO in these languages is neither theoretically nor empirically motivated.

Generalizing the object-postposing analysis too broadly in Mayan raises other concerns as well. Half of the VSO/VOS-alternating languages in England's survey allow both V1 orders when the

arguments are unequal on an animacy/definiteness scale, provided that the higher of the two (i.e., the definite and/or animate argument) is interpreted as the subject.¹¹ Furthermore, in clauses with two definite/animate arguments, speakers of some languages interpret the argument adjacent to the verb as the object (giving the clause a VOS interpretation). Thus, the factors that influence post-verbal word order are quite uniform across Mayan languages, but the manner in which they influence word order varies.¹²

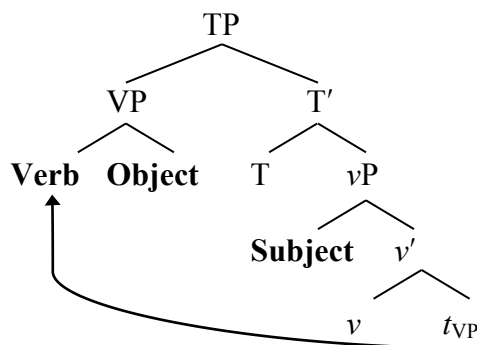
Because uniform right-side specifier accounts of VOS/VSO predict that preverbal nominals should be impossible in specifier positions, the status of SVO clauses is particularly important for evaluating such accounts. In fact, the interpretation of what looks like “S” on the surface may vary. In particular, the “S” in apparent SVO order may constitute a nonverbal predicate (as is common in Austronesian, see our discussion earlier in this chapter). If so, a subset of apparent SVO word orders can be expected in V1 languages with right-side specifiers. Parameterized-specifier accounts of VOS/VSO also have to specify the location of oblique arguments and adjuncts relative to the object (especially in VSO clauses), because the object must occur above the adjunct without ending up in a left-side specifier.

3 V1 derived by phrasal movement

Analyses that derive V1 through phrasal movement or VP-raising¹³ into a position above the subject have been pursued extensively for Austronesian languages (for Niuean: Massam 2001; 2005; for Malagasy: Pensalfini 1995; Rackowski and Travis 2000; Pearson 2001; 2005; 2006; Travis 2005; for Tagalog: Mercado 2002; for Seediq: Aldridge 2002; 2004a; for Toba Batak: Cole and Hermon 2008; for Hawaiian: Medeiros 2013). Outside Austronesian, Lee (2006) provides such an account of V1 word order in Quiavini Zapotec (Oto-Manguean), as does Duarte (2012) for Tenetehára (Tupí-Guaraní) and Coon (2010; 2013) for Ch’ol (Mayan). These languages vary between VSO, VOS, and VSO/VOS; the ability to derive all these orders is a virtue of the account.

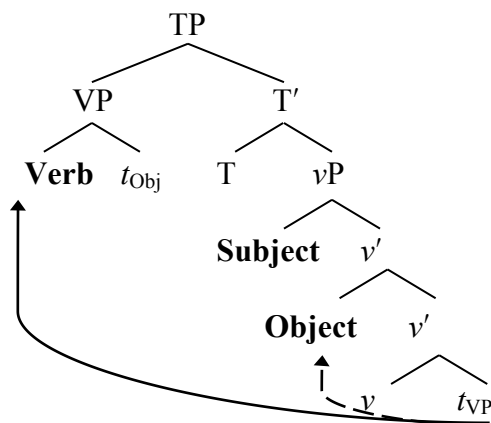
The size of the phrase argued to undergo movement varies from a TP (as proposed for Seediq by Aldridge) to a vP or VP (as proposed for Niuean by Massam). The schematics below provide a first approximation:

(21) Phrasal movement



VP-raising accounts apply most straightforwardly to languages whose primary V1 word order is VOS. Yet, in a version of VP-raising where the object evacuates the VP before the VP moves, resulting in VP-remnant movement, the VSO word order can also be derived.

(22) Remnant movement



VP-raising has been promoted as a way of providing a uniform account of both V1 word orders in VSO/VOS-alternating languages (Carnie, Harley, and Dooley 2005; Chung to appear, and further references therein).

3.1 VOS via VP-raising

Existing VP-raising accounts of V1 differ with respect to the following criteria:

- (23) Differences between VP-raising accounts
- Highest maximal projection of the moved constituent
 - Landing site of the moved constituent
 - Motivation for XP-movement

Opinion is divided as to whether it is the VP itself that is targeted for movement (Rackowski and Travis 2000; Massam 2001; Lee 2006), or a maximal projection containing the VP (Pearson 2001; Aldridge 2002; Cole and Hermon 2008; Coon 2010). Most arguments distinguishing between vP- and VP-raising are theory-internal. It is possible, however to distinguish different approaches to (23a) on the basis of the behavior of adjuncts. Depending on where adjuncts are generated, their surface location can indicate whether or not they are contained in the fronted XP. This in turn can reveal the highest maximal projection of the moved constituent. For more details, see Rackowski and Travis (2000), Chung (2005), Kaufman (2006), and Chung and Polinsky (2009).

With respect to (23b), most researchers agree that the moved VP appears in SpecTP. However, Aldridge (2002) and Pearson (2001) argue, for Seediq and Malagasy respectively, that the VP lands in the specifier of an even higher functional projection. Fronting the VP higher than TP ensures that the fronted constituent will surface to the left of the topic, which is the rightmost element in a simple transitive clause in both languages.

VP-raising accounts display immense diversity in terms of their proposed motivation for movement (23c). Although there is near consensus that the VP moves to satisfy the EPP, most likely on the T head, there is little agreement about which feature of T is valued. Section 5 discusses how EPP-features are used to motivate different accounts of V1.

3.1.1 VP-raising and the subject-only restriction

As Chung (to appear) discusses at length, some of the strongest evidence in support of the VP-raising account of V1 comes from island constraints on VPs in VOS clauses (see also discussion in Aldridge 2002; and Cole and Hermon 2008). Once phrasal movement applies (22), the moved constituent is expected to be “frozen,” becoming an island for extraction (Culicover and Wexler

1977; Wexler and Culicover 1980; Rizzi 2006). Thus, once a vP/VP moves, everything internal to that verbal phrase – modifiers, objects, operators – should no longer be accessible to movement.¹⁴

In Austronesian languages with a strict version of this condition, such as Seediq, which actually has TP rather than vP fronting (Aldridge 2002), structures that involve movement (e.g., constituent questions, relative clauses, topicalization) can only access constituents that are external to the moved XP (e.g., the subject in (22)). Internal arguments and VP adjuncts must remain in situ in movement-related structures. See Chung (to appear) for relevant examples.

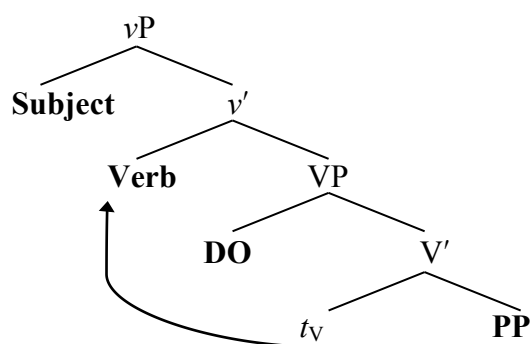
Whether or not VPs are islands is less clear for Austronesian languages with slightly more permissive extraction patterns. VP-internal arguments are restricted from undergoing A'-movement in Toba Batak, but adverbials and indirect objects are not (Cole and Hermon 2008). Similarly, in Malagasy and Tagalog, some apparently VP-internal adjuncts, such as instrumental, manner, and locative phrases, seem to pattern like external arguments with respect to extraction (for Malagasy: Keenan 1976; Paul 2000; Pearson 2005, 2006; for Tagalog: Kroeger 1993).¹⁵ However, since all these elements are adjuncts it is not always possible to tell if they undergo extraction out of a VP or can be base-generated outside it, and more work is needed to assess the relevant language data.

Thus, in certain Austronesian languages with a version of the subject-only restriction, what appear to be low adjuncts fail to behave as though they were stranded by VP-raising. These empirical facts complicate the derivation of the subject-only restriction from VP-raising and the freezing principle.

3.1.2 VP-raising and the position of indirect objects

Recall that V1 languages are not expected to have a double-object construction with ditransitive predicates. Applicative structures aside, one therefore expects ditransitive verbs to project dative construction with a direct object theme and a PP goal:

(24) Dative construction



Dative goal PPs, and all PP arguments generated inside the VP, are predicted to follow the object. Because we might expect the VP to undergo movement as a complete unit, VOXS order is predicted after VP-raising, which is borne out in Seediq and Malagasy. Consider the Malagasy examples in (25):

(25) Malagasy VOXS¹⁶

- a. N-an-ome voankazo (ho an') ny gidro aho.
 PST-AV-give fruit for OBL DET lemur 1SG.NOM
 'I gave some fruit to the lemur.'
- b. M-anasa lamba ho'an ny ankizy ny zazavavy.
 PRS-AV.wash clothes for OBL DET children DET girl
 'The girl is washing clothes for the children.'

- c. N-ameno ny sinibe tamin'ny rano tamin'ny tavoahangy
 PST-AV.fill DET pitcher with-DET water with-DET bottle
 i Soa.
 DET Soa
 'Soa filled the pitcher with water with the bottle.'

(Paul 2000, 35)

However, the order of multiple objects may be difficult to evaluate for two reasons. First, languages may allow *vP*-internal scrambling of arguments – such scrambling has been proposed for Malagasy (Paul 2000), Tagalog (Kroeger 1993; Richards 1993; Wegmüller 1998), Selayarese (Finer 1994), and Tongan (Otsuka 2005). Second, VP-raising can be preceded by the “evacuation” of arguments, which is discussed in the next section.

3.2 VP-remnant raising

3.2.1 Remnant raising and clause-final adjuncts

Unlike Malagasy or Seediq, indirect object PPs and low adverbs in Toba Batak follow subjects:

- (26) Toba Batak VOSX
 Mang-alean podu guru-i tu dakdanak-i.
 AV-give advice teacher-DEF to child-DEF
 'The teacher gives advice to the child.'

(Keenan 1978, 270)

As already noted, a moved VP should form an island for the purposes of subextraction, and if the VP moves as a unit, the predicted word order is VOXS. In Cole and Hermon's (2008) VP-raising account for Toba Batak, PPs and adverbs evacuate the VP *before* it moves to its final position in the clause, resulting in VOSX. Cole and Hermon's analysis captures Toba Batak's word-order facts and accurately predicts that adverbs and PPs pattern with subjects in terms of the relevant extraction asymmetries. For Cole and Hermon, VP-raising is a type of remnant movement (22) whenever adjuncts are involved. Evacuation of material out of the VP prior to raising is central to the success of their account, but this evacuation remains a stipulation.

Massam's (2001) account of VP and VP-remnant movement in Niuean faces a similar problem (also Chung to appear, for a related discussion): indirect objects and obliques do not undergo fronting with the VP.

- (27) Niuean VSOX
 a. Kua tao he fifine e ika he umu.
 PERF cook ERG woman ABS fish LOC fire
 'The woman cooked the fish on the fire.'
 b. *Kua tao he umu he fifine e ika.
 PERF cook LOC fire ERG woman ABS fish
 ('The woman cooked the fish on the fire.')

Massam stipulates that indirect objects and obliques are generated higher than VP, but it is difficult to accept/motivate such a stipulation for manner adverbs and comitatives. Moreover, such oblique expressions are preserved in nominalizations where the absolutive case undergoes conversion to the genitive, as in the Niuean example below. Such data are hard to explain under Massam's proposal.

- (28) a. Kua futifuti he fifine e moa fakaave.
 PERF pluck ERG woman ABS chicken quickly
 ‘The woman plucked the chicken quickly.’
 b. e futifuti he moa fakaave
 ABS plucking GEN chicken quickly
 ‘the plucking of the chicken quickly’

Massam’s proposal thus makes a different prediction than Cole and Hermon’s with regard to extraction out of indirect objects and adjuncts: subextraction should be grammatical if indirect objects and adjuncts are generated higher than VP, but it should not be possible if they move out of the VP.

Our understanding of cross-linguistic variation with regard to the movement vs. base-generation of adjuncts in V1 languages is still limited, and further work on the options for adjunct and goal PP extraction in VP-raising languages would serve to test VP-raising accounts of V1.

3.2.2 Remnant VP-raising and VSO

So far we have concentrated on the VOS order. To capture the VSO order under VP-raising, a slight modification is needed, whereby the object moves out of the VP before the VP moves higher into the clause (see (22) for illustration).

In a series of papers on predicate fronting in Niuean, Massam (2001; 2005) argues that Niuean instantiates both VP-raising proper and VP-remnant raising, depending on whether the V^0 selects a DP or an NP object. When the verb selects a DP object, that object must leave the VP in AbsP for purposes of case checking; this happens prior to VP-raising. Once the VP-remnant moves, the resulting structure is VSO (29a). When the verb selects an NP object, that NP remains inside the VP, because it does not require case. The result is a VOS clause, in which the object pseudo-incorporates into the verb. Note that in the VOS clause in (29b), there is no case on the complex object *ika mo e talo* ‘fish and taro’.

- (29) Niuean VSO/VOS alternation
- a. VSO
 Kua kai e mautolu e ika mo e talo he mogonei.
 PERF eat ERG 2PL.EXCL ABS fish COM ABS taro LOC now
 ‘We are eating fish and taro right now.’
- b. VOS
 Kua kai ika mo e talo a mautolu he mogonei.
 PERF eat fish COM ABS taro ABS 2PL.EXCL LOC now
 ‘We are eating fish and taro right now.’

(Seiter 1980, 70)

On this analysis, Niuean is primarily a VSO language, but its VOS subset provides a window into the general derivation of V1 in this language.

VSO/VOS alternations in Ch’ol are similarly informative for the understanding of the way the V1 order is generally derived (Coon 2010). Most V1 structures in Ch’ol are VOS, but VSO also arises. Like Niuean, the critical difference between VSO and VOS is that the object in VSO clauses must be a full DP (30a), while the object in VOS clauses must be a bare NP (30b). Note that in (30b), there is no determiner associated with the object.

(30) Cho'l VSO and VOS

a. VSO

Tyi	i-kuch-u-Ø	aj-Maria	jiñi	si'.
PFV	3SG.ERG-carry-SS-3SG.ABS	DET-Maria	DET	wood

'Maria carried wood.'

b. VOS

Tyi	i-kuch-u-Ø	si'	aj-Maria.
PFV	3SG.ERG-carry-SS-3SG.ABS	wood	DET-Maria

'Maria carried wood.'

(Coon 2010, 355)

Following Massam's analysis of Niuean, Coon proposes that object DPs in Ch'ol must move to AbsP. The major difference between Massam's and Coon's analyses is in the motivation of predicate fronting. While Massam invokes the notion of a parameterized EPP that is sensitive to either a [Pred] or a [D] feature, Coon treats predicate fronting as a last resort strategy used for checking agreement features (see also section 6). She provides independent evidence from the nominal domain that phrasal movement is generally employed when head movement is unavailable.

On the question of whether or not VPs behave like islands in VP-raising languages, note that the subject-only restriction found in many Austronesian languages is not found in Ch'ol, or any other Mayan language. On this basis, Chung (2005) argues that a VP-raising account of Tzotzil, a language closely related to Ch'ol, would be difficult to defend, because there are no restrictions on the extraction of objects out of the VP.

Coon (2010) observes that the word order and extraction patterns in Tzotzil and Ch'ol appear similar with regard to the factors that condition VSO and VOS alternations. However, she argues that object extraction is not a concern for a predicate-fronting account, at least for Ch'ol. As (31) shows, object extraction is grammatical, and is in fact required in object *wh*-questions:

(31) Ch'ol object *wh*-questions

- a. Chuki tyi i-mañ-ä a-chich?
 what PFV 3SG.ERG-buy-SS 2SG.POSS-sister
 'What did your sister buy?'
- b. *Tyi i-mañ-ä chuki a-chich?
 PFV 3SG.ERG-buy-SS what 2SG.POSS-sister
 ('What did your sister buy?')

(Coon 2010, 368)

Assuming that *wh*-words are full DPs, they must move from their VP-internal base-generated position into AbsP for case-checking purposes. Therefore, by the time VP raises, the *wh*-object has already evacuated the VP. As such, it remains available for *wh*-extraction. Thus, while the subject-only restriction in Austronesian can support a VP-raising account, it is not a precondition of the VP-raising account.

3.2.3 VP-raising and VSO/VOS alternations

The mechanism involved in VP- and VP-remnant movement captures the tight connection between VSO and VOS that exists for many languages, especially those in the Austronesian and Mayan families (e.g., Carnie and Guilfoyle 2000; Chung to appear). Yet, the patterns of VSO/VOS alternations in the languages to which XP-movement has been successfully applied are quite straightforward. Pre-theoretically, Niuean VSO objects are case-marked, while VOS objects are not, and Ch'ol VSO objects are marked with a determiner, while VOS objects are not. In other languages, VSO/VOS alternations are not so easy to characterize.

Kroeger (1993) argues that Tagalog word-order variation is the result of competition between different factors, including thematic role and grammatical function. In brief, the argument with the highest thematic role should be closest to the verb, and the argument with the highest grammatical function should be farthest from the verb. In active voice clauses, the argument with the highest thematic role and the argument with the highest grammatical function are one and the same. According to Kroeger, the competition between these two requirements explains the high degree of word order variation in active clauses. In non-active clauses, there is no conflict, and hence, less word order variation. Bauer (1993) also describes word-order variation in Māori as a competition between different factors, including information structure, thematic role, and weight.

Furthermore, the features that influence word order may not be just binary. Dayley (1985) argues that it is necessary to distinguish between definite, indefinite, and unmarked arguments in order to predict word order in Tz'utujil. In other languages, a particular feature will affect word order differently depending on the argument it applies to. For example, in both Tzeltal and Huastek, two animate arguments will surface in VSO, as will two inanimate ones (Norman and Campbell 1978). If the subject is more animate than the object, however, the word order is VOS.

Overall, VP(-remnant) raising accounts of V1 have been quite successful. Such accounts offer a particularly convincing analysis for Niuean and Ch'ol, in part because of the simplicity of the premise: objects either do or do not remain in situ VP-internally when the VP moves. Of course, the nature of the VSO/VOS alternation in these languages is also quite straightforward. It is difficult to imagine how this account could be gracefully extended to languages in which the VSO/VOS alternation involves competition, a relative scale, or any characteristic of the subject.

Even so, it is easier to motivate the evacuation of objects than it is to motivate the evacuation of other VP-internal elements. Objects may leave the VP for case-checking purposes, but adverbials and PPs do not have licensing requirements (see Chung to appear). Thus, one of the main challenges to the VP(-remnant) raising account lies in motivating structures where non-object constituents (adverbials, PPs) follow the subject, as in Toba Batak (26).

4 Head movement

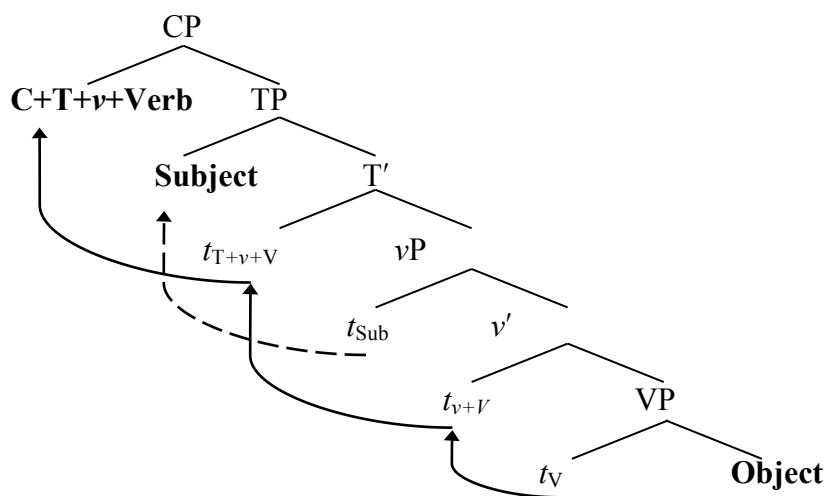
The V^0 -raising approach derives V1 word orders from a base-generated SVO structure via head movement of the verb to some position higher than the subject. The most extensive research on V^0 -raising is work on Irish (e.g., Guilfoyle 1990; McCloskey 1991; 1996; 2001; 2005; Carnie, Harley, and Pyatt 1994; Noonan 1994), but V^0 -raising accounts are popular and have been proposed for other Celtic languages, including Welsh and Breton (e.g., Sproat 1985; Sadler 1988; Clack 1994; Tallerman 1998), as well as Afro-Asiatic languages including Arabic and Berber (Choe 1987; Kaplan 1991; Fassi-Fehri 1993; Ouhalla 1994).

V^0 -raising accounts for Austronesian languages include Guilfoyle, Hung, and Travis (1992) for Cebuano; Woolford (1991) for Chamorro and Niuean; Waite (1989) and Pearce (2002) for Māori; Guilfoyle, Hung, and Travis (1992), Richards (2000), Rackowski (2002), Aldridge (2004a), Rackowski and Richards (2005) for Tagalog; Otsuka (2000; 2005) and Custis (2004) for Tongan. To our knowledge, no V^0 -raising accounts have been explicitly proposed for Mayan languages.

4.1 Deriving VSO via V^0 -raising

The basic premise of the V^0 -raising approach is realized in slightly different ways by different researchers. For example, accounts differ on whether V^0 moves to CP or only to IP. The account in which V^0 moves to C^0 is referred to as the weak-V2 approach (Emonds 1980; Clack 1994; Otsuka 2005), illustrated in (32).

(32) V^0 -raising



An alternative view is that V^0 only moves as high as IP/TP (e.g., Sproat 1985; McCloskey 1996; Richards 2000; Rackowski 2002; Aldridge 2004a).

4.1.1 V^0 -Raising and ellipsis

Important evidence for V^0 -raising analyses comes from ellipsis, especially for Celtic and Semitic languages (e.g., McCloskey 1991; 2005; Goldberg 2005). The Irish dialogue below illustrates that ellipsis affects all post-verbal elements (33b)–(33c).

(33) Irish ellipsis

- a. Sciob an cat an t-eireaball de-n luch.
snatched the cat the tail from-the mouse
'The cat cut the tail off the mouse.'
- b. A-r sciob?
Q-PST snatched
'Did it?' (lit: snatched?)
- c. Creidim gu-r sciob.
believe.1SG COMP-PST snatched.
'I believe it did.' (lit: I believe snatched.)

(McCloskey 2005, 157)

McCloskey (1991) argues that the mechanism involved in the Irish ellipsis examples and their English counterparts in (33) is comparable, despite their different surface appearance. He suggests that ellipsis targets the same functional projection for both languages. In Irish, the lexical verb is located above the ellipsis site, but the subject and object are below it; in English, subjects and auxiliaries are located in roughly the same position as the lexical verb in Irish, while the English lexical verb and object remain lower and are not pronounced.

Ellipsis has played less of a role in the analysis of V1 clauses in Austronesian.¹⁷ Instead, arguments for V^0 -raising in Austronesian tend to focus on verb-adjacent particles and adverbs. This is the topic of the next section.

4.1.2 V^0 -raising and particles

VOS structures with intervening adjuncts or functional heads between the verb and the object lend themselves to a V^0 -raising account. Holmer (2005) argues that the position of adverbial clitics in Tagalog relative to the verb is best explained by V^0 -raising, and suggests that the distinction

between final particles and second-position particles is a good diagnostic to determine whether a language raises V^0 or VP.

On the assumption that the verb and object form a constituent at some point in the derivation, raising V^0 into a position adjacent to the adverbial clitic is the most expedient way to predict the surface order in syntax. Hypothetically, it is also possible that the surface position of this class of clitics is driven by phonological considerations. However, there are other non-clitic adverbs in Tagalog, such as *lagi* ‘always’, that can surface immediately after the verb. These adverbs are not phonologically dependent on the verb, because they can surface clause-initially as well (Rackowski 2002; Sabbagh 2014).

Otsuka (2000; 2005) provides an argument for a V^0 -raising account of Tongan based on distributional differences between clitic pronouns and case-marked arguments. Clitic subjects obligatorily precede the verb, while independent pronominal subjects are case-marked and follow the verb.

(34) Tongan clitic and independent subject pronouns

a. Clitic subject

Na’a	ne	tala-ange	‘a	e	talanoa	ki	he	tangata.
PST	3SG.CLITIC	tell-DIR.3	ABS		the story	to	the	man

‘He told the story to the man.’

b. Pronoun subject

Na’e	tala-ange	‘e	ia	‘a	e	talanoa	ki	he	tangata.
PST	tell-DIR.3	ERG	3.SG	ABS	the story	to	the	man	

‘He told the story to the man.’

(Otsuka 2005, 71)

Otsuka argues that EPP bears a [D] feature in Tongan, which triggers head movement of the subject clitic to T^0 . Subject clitics always precede the verb, because the verb moves from V^0 to T^0 to C^0 , picking up any clitics in T^0 along the way. In contrast, case-marked subject DPs move to the *specifier* of TP. The verb moves over case-marked subjects on the way to C^0 , resulting in canonical VSO order. If Tongan were an instance of VP-raising, there would be no syntactic explanation for the fact that subject clitics precede the verb, while case-marked subjects follow it.

A second piece of evidence that Otsuka presents pertains to the nature of VSO/VOS alternations in Tongan and Niuean. Like Niuean, Tongan is VSO/VOS-alternating. Unlike Niuean, Tongan does not have pseudo noun incorporation, but has a more restricted process, which Otsuka analyzes as lexical compounding (but see Ball 2008 for a different analysis). Therefore, VOS can arise in Tongan when the object is case marked. In the absence of pseudo noun incorporation, the alternation between VSO and VOS is accounted for by scrambling, which is discussed in the next section.

4.2 VOS in V^0 -raising accounts

Scrambling is the most common way of deriving VOS in VSO languages under a head-movement analysis; such accounts have been proposed for Tongan (Otsuka 2002) and Tagalog (see Richards 2000; Rackowski 2002; Rackowski and Richards 2005),¹⁸ and here we illustrate how this proposal works for Tongan. The alternation between VSO and VOS in Tongan is shown below:

(35) Tongan VSO/VOS alternation

a. VSO

Na’e	tamate’i	‘e	Tēvita	‘a	Kōlaiate.
PST	kill.TR	ERG	David	ABS	Goliath

‘David killed Goliath.’

b. VOS

Na'e tamate'i 'a Kōlaiate 'e Tēvita.
 PSTkill.TR ABS Goliath ERG David
 'David killed Goliath.'

(Churchward 1953, 15)

As in many of the languages discussed in this chapter, VSO/VOS alternations in Tongan are driven by a variety of factors. For example, heavy constituents appear to the right, as is shown for objects in (36a) and for subjects in (36b):

(36) Tongan VSO/VOS with heavy constituents

a. VSO

'Oku 'ene 'e he ta'ahine 'a e pepe 'oku ne
 PRS tickle ERG DET girl ABS DET baby PRS RP
 puke 'a e me'a va'inga.
 hold ABS DET toy
 'The girl is tickling the baby who is holding a toy.'

b. VOS

'Oku 'ene 'a e pepe 'e he ta'ahine 'oku malimali.
 PRS tickle ABS DET baby ERG DET girl PRS smile
 'The smiling girl is tickling a/the baby.'

Several researchers have also noted that alternation between VSO and VOS is sometimes determined by information-structural considerations; new information appears relatively closer to the verb, whereas given information is placed further to the right (Otsuka 2002; Custis 2004, ch. 2; Ball 2008, 56–57).¹⁹

Researchers vary in their approach to information-structural factors; some accounts place such factors in syntax, while others put the explanatory burden on PF or more general non-syntactic factors. Among syntactically oriented accounts, Otsuka (2002) and Richards (1993) offer derivational approaches to VSO/VOS scrambling. Both authors treat scrambling as an A'-operation. In particular, Richards (1993) argues for an A'-scrambling account of VSO/VOS word order in Tagalog, based on the observation that different linear orders do not effect anaphor binding (37) or weak crossover (38) (see also Richards 2013).

(37) Tagalog scrambling and anaphor binding

- a. T<um>ingin ang lalaki sa sarili niya sa salamin.
 <PFV.AV>look ANG man DAT self his/her DAT mirror
 'The man looked at himself in the mirror.'
- b. T<um>ingin sa sarili niya ang lalaki sa salamin.
 <PFV.AV>look DAT self his/her ANG man DAT mirror
 'The man looked at himself in the mirror.'

(Richards 2013, 414)

- c. *B<um>atikos ang mga artikolo tungkol sa kanyang
 <PFV.AV>criticize ANG PL article about DAT him/her-LI
 sarili_i sa pangulo_i.
 self DAT president
 ('The articles about herself_i criticized the president_i.')

- d. *B<um>atikos sa pangulo_i ang mga artikolo tungkol
 <PFV.AV>criticize DAT president ANG PL article about
 sa kanyang sarili_i.
 DAT him/her-LI self
 ('The articles about herself_i criticized the president_i.')

(Richards 1993, 33)

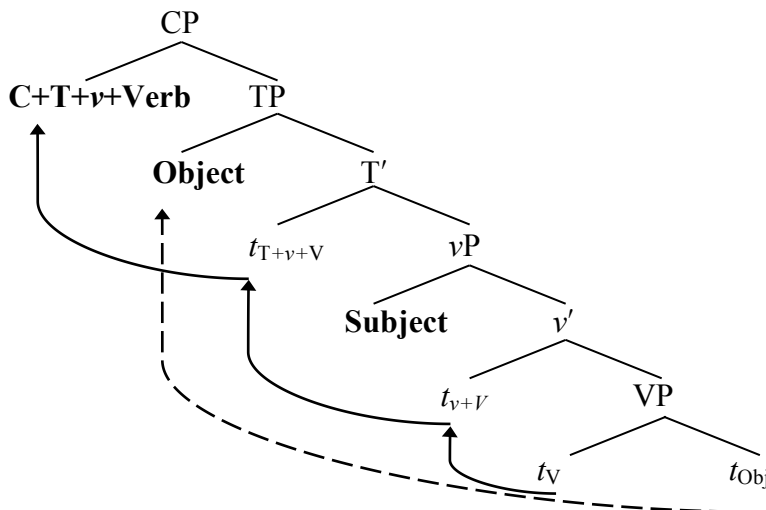
(38) Tagalog scrambling and weak crossover

- a. Nagmamahal ang bawat ama_i sa kanyang_i anak
 AV-love ANG each father DAT his/her-LI child
 'Every father_i loves his_i child.'
- b. Nagmamahal sa kanyang_i anak ang bawat ama_i
 AV-love DAT his/her-LI child ANG each father
 'Every father_i loves his_i child.'
- c. *Nagmamahal ang kanyang_i ama sa bawat anak_i.
 AV-love ANG his/her-LI father DAT each child
 ('His/her_i father loves every child_i.')
- d. *Nagmamahal sa bawat anak_i ang kanyang_i ama.
 AV-love DAT each child ANG his/her-LI father
 ('His/her_i father loves every child_i.')

(Richards 2013, 416)

Otsuka (2000; 2002) characterizes Tongan scrambling as an A'-operation by assumption. Following Miyagawa's (2001) account of scrambling in Japanese, Otsuka (2002; 2005) proposes that EPP on T⁰ has an optional focus feature, which attracts the relevant DP to its specifier. In her account, V⁰-raising is V⁰-T⁰-C⁰, which is how the verb ultimately precedes DPs in SpecTP.

(39) Derivation of Tongan VOS via scrambling



Without the addition of some independent analytical component to account for post-verbal word order, V⁰-raising captures only the derivation of VSO. It therefore works most straightforwardly for rigidly VSO languages. For VSO/VOS-alternating languages, a thorough understanding of the factors that determine variable post-verbal word order is still needed.

5 V1 and the EPP

Both V^0 - and VP-raising accounts commonly evoke the EPP to motivate movement. (See Chung to appear for a discussion of how the EPP has been used to motivate VP-raising in particular.) In SVO languages, EPP is commonly assumed to be a [D] feature associated with T^0 , which triggers the overt movement of a DP into SpecTP. Proponents of V^0 - and VP-raising analyses assume that the EPP is universal and motivate V^0 /VP movement by modifying the way in which a language satisfies the EPP. A notable exception to this trend is McCloskey (1996), who challenges the universality of the EPP, arguing that Irish has actual subjectless sentences rather than sentences with null expletives. Modifications of the EPP to accommodate V1 target either the type of element that can satisfy the EPP, or the movement-triggering feature associated with T^0 .

Alexiadou and Anagnostopoulou (1998) propose that EPP-[D] can be satisfied by the verb in some languages, which is possible when D-features of the sentential arguments are reflected in agreement on the verb. This idea has been explored in reference to Bantu and Germanic as well as V1 languages (see also Massam and Smallwood 1997; Biberauer 2003; Carstens 2005; Richards and Biberauer 2005). In a conceptually related proposal, Coon (2010) suggests that there is a general requirement that V^0 raise to T^0 and that VP-fronting is an alternative way to satisfy the EPP.

Other researchers have proposed modifications to the nature of the movement-triggering feature on EPP. Pearson (2001) proposes that the VP can be attracted to SpecTP to satisfy a [T] feature; Davies and Dubinsky (2001) argue that a [V] feature on T^0 attracts the verb; Massam (2001) proposes that the relevant feature is [Pred]. This last proposal has been quite popular in the V1 literature, as an EPP-[Pred] on T^0 nicely captures the generally predicate-initial nature of so many V1 languages (Aldridge 2002; Oda 2005).

The ease with which V^0 - and VP-raising accounts are formally motivated is reflected in the variety of proposals just discussed. This is not surprising; since T^0 's movement-triggering feature is never independently visible, any feature associated with the moved constituent – [PRED], [V], [ϕ], and so on – could conceivably be the feature that satisfies the EPP. Thus, from the perspective of V1 languages, the EPP is a rather unwieldy, opaque, theory-internal device that formalizes cross-linguistic variation according to the major constituent that surfaces in initial position. This is hardly explanatory. While the evidence for the different accounts of V1 discussed in this chapter is sound, their motivation is only as solid as the motivation for the EPP. Similar sentiment has been expressed elsewhere in the V1 literature (Chung to appear; Cole and Hermon 2008).

Richards (2016) seeks to derive the EPP from principles of phonological well-formedness via a condition he calls AFFIX SUPPORT.

- (40) *AFFIX SUPPORT*: If any head is an affix, there must be a metrical boundary in the direction in which it attaches within the maximal projection of the affix.

Richards departs from tradition by proposing that AFFIX SUPPORT triggers movement in narrow syntax. This proposal relates to the derivation of V1 in two important ways: first, AFFIX SUPPORT provides an alternative explanation for why some languages are V1. Second, if successful, Richards' proposal demotivates the V^0 - and VP-raising accounts of V1 that appeal to EPP parameterization.

AFFIX SUPPORT makes slightly different predictions for head-initial and head-final languages; here, the discussion is restricted to head-initial languages, as V1 languages reliably belong to this type.

5.1 Satisfying AFFIX SUPPORT

Where tense is suffixal, AFFIX SUPPORT must be satisfied by a metrical boundary to the left of the suffix. If a language has word-internal metrical boundaries (e.g., Oltra-Massuet and Arregi 2005 for Spanish), then such a boundary within the verb satisfies the condition on affixes. In (41) and

subsequent examples, the tense affix is shown in bold and the relevant metrical boundary is demarcated with a bracket.

- (41) Spanish
 Aparec**]-i**o un hombre.
 arrive-PST INDF man
 ‘A man arrived.’

In other cases, metrical structure is only assigned after a word is morphologically complete. Richards (2016) assumes that the syntax can only recognize a verb as morphologically complete after a non-affixal head, such as C^0 , is merged. Therefore, in a language like English, a metrical boundary in the maximal projection of TP would satisfy AFFIX SUPPORT in the absence of a word-internal metrical boundary.

- (42) A man] arrive-**d**.

Richards’ theory predicts that languages with suffixal T^0 are verb-medial, unless a word-internal metrical boundary can satisfy AFFIX SUPPORT. It also predicts that languages with free-standing or prefixal T^0 will be V1: the condition on affixes does not apply to instances of free-standing T^0 , and prefixal T^0 is supported by material that *follows* the verb. Typologically, this works out quite nicely, although it is hard to rule out the possibility that this result follows from the fact that V1 languages are strictly head-initial in all domains.

If tense is prefixal, AFFIX SUPPORT must be satisfied by a metrical boundary to the right of the suffix. Examples from Tz’utujil and Tagalog illustrate this boundary phenomenon.

- (43) Tz’utujil AFFIX SUPPORT and prefixal tense
X-Ø-pi [jun aachi.
 COMPL-3.SG.ABS-come INDF man
 ‘A man came’

- (44) Tagalog AFFIX SUPPORT and prefixal tense
d-um-ating [_i ang lalaki_i.
 <PFV.AV>arrive ANG man
 ‘The man arrived.’

Note that the boundary that satisfies AFFIX SUPPORT in (44) is adjacent to *t*, a syntactic object without phonological material. At the point in the derivation when TP is formed, *ang lalaki* satisfies AFFIX SUPPORT in situ, but the syntax does not know that *ang lalaki* will move into a specifier higher than TP (presumably CP). Because examples like (44) are grammatical, Richards posits that AFFIX SUPPORT is satisfied at the point in the derivation when TP is under construction.²⁰ Therefore, the syntax has to know where metrical boundaries are created generally, without regard for whether a particular syntactic object will actually be pronounced.²¹

5.2 AFFIX SUPPORT and V1

Richards’ conception of the EPP is traditional in the sense that a language is said to have EPP effects when some sentential constituent, normally the subject, precedes the verb. He derives EPP effects with a universal condition on affixes; however, the way in which V1 languages satisfy this condition means that they do not test positive for EPP effects. The most common motivation for V1 derivations – the universality of EPP effects – is thus incompatible with Richards’ conception of the

EPP. This is not necessarily an undesirable result, for reasons discussed at the beginning of this section.

Recall, however, that the evidence for different V1 derivations is quite impressive. Richards' theory does not say anything about how the verb (or entire VP) first arrives in a position to the left of the subject; his theory only seeks to explain why verbs in some languages are allowed to *stay* in a position to the left of the subject at the point in the derivation when TP is under construction. AFFIX SUPPORT is thus compatible with the syntactic movement associated with the various accounts of V1 we have discussed, despite being incompatible with the common motivation for that movement.

Richards' theory gives both syntacticians and phonologists a great deal to debate. Is syntax sensitive to phonological well-formedness or does phonology follow syntax, as is often assumed in models of syntax–phonology interface? Can null elements be said to have metrical boundaries? When does phonological structure begin to take shape? Yet, the proposal pushes the V1 literature in a positive direction: it points out that the real concern for V1 is not the fact that the verb, rather than the subject, surfaces in initial position, but that the verb (or VP) raises at all.

6 V1 without VP constituency

The V1 analyses discussed thus far preserve VP constituency. This section addresses two alternative approaches that do not maintain the unique constituency of the verb and the object. The flat-structure approach applies tertiary branching that results in the verb forming a constituent with both arguments. The Pronominal Argument Hypothesis proposes that lexical nominals are unselected modifiers that do not form a constituent with the verb.

6.1 V1 and flat structure

The flat-structure approach argues that V1 is the result of tertiary branching in the verbal domain. This approach was most popular in the 1970s–1980s. The next decade brought a wealth of research demonstrating that, even for VSO languages where the verb and the object are not linearly adjacent, the VP is still a constituent to the exclusion of the subject. Nonetheless, one can still find flat-structure accounts of V1, particularly within the framework of Lexical Functional Grammar (e.g., Kroeger 1993; Sells 2000; Carnie 2005).

Carnie (2005) maintains that, while functional structure can account for subject/object asymmetries in Irish, a Chomskyan view of Irish clause structure cannot account for differences between verbal and nonverbal clauses. In regular clauses, the supposed complement of the verb, its object, cannot appear adjacent to the verb: there is no VOS in Irish. In nonverbal clauses, however, the nominal predicate can appear in initial position with or without its complement. Carnie proposes that verbal predicates project only to the head level in Irish, while nominal predicates project to the head level or the phrase level.

6.2 V1 and the Pronominal Argument Hypothesis

Jelinek's (1984) Pronominal Argument Hypothesis (PAH) fosters another approach to V1 languages that does not assume VP constituency (see also Baker 1996). The PAH argues that, for some languages, agreement markers are a verb's *actual* arguments, and lexical nominals are unselected modifiers that are coindexed with those arguments. Many V1 languages display properties of pronominal argument languages:

- (45) Properties of pronominal argument languages (Jelinek 1984; Baker 1996)
 - a. Flexible word order
 - b. Subject and object agreement
 - c. Subject and object drop
 - d. Lack of case marking and determiners on nominals

Under one construal of flexible word order, the order of adjuncts is more tightly regulated than the order of arguments. The reliable presence of agreement markers (45b) and the optional occurrence of free-standing subjects and arguments (45c) follow from the fact that arguments (here, agreement markers) are obligatory elements of the clause, while modifiers (here, lexical nominals) are optional. Finally, the lack of case marking and overt determiners (45d) results from the fact that lexical elements in pronominal argument languages are not selected by the verb.

Pronominal argument analyses have been articulated for V1 languages (e.g., Alderete 1998 and Aranovich 2013 for Fijian; Miller 1988 and Kroeger 1993 for Tagalog; Jelinek 1984 and 2000 for Straits Salish). In the case of Fijian, the (partial) pronominal argument analysis has the positive outcome of providing an explanation for the otherwise surprising asymmetry between pronouns and proper nouns as compared to common nouns: common nouns, modificational in nature, can be incorporated and dislocated, but pronouns, true arguments of the verb, must surface inside the VP. While this type of analysis has been underexplored in the Austronesian and Mayan literature, three potential challenges arise.

First, variation in word order does not necessarily indicate flexible word order. As demonstrated in 2.2.1 and 3.2.2, patterns in word order variation are often quite constrained, even when they are complex.

Second, when agreement markers are taken to be arguments, Mayan and Austronesian languages become SVO and OSV. Languages in these families sometimes have two agreement prefixes, but never two agreement suffixes. In other words, neither ergative nor nominative markers follow the verb. The idea that the PAH “turns” V1 languages into SVO and OSV languages is illustrated with Ch’ol (46) and Q’anjob’al (47).

- (46) Ch’ol V1 as :SVO”
 Ta’ [y]s-[il-ä]v-[yety]o
 PFV 3.ERG-see-TR-2.ABS
 ‘(She/he) saw (you).’

- (47) Q’anjob’al as “OSV”
 Max-[ach]o [y]s-[il-a’]v
 PFV-2.ABS 3.ERG-see-TR
 ‘(She/he) saw (you).’

If the true word order in Mayan and Austronesian were SVO/OSV, it would be necessary to conclude that either (i) the typological properties of (apparent) V1 languages could not be derived from deeper grammatical principles associated with verb-initiality, or (ii) the pronominal argument languages in the Austronesian and Mayan families only coincidentally share the characteristics of “true” V1 languages.

7 V1 at the syntax–phonology interface

Section 2 identified two principles of generative syntax that are particularly relevant to understanding the right-side specifier account of V1. One of these was the narrow syntax assumption:

- (48) *Narrow syntax assumption*: The major constituents of the hierarchical structure achieve their final linearization in narrow syntax.

The statement in (48) is assumed, if tacitly, by all of the proposals surveyed in sections 2–6. This section addresses a number of recent proposals that challenge the exclusivity of syntax in

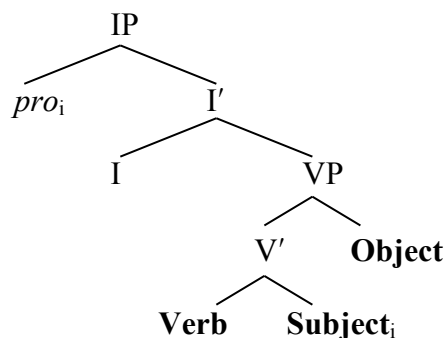
determining constituent order by arguing that, in certain cases, phonological well-formedness determines the outcome of linearization.

Two recent proposals in the V1 literature share a common objective: to replace a current syntactic lowering account with an analysis based on prosodic well-formedness. In the first, Sabbagh (2014) recasts the subject-lowering account of V1 as a prosodic phenomenon. In the second, Bennett, Elfner, and McCloskey (2015; 2016) offer a prosodic account of object postposing in Irish, which connects to the recurring theme of the order of post-verbal elements in verb-initial languages. A third proposal, Clemens' (2014) account of VSO/VOS variation in Niuean, connects to the first two proposals by exploring the potential of the syntax–phonology interface for solving standing problems in word-order variation. Together, these three proposals represent a larger trend in the literature.

7.1 Subject lowering

In subject-lowering accounts of V1, the subject adjoins to a projection of the verb after lowering from SpecIP:

(49) Subject lowering



Subject lowering has been proposed for Berber (Choe 1987), Chamorro (Chung 1990; 1998),²² and Tagalog (Sabbagh 2005; 2014). Evidence in support of this analysis comes from coordination. The same position(s) available to the subject in a single-VP structure (i.e., VSO/VOS) are also available in coordinated structures. Interestingly, in both Chamorro and Tagalog, subjects that are shared by multiple conjuncts can surface in any conjunct. This is shown schematically in (50) with a few actual examples from Tagalog illustrating the different possibilities in (51).

(50) Chamorro and Tagalog coordination possibilities:

[Verb (SUBJ) OBJ (SUBJ)] coor [Verb (SUBJ)OBJ (SUBJ)]

(51) Tagalog coordination

- a. Naka-kita ng kalansay at na-takot ang bawa't babae.
 AV.PERF-see NG skeleton and NAV.PERF-scared ANG each woman
 'Each woman saw a skeleton and got scared.'
- b. Hindi p<um>unta sa tindahan o b<um>ili ang kapatid
 NEG <PFV.AV>go OBL store or <PFV.AV>buy ANG brother
 ko ng bigas.
 1.SG NG rice.
 'My brother did not go to the store or buy any rice.'

Proponents of subject lowering argue that the subject must be able to scope above the coordinate structure while surfacing in a lower position in the clause; therefore the subject must be associated

with a position higher than the position in which it is pronounced. Subject lowering has been met with skepticism in part because it has been difficult to motivate.

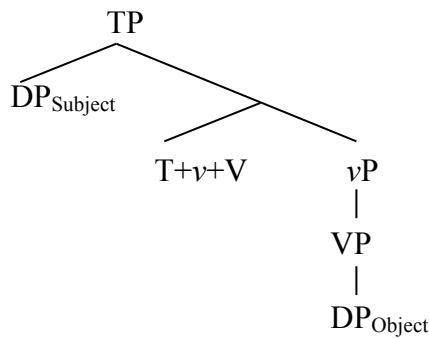
7.1.1 Subject lowering as WEAK START

Sabbagh (2014) proposes a prosodic constraint *WEAK START* to help motivate a subject-lowering account of Tagalog V1:

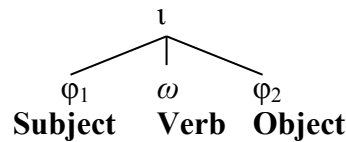
- (52) *WEAK START* (Sabbagh 2014, 62): A prosodic constituent begins with a leftmost daughter, which is no higher on the prosodic hierarchy than the constituent that immediately follows.

Sabbagh's proposal is framed in Match Theory (Selkirk 2011), which states that clauses (CP and TP) with illocutionary force correspond to intonational phrases (ι), XPs correspond to phonological phrases (φ), and X⁰s correspond to phonological words (ω). The syntax–prosody mapping of a ditransitive clause in Tagalog before subject lowering is shown in (53). The syntactic structure in (53) shows only the information that is available to the prosodic structure. Thus, traces are not shown, because prosody is not sensitive to syntactic positions without phonological exponents. Also note that, while XPs correspond to the prosodic categories ι and φ , and X⁰s correspond to the prosodic category ω , X' is not represented in the structure.

(53) Syntactic structure



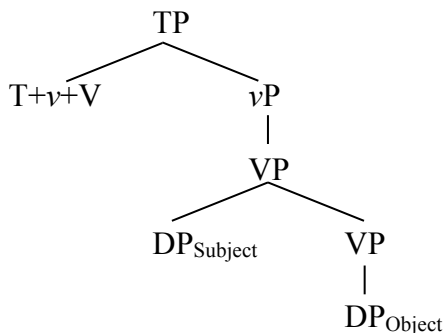
Prosodic structure



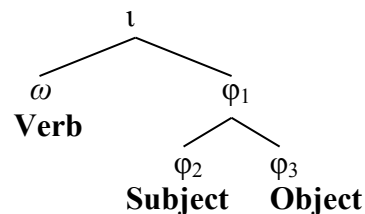
Sabbagh proposes that structures like the one in (53) violate *WEAK START*, which regulates the order in which different members of the prosodic hierarchy (i.e., $\iota > \varphi > \omega$) can surface within a single prosodic phrase.

In effect, the prosodic structure in (53) is problematic because the subject DP (φ_1) maps onto a prosodic constituent that is higher on the prosodic hierarchy than the verb (ω), which immediately follows the subject. In order to repair the prosodic structure in (53), the subject adjoins to VP, resulting in the well-formed prosodic structure in (54).

(54) Syntactic structure



Prosodic structure



In (54), the verb (ω) maps onto a prosodic constituent that is lower on the prosodic hierarchy than the constituent that immediately follows (φ_1). For an actual example of Tagalog VSO see (38a) above.

Sabbagh's proposal has two primary strengths. First, he is able to connect subject lowering to a seemingly independent phenomenon, the relative order of *wh*-phrases and complementizers. Second, this proposal eliminates the aforementioned theoretical challenge of motivating syntactic lowering.

One might argue, however, that Sabbagh's proposal simply moves the problem of motivation from the domain of syntax into the domain of phonology. The principle behind WEAK START, that the beginning of a phonological constituent is a relatively weak position, is rather exceptional in the phonological literature on positional effects. WEAK START is the counter-constraint to STRONG START (Selkirk 2011), which preferences prosodic constituents whose first subconstituent is not ranked lower than the one that immediately follows it. STRONG START fits naturally into a group of well-documented initial-position phenomena found at all levels of the prosodic hierarchy (initial strengthening, initial syllable prominence, positional neutralization, etc.). By virtue of association with these other phonological principles, the theoretical motivation for STRONG START is less vulnerable than that of WEAK START.

In general, more primary prosodic data is needed to support prosodic accounts of phenomena traditionally handled in the domain of syntax. Due to the dearth of such data, Sabbagh is forced to stipulate a number of prosodic characteristics in Tagalog, such as unary and tertiary branching. Match Theory predicts unary and tertiary branching in the prosodic domain of some languages, but many languages strongly prefer binary structures.²³ Non-binary branching is essential to Sabbagh's analysis: without tertiary branching, the environment that conditions lowering (as in (53)) would not arise. Of course, it could be the case that the prosodic structure of Tagalog includes non-binary branching, but given the cross-linguistic tendency to favor binary structures, this should be independently verified.

7.2 Pronoun postposing in Irish

Bennett, Elfner, and McCloskey (2015; 2016) argue that STRONG START is the root of a phenomenon in Irish known as pronoun postposing, where prosodically weak object pronouns, and weak subject pronouns in small clauses, surface to the right of their canonical positions. The possibilities for object postposing are shown in (55).

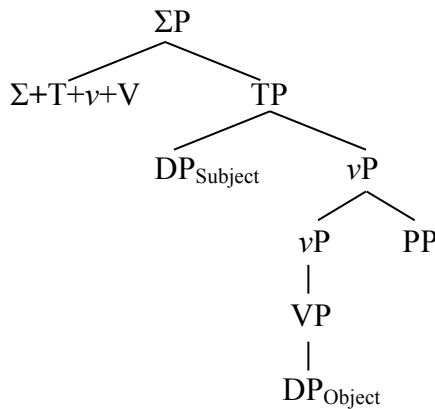
(55) [Verb SUBJ (*PRO_{OBJ}*) XP (*PRO_{OBJ}*) YP (*PRO_{OBJ}*) ZP (*PRO_{OBJ}*)]

As (55) indicates, a number of intermediary positions are available to Irish object pronouns in addition to the canonical object position and clause-final position. The variable position of weak object pronouns in Irish is reminiscent of the variable position of subjects in Tagalog and Chamorro (compare the schematics in 50 and 55). The challenges facing syntactic accounts of pronoun postposing in Irish (see Bennett, Elfner, and McCloskey 2015) are similar to those facing syntactic accounts of subject lowering in Tagalog and Chamorro, in particular, motivating such lowering in the syntax. Given these challenges, it is desirable to explore an analysis that originates outside of syntax.

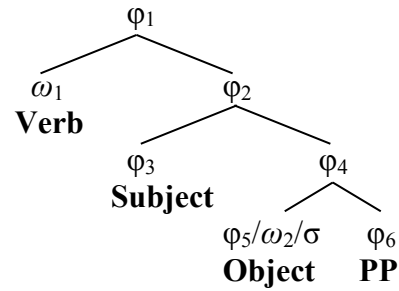
7.2.1 Pronoun postposing as STRONG START

In accordance with Match Theory (Selkirk 2011), the syntax–prosody mapping of Irish VSOX is given in (56).

(56) Syntactic structure



Prosodic structure



Non-branching prosodic structures in Irish surface as the most minimal prosodic unit (Elfner 2012). This means that the object in (56) has three possible prosodic forms: if it were a full DP (i.e., D⁰ and NP) it would surface as a phonological phrase (φ₅); as a strong pronoun, it would be a phonological word (ω₂); as a weak pronoun, it would be only a syllable (σ). In the case of a weak pronoun, the structure violates STRONG START.

- (57) *STRONG START* (Bennett, Elfner, and McCloskey 2016, based on Selkirk 2011): Prosodic constituents above the level of the word should not have at their left edge an immediate sub-constituent which is prosodically dependent. For our purposes here, a “prosodically dependent” constituent is any prosodic unit smaller than the word.

One way to avoid the violation of STRONG START is to right-adjoin the weak pronoun to a phonological phrase, where it would surface as the rightmost constituent.

In comparison to other V1 languages, Irish has been the topic of substantial empirical and theoretical study at the syntax–phonology interface (Blankenhorn 1981; Bondaruk 2004; Dalton and Ní Chasaide 2005; Elfner 2012). Thus, Bennett, Elfner, and McCloskey are able to provide a prosodic account of pronoun postposing that is well supported by a general understanding of prosodic constituent structure in Irish. For example, Elfner (2012) demonstrates that the constraint BINARITY is high-ranked in Irish by investigating phonological structures that are non-isomorphic with the corresponding syntactic structures:

- (58) *BINARITY*: Optimal prosodic constituents include exactly two immediate constituents.

The high ranking of BINARITY in Irish helps Bennett, Elfner, and McCloskey connect their analysis of object postposing to related phenomena. In general, prepositional phrases consisting of a preposition inflected for gender, number, and person can postpose in the same way as weak object pronouns:

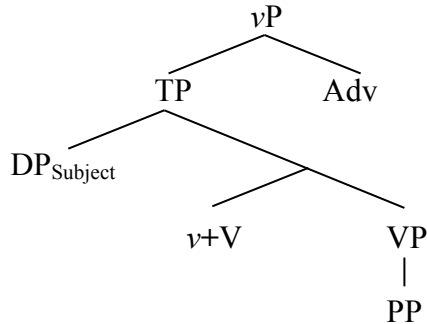
(59) PP postposing in small clauses – Irish

- a. Labharfaidh mé leis ar an Chlochán Liathamárach.
 speak-FUT I with-him on Dunloe tomorrow
 ‘I’ll speak to him tomorrow in Dunloe.’
- b. Labharfaidh mé ar an Chlochán Liathamárach leis.
 speak-FUT I on Dunloe tomorrow with-him
 ‘I’ll speak to him tomorrow in Dunloe.’

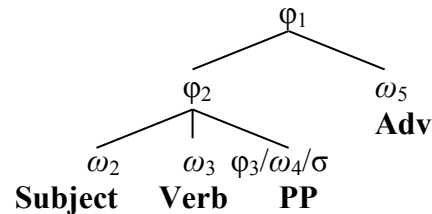
(Bennett, Elfner, and McCloskey 2016, 74)

Examples like (59b) appear to repair a violation of STRONG START by postponing the prepositional phrase. However, even if the prepositional phrase were to surface in its weak form in its base position, that is as σ in (60), it is not the leftmost constituent of a prosodic phrase, and therefore would not violate STRONG START.

(60) Syntactic structure



Prosodic structure



Bennett, Elfner, and McCloskey hypothesize that fulfilling the requirement that prosodic constituents contain exactly two other constituents creates an environment that is problematic for STRONG START. Violations of BINARITY can ordinarily be avoided by rebracketing; however, if the subject (ω_2) and verb (ω_3) are phrased together and the prepositional phrase (σ) and adverb (ω_1) are phrased together, then the phonological phrase begins with a dependent element (σ), and STRONG START is violated. Hence, postponing ensues. Bennett, Elfner, and McCloskey's analysis is maximally effective because it is well motivated by the empirical data on Irish prosody.

7.3 VSO/VOS alternations in Niuean

As discussed in section 3.2, Niuean word order is generally VSO, but VOS order surfaces in a construction known as pseudo noun incorporation (PNI). The prosodic phrasing of these clause types is given below (from Clemens 2014).

(61) The prosodic phrasing of VSO and VOS in Niuean

a. VSO

((Kua kai) ϕ (he tama) ϕ (e niu) ϕ) ι
 PFV eat ERG child ABS coconut
 'The child ate coconut.'

b. VOS

((Kua kai niu) ϕ (e tama) ϕ) ι
 PFV eat coconut ABS child
 'The child ate coconut.'

Massam (2001) demonstrates that PNI objects are NPs. They are necessarily larger than N^0 , because they can be modified, yet smaller than DP, because they surface without a case marker. Post-verbal particles surface after the verb in VSO clauses, but after the object in PNI clauses. As such, Massam (2001) argues that the verb and PNI object form a unique syntactic constituent. The prosodic phrasing above is consistent with Massam's analysis, as well as the alternative, non-syntactic approach discussed next.

7.3.1 VSO/VOS alternations and the ARGUMENT-Φ

Clemens (2014) proposes a prosodic well-formedness ARGUMENT-Φ (62) and shows its application to VSO/VOS alternations in Niuean.

- (62) Argument Condition on Phonological Phrasing (ARGUMENT-Φ): A head and its c-selected argument(s) must be adjacent sub-constituents of a φ-phase.

Following recent work on the syntax–prosody interface, Clemens’ account argues that sentential constituents can be reordered to satisfy constraints on prosodic well-formedness.

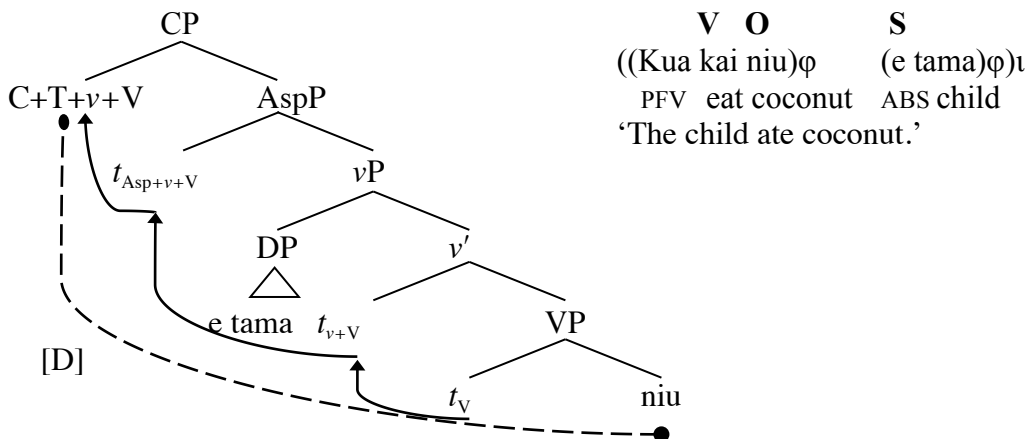
According to Clemens (2014), PNI constructions have the same syntactic structure as VSO constructions, which are derived via V^0 -raising.²⁴ However, when prosodic structure is assigned at PF, the PNI object (necessarily an NP), shifts to a position adjacent to the verb, resulting in a VOS clause that can satisfy ARGUMENT-Φ.

In response to a related proposal by Selkirk (1984), the Sense Unit Condition, Steedman (1991) argues that the prosodic grammar should not know that two constituents are in a head–argument relation, unless this information can be gleaned from surface constituency. This concern is especially relevant for Niuean, where the verb has moved (via V^0 -raising in this analysis) out of the position from which it selected its internal argument. Clemens (2014) solves this problem by (i) assuming that the prosodic component of the grammar has access to features that designate lexical class,²⁵ and (ii) adopting the concept of feature sharing in the general spirit of Pesetsky and Torrego (2007). Feature valuation can depend on c-selection (Chomsky 1965; Emonds 2000; Adger and Svenonius 2011), in which case feature valuation is realized as the sharing of a single lexical feature by two heads. PF thus references the head–argument relationship between the verb and its internal argument, even though they are not sent to PF in structurally adjacent positions.

Following this analysis, the verb and the internal argument are nonadjacent in the syntax, but their matching categorial features are visible at PF (63). When prosodic structure is assigned, the PNI object shifts into a position adjacent to the verb so that it can be produced in the same prosodic unit as its selecting head, thereby satisfying ARGUMENT-Φ.

(63) Syntactic structure of Niuean VOS

Surface structure

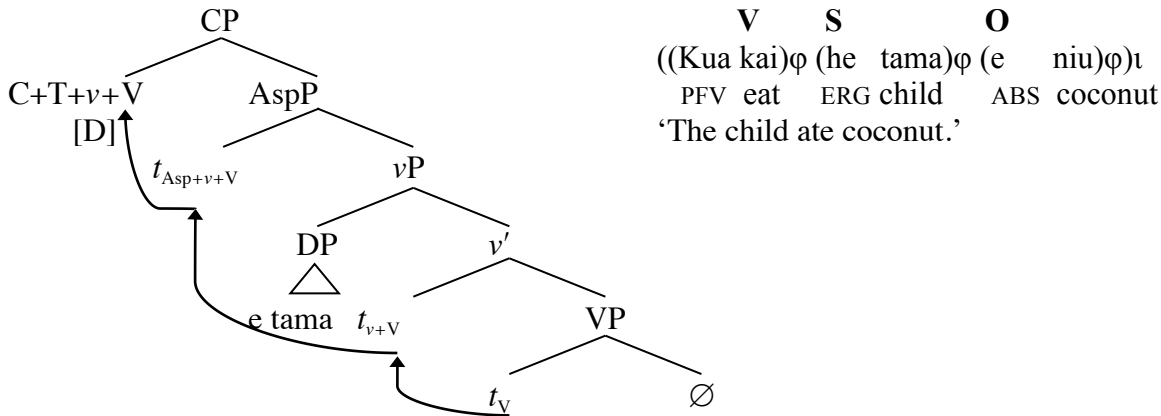


If the internal argument is a DP, it is contained in a phase (Chomsky 2001; Svenonius 2004). Subsequently, the matching features of the verb and its DP-internal argument are spelled out in different cycles. Following standard assumptions about the syntax–phonology interface, after a feature is spelled out, it is no longer visible to future spell-out cycles. In (64), this is indicated by the empty set symbol in place of the subject and object DPs. Because the relevant matching features are

not visible during the same spell-out cycle, ARGUMENT- ϕ does not trigger constituent reordering at PF in VSO clauses.

(64) Syntactic Structure of Niuean VSO

Surface Structure



In sum, when prosodic structure is assigned at PF, the NP object is pronounced adjacent to the verb, resulting in a VOS clause that satisfies ARGUMENT- ϕ . When the clause includes a DP object, ARGUMENT- ϕ does not influence the way prosodic structure is built, because only one instance of the relevant feature is visible at a given time.

8 V1 typology and grammatical theory

A number of the studies discussed so far consider specific data from one or two languages, but aim ultimately to apply their analyses to the general typological properties associated with V1. This pertains particularly to connections between V1 and Wh1 as well as to connect between extraction asymmetries and the particular mechanism that results in V1 (e.g., Rackowski and Travis 2000; Aldridge 2004a; Cole and Hermon 2008, etc.).

8.1 V1 and Wh1

Efforts to explain the correlation between V1 and Wh1 on the basis of deeper grammatical principles include those of Emonds (1980), Oda (2005), Potsdam (2009), and Richards (2016). Oda derives Greenberg’s Universal 12 (see (6) above) from derivational principles: languages that derive V1 by raising the entire VP are unable to form *wh*-questions via movement, while languages that employ V⁰-raising can *wh*-move. Oda employs the following principles:

- (65) Major theoretical components of Oda (2005)
- Parameterized EPP: EPP is satisfied by either a ϕ - or pred-feature (Massam 2001)
 - Generalized EPP: T⁰ and C⁰ have an EPP feature (Chomsky 2000; 2001)
 - EPP Uniformity: EPP on T⁰ and C⁰ have the same parameter settings (Chomsky 2000; 2001)

(65a) speaks to the basic derivation of V1. If the EPP is satisfied by a ϕ -feature (EPP- ϕ), then V1 is derived via V⁰-raising; if the EPP is satisfied by a pred-feature (EPP-pred), then V1 is derived via VP-raising. (65b) and (65c) together state that, if EPP on T⁰ is EPP-pred, then so is EPP on C⁰. *Wh*-movement, which is ϕ -feature based, is therefore impossible in EPP-pred languages.

Potsdam (2009) argues that *wh*-clefts, but not independent *wh*-arguments, have the necessary pred-feature to satisfy EPP-pred on C. By incorporating the optional projection of question CPs (cf.

Grimshaw 1997; and Bošković 2000), Potsdam (2009) captures the complete range of empirical data: *wh*-arguments may surface in situ in both V^0 - and VP-raising languages; in addition, V^0 -raising languages can form *wh*-questions via movement, and VP-raising languages can use *wh*-clefts.

8.2. V1 and Pred⁰

The theory that connects V1 and Wh1 makes a strong prediction about the word order of nonverbal predicates in V1 languages. EPP- ϕ languages should not have predicate-initial nonverbal clauses (NVP1). In the absence of a verb, ϕ -features on a DP would satisfy the EPP in these languages, resulting in the order DP – Predicate. In contrast, EPP-pred languages should have NVP1 clauses, because nonverbal predicates also bear a pred-feature.

The prediction that all VP-raising languages are NVP1 resonates with an oft-repeated sentiment in the literature: one of the most positive attributes of the VP-raising approach, especially when formalized in terms of an EPP-pred feature, is its ability to uniformly capture the word order of verbal and nonverbal predicates. Nevertheless, the correlation between the derivation of V1 and the structure of nonverbal phrases warrants further investigation. Languages that appear to employ V^0 -raising but lack NVP1 clauses present a problem. Irish, for instance, is often considered a prototypical V^0 -raising language, but it has PP-, NP- and AP-initial nonverbal predicates.²⁶

McCloskey (2005) and Bury (2005) both argue that there is no *a priori* reason why a language should not have a mixed system, with head movement for verbal predicates and phrasal movement for nonverbal predicates. Another solution may be found in the extension of Coon (2014).

Looking specifically at data from Ch'ol and Tagalog, Coon (2014) connects the general V1 tendency to lack a copula (Carnie 1995) with two other tendencies of the Austronesian and Mayan V1 languages:

- (66) Common tendencies in Austronesian and Mayan (Coon 2014)
 - a. No copula
 - b. No overt tense morphology (aspect morphology instead)
 - c. Subjects of nonverbal predicates pattern with unaccusative subjects

Coon proposes that property-denoting roots in languages with these characteristics are able to directly instantiate predicative heads without the operation CONFLATION (Hale and Keyser 1993; Baker 2003). In a language like English, CONFLATION is said to combine property-denoting roots with a null predicative head, resulting in the formation of the lexical category VERB before lexical insertion. Nonverbal predicates do not undergo CONFLATION, but remain headed by the functional category Pred⁰. The difference between verbal and nonverbal predicates is therefore feature-based in these languages.

For Ch'ol and Tagalog, Coon proposes that property-denoting roots directly instantiate predicative heads. While there may still be a difference between verbal and nonverbal predicates in a language without CONFLATION – in terms of argument structure, for instance – the difference would not be based on features. Coon's proposal could be extended to explain why some apparently- V^0 -raising languages also have NVP1. If it could be shown that these languages do not have CONFLATION, then the relevant head for “ V^0 -raising” may actually be Pred⁰ for nonverbal predicates as well as verbal predicates.

9 Conclusions

In this chapter, we presented data from a number of V1 languages in order to illustrate different approaches to the derivation of verb-initiality, with a particular emphasis on two prominently V1 language families, Mayan and Austronesian. A full understanding of all the properties that

characterize V1 still lies ahead; this chapter has addressed the major empirical developments, past and present, and discussed major outstanding issues and questions.

The principal conclusion that arises from examining V1 languages is that they are not a uniform group (see Carnie, Harley, and Dooley 2005; Chung to appear for similar observations). In particular, their verb- or predicate-initial orders may follow from different principles of language design; VOS/VSO alternations may be triggered by different factors, and the origins of SVO orders in V1 languages may vary across languages and even within a single language.

Within the generative tradition, there are several theoretical approaches to deriving V1, and it remains to be seen if these approaches will correspond to the subgroups of V1 in an exhaustive way. Most existing approaches attribute the derivation of V1 to syntactic principles. Within narrow syntax, analyses of V1 can be divided into those that permit flat or tertiary structure and those that maintain the constituency of the *vP*/VP. Within the latter, the main approaches to V1 include base-generation of VOS with VSO derived by object postposing; VP-raising, with and without the evacuation of material from the VP prior to raising; head-movement (*V*⁰-raising); and subject lowering.

Some approaches also advocate post-syntactic accounts of V1, and in particular, derive V1 using prosodic considerations. The development of post-syntactic analyses has been stimulated by the growing body of work that integrates syntactic and prosodic phenomena within a single model. V1 languages make an important empirical contribution to this new domain of linguistic research.

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SEE ALSO: Adverb Classes and Adverb Placement; Clitic Doubling; Left Dislocation; Left Periphery of the Clause; Noun Incorporation; Object Shift; Pseudoclefts; Radical Nonconfigurationality; Remnant Movement; Verb-Initiality in Celtic Languages; Verb Clusters, Verb Raising, and Restructuring; VOS Languages: Some of Their Properties; VSO Word Order, Primarily in Arabic Languages

Notes

¹ A cross-linguistic investigation into these types of extraction asymmetries would do well to consider languages like the North Andean languages of the Pacific Northwest, where word order is a frequent, contextually neutral word order, and the word order that is used to interpret ambiguities; this chapter adopts the order reported in the literature for any given language.

² Unless otherwise indicated, the examples are from the authors' field notes. Abbreviations include ANIM = animate; AV = actor voice; CL = classifier; CLS = classifying particle; DIR = directional; DM = demonstrative; HON = honorific; INCOMPL = incomplete; LI = linker; NAV = non-actor voice; OBV =

obviative; PRFV = perfective; RN = relational noun; RP = resumptive pronoun; SS = status suffix. All other abbreviations follow the Leipzig Glossing Rules.

⁴ Exceptions to these correlates of V1 order certainly exist. Obligatarily overt copulas are present in different types of nonverbal predicates in Oto-Manguean V1 languages, for instance, in Chalcatongo Mixtec (Macaulay 2005) and Triqui (Christian DiCanio, p.c.). In addition, not all V1 languages are ergative. Finally, it is becoming increasingly clear that not all V1 languages lack the verb HAVE (e.g., see Creider 1989 for Kalenjin; Macaulay 2005 for Chalcatongo Mixtec; Joitteau and Rezac and 2006 for Breton).

⁵ Meanwhile, applied objects, projected by an extra head above the ν P, should be possible.

⁶ For this class of analyses, it is assumed that PF factors do not reorder constituents after narrow syntax.

⁷ The structure in (11) is updated to represent current assumptions about phrase structure.

⁸ Specifically for Tz'utujil, Aissen later elaborates that the overt subject in SVO clauses is base-generated in a functional specifier position and binds a lower pronoun (Aissen 1999). Also note that (13) glosses over Aissen's (1992) distinction between "internal topics" and "external topics." Finally, the subject is represented in SpecVP (not ν P), since this sidesteps the question of whether ν P is a functional or lexical projection.

⁹ See Gutiérrez-Bravo (2011) for an analysis that base-generates preverbal subjects (topics) in SpecCP in Yucatec Maya, and see Adger and Ramchand (2003) for arguments that DPs cannot form predicates for independent reasons.

¹⁰ There is a good deal of overlap between the variables that condition VSO/VOS alternations in Mayan and those that condition object shift, for example, as in Germanic. See Coon (2010) on a connection between VOS and object shift.

¹¹ See also Minkoff (2000) on the effect that the animacy hierarchy has on word order in Mam.

¹² Significant variation in postverbal word orders may be the reason why researchers sometimes turn to Optimality Theory when addressing word order variation in Mayan (e.g., Gutiérrez-Bravo and Monforte 2010 on Yucatec Mayan). The consideration of several candidate word orders allows researchers to rank possibilities without ruling them out categorically.

¹³ Although specific accounts differ according to whether movement targets the VP itself or a higher maximal projection, we will uniformly refer to all phrasal movement analyses as VP-raising.

¹⁴ A particular instance of such freezing can be observed in subject-only restriction in Austronesian. The essence of this restriction is that in a given clause, only one argument (the external argument) is accessible to A'-movement; all other arguments are ineligible to A'-move (Keenan 1972; Gärtner, Law, and Sabel 2006; Chung and Polinsky 2009).

¹⁵ Here too, see Chung (to appear) for relevant examples.

¹⁶ With some verbs, the goal object can appear with a null P. Malagasy marginally allows the order VXOS:

- (i) ??N-an-ome ny gidro voankazo aho.
 PST-AV-give DET lemur fruit 1SG.NOM
 'I gave the lemur some fruit.'

Paul (2000) and Pearson (2001) argue that (i) is a result of scrambling in the ν P domain and is not a double-object construction.

¹⁷ But see Richards (2003) for an argument from ellipsis that V^0 raises out of VP in Tagalog. See also Davis (2013) for an argument from ellipsis that V^0 is located below T^0 in St'át'imcets.

¹⁸ See Billings (2005), Guilfoyle, Hung, and Travis (1992) and Sabbagh (2005; 2014) for alternative perspectives on VOS/VSO alternations in Tagalog, and Polinsky (2016) for a different account of this alternation in Tongan.

¹⁹ Similar information-structural considerations are given for the VSO/VOS-alternations in Māori (Bauer 1993, 54–64) and Samoan (Mosel and Hovdhaugen 1992, 448–451).

²⁰ Richards (2016) makes a similar point with English constructions where AFFIX SUPPORT is satisfied redundantly, e.g., AFFIX SUPPORT triggers movement, and then something else merges to the left of the suffix satisfying AFFIX SUPPORT a second time.

²¹ See also Richards' (2016) discussion of subject drop in Finnish.

²² These two earlier proposals did not rely on phonological evidence and appealed mainly to the coordination facts discussed below.

²³ See Zec and Inkelas (1990), Îto and Mester (2003; 2007; 2009), Selkirk (2000; 2011) for a discussion of BINARITY and prosodic constituents.

²⁴ See Clemens (2014) for a discussion of the theoretical and empirical differences between the V⁰-raising and the VP(remnant)-raising account of Niuean V1 (Massam 2001).

²⁵ This assumption has become less popular in recent years, however see Kaisse (1985), Nespor and Vogel (1986), and Smith (2011) for category-specific effects in prosody.

²⁶ Oda's solution is to promote VP-raising in Irish, contrary to the analysis advanced by McCloskey.

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