Verb-Initial Word Orders
(Primarily in Austronesian and Mayan Languages)*

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Lauren Eby Clemens and Maria Polinsky
Harvard University
lreby@fas.harvard.edu / polinsky@fas.harvard.edu

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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 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 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.

1 Introduction

Verb-initial (V1) clauses do not occur only in verb-initial languages. However, languages with dominant V1 order exhibit characteristics, such as VOS/VSO alternations, that are crucial to many analyses of V1 structures (cf. Carnie and Guilfoyle 2000; Carnie et al. 2005; Chung 2006). The focus of this chapter is therefore V1 clauses in V1 languages. Austronesian and Mayan languages receive particular focus due to their diversity, typological overlap, and relative familiarity. Furthermore, a large portion of the generative linguistics literature on V1 languages focuses on these two families.

The Austronesian language family, with over 1000 members, is widespread and diverse (see Blust 2009 for an overview). The Mayan family is less so, with approximately 30 members located primarily in Guatemala and Mexico (Campbell 1997, England 1994, and Suaréz 1983). 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 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; Tsimshiani); 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, e.g., Q'anjob'al (Mayan), while others are rigidly VOS, e.g., Malagasy (Austronesian), but many are VOS/VSO-alternating, e.g., Ojibwe (Algonquian).[3]

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[1]Thanks to Henry Davis for pointing out that a cross-linguistic investigation into these types of extraction asymmetries would do well to consider languages from North America's Pacific Northwest, where related patterns have been documented (e.g., see Kroeber 1999 for an overview).

[2]Researchers use different methodologies to determine dominant word order, e.g.,, raw frequency, 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.

[3]Unless otherwise indicated, the examples are from the authors' field notes. Abbreviations include ANIM—animate; CLS—classifying particle; DIST—distal; HON—honorific; LI—linker; OBV—obiative; RN—relational noun. All other abbreviations follow the Leipzig Glossing Rules.

(1) Q'anjob'al VSO

Max-∅   y-uk'   ix ix   kapey.
PERF-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

    a. 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. W-gii-sham-a-an   miin-an   kwe binoojiiny-an.
       3ERG-PST-feed-3ANIM-OBV blueberries-OBV kwe 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. Even rigidly VOS and rigidly VSO languages share many attributes beyond major sentential constituent word order. For example, they have only prepositions (whereas both prepositions and postpositions are attested in non-V1 languages), and they do not have prenominal relative clauses. The syntactic structure of the few exceptions is not entirely clear.[4] Thus, V1 languages have a stronger (left-)headedness feature than non-V1 languages do.

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

a.

	V1	Non-V1
Rel-N	*	✓
N-Rel	✓	✓

b.

	V1	Non-V1
Po	*	✓
Pr	✓	✓

Other common properties of V1 languages include the lack of a nonfinite verb form (Myhill 1985); absence of an overt copula (Carnie 1995); absence of a verbal expression meaning 'have' (Freeze and Georgopoulous 2000); and ergative alignment (Chung 2005; Polinsky 2013). The final two properties may be related: morphologically ergative languages generally lack the verb HAVE (Kayne 1993, Mahajan 1994). 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. Ergativity is typically found in such languages (Mahajan 1994; 1997). Note, however, that while not all V1 languages are ergative, the absence of HAVE appears to be universal in the V1 domain.

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[4]See Chung (1998: 311, 393) on prenominal relative clauses in Chamorro; she indicates that only postnominal relatives fit the familiar relative clause profile. Davis (2010) argues that all nominal modification in St'át'imcets (Lillooet, Northern Interior Salish) originates pronominally.

Assuming that double-object constructions are contingent upon the presence of an abstract HAVE morpheme (Harley 1996; 2002), V1 languages should not allow double-object constructions with verbs of giving (although applicative objects, projected by an extra head, should be possible). At the writing of this chapter, no counterexamples to this prediction have been observed, but more empirical work in this domain is necessary.

Finally, 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).

(5) *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.

1.1.2 V1 and predicate initiality

Researchers have suggested that V1 languages are better characterized as predicate initial (Aldridge 2012, Paul 2000, 2001, Potsdam 2009, Potsdam and Polinsky 2011 and references therein for Austronesian; Aissen 1992, Norman and Campbell 1978, England 1991, and recently Coon 2013b for Mayan; Jelinek and Demers 1994, Davis and Matthewson 1999 for Salish; Wojdak 2008 for Wakashan). Several considerations support this perspective.

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

(6) Tagalog AP, PP, and NP predicates in initial position
   a. Ma-taas si   Juan.
      AV-tall   HON Juan
      'Juan is tall.'
   b. Tungkol sa   balarila   ang libro.
      about   DAT grammar DEF book
      'The book is about grammar.'
   c. 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 2013b for Mayan).

(7) Tagalog DP predicates
   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 (7) do not serve as counterevidence to the predicate-initial nature of these languages. Distinctness dictates that a linearization statement $<\alpha, \beta>$ 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 <DP, DP>. 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.,, Jelinek and Demers 1994; Kaufman 2009; Tozzer 1921, and works cited therein). Other researchers argue that lexical category distinctions exist, but the evidence for these distinctions may be quite subtle (Chung 2012; Davis and Matthewson 1999; Lois and Vapnarsky 2006; Richards 2009).

1.2   Main analyses of V1

Some analyses of V1 derive all surface orders 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 V0.

Section 2 addresses accounts that base generate VOS by orienting some or all specifiers to the right. The right-branching 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 adapt 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 5 discusses two approaches do not do so: the flat structure approach and the Pronominal Argument Hypothesis. Analyses that place some attributes of word order at the syntax-phonology interface are presented in Section 6.

2 Base-generating VOS and deriving VSO

Certain syntactic accounts of V1 start with a right-branching, base-generated VOS structure and derive VSO. These accounts rely on the following related assumptions:[5]

(8) *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.

(9) *Word order in narrow syntax*: The major constituents of the hierarchical structure achieve their final linearization in narrow syntax.

   Both assumptions are contested. (8) is a traditional principle of X' 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).
   Issues of parameterization become more relevant when post-syntactic linearization is seriously considered. Post-syntactic linearization, where sister nodes are unordered until PF, has proven to be a viable alternative to (9) (see Chomsky 1995; Bobaljik 2008, a.o.).
   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-branching and object-postposing accounts of V1 in the context of other word order variations, such as SVO, 'apparent' SVO, and variation in adjunct placement.

2.1 VOS and right-branching

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 (Aissen 1992, England 1991), for languages in the Malayo-Polynesian branch of Austronesian (Chung 1998 for Māori; Guilfoyle et al. 1992, Paul 2000 for Malagasy) and for Salish languages (Davis 2005 for St'át'imcets; Wojdak 2008 for Nuu-chah-nulth).[6]

(10) Right-branching specifier
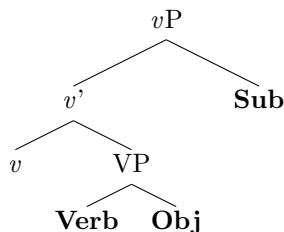
   Right-branching accounts of V1 may be uniformly right branching (see Chung 1998 for Māori) or they may apply right branching only to the specifiers of lexical phrases; the later type of account is referred to in what follows as "parameterized right-branching" (see Aissen 1992 for Tzotzil, Jakaltek, and Tz'utujil; see also Guilfoyle et al. 1992 for the opposite setting in Austronesian, e.g., functional specifiers to the right, lexical specifiers to the left).

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[5]For this class of analyses, it is assumed that PF factors cannot reorder constituents after narrow syntax.

[6]The structure in (10) is updated to represent current assumptions about phrase structure.

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-branching approach handles easily by moving the subject out of the right-branching VP domain into a left-branching position (Section 2.1.1); the second reduces SVO to predicate-initial structures, which uniform right branching is well equipped to handle (Section 2.1.2).

2.1.1 S as A'

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

(11)   Tz'utujil VOS/SVO

 a. X-∅-kee-tij   tzyaq ch'ooyaa'.
  COM-3SG.ABS-3PL.ERG-eat clothes rats

  'Rats ate the clothes.'

 b. Ja ch'ooyaa' x-∅-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.'[7]

(12)   Parameterized specifier account
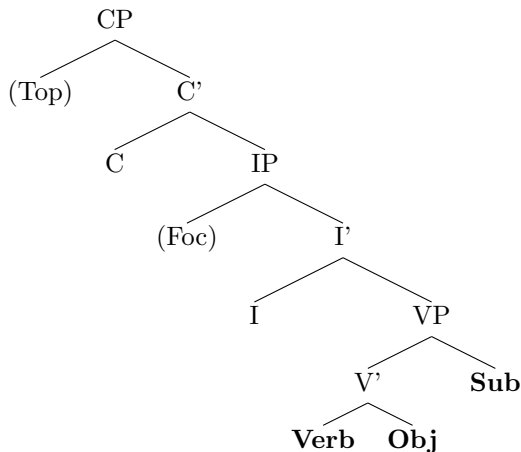
Aissen's proposal captures the general observation that Mayan arguments follow the verb in pragmatically neutral clauses, but surface pre-verbally when they are associated with topic or

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[7]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 (12) glosses over Aissen's (1992) distinction between 'internal topics' and 'external topics'. Finally, the subject is represented in spec,VP (not vP), since this avoids the question of whether vP is a functional or lexical projection.

focus (England 1991). Aissen associates the distinction between left- and right-branching 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

Apparent clause-initial subjects in V1 languages often turn out to be heads of predicate phrases or constituents of larger predicates. In this case, an apparent SVO structure can be reduced to a predicate-initial structure. An example is given in (13):

(13) Māori he-construction

    a. He paatai   aahua   pakeke ake teenaa.
       CL questions somewhat difficult up that

       'This is a rather difficult question.' (Bauer 1993: 488)

    b. He tamariki raatou.
       CL children 3PL

       'They are children.' (Bauer 1993: 144)

Evidence that the fronted nominal is a predicate, and thus located in the same position as initial verb phrases, comes from negation (see Bauer 1993: 144-145). Māori negative expressions are stative verbs whose semantics indicates falseness (Hohepa 1969; Waite 1987; Bauer 1993: 139-146). An affirmative sentence is embedded under such verbs; its subject undergoes movement into the main clause to become the surface subject of the negative predicate. The negative form of (13b) is given in (14), where the embedded clause is introduced by *i te*:

(14) Eehara   raatou$_i$ [i te   tamariki t_i]
      NEG.PRED 3PL   DEP.CLAUSE children

      'They are not children.' (Bauer 1993: 144)

A similar analysis has been proposed for the Polynesian actor-emphatic construction (see Chung 1978: 175ff., 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.

Mayan languages and Austronesian languages share two properties that obscure the true nature of SVO clauses: non-verbal predicates, and a null copula. 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, Polian 2012, and Tonhauser 2003), but it is worth further pursuing particularly for the theoretical parsimony it would add to the right-branching 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 (15), while preverbal subjects can (16):[8]

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[8]See Gutiérrez-Bravo (2011) for an analysis that base-generates preverbal subjects (topics) in spec,CP in Yucatec Maya. See also Adger and Ramchand (2003) for arguments that DPs cannot form predicates for independent reasons.

(15) Yucatec Maya nominal predicates

    a. Ts'akyaj-ech.
       doctor-2SG.ABS

       'You're a doctor.' (Armstrong 2009: 11)

    b. *Le ts'akyaj-o'-ech   (teech).
       DM doctor-DIST-2SG.ABS 2SG

       ('You are the/that doctor.') (Armstrong 2009: 13)

(16) Le áak-o'   t-u   jaan-t-aj-∅   su'uk.
    DM turtle-CL CP-3SG.ERG eat-S-PRF-3SG.ERG grass

    'The turtle ate grass.' (Avelino 2011: 64)

The status of (apparent) SVO clauses is important to right-branching specifier accounts of V1. Uniform branching offers a more elegant approach than parameterized branching, as language-internal variation must be independently motivated in the latter (e.g., via a lexical/functional distinction, as in Aissen 1992). However, uniform branching makes 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 Bauer 1993 for Māori; Keenan 1976 for Malagasy; Schachter and Otanes 1983, Kroeger 1993 for Tagalog; previous references for the actor-emphatic construction in Polynesian). A uniform right-branching 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.

2.2 VSO derived by right-branching with object postposing

Some approaches to V1 base-generate VOS 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.[9] She proposes that Mayan languages are basically VOS, but that certain semantic variables, such as specificity, drive rightward movement of the object out of the VP to the right of the subject (see also Norman and Campbell 1978). (17) illustrates that a specific, animate subject can occur in either postverbal position, but a specific animate object is possible only under VSO order.

(17) K'iche' VSO/VOS alternations

    a. X-∅-u-q'aluj   le   achi le   ala.
       COM-3SG.ABS-3SG.ERG-hug DEF man DEF youth

       'The man hugged the youth.'
       Impossible: 'The youth hugged the man.'

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[9]There is a good deal of overlap between the variables that condition VSO/VOS alternations in Mayan and those that condition object shift in, e.g., Germanic. For a discussion of the role played by specificity/definiteness in object shift, see Diesing (1996; 1997), Erteschik-Shir (2005), a.o. See also Coon (2010) on a connection between VOS and object shift.

b. X-∅-u-q'aluj   jun achi le   ala.
COM-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 right-branching functional projection.

(18)   Object postposting
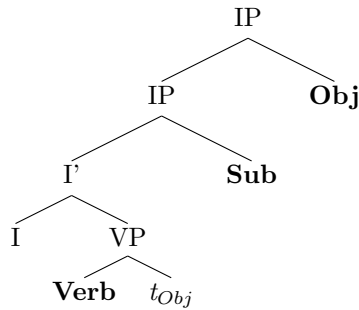
Chung (1998) observes that if VSO were derived via rightward movement of the object, the object should behave like a moved constituent, which is an island to subextraction (Culicover and Wexler 1977; Wexler and Culicover 1980). In Māori, sentential objects must follow the subject, even though Māori is generally VSO/VOS-alternating. Extraction out of certain sentential subjects is allowed, 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 uniform-branching 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 right branching. 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 Object postposing and adjuncts

In the simple case of VSO, when a postposed object moves out of VP and into a specifier position, the relevant specifier must be higher than the subject, but low enough in the structure to still be right branching. Recall that the presence of preverbal A'-elements suggests that higher clausal projections are left branching, so if a postposed object were to move too high in the clause, it would surface in clause-initial position.

Certain Mayan languages, e.g., Tz'utujil, allow both (S)VOX and (S)VXO order. In (19a), the dative argument follows the theme (VOX) and in (19b), it precedes it (VXO).[10] In both examples, the indirect object is introduced by a relational noun, which is the Mayanist term for a head that introduces oblique arguments.

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[10]V1 structures with three overt arguments are uncommon in Tz'utujil and many other Mayan languages. If three arguments are overt, one of them will surface in preverbal position. There is disagreement in the literature over whether Tz'utujil allows VSO (compare Dayley 1985 and England 1991). This chapter assumes that the position of the object in an (S)VXO language or a VSO language would be achieved in the same way: i.e., via object postposing.

(19) Tz'utujil (S)VOX/(S)VXO

    a. N-∅-kee-ya'   paq   cha-qe.
        INCOM-3SG.ABS-3PL.ERG-give money RN-1PL

        'They will give money to us.' (Dayley 1985: 156)

    b. Inin x--in-ya'   chee Aa   Xwaan jun   kotoon rxin
        1SG COM-3SG.ABS-1SG.ERG-give RN   youth Juan   INDEF huipil RN
        r-aanaa'.
        3SG.ERG-sister

        'I gave Juan a huipil for his sister.' (Dayley 1985: 312)

Judging from the relative order of the direct and indirect objects, the direct object does not postpose in cases of (S)VOX (19a). In the case of (S)VXO (19b), the object must move into a specifier position above the merge site for *chee Aa Xwaan* 'to Juan', but remain low enough to be right-branching.

It would be quite surprising if indirect objects and adjuncts all adjoined lower in the clause than the cut-off point for left-branching specifiers. For example, one would expect temporal or reason adjuncts to adjoin at the TP level. This would make the derivation of the (S)VXO order problematic, since TPs in this account are left branching. The placement of lower vs. higher adjuncts in languages with optional VXO requires close consideration, particularly in the context of parameterized-branching accounts of V1.

2.2.2 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 (Mateo Toledo 2008). The examples in (20) show that Q'anjob'al maintains VSO word order when the object is specific, nonspecific or inanimate.

(20) Q'anjob'al VSO with specific, nonspecific, and inanimate objects

    a. Max-∅   y-il-a'   naq winaq naq unin.
        COM-3SG.ABS 3SG.ERG-hug-SS CL man   CL boy

        The man saw the boy.'
        Impossible: 'The boy saw the man.'

    b. Max-∅   y-il-a'   naq winaq jun-tzan   unin.
        COM-3SG.ABS 3SG.ERG-hug-SS CL man   INDEF-PL boy

        'The man saw some boys.'
        Impossible: 'Some boys saw the man.'

    c. Max-∅   y-il-a'   naq winaq te' na.
        COM-3SG.ABS 3SG.ERG-hug-SS CL man   CL 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. See also Minkoff (2000) on the effect of the anomaly hierarchy on word order in Mam. 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.[11]

For many languages it is important to consider a wide range of word orders when accounting for V1. Flexible word order in the post-verbal domain does not necessarily equate to unconstrained word order, so the nature of VOS/VSO alternations must be taken into consideration. The 'S' in apparent SVO order may constitute a non-verbal predicate (as is common in Austronesian), but this is not the only option. Because of the strong prediction against preverbal nominals in specifier positions, the status of SVO clauses is particularly important to the uniform right-branching account of VOS/VSO. For parameterized-branching accounts of VOS/VSO, the location of oblique arguments and adjuncts relative to the object, especially in VSO clauses, is particularly relevant, because the object must occur above the adjunct without ending up in a left-branching specifier.

3 V1 derived by phrasal movement

Analyses that derive V1 through VP-raising[12] into a position above the subject have been pursued extensively for Austronesian languages (Massam 2001, 2005 for Niuean; Pearson 2001, 2005, 2006, Pensalfini 1995, Rackowski and Travis 2000, Travis 2005 for Malagasy; Mercado 2002 for Tagalog; Aldridge 2002, 2004 for Seediq; Cole and Hermon 2008 for Toba Batak; Medeiros 2013 for Hawaiian). 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, 2013a) for Chol (Mayan). These languages vary between VSO, VOS, and VSO/VOS; the ability to derive all these orders is a virtue of the account. The schematics below provide a first approximation:

(21)   Phrasal movement
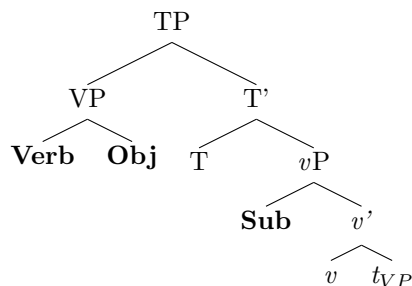
VP-raising accounts apply most straightforwardly to languages whose primary V1 word order is VOS (e.g.,, Seediq, Malagasy, and Toba Batak). Yet, in a version of VP-raising where the object

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[11]Significant variation in post-verbal word orders may be the reason why researchers sometimes turn to Optimality Theory (Prince and Smolensky 1993) when addressing word order variation in Mayan (e.g.,, Gutiérrez-Bravo and Monforte 2010). The consideration of several candidate word orders allows researchers to rank possibilities without ruling them out categorically.

[12]Specific accounts differ according to whether movement targets the VP itself or a higher maximal projection. All phrasal movement accounts discussed in this chapter are referred to as VP-raising accounts.

evacuates the VP before the VP moves, i.e. VP-remnant movement, the VSO word order can also be derived.

(22)   Remnant movement

```
                    TP
                  /    \
               VP        T'
              /  \      /  \
          Verb  t_Obj  T    vP
                           /  \
                        Sub    vP
                              /  \
                           Obj    v'
                                  /\
                                 v  t_VP
```
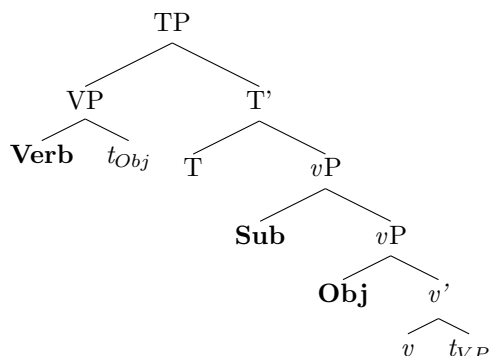
VP-raising has been championed as a way of providing a uniform account of both V1 word orders in VSO/VOS-alternating languages (Carnie, Harley, and Dooley 2005, Chung 2006, a.o.)

3.1   VOS via VP-raising

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

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

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

Most researchers agree that the moved VP appears in spec,TP (23b). However, Aldridge (2002) and Pearson (2001) argue, for Seediq and Malagasy, respectively, that the VP lands in the specifier of a higher functional projection. Fronting the VP higher than TP ensures that it 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). There is consensus that the VP moves to satisfy the EPP, most likely on the T head, but no agreement about which feature of T is valued. Section 6 discusses how EPP-features are used to motivate different accounts of V1.

3.1.1   VP-raising and the subject-only restriction

Some of the strongest evidence in support of the VP-raising account of V1 comes from island constraints on VPs in VOS clauses. VPs in VOS clauses generated by VP-raising are expected to

behave like islands due to the Freezing Principle (Culicover and Wexler 1977; Wexler and Culicover 1980), which holds that moved constituents are islands to extraction. Thus, once a VP moves, everything internal to that VP—modifiers, objects, operators—is frozen.

Researchers have argued that the well-documented subject-only restriction in Austronesian follows from the VP-raising account of VOS word order (e.g., Aldridge 2002 for Seediq; Cole and Hermon 2008 for Toba Batak). The essence of this restriction is that in a given clause, only one argument (the external argument, or possibly the subject) is accessible to A'-movement; all other arguments are ineligible to A'-move (Keenan 1972; Gärtner et al. 2006; Chung and Polinsky 2009).

In Austronesian languages with a strict version of this condition, such as Seediq or Malagasy, structures that involve movement (e.g., constituent questions, relative clauses, topicalization) can only access constituents that are external to the VP. For an internal argument to be extracted, the predicate must undergo a change in voice morphology (cf. Pearson 2005, Rackowski and Richards 2005 for different accounts of this restriction in Malagasy).

(24)   Seediq clause-initial constituent questions[13]

    a. Maanu ka   wada burig-un na   Ape?
       what   ABS PRF   buy-TR   ERG Ape
       'What did Ape buy?'

    b. Ima ka   wada m-ari   patis-ni?
       who ABS PRF   ANTIP-buy ERG   book-DEF
       'Who bought this book?' (Aldridge 2002: 394)

It follows from the Freezing Principle that no subconstituents can be extracted from a displaced VP. This prediction captures the data in Seediq very well: both internal arguments and VP adjuncts must remain in situ in this language in movement-related structures.

(25)   Seediq adjunct *wh*-questions

    a. M-n-ari   inu   patis Ape?
       AP-PRF-buy where book Ape
       'Where did Ape buy books?'

    b. *Inu   m-n-ari   patis Ape?
       where AP-PRF-buy book Ape
       ('Where did Ape buy books?') (Aldridge 2002: 395)

Whether or not VPs are islands is less clear for Austronesian languages with slightly more permissive extraction patterns. Toba Batak restricts A'-movement to the VP-external argument (26a-b versus 26c-d), but adverbials and indirect objects can surface in clause-initial position without special morphology (27).

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[13]In a series of papers, Aldridge characterizes Seediq as morphologically ergative; we reflect her analysis in the glosses.

(26) Toba Batak subject/object extraction asymmetry

    a. Ise   mang-ida turiturian?
       who ACT-see   play
       'Who saw a play?'

    b. Aha di-ida   si-John?
       what PASS-see HON-John
       'What did John see?' (Lit: What was seen (by) John?)

    c. Mang-ida aha   si-John?
       ACT-see   what HON-John
       'What did John see?'

    d. *Aha mang-ida si-John?
       what ACT-see   HON-John
       ('What did John see?') (Sternefeld 1995: 6)

(27) Toba Batak adjunct *wh*-questions

    a. Tu ise   mang-alean buku si-John?
       to who ACT-give   book HON-John
       'To whom did John give a book?'

    b. Songon-dia do   di-boto   si-John   na mang-atuk biang-i si-Mary.
       how   FOC PASS-know HON-John NA ACT-hit   dog-DEF HON-Mary
       'How does John know that Mary hit the dog?' (Cole and Hermon 2008: 162)

Similarly, in Malagasy and Tagalog, some apparently VP-internal adjuncts, such as instrumental and locative phrases, can undergo focus movement without special morphology (Keenan 1976, Paul 2000, Pearson 2005 for Malagasy; Kroeger 1993 for Tagalog).

Thus, in a number of Austronesian languages with a version of the subject-only restriction, 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 and adjuncts

Recall that V1 languages with ditransitives are not expected to have a double-object construction, due to the absence of the underlying verb HAVE. One therefore expects ditransitives to be dative constructions with a direct object and a PP goal (unless some languages have applicatives with a null head introducing the goal argument):

(28) Dative Construction

15
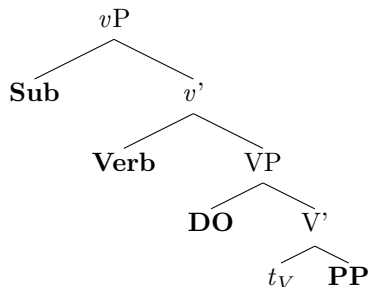
Dative goal PPs, and all PP arguments generated inside the VP, are predicted to follow the object. The result, assuming that no material leaves the vP prior to its movement to T^0, is VOXS order. This prediction is borne out in Seediq and Malagasy. Consider the Malagasy examples in (29).[14]

(29)   Malagasy VOXS

    a. N-an-ome   voankazo (ho an') ny   gidro aho.
       PST-ACT-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.
       PST-ACT.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 i Soa.
       PST-ACT.fill DET pitcher with-DET water with-DET bottle   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:

(30)   Toba Batak VOSX
    Mang-alean podu guru-i   tu dakdanak-i.
    ACT-give   advice teacher-DEF to child-DEF

    'The teacher gives advice to the child.' (Keenan 1978: 270)

Cole and Hermon (2008) propose a VP-raising account for Toba Batak, but argue that PPs and adverbs evacuate the VP before it moves to its final position in the clause. As already noted, a moved VP should form an island for the purposes of subextraction, but be able to undergo further movement as a complete unit. Cole and Hermon's proposal captures the 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 whenever adjuncts

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[14]With some verbs, the goal object can appear with a null P^0. Malagasy marginally allows the order VXOS:

(1)   ?? n-an-ome ny   gidro voankazo aho
    PST-ACT-give DET lemur fruit   1SG.NOM

    'I gave the lemur some fruit.'

Paul (2000) and Pearson (2001) argue that the above example is a result of scrambling in the vP domain and is not a double-object construction.

are involved. Movement of adjuncts out of the VP prior to raising is central to the success of Cole and Hermon's account, but it is achieved by stipulation.

Massam's (2001) account of VP- and VP-remnant movement in Niuean faces a similar problem: indirect objects and obliques do not undergo fronting with the VP.

(31) 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. Her proposal makes a different prediction than Cole and Hermon's with regard to extraction out of indirect objects and obliques: subextraction should be grammatical if indirect objects and obliques are generated higher than VP, but it should not be possible if they move out of the VP. VP-raising accounts of V1 would benefit from a) evidence-based arguments to support cross-linguistic variation with regard to where adjuncts are base-generated and under what circumstances they are the targets of syntactic movement and b) more detailed typological work on the options for adjunct extraction in VP-raising languages.

3.2.2 Remnant raising and VSO

A slight modification of the VP-raising account of VOS can capture VSO order: 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 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 (32a). 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 (32b), there is no case on the complex object *ika mo e talo* 'fish and taro.'[15]

(32) Niuean VSO and VOS

    a. Kua kai e mautolu e ika mo e talo he mogonei.
       PERF eat ERG 2PL.EX ABS fish COMPTV ABS taro LOC now

       'We are eating fish and taro right now.'

    b. Kua kai ika mo e talo a mautolu he mogonei.
       PERF eat fish COMPTV ABS taro ABS 2PL.EX LOC now

       'We are eating fish and taro right now.' (Seiter 1980: 70)

---

[15]See Massam (2001) for extensive arguments against a genuine incorporation analysis of Niuean VOS. For example, she shows that objects in VOS clauses can be quite complex; consider the coordinated NPs in (32b).

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

Similarly, the nature of VSO/VOS alternations in Chol is critical in determining how V1 order is generally derived (Coon 2010). Most V1 structures in Chol 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 (33a), while the object in VOS clauses must be a bare NP (33b). Note that in (33b), there is no determiner associated with the object.

(33) Chol VSO and VOS

    a. Tyi   i-kuch-u-∅   aj-Maria   jiñi si'.
       PRFV 3SG.ERG-carry-SS-3SG.ABS DET-Maria DET wood

       'Maria carried wood.'

    b. Tyi   i-kuch-u-∅   si'   aj-Maria.
       PRFV 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 Chol 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. 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 Chol, or any other Mayan language. On this basis, Chung (2005, 2006) argues that a VP-raising account of Tzotzil, a language closely related to Chol, would be difficult to defend, because there are no restrictions on the extraction of objects out of a moved VP.

Coon (2010) observes that the word order and extraction patterns in Tzotzil and Chol 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 Chol. As (34) shows, object extraction is grammatical, and is in fact required in object *wh*-questions:

(34) Chol object *wh*-questions

    a. Chuki tyi   i-mäñ-ä   a-chich?
       what PRFV 3SG.ERG-buy-SS 2SG.POSS-sister

       'What did your sister buy?'

    b. *Tyi i-mäñ-ä   chuki a-chich?
       PRFV 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 2006). 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 Chol 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 reports that word order variation in Māori is the result of competition between different factors, including information structure, thematic role, and weight.

VSO/VOS alternations do not need to involve competition to provide difficulties for a VP-remnant approach, however. The features that influence word order may not be 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 Wasteko (Norman and Campbell 1978), two animate arguments will surface in VSO, as will two inanimate arguments. 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 Chol, 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 2006). 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 (30).

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., Carnie, Harley and Pyatt 2000; Guilfoyle 1990; McCloskey 1991, 1996, 2001, 2005; 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; Clack 1994; Sadler 1988; Tallerman 1998), as well as Afroasiatic languages including Arabic and Berber (Fassi Fehri 1993; Kaplan 1991; Choe 1987; Ouhalla 1994).

V^0-raising accounts for Austronesian languages include Guilfoyle, Hung and Travis (1992) for

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

4.1 Deriving VSO via V-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 (Clack 1994; Emonds 1980; Otsuka 2005), illustrated below.

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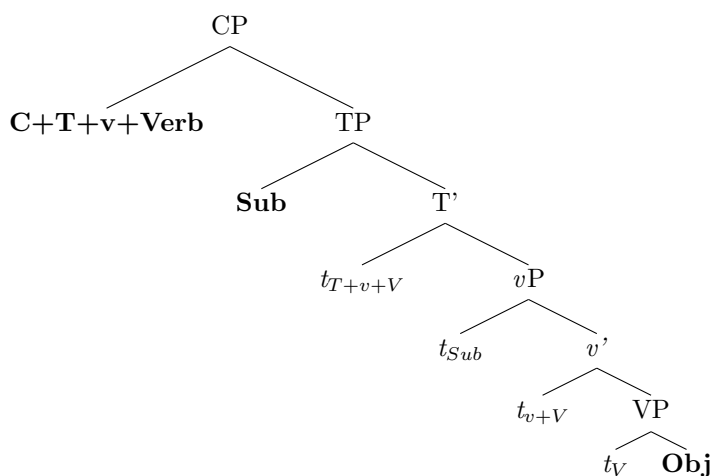
An alternative view is that V^0 only moves as high as IP/TP (e.g., Aldridge 2004; Rackowski 2002; Richards 2000; Sproat 1985; McCloskey 1996).

4.1.1 V-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 (36b-36c).

(36) Irish ellipsis

    a. Sciob   an cat an teireaball 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 C-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 (36) 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. 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.[16]

4.1.2 V-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 2013).

Otsuka (2001, 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.

(37) Tongan clitic and independent subject pronouns

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

       'He told the story to the man.'

    b. 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 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

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[16]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.

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-raising accounts

Scrambling is the most common way of deriving VOS in VSO languages under a V^0-raising analysis; such accounts have been proposed for Tongan (Otsuka 2002) and Tagalog (see Rackowski 2002; Richards 2000; Rackowski and Richards 2005).[17]

Tongan objects can bear case in both VSO and VOS structures.

(38)   Tongan VSO/VOS

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

       'David killed Goliath.'

    b. Na'e tamate'i 'a   Kōlaiate 'e   Tēvita.
       PST kill.TR   ABS Goliath ERG David

       'David killed Goliath.' Tongan (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 invariably appear to the right, as is shown for subjects in (39a) and for objects in (39b):

(39)   Tongan VSO/VOS with heavy constituents

    a. '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.'

    b. 'Oku 'ene 'e   he   ta'ahine 'a   e   pepe 'oku ne puke 'a   e   me'a va'inga.
       PRS   tickle ERG DET girl   ABS DET baby PRS RP hold ABS DET toy

       'The girl is tickling the baby who is holding a toy.'

Several researchers have also noted alternations between VSO and VOS is sometimes determined by information-structural considerations; given information appears relatively closer to the verb, whereas new information is placed farther to the right (Otsuka 2002; Custis 2004: Ch. 2; Ball 2008: 56-57).[18]
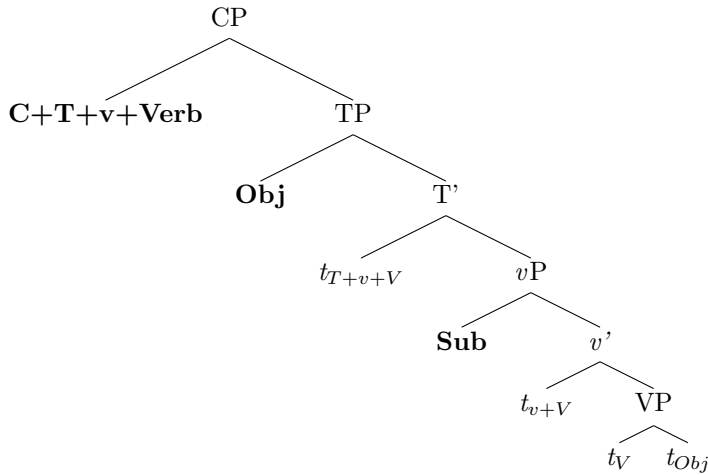
Researchers vary in their approach to information-structural factors; some accounts place such factors in syntax, while others put the explanatory burden on PF or more general non-syntactic factors. Among syntactically-oriented accounts, Otsuka (2002) and Richards (1993) offer derivational approaches to VSO/VOS scrambling. Both authors treat scrambling as an A'-operation.

Following Miyagawa's (2001) account of scrambling in Japanese, Otsuka (2002) proposes that EPP on T^0 has an optional focus feature, which attracts the relevant DP to its specifier. Recall that for Otsuka, V^0-raising is V^0-T^0-C^0, which is how the verb ultimately precedes DPs in spec,TP.

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[17]See Billings (2005), Guilfoyle, Hung, and Travis (1992) and Sabbagh (2005, 2013) for alternative perspectives on VOS/VSO alternations in Tagalog.

[18]Similar information-structural considerations are given for the VSO/VOS alternations in Maori (Bauer 1993: 54-64) and Samoan (Mosel and Hovdhaugen 1992: 448-451).

(40) Scrambling VOS

```
                        CP
                  ┌──────┴──────┐
            C+T+v+Verb          TP
                          ┌──────┴──────┐
                        Obj             T'
                                  ┌──────┴──────┐
                              t_{T+v+V}         vP
                                          ┌──────┴──────┐
                                        Sub             v'
                                                  ┌──────┴──────┐
                                              t_{v+V}           VP
                                                            ┌────┴────┐
                                                          t_V       t_{Obj}
```

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 (41) or weak crossover (42) (See also Richards 2013a).

(41) Tagalog scrambling and anaphor binding

    a. T\<um\>ingin   ang lalaki sa   sarili niya sa   salamin.
       \<PERF.AV\>look ANG man   DAT self   his   DAT mirror

       'The man looked at himself in the mirror.'

    b. T\<um\>ingin   sa   sarili niya ang lalaki sa   salamin.
       \<PERF.AV\>look DAT self   his   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   sarili$_i$ sa   pangulo$_i$.
       \<PERF.AV\>criticize ANG PL   article   about   DAT him/her-LI self   DAT president

       ('The articles about herself$_i$ criticized the president$_i$.')

    d. *B\<um\>atikos   sa   pangulo$_i$ ang mga artikolo tungkol sa   kanyang   sarili$_i$.
       \<PERF.AV\>criticize DAT president ANG PL   article   about   DAT him/her-LI self

       ('The articles about herself$_i$ criticized the president$_i$.') (Richards 1933:33)

(42) 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)

Without the addition of some independent analytical component to account for post-verbal word order, V^0-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

Sections 3-4 demonstrated that both V^0- and VP-raising accounts commonly evoke the EPP to motivate movement. In SVO languages, the EPP feature is commonly assumed to be a [D] feature associated with T^0, which triggers the overt movement of a DP into spec,TP. 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 Biberauer 2003; Carstens 2005; Massam and Smallwood 1997; 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 spec,TP 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], etc.—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 paper 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 2006; Cole and Hermon 2008).

Richards (2013b) seeks to derive the EPP from principles of phonological well-formedness via a condition he calls *Affix Support*.

(43) *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 (44) and subsequent examples, the tense affix is shown in bold and the relevant metrical boundary in demarcated with a bracket.

(44) Spanish

Aparec]**-ió** un   hombre.
arrive-PST INDEF man

'A man arrived.'

In other cases, metrical structure is only assigned after a word is morphologically complete. Richard (2013b) 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.

(45) 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 a parameterized right-branching specifier account of V1 like the ones discussed in Section 2.1.

If tense is prefixal, *Affix Support* must be satisfied by a metrical boundary to the right of the suffix. Examples are given from Tz'utujil and Tagalog.

(46) Tz'utujil *Affix Support* and prefixal tense

X-∅-pi   [jun   aachi.
COM-3.SG.ABS-come INDEF man

'A man came'

(47) Tagalog *Affix Support* and prefixal tense

d-**um-**ating   [t_i ang lalaki$_i$.
<PERF.AV>arrive   ANG man

'The man arrived.'

Note that the boundary that satisfies *Affix Support* in (47) 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 (47) are grammatical, Richards posits that *Affix Support* is satisfied at the point in the derivation when TP is under construction.[19] Therefore, the syntax has to know where metrical boundaries are created generally, without regard for whether a particular syntactic object will actually be pronounced.[20]

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? 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-80s. 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

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[19]Richards (2013b) 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.

[20]See also Richards' (2013b) discussion of subject drop in Finnish.

structure accounts of V1, particularly within the framework of Lexical/Functional Grammar (e.g., Carnie 2005; Kroeger 1993; Sells 2000).

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 non-verbal 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 non-verbal 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 co-indexed with those arguments. Many V1 languages display properties of pronominal argument languages:

(48)   Properties of pronominal argument languages (Baker 1996; Jelinek 1984)
    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 (b) and the optional occurrence of free-standing subjects and arguments (c) 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 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, 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 2.1.1 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 SOV. Languages in these families sometimes have two agreement prefixes, but never two agreement suffixes. More specifically, neither ergative nor nominative markers follow the verb. If the true word order in Mayan and Austronesian were SVO/SOV, 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 char-

acteristics of 'true' V1 languages. Finally, pronominal arguments and clitic-doubling share many superficial properties; care should be taken when distinguishing between the two.

7 V1 at the syntax-phonology interface

Section 2 identified two principles of generative syntax that are particularly relevant to understanding the right-branching account of V1. The first was the *Narrow syntax assumption*:

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

The statement in (49) is at least tacitly assumed by all of the proposals 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 (2013) recasts the subject lowering account of V1 as a prosodic phenomenon. In the second, Bennett et al. (2013a, 2013b) 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. Both of these proposals represent a larger trend to explore the potential of the syntax-phonology interface for solving standing problems in word order variation.

7.1 Subject lowering

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

(50)   Subject lowering
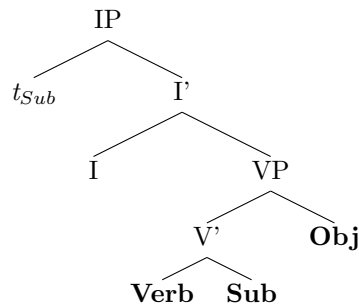
Subject lowering has been proposed for Berber (Choe 1987), Chamorro (Chung 1990, 1998), and Tagalog (Sabbagh 2005, 2013). Evidence in support of this analysis comes from coordination. The same position(s) available to the subject in a single-VP structure, i.e. VSO/VOS, are also available in coordinated structures. Interestingly, in both Chamorro and Tagalog, subjects that are shared by multiple conjuncts can surface in any conjunct. This is shown schematically in (51):

(51)   [Verb *(SUB)* OBJ *(SUB)*] coor [Verb *(SUB)* OBJ *(SUB)*]

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 (2013) proposes a prosodic constraint *Weak Start* to help motivate a subject-lowering account of Tagalog V1.[21]

(52) *Weak Start* (Sabbagh 2013): 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 X^0s 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 X^0s correspond to the prosodic category ω, X' is not represented in the structure.

(53) Syntax-prosody mapping before subject lowering
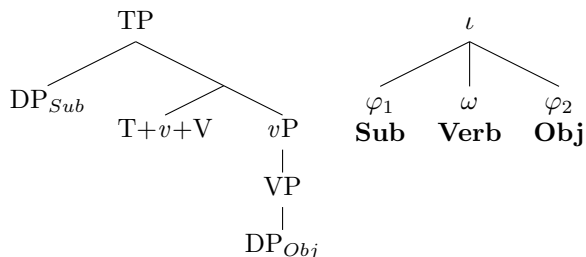
Sabbagh proposes that structures like the one in (53) violate *Weak Start*, which regulates the order in which different members of the prosodic hierarchy (i.e. $\iota > \varphi > \omega$) can surface within a single prosodic phrase.

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).

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[21]Sabbagh also connects the principle of *Weak Start* to an apparently unrelated problem in the domain of *wh*-word order in Tagalog; this latter use of *Weak Start* will not be a focus of this paper.

(54) Syntax-prosody mapping with subject lowering
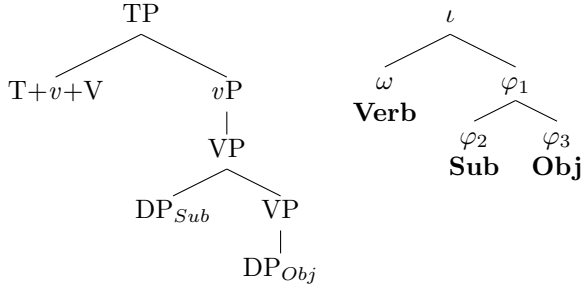
In (54), the verb (ω) maps onto a prosodic constituent that is lower on the prosodic hierarchy than the constituent that immediately follows (φ_1). For actual examples of Tagalog VSO see (41) and (42) above.

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 lower-ranked 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*.

Sabbagh's analysis also raises an important issue: more primary prosodic data is needed to support prosodic accounts of phenomena traditionally handled in the domain of syntax. Due to lack of 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.[22] 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 et al. (2013a, 2013b) 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).

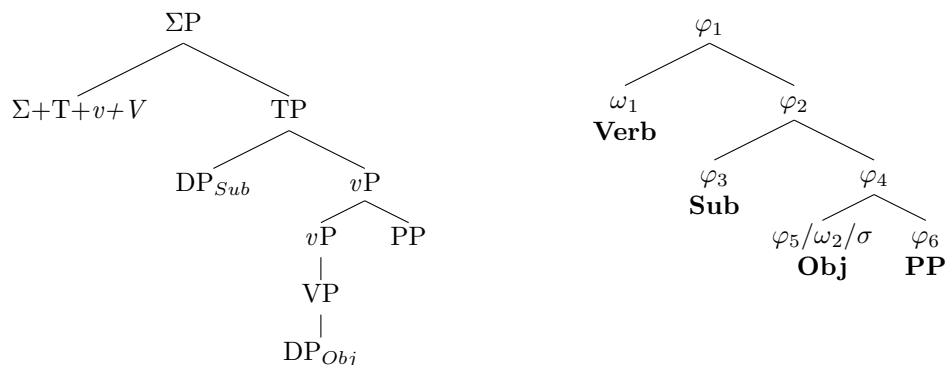(55) [Verb SUB *(PRO$_{OBJ}$)* XP *(PRO$_{OBJ}$)* YP *(PRO$_{OBJ}$)* ZP *(PRO$_{OBJ}$)*]

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[22]See Zec and Inkelas (1990), Ito and Mester (1992, 2006, 2009), Selkirk (2000, 2011) for a discussion of binarity and prosodic constituents.

In addition to the canonical object position and clause-final position, a number of intermediary positions are available to Irish object pronouns as well. This is reminiscent of the variable position of subjects in Tagalog and Chamorro discussed above. For a discussion of the challenges that face syntactic accounts of pronoun postposing in Irish, see Bennett et al. (2013a).

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) Syntax-prosody mapping of Irish VSOX

$$
\begin{array}{ll}
\Sigma P & \varphi_1 \\
\Sigma{+}T{+}v{+}V \quad TP & \omega_1 \ (\textbf{Verb}) \quad \varphi_2 \\
DP_{Sub} \quad vP & \varphi_3 \ (\textbf{Sub}) \quad \varphi_4 \\
vP \quad PP & \varphi_5/\omega_2/\sigma \ (\textbf{Obj}) \quad \varphi_6 \ (\textbf{PP}) \\
VP & \\
DP_{Obj} &
\end{array}
$$

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 (D^0 and NP), it would surface as a phonological phrase (φ_5); as a strong pronoun, it would be a phonological word (ω_2); 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 et al. 2013a, 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 et al. 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 et al. 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) Irish PP postposing in small clauses

    a. Labharfaidh mé leis   ar an Chlochán Liath amárach.
       speak-FUT   I   with-him on Dunloe   tomorrow
       'I'll speak to him tomorrow in Dunloe.'

    b. Labharfaidh mé ar an Chlochán Liath amárach   leis.
       speak-FUT   I   on Dunloe   tomorrow with-him.
       'I'll speak to him tomorrow in Dunloe.' (Bennett et al. 2013a: 74)

Understanding the role of *Binarity* in Irish is crucial to determining why these prepositional phrases can postpose in the context of small clauses. Such a structure is otherwise not predicted by *Match Theory*, given the prosodic structure of the small clause:

(60) Syntax-prosody mapping of Irish small clauses
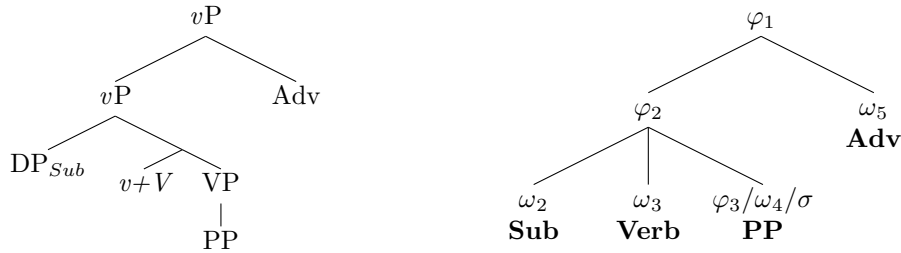
Even if the prepositional phrase were to surface in its weak form in (60), it is not the leftmost constituent of a prosodic phrase, and therefore does not violate *Strong Start*. Yet, examples like (59b) appear to repair a violation of *Strong Start* by postposing the prepositional phrase.

Bennett et al. 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, postposing ensues. Bennett et al.'s analysis is maximally effective because it is grounded in a solid understanding of prosodic structure in the language in question.

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 connections between extraction asymmetries and the particular mechanism that results in V1 (e.g., Rackowski and Travis 2000; Aldridge 2004; Cole and Hermon 2008, a.o.).

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 (2013b). Oda derives Greenberg's Universal 12 from derivational principles: languages that derive V1 by raising the entire VP are unable to form *wh*-questions via movement, while languages that employ V^0-raising can *wh*-move. Oda employs the following principles:

(61)   Major theoretical components of Oda (2005)

    a. Parameterized EPP: EPP is satisfied by either a ϕ- or pred-feature
       (Massam 2001)

    b. Generalized EPP: T^0 and C^0 have an EPP feature
       (Chomsky 2000, 2001)

    c. EPP Uniformity: EPP on T^0 and C^0 have the same parameter settings
       (Chomsky 2000, 2001)

(61c) speaks to the basic derivation of V1. If the EPP is satisfied by a ϕ-feature (EPP-ϕ), then V1 is derived via V^0-raising if the EPP is satisfied by a pred-feature (EPP-pred), then V1 is derived via VP-raising. (61b-c) together state that; if EPP on T^0 is EPP-pred, then so is EPP on C^0. *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 Pred1

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.[23]

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 (2013b).

Looking specifically at data from Chol and Tagalog, Coon (2013b) connects the general V1 tendency to lack a copula (Carnie 1995) with two other tendencies of the Austronesian and Mayan V1 languages:

(62)   Common tendencies in Austronesian and Mayan (Coon 2013b)

    a. No copula

    b. No overt tense morphology (aspect morphology instead)

    c. Subjects of non-verbal predicates pattern with unaccusative subjects

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[23]Oda's solution is to promote VP-raising in Irish, contrary to the analysis advanced by Mc-Closkey.

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. Non-verbal predicates do not undergo *Conflation*, but remain headed by the functional category $Pred^0$. The difference between verbal and nonverbal predicates is therefore feature-based in these languages.

For Chol 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 $Pred^0$ for nonverbal predicates as well as verbal predicates.

9 Conclusions

In this chapter, data from a number of V1 languages were presented in order to illustrate different approaches to the derivation of verb-initiality. The bulk of the data came from two prominently-V1 language families, Mayan and Austronesian, which present intriguing similarities and differences with respect to V1. 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 has been reached before: they are not a uniform group (Carnie et al. 2005; Chung 2006). For example, VOS/VSO languages differ in the factors that trigger alternations. This is an underexplored area that should inform the way researchers derive V1.

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 derive V1 in narrow syntax. 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.

Certain approaches are also compatible with post-syntactic approaches to V1. 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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