# VOS two ways: A unified account of V1 order in Mayan

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This paper argues for a unified syntax for verb initial (V1) word order in the Mayan family. Existing proposals derive V1 order in Mayan by base-generating the subject in a $v$P-internal right-side specifier (Aissen 1992) or by XP-fronting of a predicate to a high left-side specifier position (Coon 2010). We review problems with both accounts, and argue instead for a head-movement account of Mayan V1, shown in (1).

(1)  $[_{\text{IP}}$ TAM $[_{\text{VP}}$ $\boxed{V\text{-}Voice\text{-}v^0}$ $[_{\text{VOICEP}}$ $\boxed{\text{Subj}}$ $[_{\text{VOICE'}}$ Voice$^0$ $[_{\text{VP}}$ V$^0$ $\boxed{\text{Obj}}$ $]$ $]$ $]$ $]$ $]$

Specifically, we propose that the verb root undergoes head movement through valence-related morphology to a head which hosts stem-final "status suffixes", located directly above the subject but below Infl$^0$ (labelled $v^0$ following Coon et al. 2014). This proposal both accounts for uniformity in stem formation across the family and provides a natural account of VSO orders. However, many languages also exhibit VOS order. We argue that there are two primary paths to VOS order (see 2), independently motivated below.

(2)  a. Prosodic reordering of bare NP objects (Clemens 2014)

b. High right-side topics (building on Aissen 1992; Curiel 2007)       PATHS TO VOS

Our account finds broad support in the literature on individual Mayan languages and makes testable predictions, especially with respect to prosodic boundary marking and constituency more generally.

**Empirical background:** While Mayan languages are generally considered to have basic V1 order, many languages allow all six possible orders of S, V, and O. The ordering of preverbal arguments is relatively well understood: arguments appearing to the left of the verb are argued to occupy TOPIC and FOCUS positions (Aissen 1992). The ordering of *postverbal* elements has been the subject of a wealth of literature (and debate) in the Mayan family. Because one or both arguments may be *pro*-dropped, and one or both may appear in preverbal topic or focus positions, it is extremely rare to find naturally-occurring sentences with two postverbal arguments (>1% by many corpus counts; e.g. Robinson 2002; England and Martin 2003).

Despite these challenges, there is near consensus that the roughly thirty Mayan languages spoken today can be divided into two main groups with respect to the ordering of postverbal arguments: **(i)** languages with rigid VSO order, and **(ii)** languages with alternating VOS/VSO order (England 1991). Languages with rigid VSO order—such as those in the Mamean and Q'anjob'alan branches—are straightforwardly derived with the syntax in (1). The challenge addressed in this paper is to account for languages with alternating VOS/VSO orders, such as Ch'ol, in the context of a unified head-movement account of V1.

**VOS/VSO:** The alternation between VOS/VSO orders has been proposed to be governed by a range of properties of the two arguments, including: **(i)** definiteness and specificity; **(ii)** discourse prominence; **(iii)** phonological weight; and **(iv)** animacy. That phonologically heavy NPs may undergo Heavy NP Shift (Ross 1967) has been well documented for Mayan languages and cross-linguistically, and we set this aside here. Following the spirit of proposals in Minkoff 2000, Robinson 2002, and Skopeteas and Verhoeven 2005, we argue that the apparent effects of animacy should not receive a syntactic treatment, because they are fundamentally a *processing effect*. This is corroborated by the fact that works which list animacy as a factor rely on comprehension tasks: consultants are presented with sentences with two postverbal NPs and asked to provide interpretations. Following Minkoff 2000, and Skopeteas and Verhoeven 2005, we propose that speakers assign the role of subject to the most animate argument in such tasks (there is no case marking in Mayan, so sentences of the form V-NP-NP are potentially ambiguous). However, as discussed in Robinson 2002, corpus studies actually present evidence *against* proposals—such as the frequently-cited one in Larsen and Norman 1979—that the animacy of the two arguments has an effect on word order.

We are now left with two factors from above which we claim *do* in fact govern the postverbal ordering of arguments: **(i)** the presence of D$^0$-level material in the object (not definiteness or specificity per se), and **(ii)** discourse prominence. These correspond to the derivations of VOS order in (2a) and (2b), respectively.

**Prosodic reordering of NP objects:** Clemens and Coon (to appear) examine three acoustic cues to prosodic phrase boundaries in the VOS/VSO alternating language, Ch'ol: pitch, duration, and the distribution of pauses. These are shown to indicate the prosodic constituency of VSO and VOS clauses schematized in (3). Crucially, note that in VOS the verb and the object are phrased together, while in VSO they are not. We propose that VOS order in Ch'ol is the result of compliance with a prosodic well-formedness constraint, ARGUMENT-$\varphi$ (Clemens 2014, 2016), which requires that the verb and its complement be phrased together.

(3)  PHRASING OF VSO AND VOS

     a. $(V)_\varphi \ (S)_\varphi \ (O)_\varphi$

     b. $(V \ O)_\varphi \ (S)_\varphi$

(4)  ARGUMENT-$\phi$ (Clemens 2014)

A head $H^0$ with a categorial feature [C] and head $C^0$ with the same [C] feature must constitute a $\varphi$-phrase.

Crucially, as described in Coon 2010, VOS objects in Ch'ol must be bare NPs (5); VSO occurs when the object is a full DP (6). We propose that the verb in Ch'ol always undergoes head movement to $v^0$, as in (1). High-ranked ARG-$\phi$ is responsible for shifting NP objects into a verb-adjacent position, where they can be pronounced in the same $\varphi$ phrase as the verb, resulting in VOS order. DP objects, on the other hand, are assumed to be phases. Subsequently, the verb and the DP object are sent to spell-out in different phases and ARG-$\varphi$ fails to affect how prosodic structure is assigned. VSO is thus correctly maintained for DP objects.

(5)  Tyi ikuchu [O ñeñe' ] [S ajMaria ].
     PFV carry     baby     Maria
     'Maria carried the baby.'         (VOS)

(6)  Tyi ikuchu [S ajMaria ] [O ili   ñeñe' ].
     PFV carry     Maria     DEM baby
     'Maria carried this baby.'         (VSO)

VOS is "basic" in Ch'ol because Ch'ol is a language which *allows bare NP arguments* (see e.g. Bošković's (2008) "NP languages"). Rigid VSO languages like Q'anjob'al generally require arguments to be full DPs (7), but allow bare NP objects in "incorporation antipassive" constructions (8); as predicted by our account, in exactly these environments, even "rigid VSO" languages exhibit VOS.

(7)  Max stzok' [S naq winaq ] [O te   si'    ].
     PFV cut       DET man    DET wood
     'The man cut wood.'         (VSO)

(8)  Max tzok'-w-i    [O si'    ] [S naq winaq ].
     PFV cut-AP-SUF   wood      DET man
     'The man wood-cut.'         (VOS)

**Right-side topics:** In our survey of naturally-occurring sentences with two postverbal orders in VOS/VSO-alternating languages, the majority of VOS forms have bare NP objects, while VSO forms have DP objects, in accordance with the proposal above. However, there are several apparent counterexamples in which VOS order occurs with full DP objects, in which the placement of the subject cannot be explained via heavy NP shift. We show that in these environments the VOS subject either appears with explicit topic-marking morphology (e.g. Tojolab'al in Curiel 2007), or is clearly a topic based on the surrounding context (e.g. Tseltal in Polian 2013). Following Aissen (1992) and subsequent work, we assume that topics occupy a high position in Mayan; however, drawing on discussion in Curiel 2007, Polian 2013, and others, we propose that these high topics may be ordered to the left, or to the right.

     In sum, we argue that V1 in Mayan is consistently derived by head-movement in the syntax; VOS may result either from prosodic reordering of NP objects, or right-side topicalization of subjects. Though a full study of Mayan languages is well outside the scope of this work, the proposals taken together make strong testable predictions about the prosodic structure of different types of VOS clauses: VOS sentences with bare NP objects should have the prosodic constituency of (3b); the verb and the object in VOS sentences with DP objects are not expected to be parsed into the same $\varphi$-phrase; instead, we expect to find evidence that the subject in these sentences has the prosodic characteristics of high-adjoined topics, e.g., they may be delimited by an intonational-phrase boundary (see Aissen 1992).

Sel. refs: **Aissen** 1992. Topic and focus in Mayan. *Language*. 68. • **Clemens** 2014. Prosodic noun incorporation and V1 syntax. PhD Harvard. • **England** 1991. Changes in basic word order in Mayan. *IJAL* 57.