

## On the inventory of *v* and Voice\*

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### 1. Introduction

This paper discusses the structure of the thematic domain, the lower part of an extended verbal projection where the arguments are base-generated and thematically licensed. The commonly adopted split *v*P-VP structure that divides the arguments into external (outside VP) and internal (inside VP) (Chomsky 1995, Kratzer 1996) was elaborated by Harley (2013, 2017), who further proposed splitting the VP-external functional projections into *v*P and VoiceP. Pylkkänen (2008) argues that languages can have either split or bundled *v*P-VoiceP, which leaves open a possibility for the external argument to be merged (i) only in spec,*v*P, (ii) only in spec,VoiceP, or (iii) flexibly, in spec,*v*P or spec,VoiceP. Following this line of thought, we explore the properties of these functional heads and take a closer look at the positions available for the introduction of the external argument.

To address these questions, we present a case study of verbal predication in Kaqchikel (<Mayan; Patzún variety, Chimaltenango, Guatemala). We advocate a split *v*P-VoiceP approach, but one that insists on principally distinct functions for *v*P and VoiceP. We develop a comprehensive inventory of *v* and Voice, and further demonstrate that Kaqchikel has two base positions for external arguments: spec,*v*P and spec,VoiceP (see Massam 2009, Polinsky 2016, Tollan 2018, Tollan and Massam 2022). Only *v* can introduce a new thematic relation, while **Voice** manipulates the pre-existing argument structure, both syntactically and thematically. Consequently, VoiceP is an optional layer added to the structure only when needed.

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The paper proceeds as follows. Section 2 outlines the relevant morphosyntactic properties of Kaqchikel. Section 3 presents the inventory of *v* and Voice. Section 4 provides empirical evidence, coming from the distribution of ergative subjects, passivization (and reflexivization) patterns, morphological causatives, and “vacuous causatives”, a previously undescribed construction that we propose to analyze as an instance of applicativization.

## 2. Background on Kaqchikel

Kaqchikel is a Mayan language from the K’iche’an-Mamean (Eastern) branch. The original data presented below comes from the variety spoken in Patzún (Chimaltenango), Guatemala, and were collected by the first author in 2023 during online sessions with three native speakers.

The following morphosyntactic properties of Kaqchikel will be relevant to our discussion:

- Ergative alignment; head-marking; V1, VOS, and common SVO orders
- Finiteness marked via a Tense-Aspect-Mood prefix (in/completive), associated with Infl (Aissen 1992)
- Finite verb template: (1)CMP-ABS-ERG-ROOT(-CAUS-PASS/AP-TR)
- ABS uniformly assigned by Infl (see Coon et al. 2014 on Kaqchikel being a high-absolutive language)

Crucially for the purposes of our research, Kaqchikel has a wide range of productive valency-changing operations: passivization, causativization, reflexivization (García Matzar and Rodríguez Guaján 1997, Patal Majzul et al. 2000), Agent Focus (1b),<sup>1</sup> and antipassivization with a null object (1c).

- (1) a. Ri ixoqi’ n-Ø-ki-këm ri ützt potaj.  
 DET women ICMP-ABS3SG-ERG3PL-weave DET good huipil  
 ‘The women weave good huipil(es).’
- b. Ja ri ixoqi’ y-e-kem-o ri ützt potaj.  
 FOC DET women ICMP-ABS3PL-weave-AF DET good huipil  
 ‘THE WOMEN weave good huipil(es).’
- c. Rije’ y-e-tzaq / y-e-tzopin / y-e-kem-on.  
 they ICMP-ABS3PL-fall ICMP-ABS3PL-jump ICMP-ABS3PL-weave-AP  
 ‘They fall/jump/weave.’

<sup>1</sup>In Agent Focus, both arguments remain full DPs. Unlike in active transitives, there is no ERG on the verb and a single ABS marker cross-references the DP with a higher Person feature; see Preminger (2014) for a discussion. Agent Focus is primarily used when the subject of a transitive predicate (Agent) undergoes A-bar movement.

### 3. Proposal: Inventory of *v* and Voice

We advocate a split *v*P-VoiceP approach for Kaqchikel, proposing a strict division of labor between *v* and Voice. Specifically, only *v* introduces an external argument relation (Agent/Actor/Causer); semantically, it is associated with the entailment of an external argument. This functional head also often (though not always, see below) projects a DP in its specifier position. In contrast, Voice can only manipulate a preexisting thematic relation and is added only when needed.

We further argue that the external argument in the antipassive/unergative/AF is merged lower, in *spec,vP*, and that VoiceP is absent from these constructions. On the contrary, the external argument in the transitives/causatives is merged higher, in *spec,VoiceP* (see Masam 2009, 2020, Tollan 2018 on low vs high Agents). The types of *v* and Voice available in Kaqchikel are listed below and further summarized in (2).<sup>2</sup>

#### Types of *v*:

- ***v*<sub>TV</sub>** and ***v*<sub>Caus</sub>** introduce an Agent/Causer relation but do not project a syntactic argument<sup>3</sup>
- ***v*<sub>ITV</sub>** and ***v*<sub>AF</sub>** introduce an Agent relation and project an ExtArg; ***v*<sub>ITV</sub>** is also used in antipassives (Burukina and Polinsky 2023)
- ***v*<sub>Unacc</sub>** is a general verbalizer<sup>4</sup>

#### Types of Voice:

- **Voice<sub>TV</sub>** projects a DP to match an existing ExtArg relation
- **Voice<sub>Pass</sub>** existentially closes the ExtArg
- **Voice<sub>RefI</sub>** projects an Agent DP identifying it with an existing internal argument variable (Burukina 2019)

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<sup>2</sup>To account for the selectional properties of a particular head, we adopt the system put forward by Bruening (2013), whereby a head is equipped with certain selectional features that it needs to check by combining with dependents of particular categories. For example, [S: V, N] means that the functional item combines with a complement of the verbal category and further requires a nominal dependent in the specifier position.

<sup>3</sup>That *v*<sub>TV/Caus</sub> are defective may be explained by appealing to the notion of equidistance. If base-generated within the transitive *v*P, the ExtArg and IntArg are equidistant; Voice removes the equidistance. In an intransitive *v*P there is only one argument. In an Agent Focus configuration *v*<sub>AF</sub>, by assumption, distinguishes between the arguments by licensing the IntArg.

<sup>4</sup>The unergative/unaccusative distinction in Mayan has not received much attention in the literature, but see Coon (2013) on Chol, Lyskawa and Ranero (2022) on Tz'utujil for some diagnostics. As shown in Burukina (2021), Kaqchikel has true unaccusatives (e.g., *tzaq* 'fall' and *käm* 'die') and true unergatives (e.g., *atin* 'bathe' and *tzopin* 'jump') which cannot be analyzed as hidden transitives. This Kaqchikel-internal distinction is supported by difference in agreement patterns.

(2) *Inventory of v and Voice in Kaqchikel*

	Syntax	Case	Semantics	Exponence
v <sub>Unacc</sub>	S:V	–	–	∅
v <sub>ITV</sub>	S:V,N	–	Agent(x)	-Vn
v <sub>AF</sub>	S:V,N	[abs]	Agent(x)	-Vn/o
v <sub>TV</sub>	S:V	–	Agent(x)	∅
v <sub>Caus</sub>	S:V	–	Causer(x)	-isa
Voice <sub>TV</sub>	S:V,N	[erg]	–	∅
Voice <sub>Pass</sub>	S:V	–	∃ ExtA	-x
Voice <sub>Refl</sub>	S:V,N	[erg]	ExtA ≈ IntA	-i'

(3) *unergatives, including antipassives*

[<sub>InflP</sub> Infl [<sub>vP</sub> ExtArg [<sub>v</sub> v<sub>ITV</sub> [<sub>vP</sub> V ]]]]

(4) *Agent Focus*

[<sub>InflP</sub> Infl [<sub>vP</sub> ExtArg [<sub>v</sub> v<sub>AF</sub> [<sub>vP</sub> V IntArg ]]]]

(5) *active transitives*

[<sub>InflP</sub> Infl [<sub>VoiceP</sub> ExtArg [<sub>Voice</sub> Voice<sub>TV</sub> [<sub>vP</sub> v<sub>TV</sub> [<sub>vP</sub> V IntArg ]]]]]]

**4. Evidence for the vP-VoiceP split in Kaqchikel**

In this section we will consider evidence for the existence of both vP and VoiceP in the thematic domain in Kaqchikel. This comes from the distribution of ergative subjects, passivization patterns, and morphological causatives (including “vacuous causativization”).

**4.1 Ergative subjects**

The proposed split vP-VoiceP account offers a straightforward explanation for why Kaqchikel does not allow ergative subjects with intransitives and Agent Focus. We propose that all and only Voices that project an external argument – that is, Voice<sub>TV</sub> and Voice<sub>Refl</sub> (see Burukina 2019 on the latter) – are equipped with an [erg] feature and can assign ergative case under a spec-head relation. Crucially, these Voices are incompatible with a fully saturated intransitive vP. Hence, no ergative case is available with unergatives, unaccusatives, Agent Focus, and antipassive.<sup>5</sup>

Alternative analyses usually treat ergative as an inherent case.<sup>6</sup> At the same time, they are forced to stipulate that only certain types of v/Voice can assign ergative to an external

<sup>5</sup>Ergative subjects have been attested with apparent unergatives cross-linguistically, but in such instances, the verbs are covert transitives, as discussed, for example, in Hale and Keyser (1993).

<sup>6</sup>Yet another approach has been recently proposed by Deal and Royer (2024), who argue that ergative morphology in Mayan results from a single case-assigning probe establishing an agreement relation with two goals. Thus, in a transitive clause a functional head in the thematic domain (v or Voice) agrees with both

argument, which makes the case-licensing architecture less uniform. While this is not an insurmountable problem from an empirical perspective, the more uniform solution proposed here is preferable on a theoretical plane.

## 4.2 Passivization

As shown in (6) and (7), only active transitive and causativized predicates (but not unergatives or Agent Focus) can be passivized in Kaqchikel.

- (6) a. *passivized transitives & causatives – OK*  
 X-Ø-k’ay-**ix** / X-Ø-kam-is-**äx** ri äk’.  
 CMP-ABS3SG-sell-PASS CMP-ABS3SG-die-CAUS-PASS DET rooster  
 ‘The rooster was sold/killed.’
- b. *passivized intransitives – bad*  
 \*X-Ø-tzaq-**öx**. / \*X-Ø-muxan-**öx**. /  
 CMP-ABS3SG-fall-PASS CMP-ABS3SG-swim-PASS  
 \*X-Ø-kan-**un-ux**.  
 CMP-ABS3SG-search-AP-PASS

To account for this restriction, we propose that Voice<sub>PASS</sub> must manipulate a pre-existing external-argument relation. Because of that, Voice<sub>PASS</sub> is compatible only with a “defective” transitive/causative vP (which introduces such a relation but does not project a syntactic argument to saturate it), but not with a fully saturated intransitive or AF vP.

- (7) *passivized transitives – OK*  
 [VoiceP Voice<sub>PASS</sub> [<sub>vP</sub> vTV [<sub>VP</sub> V IntArg ]]]
- (8) *passivized unergatives – bad*  
 [VoiceP Voice<sub>PASS</sub> [<sub>vP</sub> ExtArg [<sub>v</sub> vTV [<sub>VP</sub> V ]]]]

Two alternative analyses can be put forward. First, one may argue that Kaqchikel has a single (bundled) vP/VoiceP. Alternatively, it may be proposed that Kaqchikel has split vP-VoiceP but the external argument is always externally merged in spec,vP. However, these approaches face the following problems.

First, under the assumption that there is only one VP-external projection in the thematic domain (for simplicity, we will call it vP), we would need to stipulate some [ $\pm$ transitive] feature, which remains rather uninformative (e.g., it cannot be linked to the actual number of syntactically present arguments, as Agent Focus predicates cannot be passivized). This is

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the internal argument and the external argument, giving rise to an ergative prefix. However, this analysis fails to account for the obligatory presence of ERG in reflexive constructions; Mayan reflexive objects do not undergo raising and do not trigger agreement (Coon et al. 2014, Burukina 2019), yet the external argument of a reflexive predicate must be cross-referenced by an ergative marker on the verb.





with it.<sup>8</sup> Appl is similar to a preposition in that it comes with a new thematic relation (Location), introducing and licensing a DP argument to saturate that thematic role. Voice<sub>Appl</sub> is then projected above ApplP. We assume that Voice<sub>Appl</sub> is equipped with a merge feature D/N and with [erg]; however, unlike Voice<sub>TV</sub>, it does not project a new argument (as there is no unsaturated relation in the derivation). Instead, it triggers movement of the existing DP from spec,vP to its own specifier. The presence of Voice<sub>Appl</sub> in the structure is motivated by the need to avoid a categorial mismatch between the ApplP and the higher functional projections, which select a complement of the category V. This concurs with our initial intuition that Voice is a purely syntactic head and that VoiceP is projected only when needed, that is, if the derivation cannot proceed without it.

(14) Appl = S: V, N; introduces a Location argument, both in semantics and in syntax  
Voice<sub>Appl</sub> = S: Appl, N + [erg]; requires movement of the ExtArg into spec,VoiceP

(15) *high applicatives*

[<sub>VoiceP</sub> Voice<sub>Appl</sub> [ DP<sub>Loc</sub> [<sub>Appl</sub> Appl [<sub>vP</sub> ExtArg [<sub>v</sub> v<sub>ITV</sub> [<sub>vP</sub> V ]]]]]]]

Our split vP-VoiceP approach restricts Appl to intransitives and predicts that it should be incompatible with a non-saturated transitive vP or a larger transitive/passive VoiceP. The prediction is borne out, as such forms as \**chul-isa-j* ‘urinate.TV-APPL-TR’ are ungrammatical. In contrast, under the assumption that all external arguments are projected in the same position (spec,vP), a transitive vP is no different from an intransitive one in being fully saturated and it remains unclear why it should not be able to combine with Appl. Again, such an approach can postulate the presence of a [ $\pm$ transitive] feature, but that would not be sufficient to model the difference between transitive and intransitive structures in a meaningful way.

## 5. Conclusions

This paper has aimed at answering the following core questions: (i) What is the inventory of the functional heads in the thematic domain? (ii) What are the roles and properties of these functional heads? (iii) What verb-phrase positions are available for the introduction of the external argument?

Focusing on Kaqchikel, we have examined a split vP-VoiceP structure with two distinct functional projections above VP. The main insight is that the two projections differ in their functions and, possibly, in their interpretive import. We propose that only v can introduce a new thematic relation, whereas Voice manipulates pre-existing argument structure. Consequently, Voice is added only when it is needed. We further argue that external arguments can be merged externally in either spec,vP (e.g., with unergatives) or spec,VoiceP (e.g., with active transitives).

<sup>8</sup>Syncretism between causative and high applicative morphology is common across the world’s languages (see Zúñiga and Creissels 2024, Polinsky 2024, and references therein).



## *On the inventory of v and Voice*

Our analysis offers a uniform description of Voice heads, as they all combine with the same transitive vP, and avoids stipulating an occasional “incomplete” unsaturated vP and an uninformative [ $\pm$ transitive] feature. The proposal advanced here also suggests a unifying property for those v heads that serve to introduce an Agent or Causer thematic relation.

Our analysis accommodates all the relevant data and adds functional projections to the structure only when they are needed. Further advantages of our proposal include a clear division of labor between different types of functional heads and a desirable unification of analyses concerning the distribution of applicative and voice heads. The appearance of agentive DPs at different heights in the structure (spec,vP and spec,VoiceP respectively) is consistent with observations made by other researchers concerning structural and associated thematic differences between lower and higher external arguments and makes testable predictions about heretofore underexplored differences between subjects of unergative intransitives and subjects of transitives.

The proposed account points out some directions for future research. First, it calls for a closer look at variation in the verbal domain across Mayan languages. Some Mayan languages (K’iche’, Chol) do not seem to distinguish between unergatives and unaccusatives, unlike Kaqchikel; Q’eqchi has no Agent Focus. How should the proposed inventory of v and Voice be adjusted to capture these and other possible differences?

Second, we agree with Pyllkkänen (2008) that some languages may have a split vP-VoiceP system and some may have a bundled vP/VoiceP system. We do not expect all languages to allow vP recursion and/or VoiceP recursion. If such recursion is indeed impossible in some language, a question arises as to whether these structural differences correlate with the (un)availability of certain valency-changing operations. Our approach predicts that antipassives should only be possible in languages with split Voice and v. It appears that languages with bundled Voice and v actually lack antipassives (e.g., Basque); this needs to be tested further. Next, languages with a bundled v/VoiceP are expected to have morphological causatives either restricted to unaccusatives or applicable to all intransitives and transitives. How robust are these correlations? We leave this question to be answered by future research, which should focus on comparing cross-linguistic data.

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