When Philippine-type voice meets Indo-European-type voice: Insights from Puyuma

Puyuma, an understudied western Austronesian language, features the compatibility of Philippine-type and Indo-European-type voice alternations within the same clause. Co-occurrence of these two voice systems is unexpected under the traditional approach to Philippine-type voice, where Philippine-type voice is treated on par with Indo-European-type voice as valency-rearranging morphology hosted within VoiceP (Payne 1982; Mithun 1994; Aldridge 2004 et seq.). Novel evidence from Puyuma argues against this approach, and demonstrates instead that Philippine-type voice is hosted high in the left periphery as topic-indicating agreement akin to that reported in western Nilotic, which then makes its compatibility with Indo-European-type voice unsurprising. This observation lends new support to a family of Ā-agreement approaches to Philippine-type voice (Chung 1994; Pearson 2005; Chen 2017), and indicates Philippine-type voice is fundamentally different from Indo-European-type voice. The case of Puyuma thus highlights the importance of approaching conventional labels with caution, and the need to re-examine existing claims with data from understudied languages.

Keywords: Austronesian-type voice ∘ Philippine-type voice ∘ Ā agreement ∘ Voice ∘ Puyuma

Contents

1 Introduction

Puyuma, an understudied western Austronesian language spoken in Taiwan, demonstrates the compatibility of two distinct voice systems within the same clause. Like many other neighboring Austronesian languages, Puyuma exhibits a four-way voice system known as 'Philippine-type voice,' whereby the sole phrase of the clause accessible to relativization is indicated both via four-way voice morphology on the verb and by a specific marker (*na* in (1)). To remain theory-neutral, this marker is labeled as PIVOT throughout this paper. In simple clauses with a bivalent verb like (1), the use of Actor Voice (AV), Patient Voice (PV), Locative Voice (LV), and Circumstantial Voice (CV) correlates with pivot-marked agent (1a), theme (1b), locative (1c), and instrumental (1d), respectively. [1]

(1) *Philippine-type voice alternation in Puyuma*

a. S⟨**em**⟩elap na walak kana ramaraman i dalran dra saselap.
sweep⟨**AV**⟩ DEF.PIVOT child DEF.ACC rubbish LOC road INDF.OBL broom
'*The child* swept up the rubbish on the road with a broom.' (Actor Voice)

b. Tu=selap-**aw** kana walak na ramaraman i dalran dra saselap.
3.NOM=sweep-**PV** DEF.NOM child DEF.PIVOT rubbish LOC road INDF.OBL broom
'The child swept up *the rubbish* on the road with a broom.' (Patient Voice)

c. Tu=selap-**ay** kana walak na dalran kana ramaraman dra saselap.
3.NOM=sweep-**LV** DEF.NOM child DEF.PIVOT road DEF.ACC rubbish INDF.OBL broom
'The child swept up the rubbish on *the road* with a broom.' (Locative Voice)

d. Tu=selap-**anay** kana walak na saselap kana ramaraman i dalran.
3.NOM=sweep-**CV** DEF.NOM child DEF.PIVOT broom DEF.ACC rubbish LOC road
'The child swept up the rubbish on the road with *the broom*.' (Circumstantial Voice)

Along with the Philippine-type voice alternation shown above, Puyuma displays a two-way voice system reminiscent of the active-passive contrast in English. Where a bivalent verb is marked in Philippine-type AV (*m-*), both the initiator and the undergoer of the event are obligatorily present, as in (2a).[2] However, with an additional affix *u-* present on the AV-marked verbal complex, the initiator must be absent, and the undergoer takes on pivot-marking, as in (2b). These examples therefore demonstrate an 'active vs passive'-like alternation similar to that common in Indo-European languages.[3]

(2) *Indo-European-type voice alternation in Puyuma*

a. **M**-ekan **na** **walak** kana patraka.
AV-eat **DEF.PIVOT child** DEF.ACC meat
'The child ate the meat.' (Philippine-type Actor Voice + active voice)

b. **M-u**-ekan la **na** **patraka**.
AV-U-eat PFV **DEF.PIVOT meat**
'The meat was eaten up.' (Philippine-type Actor Voice + detransitive voice)

Co-occurrence of these two types of voice alternation in a single language raises important theoretical questions. Philippine-type voice is traditionally considered a similar, more elaborate system of Indo-European-type voice, which both constitute *valency-indicating morphology* hosted within VoiceP (see, e.g. Blake 1925; Wolff 1973; Payne 1982; Mithun 1994; Ross 2002; Aldridge 2004 et seq.; inter alia.). That these two systems can co-occur in the same clause thus not only calls into question this longstanding assumption, but also casts doubt on a standard assumption within the Minimalist framework that voice alternation is encoded in a single, specific functional head within the core verbal domain (e.g. Kratzer 1994; 1996; Pÿlkkanen 2002, 2008, Harley 2009; 2013; Legate 2014). Examples like (2b) where both types of voice morphology co-occur thus suggest two possible analyses, (3a-b).

[1] List of abbreviations: ACT: active CAUS: causative; DEF: definite; DETR: detransitive; DOM: differential object marking; IMP: imperative; IND: indicative; INDF: indefinite; IPFV: imperfective; IRR: irrealis; LOC: locative; LK: linker; MOT: motion; OBL: oblique; PASS: passive PN: personal name; POSS: possessive; PFV: perfective; STAT: stative; TOP: topic.

[2] The difference in AV form between (1) and (2) is subject to a specific allomorphic rule in Puyuma, which requires AV morphology to surface in prefixal form when attached to V-initial stems. See section 3 for details.

[3] This *u*-marked two-way alternation is also compatible with other Philippine voice types. See section 3 for details.

(3) a. **Hypothesis A**: Puyuma possesses a crosslinguistically rare verb phrase structure where multiple layers of Voice heads are available.

b. **Hypothesis B**: Only one of these two types of voice alternation instantiates a true case of voice alternation hosted within VoiceP, hence the compatibility of the two.

In this paper, I demonstrate that Puyuma provides strong empirical evidence for Hypothesis B – that only the two-way alternation in (2) has to do with a change in favor of Voice heads (i.e. true case of *voice alternation*); the four-way alternation in (1) is hosted external to the core verbal domain (VoiceP), and best analyzed as topic-agreement encoded in the left periphery. Accordingly, Philippine-type voice essentially has no direct correlation with VoiceP-level syntax and/or argument structure alternation. The conventional view that it constitutes a type of 'voice' system is unfortunately misleading. In approaching this conclusion, I present specific evidence that the valency-decreasing affix *u-* in the one-place construction (2b) is the morphological reflex of Voice, which is distinct from, and higher than, *v*, the functional head responsible for encoding event types. I also discuss how Puyuma provides new evidence for a family of Ā-approaches to Philippine-type voice (Chamorro: Chung 1994; Malagasy: Pearson 2005; Amis/Seediq: Chen 2017; Tagalog: Chen 2021a).

Not only does the current observation from Puyuma indicate that the traditional term *Philippine-type voice* is better viewed as a pre-theoretical label, but it also demonstrates that the conventional ergative approach to Puyuma, which places Philippine-type voice within VoiceP as valency-indicating morphology, is difficult to maintain. The case of Puyuma thus highlights the need for approaching conventional labels and umbrella terms with caution, and the importance of re-examining existing analyses with data from understudied languages. Finally, the fact that the reflex of Voice and *v* can co-occur in the same clause in Puyuma also lends new empirical support for the presence of an external argument-introducing head in constructions that lack an external argument, as proposed in previous work (e.g., Pÿllkanen 2002; Alexiadou et al. 2006; Harley 2009, 2013; Legate 2014).

The remainder of the paper is organized as follows. In section 2, I examine the nature of the two-way voice alternation illustrated in (2), and demonstrate that the agentless construction (2b) is best analyzed as a crosslinguistically rare type of passive construction that features the complete elimination of the initiator role. In section 3, I turn to Philippine-type voice (1a-d) in Puyuma, and present specific evidence that it is located external to VoiceP and above Aspect. Section 4 discusses further evidence from Puyuma for the locus of Philippine-type voice. Section 5 discusses how the Puyuma facts introduced in the paper contribute to recent theories of verb phrase structure. Section 6 summarizes the findings and concludes with implications for future research.

Except where otherwise indicated, the data presented in this paper comes from primary fieldwork on Nanwang Puyuma over a period between 2015 - 2022.

2 Indo-European-type voice in Puyuma

Puyuma (ISO 639-3 *pyu*) is a severely endangered language spoken in Taitung, Taiwan. Like many other western Austronesian languages, it is tenseless, and possesses a typical Philippine-type voice system where the syntactic pivotal phrase is indicated by pivot-marking (see (1a-d)).

The pivot-marking in Puyuma distinguishes between common nouns/plural proper names (*na* for definite; *a* for indefinite) and singular proper names (*i*). This is illustrated in (4) and the paradigm in (5). The word order among nominals is flexible. For general information about the language, see Teng (2008) and Cauquelin (2015).[4]

(4) a. Trima {i senten/na bangsaran} dra bunga.
<AV>buy {SG.PIVOT Senten/DEF.PIVOT young.man} INDF.ACC yam
'Senten/the young man bought some yam.'

(5)

	Common noun		Personal name		Pronouns		
	definite	indefinite	singular	plural	1st singular	2nd singular	3rd singular
PIVOT	*na*	*a*	*i*	*na*	*=ku*	*=yu*	–
NOMINATIVE	*tu= ... kana*	*tu= ... dra*	*tu= ... kan*	*tu= ... kana*	*ku=*	*nu=*	*tu=*
ACCUSATIVE	*kana*	*dra*	*kan*	*kana*	*kanku*	*kanu*	*kantu*
OBLIQUE	*kana*	*dra*	*kan*	*kana*	*kanku*	*kanu*	*kantu*

[4] As seen in (5), accusative and oblique phrases in Puyuma share the same set of case-marking. The oblique status of a phrase can still be seen through its optionality as well as the valency of the verb.

To facilitate a better understanding of the data, a brief introduction to Puyuma's case-marking system is in order. Table 1 summarizes the case pattern in Puyuma's simple transitives.[5] Asterisks in the tables indicate where a specific combination of voice/case and clause type is inapplicable. The abbreviations P_1 and P_2 stand for two types of prepositional case used to mark specific types of adjuncts.

(6) *Table 1: Mapping of voice-marking, clause type, and case-marking in Puyuma*

	a. AV		b. PV		c. LV		d. CV	
	unerg./tran.	unacc.	tran.	unacc.	unerg./tran.	unacc.	unerg./tran.	unacc.
external argument	**PIVOT**	–	NOM	*	NOM	–	NOM	–
internal argument	ACC	**PIVOT**	**PIVOT**	*	ACC	ACC	ACC	ACC
locative	P_1	P_1	P_1	*	**PIVOT**	**PIVOT**	P_1	P_1
instrument/benefactor	P_2	P_2	P_2	*	P_2	P_2	**PIVOT**	**PIVOT**

In AV, pivot-marking falls on the phrase equivalent to *subject* in accusative languages, i.e. the external argument in unergatives/transitives or the internal argument in unaccusatives, as seen in (7).

(7) a. Tr****akaw i Senten kantu bunga.
steal**<AV>** PN.PIVOT Senten PN.ACC.POSS yam
'Senten stole my yams.' (Actor Voice)

b. T****abaw na kawi i laliyaban.
float**<AV>** DEF.PIVOT wood LOC sea
'The wood float on the sea.' (Actor Voice)

In PV, pivot-marking falls on the internal argument, with the external argument realized as a proclitic attached to the verbal complex. When the external argument is a third-person common noun or proper name, it can be specified as a DP co-indexed with the proclitic. This is illustrated in (8).

(8) **Tu**$_i$=trakaw-aw (kan Senten)$_i$ ku-bunga.
3.NOM=steal-PV (PN.NOM Senten) 1SG.PIVOT.POSS-yam
'She/Senten stole my yams.' (Patient Voice)

In LV and CV, pivot-marking falls on the locative (9a) and instrument/benefactive phrases (9b), respectively. The external argument (or theme in unaccusatives) is realized as a proclitic (9), similar to that in PV clauses (8).

(9) a. **Tu**$_i$=trakaw-ay (kan Senten)$_i$ kantu bunga i Sawagu.
3.NOM=steal-LV (PN.NOM Senten) 1SG.ACC.POSS yam PN.PIVOT Sawagu
'She/Senten stole my yams from Sawagu.' (Locative Voice)

b. **Tu**$_i$=trakaw-anay (kan Senten)$_i$ kantu bunga i Sawagu.
3.NOM=steal-CV (PN.NOM Senten) 1SG.ACC.POSS yam PN.PIVOT Sawagu
'She/Senten stole my yams for Sawagu.' (Circumstantial Voice)

Before proceeding, a note about Puyuma's allomorphic rule is in order. AV morphology in the language surfaces in different prefixal and infixal forms, depending on the phonetic value of the onset of the stem (Teng 2008; Cauquelin 2015). The specific rule is summarized in (10).

(10) AV morphology $\rightarrow$
$\begin{cases} m\text{-}\_\_\text{V} & \text{e.g. (2a)} \\ me\text{-}\_\_\text{C}_{\text{liquid}} & \text{e.g. (13b)} \\ \text{<}en\text{>}\_\_\text{C}_{\text{bilabial}} & \text{e.g. (89b)} \\ \text{<}em\text{>}\_\_\text{C}_{\text{elsewhere}} & \text{e.g. (1)} \end{cases}$

In the discussion below, I use the term 'initiator' to refer to event participants that are agentive and volitional, in contrast to 'cause', which refers to inanimate phrases that denote change-of-state events. In describing causatives of transitives, the terms 'causer', 'causee', and 'theme' are used in their conventional sense.

[5] Following Chen (2017) and further evidence discussed in section 4, I adopt a nominative-accusative approach to Puyuma's case system. See Chung (1994), Richards (2000) and Pearson (2005) for a similar approach to Chamorro, Tagalog and Malagasy. The labels "PIVOT", "NOM", and ACC correspond to ABS/NOM, ERG/GEN, and OBL, respectively, in previous work that analyzes Puyuma as an ergative language. See Chen (2017) chapters 2 and 4 for specific evidence for the nominative-accusative approach to Puyuma's case system.

2.1 The *u*-construction basics

I begin with an examination of the *u*-marked agentless construction. Its alternation with two-place active constructions is seen in (11).

(11) a. **M**-apit=ku dra inupidran.
AV-pile.up =1SG.PIVOT INDF.ACC garland.
'I piled up the garlands.' (Cauquelin 2015:60) (Philippine-type AV + active)

b. **M-u**-apit(*=ku) na inupidran.
AV-U-pile.up(=1SG.PIVOT) DEF.PIVOT garland.
'The garlands are piled up.' (Philippine-type AV + detransitive)

(11a) is an AV-marked active sentence where both the initiator and the undergoer are obligatorily present (unless in a context that allows pro-drop). In (11b), the verb carries an additional affix *u*-. With the presence of *u*-, the initiator must be absent. I refer to this agentless construction as the *u*-construction hereafter.

Prior to this work, the *u*-construction has been reported in two main descriptions of Puyuma. *The Nanwang Puyuma Dictionary* (Cauquelin 2015) contains 245 verbs compatible with the detransitivizer *u*-. The Puyuma reference grammar (Teng 2008) has 25 *u*-marked verbs with a specific note that 60 out of 400 verbs in her corpus display an AV vs. *u*- alternation (Teng 2008:180). This construction is also attested in naturally occurring data. A short narrative from Teng (2008) contains five instances of *u*-marked detransitive verbs. The Puyuma Pear Story and Frog Story collected by the author have five and four uses, respectively. Despite availability of previous descriptions and three recent studies that have investigated this construction from a functional and diachronic perspective (Chen 2017, 2020; Teng 2008), the nature of this construction remains unclear and awaits a more systematic comparison with similar constructions reported in the literature.[6]

In this section, I clarify the nature of the *u*-construction and situate it in a typology of detransitive constructions reported in the literature. Section 2.1 shows that the *u*-construction is best analyzed as a special type of passive, similar to that reported in Sakha (Turkic) (Stachowski & Menz 1988; Ebata 2013). Section 2.2 presents specific evidence that the detransitivizer *u*- is the spell-out of a defective Voice head, which is distinct from, and located above, *v*.

2.1.1 Against an impersonal analysis

In a *u*-construction, the undergoer must bear pivot-marking. Accusative-marking yields ungrammaticality, as seen in (13a). This shows that the undergoer has been promoted to subject status, similar to unaccusative themes (13b).

(13) *Puyuma*

a. M-**u**-aleb **{na/*kana}** **aleban**.
AV-U-close **{DEF.PIVOT/*DEF.ACC}** **door**
'The door was closed.' (*u*-construction)

b. Me-redek la **na** **sinsi**.
AV-arrive PFV **DEF.PIVOT** **teacher**
'The teacher has arrived.' (unaccusative)

An impersonal analysis for this construction can thus be quickly ruled out. Impersonals feature the absence of argument structure alternation following the demotion of the logical subject. As seen in examples (14)-(15) from Icelandic and Polish, in impersonals, the internal argument typically remains in object-marking, despite the external argument being syntactically absent (e.g. Mailing 1993, 2010; Mailing & Sigurjonsdottir 2002; Blevins 2003; Legate 2014; MacDonald 2017; Legate et al. 2020).

[6] It is noteworthy that Puyuma possesses a homophonous motion prefix *u*- that combines exclusively with locative nouns and forms the meaning of 'go/move to X' (Teng 2008; Cauquelin 2015; Chen 2020). An example of this use is illustrated in (12).

(12) M-u-ruma'=yu, asua?
AV-MOT-house=2SG.PIVOT when
'When did you come back home?' (Cauquelin 2015:437)

As this prefix has a distinct lexical subcategorization with the detransitivizer *u*-, I do not discuss it further. See Chen (2020) for a dedicated discussion of the diachronic relationship between these two affixes and their chronology.

(14) *Icelandic*

Það var lamið stúlkuna í klessu.
it_{EXPL} was hit-NEU.PN the.girl-F.PN.ACC in a.mess

'The girl was badly beaten.' (Mailing & Sigurjónsdóttir 2002:104)

(15) *Polish*

Jana obrabowano po pijanemu.
Jan.ACC robbed.IMPERS while drunk

'They robbed Jan while (they were) drunk.' (Maling & Sigurjónsdóttir 2012:104)

The obligatory change in case-marking of the theme thus distinguishes the *u*-construction from impersonals.

2.1.2 Against an anticausative analysis

A second possible approach is to analyze the *u*-construction as an anticausative – a term that has been adopted in three existing descriptions of Puyuma (Teng 2008, 2020; Cauquelin 2015).[7] At first glance, this analysis appears promising, as many reported *u*-clauses are formed with prototypical change-of-state verbs that are commonly used to denote causative-inchoative alternation crosslinguistically. Two of such examples are shown in (16)-(17).[8]

(16) *Alternation with 'break'*

a. Tapesu'=ku dra malri kana pask.
break<AV>=1SG.PIVOT INDF.ACC balloon DEF.OBL nail
'I bursted (broke) the balloon with the nail.' (Cauquelin 2015:457)

b. **M-u**-tapesu' na bitrunun, na butru.
AV-U-break DEF.PIVOT egg LK testicles
'The eggs, the testicles break.' (Cauquelin 2015:457)

(17) *Anticausative alternation with 'sink'*

a. Tenep=ku dra barasa' i dinun.
sink<AV>=1SG.PIVOT INDF.ACC stone LOC jar
'I threw a stone in the jar.' (Cauquelin 2015:468)

b. M-u-tenep na sasudang i ine'.
AV-U-sink DEF.PIVOT boat LOC sea
'The boat sunk in the sea.' (Cauquelin 2015:468)

However, this analysis turns out to also be disfavored upon closer examination. Anticausativization is standardly defined as compatible only with verbs that allow an inchoative counterpart denoting a *spontaneous event* (Haspelmath 1993:90), illustrated with the English examples (18)-(20).

(18) a. Par broke the window.
b. The window broke. (without external cause)

(19) a. Antonia opened the door.
b. The door opened. (without external cause)

[7] Teng (2008) and Cauquelin (2015) both refer to this construction as 'anticausative' but did not discuss the reasoning of this analysis. Teng (2020) argues for the same analysis drawing on the observation that the *u*-construction is compatible with a wide range of change-of-state verbs (Teng 2020:42-44). As discussed in this section, however, a systematic survey of available descriptions reported in previous work (Teng 2008; Cauquelin 2015), however, reveals that the construction also occurs with a large number of agent-oriented verbs that disallow an inchoative counterpart. This characteristic distinguishes the construction from canonical anticausatives.

[8] AV morphology in both examples consistently surfaces as *m-* in both examples due to the vocalic nature of the affix *u-* (see the rule in (10)).

(20) a. Tracy sank the ship.
b. The ship sank. (without external cause) (Levin & Rappaort Hovav (RH) 1995:79)

An anticausative construction should therefore not be compatible with agent-oriented verbs that require an animate and volitional initiator (see, e.g., Smith 1970; Haspelmath 1993:93; Levin & Rappaport Hovav 1995:105-6; Alexiadou, Anagnostopoulou, & Schäfer 2006:6). In English, for example, verbs like 'assassinate' and 'write', which entail a volitional initiator as an event participant, are unable to undergo anticausativization, (21)-(22).

(21) a. The terrorist assassinated/murdered the senator.
b. *The explosion assassinated/murdered the senator. (Levin & RH 1995:102 (43))

(22) a. Anita Brookner just wrote a new novel.
b. *A new novel wrote. (Levin & RH 1995:102 (44))

Conversely, the *u*-construction is productive with a wide range of agent-oriented verbs that do not allow an inchoative interpretation. Consider, for example, (23) and (24), where the construction contains the activity/manner verbs 'catch' and 'comb', respectively, which have low affectiveness on the undergoer. Neither of the two sentences can be interpreted as a spontaneous change-of-state result.

(23) *Alternation with 'catch'*
a. Drimutr i Isaw kana babuy.
catch<AV> PFV PN.PIVOT Isaw DEF.ACC boar
'Isaw caught the boar.'
b. **M-u**-drimutr la na babuy.
AV-U-catch PFV DEF.PIVOT boar
'The boar (was) caught.'

(24) *Alternation with 'comb'*
a. Garutr=ku tu-ukak dra kuraw.
comb<AV>=1SG.PIVOT 3.POSS-hair INDF.ACC fish
'I comb their hair with fishbones.' (Cauquelin 2015:154)
b. **M-u**-garutr la na 'arbu.
AV-U-comb PFV DEF.PIVOT hair
'The hair has been combed.' (Cauquelin 2015:14)

The table below presents a sample list of similar agent-oriented verbs attested with the *u*-construction, of which the one-place counterpart cannot be interpreted as a spontaneous change-of-state result, along with reported causative-inchoative verbs available for the same alternation. Given the construction's compatibility with both types of verbs, an anticausative analysis is disfavored.[9]

[9] A related question is therefore whether the *u*-construction denotes result or activity. Available data suggests both interpretations are possible: when attached to change-of-state verbs, a *u*-construction may, but not necessarily, denote a result interpretation. Example (25a), for instance, denotes a change-of-state result, whereas (25b) depicts an ongoing activity where the affix *u-* co-occur with progressive morphology. When combining with agent-oriented verbs, however, only the activity interpretation is possible – consider (26).

(25) a. M-u-belritu' na ukak.
AV-U-break DEF.PIVOT bone
'The bone is broken.' (Cauquelin 2015:93)
b. M-u-tra-trerag tu-busisi kana dulidul.
AV-U-PROG-fall.down 3.POSS.PIVOT bud POSS dulidul
'The buds of the dulidul are falling off at the moment.' (Cauquelin 2015:506)

(26) a. Tu='etr'etranay 'i, m-u-sulud na katengadrawan.
3.NOM=jostle TOP AV-U-push DEF.PIVOT chair
'He jostled and so the chair was pushed away.' (Cauquelin 2015:411)
b. M-u-sabana'=ku.
AV-U-cheat=1SG.PIVOT
'I was fooled.' (Teng 2008:190)

(27) *Sample list of Puyuma verbs compatible with the u-construction*[10]

Agent-oriented verbs that disallow an inchoative counterpart	Causative-inchoative verbs
wrap, comb, catch, push, scratch, carve into a certain form, carry on one's back, prepare, light, weave, cut with a tool, handcuff; tie an animal's four legs together), kick, scald, bolt, catch with a rope, rake, lift up, shave, latch, deceive, violently beat a person lying on the ground, squeeze, rub	melt, burn, drown, break into pieces, extinguish, dry up, crack, break, fall, overturn, scatter, bend, lean, float, ferment, derail, peel off, rust, melt in fire, fall down because rotten, sprain, untie, splash, roll, (colors) fade away, shrink, open, close

2.1.3 Against a middle analysis

A third possible approach is to analyze the *u*-construction as a middle, which, unlike the anticausatives, is compatible with agent-oriented bivalent verbs, as seen in (28a-d).

(28) a. The bureaucrats bribe easily.
b. The floor paints easily.
c. The chickens kill easily.
d. The book translates easily. (Keyser & Roeper 1984:383 (6a-d))

This analysis appears promising at first glimpse, as the *u*-construction may occasionally denote middle-like interpretation. Two of such examples are given in (29).[11]

(29) *Middle semantics compatible with the u-construction*
a. Salaw m-u-trima idri na tilrin.
very AV-U-buy this.PIVOT LK book
'This book sells well.'
b. Mames m-u-sabana' idri na traw.
easily AV-U-cheat this.PIVOT LK person
'This person cheats easily.' (lit. 'This person is easy to cheat.')

However, many other middle-like interpretations cannot be encoded in a *u*-construction, and the condition of their compatibility has yet to be made clear – consider (30).

(30) *Middle semantics incompatible with the u-construction*
a. *Inaba m-u-tililr idri na tratruri.
good AV-U-write this.PIVOT LK pen
(intended: 'This pen writes well.')
b. *Inaba m-u-deru idri na dederuwan.
good AV-U-cook this.PIVOT LK pan
(intended: 'This pan cooks well.')

Moreover, while middle constructions across languages are incompatible with temporal expressions (e.g. (31)) and grammatical aspect marking such as progressive (e.g. (32)) (Keyser & Roeper 1984; Fagen 1988), the *u*- construction allows episodic interpretation and aspect marking, as seen in (33) and (34).

(31) a. ?Yesterday, the mayor bribed easily, according to the newspaper.
b. ?At yesterday's house party, the kitchen wall painted easily. (Keyser & Roeper 1984:384))

[10] Source of data: Teng (2008); Cauquelin (2015).

[11] Degree adverbs in Puyuma, such as *salaw* in (29a), do not carry voice morphology or license voice alternation. Same with manner adverbs such as *mames* 'easily' that are not adverbial verbs (which carry voice-marking). It remains unclear what conditions the compatibility between specific adverb-like elements and voice-marking, a question that is beyond the scope of this paper and awaits future investigation.

(32) a. *Chickens are killing.
b. *Bureaucrats are bribing.
c. *The walls are painting. (Keyser & Roeper 1984:385 (14b))

(33) a. M-u-disdis na kiping.
AV(.IND)-DETR-tear DEF.PIVOT clothes
'The clothes was torn.' (perfective)
b. m-u-a-disdis na kiping.
AV(.IND)-DETR-IMPFV-tear DEF.PIVOT clothes
'The clothes is being torn now.' (present progressive)

(34) a. M-u-sabana' la i Akang.
AV.(IND)-DETR-cheat PFV PN.PIVOT Akang
'Akang was cheated.' (perfective)
b. ∅-u-a-sabana'=yu an ma-trima=yu.
AV.IRR-IMPFV-cheat=2SG.PIVOT when STAT.be.big=2SG.PIVOT
'You will be cheated when you grow up.' (future imperfective)

A middle analysis therefore does not fit well with the *u*-construction either.

2.1.4 Against a canonical passive analysis

While a fourth approach might be to analyze the *u*-construction as a passive, a closer look reveals that the construction also differs from canonical passives in three important regards. Passives are standardly assumed to possess a syntactically active external argument, hence their compatibility with (i) agent-denoting PPs (*by*-phrases) (e.g. Zubizarerreta 1982; Roberts 1985; Jaeggli 1986; Baker *et al.* 1989), (ii) agent-oriented adverbial verbs (e.g., Jackendoff 1972; Zubizarreta 1982), and (iii) purpose clauses with an implicit subject (Keyser & Roeper 1984, Baker et al. 1989). These properties are illustrated with the English, German, and Afrikaans examples in (35)-(37).

(35) a. *English*
The door was opened (✓by Mary).
b. *German*
Die Vase wurde (von Peter) zerbrochen.
the vase was (✓by Peter) broken
'The vase was broken (by Peter).' (Alexiadou *et al*. 2006:184-5)

(36) a. *English*
The banana was eaten (*secretly*).
b. *German*
Die Banane wurde (*heimlich*) gegessen.

(37) a. *English*
The buildings were burned to collect insurance. (Keyser & Roeper 1984:407 (79a))
b. *Afrikaans*
Die skip is gesink om die vyand se aandag af te lei.
DET ship is sunk to the enemy POSS attention off to lead
'The ship was sunk to lead away the enemy's attention.' (Lennox p.c.)

None of these three characteristics is attested with the *u*-construction. Consider, first, the construction's incompatibility with agent-denoting PPs, illustrated in (38).

(38) *Incompatibility of the u-construction with agent-denoting PPs*

a. **M-u**-sabsab na palridring (*kana traw/*dra traw/*kan Isaw).
AV-U-wash DEF.PIVOT car (*DEF.OBL person/*INDF.OBL person/*PN.OBL Isaw)
'The car was washed (*by the person/*by someone/*by Isaw).'

b. **M-u**-deru na kuraw (*kandrina traw/*dra traw).
AV-U-cook DEF.PIVOT fish (*that.OBL person/*INDF.OBL someone)
'The fish was cooked (*by that person/*by someone).'

This constraint has also been reported in previous work. Teng (2008:180) notes that adjuncts that contain an animate DP can occur in the *u*-construction only if the action was carried out incidentally (in which case the animate DP is not a genuine initiator/agent). One of such examples is given in (39). The same constraint has also been reported in Katripul Puyuma. See Teng (2020:45–46) for details.

(39) Ku=s<in>alrem na 'aputr i, **m-u**-dupa' dra gung.
1SG.POSS=plant<PV.NMLZ> DEF.PIVOT flower TOP **AV-U-**step INDF.OBL OX
'The flowers I planted, they were stepped on *by an ox*.' (Teng 2008:180)

In line with this observation, all adjuncts that occur in the *u*-constructions reported in Teng (2008) and Cauquelin (2015) (40 instances) contain inanimate DPs that denote a cause and not a volitional agent/initiator. The only potential exception is quoted in (40), where the human DP 'the chief' is not a typical initiator/agent as it can be interpreted as an indirect cause.[12]

(40) M-u-adruk na drinekalanan kana yawan.
AV-U-gather DEF.PIVOT villager DEF.OBL chief
'The villagers have been gathered *by the chief*.' (Cauquelin 2015:48)

Along with its incompatibility with agent-denoting PPs, the *u*-construction is also incompatible with agent-oriented adverbial verbs. As (41)-(42) show, adverbial verbs like 'secretly' and 'deliberately' cannot occur in a *u*-construction ((41a), (42a)), although the same adverbial verbs can freely modify their active counterparts marked either in AV or PV, as seen in (41b-c) and (42b-c). This asymmetry thus highlights the incompatibility of the *u*-construction with agent-oriented semantics.[13][14]

(41) *Puyuma*

a. (***Trakatrakaw**) **m-u**-ekan na kuraw.
(**secretly<AV>**) **AV-U**-eat DEF.PIVOT fish
'The fish was eaten (*secretly).' (*u*-construction)

b. (✓**Trakatrakaw**) **m**-ekan na ngiyaw kana kuraw.
(**secretly<AV>**) **AV-**eat DEF.PIVOT cat DEF.ACC fish
'The cat ate the fish (secretly).' (AV counterpart of (41a))

c. (✓**Tu=trakatrakaw-ay**) **m**-ekan kana ngiyaw na kuraw.
(3.NOM=**secretly-LV[PV]**) **AV-**eat DEF.NOM cat DEF.PIVOT fish
'The cat ate the fish (secretly).' (PV counterpart of (41a))

[12] An anonymous reviewer asked if definite objects in Puyuma are possible with AV-marked verbs. The answer is positive. Primary and secondary data both suggest that AV clauses can contain definite objects (although definite and topical objects often tempt the use of Patient Voice). See Cauquelin (2015) and the natural texts included in Teng (2008) for various instances of definite objects in AV constructions.

[13] As noted earlier, in Puyuma, many adverbial verbs that function as manner adverbs carry voice morphology and display the same four-way voice alternation observed on activity verbs. This is different from degree adverbs such as 'very' (29a), which do not license voice alternation.

[14] In Puyuma, a number of Patient Voice verbs take LV morphology. The verb 'buy' *trima* (43)-(44) and the adverbial verbs 'secretly' and 'deliberately' in (41)-(42) are three of such examples – they select a pivot theme instead of a typical locative phrase as the pivot. Here and throughout the paper, such verbs are glossed as LV[PV].

(42) *Puyuma*

a. (***Paleteng***) **m-u**-disdis na katrakatr.
(**deliberately.AV**) **AV-U**-tear DEF.PIVOT pants
'The pants were torn (*deliberately).' (*u*-construction)

b. (✓**Paleteng**) d****isdis na walak kantu-katrakatr.
(**deliberately.AV**) **<AV>**tear DEF.PIVOT child 3.POSS.ACC-pants
'The child tore his pants (deliberately).' (AV counterpart of (42a))

c. (✓**Tu=paleteng-ay**) d****isdis kana walak tu-katrakatr.
(3.NOM=**deliberately-LV[PV]**) **<AV>**tear DEF.NOM child 3.POSS.PIVOT-pants
'The child tore his pants (deliberately).' (PV counterpart of (42a))

Finally, the *u*-construction is also unable to license adjunct clauses that contain an implicit subject, such as the purpose clauses in (43a) and (44a). Note, importantly, that the same adjunct clauses can freely occur with their corresponding active constructions (43b-c) and (44b-c). The grammatical PV examples (43c) and (44c) are particularly important, as they show that an agent need not be the pivot to grammatically control the adjunct clause.

(43) a. M-u-trima na kuraw **(*dra ba-beray-an kan Atrung)**.
AV-U-buy DEF.PIVOT fish LK IRR-give-NMLZ PN.ACC Atrung
'The fish was bought (*to give to Atrung).' (*u*-construction)

b. Trima=ku dra kuraw **(dra ba-beray-an kan Atrung)**.
<AV>buy=1SG.PIVOT INDF.ACC fish LK IRR-give-NMLZ PN.ACC Atrung
'I bought fish (to give to Atrung).' (Active, AV)

c. Ku=trima-ay na kuraw **(dra ba-beray-an kan Atrung)**.
1SG.NOM=buy-LV[PV] DEF.PIVOT fish LK IRR-give-NMLZ PN.ACC Atrung
'I bought this fish (to give to Atrung).' (Active, PV)

(44) a. M-u-trima na patraka **(*dra da-deru-an andaman)**.
AV-U-buy DEF.PIVOT meat LK IRR-cook-NMLZ tomorrow
'This fish was bought (*to cook tomorrow).' (*u*-construction)

b. Trima=ku dra kuraw **(dra da-deru-an andaman)**.
<AV>buy=1SG.PIVOT INDF.ACC fish LK IRR-cook-NMLZ tomorrow
'I bought fish (to cook tomorrow).' (Active, AV)

c. Ku=trima-ay na patraka **(dra da-deru-an andaman)**.
1SG.NOM=buy-LV[PV] DEF.PIVOT meat LK IRR-cook-NMLZ tomorrow
'I bought the meat (to cook tomorrow).' (Active, PV)

The *u*-construction's incompatibility with all these characteristics suggests it lacks a syntactically active external argument, and is distinct from canonical passives.[15]

[15] An anonymous reviewer asked if the *u*-construction could be an adjectival passive. This analysis turns out to also be disfavored for two reasons. First, adjectival passives typically denote *states* resulting from the events described by the corresponding active verbs (Doron 2014). The *u*-construction, in contrast, can denote activity, as seen earlier in 2.1.2. Second, Puyuma possesses a stative affix *ma-* – which, when attached to typical change-of-state verbs, may denote change-of-state results. This construction therefore fits better with the adjectival passive definition. Consider the following pairs of examples reported in Cauquelin (2015).

(45) a. **M-a**-bu'ut na lawlaw.
AV-STAT-extinguish DEF.PIVOT lamp
'The lamp gets extinguished.' (Cauquelin 2015:112)

b. **M-u**-bu'ut la na lawlaw.
AV-U-extinguish PFV DEF.PIVOT lamp
'The lamp went out.' (Cauquelin 2015:112)

According to primary fieldwork, the *u*-marked clause (45b) allows cause-denoting phrases such as 'from wind' (46b). The same adjunct is, however, highly disfavored for the *ma*-marked construction, as seen in (46a). This suggests that the *ma*-marked clauses denotes a state, while the *u*-construction may denote an activity.

2.1.5 The *u*-construction as a noncanonical anti-agentive passive

We have seen that the *u*-construction is compatible with both manner and result verbs, can denote both activity and result interpretations, yet differs from canonical passives in not allowing *by*-phrases, agent-oriented adverbs, and purpose clauses. These traits are summarized in (47).

(47)

	the *u*-construction	Canonical passives	Anticausatives	Middles
Compatible with agent-oriented bivalent verbs	✓	✓	✗	✓
Compatible with causative-inchoative verbs	✓	✓	✓	✓
Compatible with agent-denoting PPs	✗	✓	✗	✗
Compatible with cause-denoting PPs	✓	✓	✓	✗
Compatible with agent-oriented adverbs	✗	✓	✗	✗
Ability to license purpose clauses	✗	✓	✗	✗

I argue that this construction is best analyzed as a special type of passive that only allows an external causer – and not an external agent – to be syntactically active. Under Legate et al.'s (2020) recent classification of detransitives, the *u*-construction can be characterized as only having one of the semantic denotations of a passive.

Empirical support for this analysis comes from the construction's high compatibility with cause-denoting PPs. According to primary fieldwork and a search through existing descriptions, such adjuncts are fairly common, and can encode DPs ranging from natural forces (48a-e) to inanimate cause (48f-g), pure instruments (48h) (i.e. instruments conceived as strictly auxiliary to the action of the agent) and instrument causers (48i) (i.e. instruments conceived as acting on their own once the agent has applied them) (Kamp & Rossdeutscher 1993; Alexiadou & Schäfer 2006).[16]

(48) a. M-u-ba'itr na ruma' (✓dra apuy).
AV-U-burn DEF.PIVOT house INDF.OBL fire
'The house was burned *from fire*.'

b. M-u-deru na patraka (✓dra kadaw).
AV-U-cook DEF.PIVOT meat (INDF.OBL sun)
'The meat (was) cooked *from sunshine*.'

c. M-u-truwal na aleban (✓dra balri).
AV-U-open DEF.PIVOT door (INDF.OBL wind)
'The door opened *from the wind*.'

d. M-u-sabsab na palridring (✓dra udal).
AV-U-wash DEF.PIVOT car (INDF.OBL rain)
'The car (was) washed *from rain*.'

e. M-u-trukul kana bariwan na kulrang.
AV-U-bend DEF.OBL typhoon DEF.PIVOT vegetable
'The vegetables are bent over *by the typhoon*.' (Cauquelin 2015:513)

f. M-u-lrelrep dra kualrengan i nanali.
AV-U-chase INDF.OBL disease DEF.PIVOT my.mother
'My mother was infected *with a disease*.' (Teng 2008:94)

(46) a. **M-a**-bu'ut na lawlaw (??dra balri).
AV-STAT-extinguish DEF.PIVOT lamp INDF.OBL wind
'The lamp gets extinguished (??from wind).'

b. **M-u**-bu'ut la na lawlaw (dra balri).
AV-U-extinguish PFV DEF.PIVOT lamp INDF.OBL wind
'The lamp went out *from wind*.' (Cauquelin 2015:112)

[16] In most *u*-constructions reported in Teng (2008) and Cauquelin (2015), the cause-denoting PP is indefinite-marked. This is consistent with my own data, where definite-marked PPs are always considered unnatural and rejected by my language consultants. However, it is noteworthy that definite-marked cause-denoting PPs are reported in Katripul Puyuma, another main dialect of the language that belongs to a different Puyuma subbranch. See Teng (2020) for details.

g. **M-u**-puar na suan dra paletrutrukan.
AV-U-escape DEF.PIVOT dog INDF.OBL firecracker
'The dog was frightened away *because of firecrackers*.' (Teng 2008:179)

h. M-u-alrangatrip na kulrabaw kana petrir.
AV-U-pinch DEF.PIVOT rat DEF.OBL trap
'The rat has been caught *by the trap*.' (Cauquelin 2015:52)

i. M-u-bakenan la na 'aleban.
AV-U-barbed.arrow PFV DEF.PIVOT door
'The door is closed *with the bamboo bar*'. (Cauquelin 2015:71)

j. M-u-paresi na beras kana pararesian.
AV-U-water DEF.PIVOT rice DEF.OBL watering.sprinkler
'The rice has been watered *with the watering sprinkler*.' (Cauquelin 2015:295)

Consider also a short narrative excerpted below, which illustrates one actual use of the construction in natural text.

(49) Tu=asaua i, kadru i saninin kana apuy, ala atungtung, kadru aw,
3.NOM=child.in.low TOP there LOC side DEF.OBL fire maybe dizzy there<AV> and
na dawa na ni-resyuk i, mar-semak aw mu-ipang. aw
DEF.PIVOT millet DEF.PIVOT PV.PFV.NMLZ-cook TOP PF-inflate and AV-U-pour.our and
mar-sa-semak=driya aw **m-u-subuk**=la kandru kana dawa.
PR-RED-inflate=IMPF and AV-U-cover=PFV that.OBL DEF.OBL millet
'Her daughter-in-law, she was beside the fire, and maybe she was dizzy, and the millet that was cooked became inflated and then was overflowing. It became more and more inflated and then **she (the daughter-in-law) was covered by *the millet***.' (Teng 2008:181)

As (49) shows, the *u*-construction is used in a way similar to passives, despite its unusual constraints on taking agent-denoting *by*-phrases. First, it denotes a two-participant event where one of the participants (i.e. the external cause) is expressed as an adjunct. Second, as passives across languages generally are (e.g. Alexiadou, Anagnostopoulou & Schäfer 2018), the construction is highly productive with bivalent verbs, with more than 240 compatible verbs reported in the *Dictionary of Nanwang Puyuma*.

This type of anti-agentive passive construction is reminiscent of a similar construction reported in Sakha (Turkic). Similar to the *u*-construction, this construction is also productive with cause-denoting PPs (50), yet disallows PPs encoding specific human agent DPs, as in (51).[17]

(50) *Sakha*

a. tynnyk mah-ɨnan alɟat-ɨlli-bɨt.
window tree-INS break-PASS-R.PST.3SG
'The window was broken *using wood*.'

b. oju:r-ga uol mah-ɨnan tarba-nɨlli-b.
forest-LOC boy tree-INS scratch-PASS-R.PST.3SG
'In the forest, the boy was scratched *using wood*.' (Tan & Kühlert 2020:143)

(51) *Sakha*

*tynnyk uol-unan alɟat-ɨlli-bɨt.
window boy-INS break-PASS.R.PST.3SG

'(Intended: 'The window was broken by the boy.') (Ebata 2013:23)

Different from the *u*-construction, however, in Sakha passives, PPs containing nonspecific humans can be overtly expressed as *by*-phrases, as seen in (52).

[17] My thanks to an anonymous reviewer for bringing this construction to my attention.

(52) *Sakha*

žie-m saxa uus-tar-ɯ-nan tut-ullu-but.
house-PASS.1SG Sakha craftsman-PL-POSS.3SG-INST build-PASS-PASS:3SG

'My house was built by Sakha craftsmen.' (Ebata 2013:23)

Similar anti-agentive constructions have also been reported in a few typologically diverse languages, although these constructions all lack an overt valency-decreasing affix, and thus cannot be analyzed as a passive. Mandarin, for example, displays an unmarked one-place construction compatible with agent-oriented verbs (Martin et al. 2020). Similar to the *u*-construction, it can denote an activity, as seen in (53).

(53) *Mandarin*

Nei wazi xi-le, dan genben mei xi-ganjing.
that sock wash-PFV but at.all NEG.PFV wash-clean

'These socks washed, but they didn't get clean at all!.' (Martin et al. 2020:18)

Salish (Davis & Demirdache 2000) and Hindi Urdu (Bhatt & Embick 2017) also possess a similar agentless construction formed with unmarked bivalent verbs – consider (54)-(55).

(54) *Hindi Urdu*

makan jal rahaa hai.
house.M burn PROG.M be.PRS

'The house is burning.' (Bhatt & Embick 2017:105)

(55) *Salish*

qam't ti sqáycw-a.
hit DET man-DET

'The man was hit (with something thrown).' (Davis & Demirdache 2000:100)

2.1.6 Intermediate conclusion

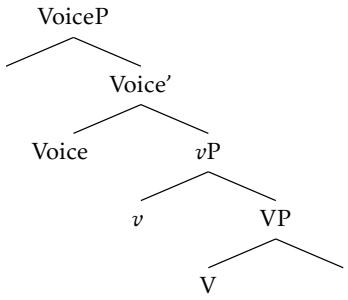
We have seen in this subsection that the *u*-construction is distinct from impersonals and middles in fundamental aspects (2.1.1; 2.1.3). It also differs from canonical anticausatives and passives in important ways – it is compatible with a wide range of manner/activity-denoting agent-oriented verbs, which distinguishes it from anticausatives (2.1.2); it is only compatible with cause-denoting and not agent-denoting adjuncts, thus is distinct from canonical passives (2.1.4). I conclude that this construction is best viewed as a specific type of passive where only the external causer (and not the external agent) is syntactically active.

2.2 *u*- marks defective Voice

If the *u*-construction is best classified as a passive, where is the locus of the detransitivizer *u*-? In what follows, I present specific evidence that it is hosted in the exact same functional projection where Indo-European-type voice alternation is encoded.

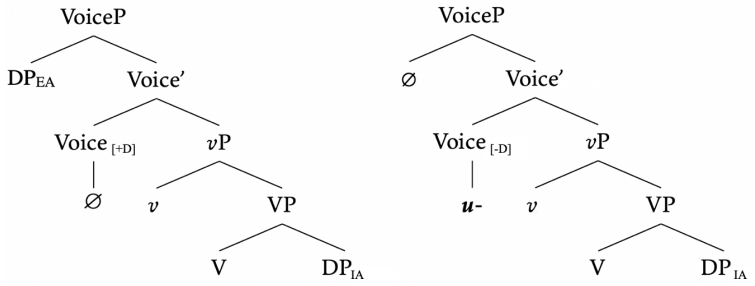
Adopting recent tripartite approaches to *v*P, I assume that the projection of verb phrases contains three layers: Voice, which is responsible for introducing the external argument and accusative Case assignment; *v*, which is responsible for verbalizing the root and encoding event types; V, which introduces and θ-licenses the internal argument, illustrated in (56) (see Kratzer 1994, 1996; Pylkkänen 2002; Alexiadou et al. 2006; Harley 2009, 2013; and Legate 2014 for the theoretical and empirical grounding for this approach).

(56) *Verb phrase structure with a Voice/v distinction*



Building on the tripartite structure in (56), I assume that active voice heads in Puyuma are morphologically null, (57a), as they are in many other languages. This flavor of voice, I propose, is present in active bivalent AV clauses such as (58a), whereas its agentless counterpart (58b) contains a deficient, non-agentive Voice head, schematized in (57) as Voice[-D] (e.g., Schäfer 2008; Wood 2015; see also Kastner 2020, Oseki 2017, and Tyler 2020 for a similar approach). This voice head is spelled out as *u-*, and is incapable of introducing an external argument. Nor is it capable of case-licensing the internal argument. Consequently, the *u*-construction obligatorily lacks an external argument and has no accusative case available to the undergoer (§2.1.1).

(57) *a. active voice* *b. deficient voice*



(58) a. M-alripespes=ku dra tatilru'.
AV-twist=1SG.PIVOT INDF.ACC string
'I twisted the string.' (Cauquelin 2015:54) (two-place AV construction)

b. M-u-alripespes na tatilru', na 'arbu.
AV-PASS-twist DEF.PIVOT rope DEF.PIVOT hair
'The rope, the hair is plaited.' (Cauquelin 2015:54) (AV-marked *u*-construction)

One key trait of the *u*-construction – that it can freely combine with cause-denoting adjuncts (§2.1.4) but not agent-denoting ones (§2.1.2) – follows from this analysis. Recent work has shown that agentivity and causation are syntactically represented in distinct functional heads (Pylkkänen 2002; Alexiadou et al. 2005 et seq.). Accordingly, different types of adjunct PPs are licensed by different structural layers that host the relevant semantic features: agent-denoting PPs (*by*-phrases) are attached to the Voice layer, while cause-denoting PPs are attached to the *v* layer, where causative semantics are introduced (Alexiadou et al. 2006 et seq.). Accordingly, the incompatibility of the *u*-construction with *by*-phrases follows from the proposed defective Voice layer that it possesses. Cause-denoting adjuncts are free to combine with the construction, as causation is licensed in a distinct, non-defective, functional head (*v*) – hence its ability to license adjuncts.

The current claim that *u-* is located in Voice and realizes a defective head (Voice[-D]) allows for two testable predictions. First, *u-* should be compatible with both simple unaccusative and anticausative interpretations. This prediction is borne out first by a wide range of causative-inchoative verbs compatible with the *u*-construction, as discussed earlier in §2.1.2, as well as by a considerable number of common unaccusative verbs that bear the *u*-affix (e.g. *m-u-lemes* 'to disappear', *m-u-banban* 'to rise', *m-u-atel* 'to fall', and *m-u-ra'ut* 'to get drown'). Many of such unaccusative verbs allow an unmarked two-place counterpart, exemplified with the verbs 'fall' and 'sink'.[18]

[18] Puyuma therefore constitutes a language with *anticausative alternation* as defined in Haspelmath (1993), where the causative verb is basic and the inchoative verb is derived.

(59) *Anticausative alternation with 'fall'*

a. M-u-trerag tu-busisi kana lratru'.
AV-U-fall.down 3.POSS.PIVOT bud POSS mango
'The buds of the mango tree have fallen off.' (Cauquelin 2015:506)

b. Trerag=ku dra paysu.
fall.down<AV>=1SG.PIVOT INDF.ACC money
'I throw money to the winds.' (Cauquelin 2015:468)

(60) *Anticausative alternation with 'sink'*

a. M-u-tenep na sasudang i ine'.
AV-U-sink DEF.PIVOT boat LOC sea
'The boat sunk in the sea.' (Cauquelin 2015:468)

b. Tenep=ku dra barasa' i dinun.
sink<AV>=1SG.PIVOT INDF.ACC stone LOC jar
'I threw a stone in the jar.' (Cauquelin 2015:468)

Second, if *u-* is indeed the spell-out of Voice, there should be independent evidence that this affix is located immediately above *v* and below any functional projection external to the core verbal projections, such as Aspect. Both predictions are borne out by Puyuma-internal evidence. The next two subsections lay out specific evidence for the locus of *u-* drawing on the Mirror Principle (Baker 1985; Harley 2013). As is well-known, this principle assumes a direct correspondence between syntax and morphological derivations, (61).

(61) *The Mirror Principle* (Baker 1985:375)
Morphological derivations must directly reflect syntactic derivations (and vice versa).

2.2.1 *u-* is hosted above *v*

Support for *u-* as hosted above *v* comes first from its relative order with causative morphology. Productive causativization in Puyuma is formed with the affix *pa-*. I take this affix to be the morphological reflex of v_{CAUS}. As seen in (62), this affix consistently surfaces to the left of the lexical verb in productive causatives, regardless of the voice type of the clause.[19]

(62) a. Me-resis a kipikiping i kiyaedrengan.
AV-spread.out INDF.PIVOT clothes LOC bed.
'The clothes scattered on a/the bed .'

b. ∅-**pa**-resis=**ku** dra bira' i dadare.
AV-CAUS-spread.out=**1SG.PIVOT** INDF.ACC leaf LOC ground
'I spread the leaves on the ground.'

c. Ku=**pa**-resis-aw **na** **bira'** i dadare.
1SG.NOM=CAUS-spread.out-PV **DEF.PIVOT** **leaf** LOC ground
'I spread the leaves on the ground.'

Assuming the Mirror Principle holds, Voice should be encoded into morphology after V and *v* are incorporated. This predicts that the detransitivizer *u-* should surface farther from the lexical verb than causative morphology if it is the morphological reflex of Voice. Accordingly, the order of the three should be *u-pa*-verb (i.e. Voice-*v*-V).

This prediction is borne out by instances of detransitivized causatives. As seen in (63a-c), where they co-occur, *u-* obligatorily surfaces to the left of the causative affix *pa-* (spell-out of v_{CAUS}) and the lexical verb.[20] This suggests that *u-* is indeed hosted in a projection above *v*. Notice, also, that Philippine-type AV morphology surfaces to the left of this detransitivizer. We will return to this in section 3.

[19] AV morphology is morphologically null in the productive causative example (62b), as Puyuma (as well as many other Formosan languages) disallows the sequence of *pVmV-*. For the same reason, Puyuma verbs with a *p* onset either exhibit an unmarked AV form (e.g. (42)) or employ the AV allomorph <*en*>. See Cauquelin (2015) for details.

[20] Examples (63a-b) were originally reported in Cauquelin (2015). These examples have been double-checked in my own fieldwork and confirmed by my language consultants.

(63) a. M-**u-pa**-resis na raman.
AV-U-CAUS-intersperse DEF.PIVOT weed
'The weed was made interspersed.' (Cauquelin 2015:380) (detransitivized causative)

b. M-**u-pa**-garasgas na aloutr.'
AV-U-CAUS-poke.around.in.something DEF.PIVOT bag
'The bag has been searched.' (Cauquelin 2015:153) (detransitivized causative)

c. M-**u-pa**-depe' na tamaku.
AV-U-CAUS-inflame DEF.PIVOT cigarette
'The cigarette was made inflamed.' (detransitivized causative)

The second argument for *u-* as hosted above *v* comes from the affix's unavailability in restructuring infinitives. Puyuma possesses a class of aspectual and *try*-type verbs that a select nonfinite complement showing the hallmarks of restructuring infinitives. Example (64a) demonstrates the lack of clause boundedness effects observed with this type of infinitives, including clitic climbing, long-distance case-licensing, and the absence of the complementizer. As seen below, the internal argument of the embedded verb obligatorily surfaces in the matrix clause as an enclitic attached to the matrix predicate. Notice also that that the enclitic surfaces in pivot form, consistent with the matrix (and not the embedded) voice-marking. Finally, the infinitive cannot carry a complementizer, in contrast to finite CP complements (64b).

(64) *Infinitive vs. finite CP complement in Puyuma*

a. Tu=talam-ay=***(ku)** [$_{INF}$ **(*dra)** pa-uka **(*kanku)** i Balangaw].
3.NOM=try-LV[PV]=*(1SG.PIVOT) [$_{INF}$ (*C) CAUS-go (*1SG.ACC) LOC Taitung]
'S/he tried to send me (make me been) to Taitung'.

b. Ma-ladram=ku [$_{CP}$ ***(dra)** da-deru i isaw dra bitrenum].
AV-know=1SG.PIVOT [$_{CP}$ *(C) <AV>RED-cook PN.PIVOT Isaw INDF.ACC egg]
'I know that Isaw is cooking eggs now.'

Following the standard analysis, I assume the lack of clause boundedness effects in (64a) results from the absence of a Voice layer in the complement (Wurmbrand 2001 *et seq.*). This predicts that reflex of *v* should be available inside a restructuring infinitive, while reflex of Voice should not. This prediction is borne out exactly by (65)-(66): while the causative affix *pa-* (reflex of *v*) can freely occur in the infinitive (65), *u-* cannot, as seen in (66). This asymmetry reinforces the current claim that *u-* is the spell-out of Voice.[21]

(65) T⟨em⟩alam=ku ✓[$_{INF}$ **pa**-senay kan Senten].
try⟨AV⟩ =1SG.PIVOT ✓[$_{INF}$ **CAUS**-sing PN.ACC Senten]
'I tried to make Senten sing'.

(66) *****T⟨em⟩alam=ku [$_{INF}$ adri (m-)**u**-sabana'].
try⟨AV⟩ =1SG.PIVOT [$_{INF}$ NEG (DEFV)-**U**-cheat]
(intended: 'I tried not to get cheated.').

Note that the ungrammaticality of (66) is not due to the use of negation. Consider (67), where negation is used within the infinitive selected by the same matrix verb.[22]

(67) T⟨em⟩alam=ku [$_{INF}$ adri m-ekan dra tamaku].
try⟨AV⟩ =1SG.PIVOT [$_{INF}$ NEG DEFV-eat INDF.ACC cigarette]
(intended: 'I tried not to smoke.').

[21] See a similar diagnostic for Acehnese in Legate (2014:16-17), where the third-person politeness affix *geu-* (as well as the third-person familiar affix *ji-*) are argued to be the reflex of Voice given their unavailability in restructuring infinitives.

[22] There is a fairly common assumption in the literature that the apparent AV-marked morphology in Formosan languages' infinitival environments is a type of post-syntactic insertion due to the ban on unmarked lexical verbs. The reason that the embedded verb *pa-senay* in (65) does not bear the same morphology is because default voice morphology is usually unmarked when combined with stems affixed with the causative prefix *pa-*. See Teng (2008) and Cauquelin (2015) for details. See Levin (2015) for a detailed discussion. See also Chung (2004) for a similar analysis for the voice-marking constraints on Chamorro's restructuring infinitives.

2.2.2 *u-* is hosted below grammatical aspect

If *u-* is indeed the spell-out of Voice, there should be evidence that it is located *below* grammatical aspect (viewpoint) – assuming grammatical aspect is encoded outside the core verbal projections (e.g. Demirdache & Uribe-Etxebarria 1997, 2000, 2004; Cinque 1999). This prediction is again borne out by Puyuma-internal evidence.

Progressive morphology in Puyuma surfaces as an infix <*a*> when attached to vowel-initial stems, as in (68a). When attached to consonant-initial bases, it is encoded via *Ca*-reduplication, i.e. iteration of the onset of the base following by an epenthesized vowel *a* (Teng 2008:41), such as the first syllable *sa, da, ka* and *ga* in (68b).

(68)

a. VOWEL-INITIAL STEMS		b. CONSONANT-INITIAL STEMS	
u<*a*>arak	'be dancing'	*sa*-senay	'be singing'
i<*a*>natray	'going to die'	*da*-deru	'be cooking'
i<*a*>edreng	'be sleeping'	*ka*-kawang	'be walking'
i<*a*>walak	'being pregnant'	*ga*-garatr	'be biting'

Given this rule, the progressive form of any *u*-marked detransitive verbs should employ the infix <*a*> and not Ca-reduplication if *u-* is encoded into morphology *before* progressive aspect, as this vocalic prefix creates a vocalic-initial stem, *u*-VERB.

As predicted, all *u*-marked detransitive verbs in Puyuma obligatorily employ the infix <*a*> in progressive regardless of whether their lexical verb is consonant-initial or vowel-initial, as shown below in (69). This observation reinforces that *u-* is encoded into morphology before the insertion of progressive morphology, whereby the verbal complex *u*+VERB is treated as a vowel-initial stem.[23]

(69)
a. m-u<a>disdis 'being torn'
b. m-u<a>lriyus 'be turning around'
c. m-u<a>deru 'being roasted/cooked'
d. m-u<a>atel 'being falling'

Assuming the Mirror Principle holds, this indicates that *u-* is hosted in a projection *below* grammatical aspect, in line with our claim that it is the spell-out of Voice.

2.3 Section summary

In this section, I have shown that the *u*-construction constitutes a crosslinguistically rare type of anti-agentive passive construction. I have also presented specific evidence that the valency-decreasing affix *u-* is hosted above *v* and below Aspect. An immediate implication of this proposal is that the two-way alternation observed in Puyuma is a true case of *voice alternation* hosted within VoiceP, akin to the Indo-European-type active-passive alternation.

3 Philippine-type voice in Puyuma does not mark Voice

I turn now to the locus of Philippine-type voice morphology. As seen in section 1, Philippine-type voice in Puyuma intertwines with the *u*-marked two-way voice alternation. In sentences marked in Philippine-type AV, for example, a bivalent verb can either take an unmarked active structure, (70a), or a *u*-marked, agentless structure, (70b).

(70) a. M-∅-a<a>piyar i Atrung dra bira' i dadare.
AV-ACT-<IMPFV>spread PN.DEF Atrung INDF.ACC leaf LOC ground
'Atrung is spreading leaves on the ground.' (Philippine-type AV + active)

b. M-u-apiyar na bira' i dadare.
AV-DETR-spread DEF.PIVOT leaf LOC ground
'The leaves (were) spread on the ground.' (Philippine-type AV + detransitive)

[23] Note that the current fact also places AV above at least this AspP, the locus of which will be discussed further in section 3.

The same alternation can also occur in LV and CV clauses. As seen in (71a), without the detransitivizer, the LV clause contains an initiator external argument. Where the affix is present, the initiator is absent, and the LV clause changes from three-place to two-place with only the undergoer 'mango' and the location present, (71b).

(71) *Voice alternation with Philippine-type Locative Voice*

a. Tu=∅-atel-ay dra ladru ku-aleban.
3.NOM=ACT-drop-LV INDF.ACC mango 1SG.PIVOT.POSS-door
'He threw a mango to my door.' (Philippine-type LV + active voice)

b. Tu_i=u-atel-ay ku-tranguru kana $ladru_i$.
3.NOM=DETR-drop-LV 1SG.PIVOT.POSS-head (DEF.NOM mango)$_i$
'The mango dropped on my head.' (Philippine-type LV + passive voice)

CV morphology may also co-occur with the *u*-marked alternation. Consider (72).[24]

(72) a. Ku=∅-aleb-**anay** dra aleban i sawagu.
1SG.NOM=ACT-close-**CV(.IND)** INDF.ACC door SG.PIVOT Sawagu.
'I closed a/the door for Sawagu.' (Philippine-type CV + active voice)

b. U-aleb-**an** i sawagu! (Context given by the consultant: Magician speaking to a door)
U-close-**CV.IMP** SG.PIVOT Sawagu
'(You) close for Sawagu!' (Philippine-type CV + passive voice)

In contrast, PV morphology cannot occur with *u*-, as seen in (73). Given that PV constructions feature a *direct object in pivot status* (see (6b) in §2), this asymmetry is expected as the *u*-construction, as a derived intransitive does not have a direct object.[25]

(73) *Tu_i=u-atel-aw ku-tranguru (kana ladru)$_i$.
3.NOM=DETR-drop-PV 1SG.PIVOT.POSS-head (DEF.NOM mango)$_i$
(intended: 'It/the mango fell/dropped on my head.') (*Philippine-type PV + passive voice)

The compatibility of the *u*-marked passivization with three of the four Philippine-type voices highlights an important question: where is the locus of Philippine-type voice alternation? Recall that in Puyuma, Philippine-type AV morphology surfaces to the left of the detransitivizer *u*- and causative morphology, as seen earlier in section 2. An example is repeated below in (74).

(74) **M-u-pa**-depe' na tamaku.
AV-U-CAUS-inflame DEF.PIVOT cigarette
'The cigarette was made inflamed.' (detransitivized causative)

Assuming the Mirror Principle holds, this order suggests that Philippine-type voice is encoded *above* the reflex of Voice and *v*. In this section, I present further evidence for this view.

[24] The suffix *-an* is the imperative form of Puyuma's CV morphology. See (78) for Puyuma's complete voice paradigm.

[25] Ditransitive verbs in Puyuma are not compatible with the detransitivizer *u*-. This is because the *u*-construction disallows human/agentive *by*-phrases, as introduced earlier in section 2. Since detransitivized ditransitives syntactically possess a demoted human agent, they are incompatible with this construction (even if the demoted agent is left unexpressed).

3.1 Philippine-type voice is hosted above Aspect

I have argued in §2.2.2 that the detransitivizer *u-* is hosted in a position below grammatical aspect. This claim draws on the affix's insertion *before* that of progressive infixation <*a*>, as seen in (75).

(75)
a. m-*u*<a>disdis 'being torn'
b. m-*u*<a>lriyus 'be turning around'
c. m-*u*<a>deru 'being roast/cooked'
d. m-*u*<a>atel 'being falling'

Consider now the relative order between progressive morphology and Philippine-type AV morphology. As (76) shows, AV morphology (i.e. infixation of <*em*>) is obligatorily inserted into progressive morphology (i.e. the reduplicated syllable) and not the verb stem, as seen in (76b).

(76)

a. AV DEFAULT		b. AV PROGRESSIVE	
deru	'to cook'	da-deru	'to be cooking'
gisgis	'to shave with a razor'	ga-gisgis	'to be shaving with a razor'
karatr	'to bite'	ka-karatr	'to be biting'
sabsab	'to wash'	sa-sabsab	'to be washing'

This infixation pattern suggests that Actor Voice is encoded into morphology *after* that of Aspect, indicating that it is hosted in a projection higher than grammatical aspect. Note importantly, that this implication follows from the observation earlier that AV morphology surfaces to the left of the reflex of Voice (*u-*) and *v* (*pa-*) (77), which suggests that Philippine-type voice is hosted external to VoiceP.[26]

(77) **M-u**-pa-dunun tu-pinidrayaran.
AV-DETR-CAUS-reconcile 3.PIVOT.POSS-argument
'Their argument has been reconciled.'

3.2 Philippine-type voice morphology inflects for Mood

The implication from the data above that Philippine-type voice is hosted above Aspect is reinforced by its interactions with mood morphology. Philippine-type voice morphology in Puyuma, like that in other morphologically conservative Austronesian languages, bundles with three grades of mood inflections.[27] Its complete voice paradigm is given in Table 2.

(78) *Table 2: Mood inflections in Puyuma's voice paradigm*

	a. AV	b. PV	c. LV	d. CV	
REALIS	M-√	√-aw	√-ay	√-anay	(e.g. (1a-d))
IRREALIS	∅-Ca-√	Ca-√-i	Ca-√-i	Ca-√-an	
IMPERATIVE	∅-√	√-u	√-i	√-an	
NEGATIVE	M/K-√	√-i	√-i	√-an	

As seen below in (79), the AV morphology, for example, surfaces as a prefix *m-* in realis, but is null in irrealis (79a); on the other hand, the detransitivizer *u-* does not inflect for mood and remains presented throughout. This asymmetry in inflectability between these two affixes follows from the conclusion in §3.1 that Philippine-type voice is hosted high above grammatical aspect, while the detransitivizer *u-* is located low within VoiceP.

[26] The same type of diagnostics cannot apply to PV, LV, and CV morphology, as these affixes all surface as a suffix and hence do not interact with progressive morphology. I assume that these affixes have a similar nature to AV morphology. See further evidence for this view in the next subsection.

[27] This phenomenon is attested in majority of Formosan languages and some Philippine languages. See Ross (2012), Chen (2017), and McDonnell & Chen (2022) for a specific discussion about mood inflections in Philippine-type voice morphology and its reconstructability to early Austronesian morphology.

(79) *Mood inflections in Puyuma AV morphology*

a. M-u-sanga' la na padrekan.
AV.(PFV)-DETR-make PFV DEF.PIVOT basket
'The basket has been (finished) made.' (AV realis)

b. ∅-u-a-sanga' na padrekan andaman.
AV.IRR-IPFV-make DEF.PIVOT basket tomorrow
'The basket will be finished made tomorrow.' (AV irrealis)

LV and CV morphology in Puyuma also inflects for mood (78c-d). This is illustrated in (80)-(81).

(80) a. Ku=beray-**ay** kana pangudral i Sawagu.
1SG.NOM=give-**CV.IND** $_{\text{def.acc}}$ pineapple PN.PIVOT Sawagu
'I gave Sawagu the pineapple.' (LV realis)

b. Beray-**i** kana pangudral i Sagagu!
give-**LV.IMP** DEF.ACC pineapple PN.PIVOT Sawagu
'Give the pineapple to Sawagu!' (LV imperative)

(81) a. Ku=beray-**anay** na pangudral kan Sawagu.
1SG.NOM=give-**CV.IND** DEF.PIVOT pineapple PN.ACC Sawagu
'I gave Sawagu the pineapple.' (CV realis)

b. Beray-**an** na pangudral kan Sagagu!
give-**CV.IMP** DEF.PIVOT pineapple PN.ACC Sawagu
'Give the pineapple to Sawagu!' (CV imperative)

Since Mood is standardly analyzed as belonging to the C domain (e.g. Rivero & Terzi 1995; Han 2001; Noonan 2007; a.o.), the fact that Philippine-type voice inflects for mood further suggests that it is located in the left periphery and has no direct correlation with valency-rearranging operations.

All observations so far point to the conclusion that Philippine-type voice is fundamentally different from true cases of voice alternation hosted within VoiceP. Its compatibility with the *u*-marked voice alternation follows from this conclusion.

4 Implications for the nature of Philippine-type voice

How do the Puyuma facts discussed above contribute to our understanding of Philippine-type voice? Over the past few decades, the nature of this typologically rare voice system has triggered a focal debate in the literature (see, e.g., McKaughan 1958; Ramos 1974; Schachter & Otane 1972; Keenan 1976; Payne 1982; Ramos & Bautiste 1986; Foley & Van Valin 1984; Kroeger 1991; Mithun 1994; Richards 2000; Aldridge 2004; Rackowski & Richards 2005; Pearson 2001, 2005; a.o). Existing analyses can be divided into two families – one that places voice within the core verbal domain, and the other that places voice in the left periphery. Building on the observation from §3 that Philippine-type voice in Puyuma is hosted above grammatical aspect, I present further arguments in this section for the Ā-agreement approach to this voice system (§4.1). I then discuss specific evidence in §4.2 that Philippine-type voice in Puyuma constitutes topic-indicating agreement, in line with previous analyses for Chamorro (Chung 1994, 1998), Malagasy (Pearson 2001, 2005) and Tagalog (Chen 2017, 2021a).

4.1 Previous approaches to Philippine-type voice

Since the 1990s, a number of researchers have proposed that Philippine-type voice instantiates Ā-agreement morphology encoded in the left periphery. Despite some slight differences among authors, a shared view of these analyses is that Philippine-type voice morphology tracks (i.e. inflects for) the grammatical role of an Ā-phrase (*wh*-phrases and topics), and that Philippine-type languages possess an accusative case system.[28] According to

[28] See Chen (2017) chapters 2 and 4 for specific evidence for the nominative-accusative analysis for Puyuma's case system.

this view, "AV" morphology indicates the topic/*wh*-phrase is the grammatical subject, and "PV" morphology indicates that is the direct object. "LV" and "CV" morphology, on the other hand, indicates that phrase is a locative or a phrase that is structurally low, respectively. The table below summarizes the analysis proposed in Chen (2017; 2021a). See Pearson (2001, 2005) for a similar analysis.

(82) *The topic agreement approach to Philippine-type voice (Chen 2021a)*

a. ACTOR VOICE AFFIX	bundle of the Agree relation with [uTOP] and [uφ] on T
b. PATIENT VOICE AFFIX	bundle of the Agree relation with [uTOP] and [uφ] on matrix Voice
c. LOCATIVE VOICE AFFIX	bundle of the Agree relation with [uTOP] and a locative-selecting P
d. CIRCUMSTANTIAL VOICE AFFIX	spell-out of the Agree relation with [uTOP]

A key implication of this line of analyses is that Philippine-type voice is distinct from Indo-European-type voice, and is more similar to topic-indicating morphology observed in western Nilotic (e.g. Kurmuk: Anderson 1991, 2007, 2015; Dinka: van Urk 2015). See van Urk (2015), Erlewine et al. (2017) and Chen (2021b) for further comparison of the voice systems found in western Austronesian and western Nilotic. Not only does the Puyuma data discussed in section 3 – that Philippine-type voice in the language is hosted above grammatical aspect – lend support to this view, Puyuma also offers other pieces of evidence for this approach, to be discussed in details in 4.2.

As foreshadowed in the discussion earlier, much previous work has argued instead that Philippine-type voice constitutes a set of valency-indicating affixes that realize specific Voice and applicative heads (e.g. Blake 1925; Wolff 1973; Payne 1982; Mithun 1994; Maclachlan 1996; Chang 1997; Ross 2002; Aldridge 2004, 2012, 2017; Teng 2008). Key assumptions of this analysis are as follows: Philippine-type languages possess an ergative case system where Voice is incapable of assigning inherent ergative case in intransitives; AV and PV morphology is the spell-out of different flavors of Voice (intransitive vs. transitive); LV and CV affixes realize two types of high applicative heads that introduce an applied object as the highest internal argument (Maclachlan 1996; Chang 2013; Aldridge 2004, 2012, 2017). On this account, the pivot-marked phrase in LV/CV clauses is base-generated higher than the theme, hence is accessible to object shift to the phase edge of VoiceP. This analysis is summarized below in (83).

(83) *The ergative/valency-rearranging approach to Philippine-type voice*

a. ACTOR VOICE AFFIX	intransitive Voice
b. PATIENT VOICE AFFIX	transitive Voice
c. LOCATIVE VOICE AFFIX	high APPL (with null transitive Voice)
d. CIRCUMSTANTIAL VOICE AFFIX	high APPL (with null transitive Voice)

(Aldridge 2004 *et seq.*)

Similar to the approach in (83), another well-received analysis holds that Philippine-type voice constitutes *case agreement morphology* that realizes the case of the DP that agrees with Voice (Rackowski & Richards 2005). In this view, Philippine-type voice morphology are case inflections that realize the case of the phrase occupying the VoiceP phase edge: nominative ('AV'); accusative ('PV'); dative ('LV'), a type of inherent case assigned by low applicative head; and oblique ('CV'), a type of inherent case assigned by high applicative head. This analysis is summarized in (84).[29]

(84) *The case agreement approach to Philippine-type voice*

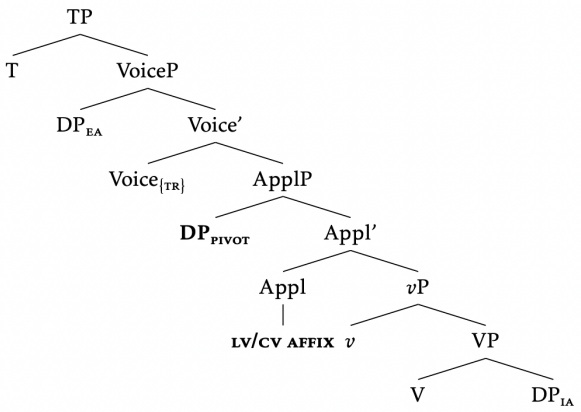
a. ACTOR VOICE AFFIX	NOM agreement
b. PATIENT VOICE AFFIX	ACC agreement
c. LOCATIVE VOICE AFFIX	DAT agreement (inherent case from low APPL)
d. CIRCUMSTANTIAL VOICE AFFIX	OBL agreement (inherent case from high APPL)

[29] Note that the label 'Voice' here correlates with *v* in Rackowski & Richards (2005), as they do not draw a distinction between Voice (the external argument-introducing head) and *v* (the verbalizer).

(Rackowski & Richards 2005)

A core assumption shared by these two approaches is that the pivot-marked phrase is accessible to the VoiceP phase edge (see also Erlewine & Levin 2021 for a similar assumption). Accordingly, LV/CV clauses are assumed to be applicative constructions that contain an applied object licensed in the highest internal argument position, where this argument is eligible for object shift and accessible to the phase edge of VoiceP. This proposal is illustrated in (85).

(85)



4.2 Further evidence against placing Philippine-type voice low within VoiceP

Building on the implication from section 3 that Philippine-type voice is hosted above Aspect, I discuss further empirical evidence below against placing Philippine-type voice morphology in Puyuma within VoiceP. Specifically, I will highlight how 'voice alternations' of this type behave distinctly from valency-rearranging operations such as applicativization or antipassivization.

4.2.1 Against Philippine-type AV as the spell-out of intransitive Voice head

As outlined above, existing analyses that place Philippine-type voice within VoiceP hold that AV and PV morphology are different flavors of Voice heads that contrast with each other in transitivity – 'PV' realizes a transitive Voice head that assigns ergative case to the external argument; 'AV' realizes an intransitive Voice head incapable of case assignment.[30]

This approach relies crucially on the assumption that two-place AV clauses are syntactically intransitive (e.g. Payne 1982; Mithun 1994; Aldridge 2004, 2012, 2017; a.o.). Accordingly, constructions like (86) are antipassives that possess an intransitive Voice head (realized as 'AV' morphology); the external argument receives absolutive case from T; the internal argument is non-structurally case-licensed with oblique case from the verb.

(86) **M**-∅-ekan na walak **kana** **bunga**.
AV-ANTIP-eat "DEF.ABS" child **"DEF.OBL" yam**
'The child ate the yam.' (bivalent AV clause (putative antipassive))

Issues in this analysis also arise in several fundamental aspects. First, if Voice is indeed a single, unique functional head that hosts *voice alternation*, as standardly assumed, the fact that the Voice-realizing affix *u-* co-occurs with AV morphology suggests that the latter cannot be the spell-out of Voice. Second, the antipassive analysis for bivalent AV clauses entails an undesirable assumption that antipassivization in Puyuma (and similar languages) are morphologically unmarked, rendering the putative derived intransitive (87a) morphologically undistinguished from monovalent intransitives (87b-c). To the best of my knowledge, an unmarked antipassive is crosslinguistically rare, if not unknown.

[30]The current label 'Voice' corresponds to *v* in Aldridge's series of works (2004, 2008, 2012, 2017), which do not draw a distinction between Voice and *v*.

(87) a. M-alrak=ku dra akanan.
AV-take=1SG.PIVOT INDF.ACC food
'I took the food.' (Cauquelin 2015:52) (alleged antipassive)

b. M-alap na baay kana kawi.
AV-crawl DEF.PIVOT vine LOC.OBL tree
'The vine crawls on the tree.' (unergative)

c. M<in>atray na maitrang.
AV<PFV>die DEF.PIVOT old.person
'The old person died.' (unaccusative)

Moreover, analyzing two-place AV clauses (e.g. (88a) as antipassives implies that their *u*-marked counterpart (e.g. (88b)) would be analyzed as a detransitivized antipassive. However, antipassivization and external-argument detransitivization (i.e. detranzitivization of a derived intransitive) are crosslinguistically unreported to be able to co-occur in a single clause. Moreover, as pointed out by one anonymous reviewer, if the point of the antipassive is to place the theme into an oblique phrase, that theme then should not be able to become the grammatical subject following external-argument detransitivization. Coocurrence of these two operations is therefore theoretically perplexing.

(88) a. M-ekan=ku kana bunga.
AV-eat=1SG.PIVOT **DEF.ACC** yam
'I ate the yam.' (2-place AV construction))

b. **M-u**-ekan la **na** bunga.
AV-U-eat PFV **DEF.PIVOT** yam
'The yam was eaten up.' (detransitive version of (88a))

Finally, the antipassive analysis of AV clauses also faces language-internal challenges. Contra the characteristics of antipassives (Cooreman 1994; Dixon 1994; Heaton 2017; Polinsky 2017), the alleged oblique objects in Puyuma can be definite and specific, as seen in (89), and cannot be omitted without appropriate context.[31]

(89) *Puyuma narrative 'The grandmother and the grandson'*

a. Aw saygu tubang **kandri kana** telru-a kiaumalan [...]
and can <AV>answer **these.ACC** DEF.ACC three-NPRS question
'And he was able to answer those three questions.' (Teng 2008:292)

b. Karuwa b<en>a'aw **kanta-drekal**.
can <AV>save **1P.POSS.ACC village**
'(She) was able to save our village.' (Teng 2008:294)

The observations above, along with the Puyuma facts discussed in §3, suggest that Philippine-type AV morphology is not an intransitive affix hosted in Voice, contra the traditional view outlined in (83a).

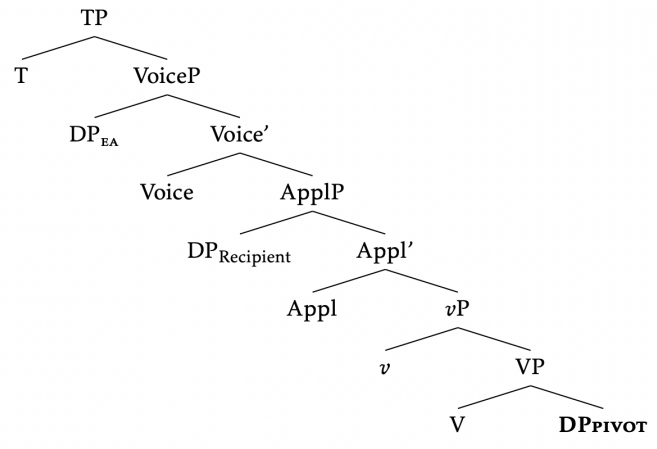
4.2.2 Against Philippine-type LV/CV morphology as applicative affix

I turn now to additional evidence against placing LV/CV constructions within VoiceP as applicative affixes. As noted in section 4.1, this analysis is crucial for the traditional approach to Philippine-type voice, which maintains that all pivot-marked phrases are in the VoiceP phase edge (e.g. Aldridge 2004 et seq.; Rackowski & Richards 2005; see also Erlewine & Levin 2021 for a similar assumption).

A key assumption of this analysis is that the pivot phrase in LV/CV clauses is the highest DP below Voice eligible for object shift. For this analysis to succeed, the pivot phrase in an LV- or CV-marked clause must be introduced in a structural position that c-commands any other DPs within VoiceP. This binding relation is schematized in (90).

[31] For more general critiques of the antipassive approach to Philippine-type Actor Voice, see Foley (2008), Rackowski (2002), Paul & Travis (2006), and Chen (2017) for details.

(90)



However, quantifier-variable tests cast doubt on this approach. As seen in the CV-marked ditransitive examples (91a-b), contra the prediction in (90), a non-pivot quantificational recipient can bind into a pivot theme with the latter interpreted as a bound variable (91a), but not vice versa (91b). Note, importantly, that linear ordering does not interfere with the binding relation in (91). Given Puyuma's word order flexibility, a quantificational phrase may bind into a phrase that precedes it in linear order, as seen in (91a).

(91) a. *CV-ditransitive: (non-pivot) recipient binds into (pivot) theme*

Ku=beray-**anay** **[tu=lribun]** [kan tinataw kana kiakarun driya].
1SG.NOM=give-**CV** **[3.POSS.PIVOT=wages]** [DEF.ACC 3SG.POSS.mother LK laborer every]

'I gave every laborer's$_{\langle k \rangle}$ mother his/her$_{\langle j, k \rangle}$ wages.' (distributed reading available)

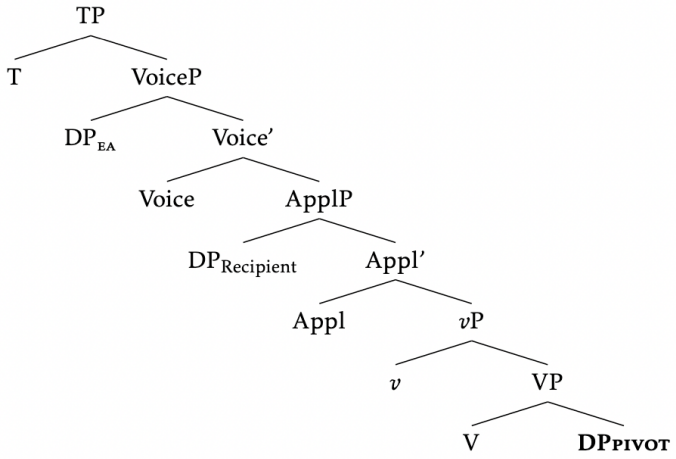
b. *CV-ditransitive: (pivot) theme does not bind (non-pivot) recipient*

Ku=beray-**anay** [kantu=walak] **[tu=lribun kana kiabarun driya]**.
1SG.NOM-give-**CV** [3.POSS.ACC=child] **[3.POSS.PIVOT=wages LK laborer every]**

'I gave his$_{\langle k \rangle}$ child every laborer's$_{\langle j/*k \rangle}$ wages.' (distributed reading unavailable)

The observations above indicate that the recipient *asymmetrically* c-commands the theme in CV-marked ditransitives, schematized below in (92).

(92)



This contradicts the analysis that places LV/CV morphology within VoiceP as applicative affix, which incorrectly predicts (i) the pivot-marked theme will asymmetrically bind the non-pivot recipient (contra (90)), and (ii) there should be rearrangement in binding relation between the recipient and the theme between LV and CV clauses. The second prediction also contradicts the binding facts attested with parallel constructions marked in AV and LV – consider (95)-(96), where the recipient asymmetrically binds the theme, as does that in their CV-marked

counterpart (91). This invariable binding relation indicates that the putative argument structure alternation among AV, LV, and CV lacks empirical support.[32]

(95) a. *AV ditransitive: (non-pivot) recipient binds into (non-pivot) theme*

∅-beray=**ku** [kantu-lribun] [kan tinataw kana kiakarun driya].
AV-give=**1SG.PIVOT** [3.POSS.ACC-wages] [PN.ACC 3SG.POSS.mother LK laborer every]

I gave every laborer's$_{<i>}$ mother his$_{<i/*j}$ wages.'

b. *AV ditransitive: (non-pivot) theme does not bind (non-pivot) recipient*

∅-beray=**ku** [kantu-walak] [kantu-lribun kana kiakarun driya].
AV-give=**1SG.PIVOT** [3.POSS.ACC-child] [3.POSS.ACC-wages LK laborer every]

'I gave his$_{<i>}$ child every laborer's$_{<j/*i>}$ wages.'

(96) a. *LV ditransitive: (pivot) recipient binds into (non-pivot) theme*

Ku=beray-**ay** [kantu-lribun] **[i tinataw kana kiakarun driya]**.
1SG.NOM=give-LV [3.POSS.ACC-wages] **[PN.PIVOT 3SG.POSS.mother LK laborer every]**

'I gave his$_{<i>}$ child every laborer's$_{<j/*i>}$ wages.'

b. *LV ditransitive: (non-pivot) theme does not bind (pivot) recipient*

Ku=beray-**ay** **[tu-walak]** [kantu-lribun kana kiakarun driya].
1SG.NOM=give-LV **[3.POSS.PIVOT-child]** [3.POSS.ACC-wages LK laborer every]

'I gave his$_{<i>}$ child every laborer's$_{<j/*i>}$ wages.'

As the data above suggests, the traditional valency-rearranging approach to Philippine-type voice is inconsistent with the Puyuma facts. This conclusion reinforces the observation from §3 that Philippine-type voice is hosted high in the left periphery rather than valency-indicating morphology located within VoiceP.

4.3 Further evidence for placing Philippine-type voice high in the left periphery

Having presented evidence against placing Philippine-type voice low within VoiceP, I turn now to evidence that Philippine-type voice morphology in Puyuma constitutes topic-indicating morphology hosted high in the left periphery.

As introduced in 4.1, a number of researchers have argued, instead, that the apparent four-way voice alternation instantiates *topic agreement* or *Ā-extraction morphology* that realizes an Agree relation between an Ā probe ([uTOP]) and its goal (Pearson 2001, 2005; Chen 2017, 2021a; see also Chung 1994 for a similar Ā-approach for Chamorro, as well as Foley & Van Valin 1984, Shibatani 1988, and Richards 2000 for a similar assumption). Setting aside differences in details, a consensus among these works is that Philippine-type voice indexes the selection of the topic, which is indicated by pivot-marking.[33]

[32] An anonymous reviewer asked if the binding facts reported here are attested in other Philippine-type languages. To the best of my knowledge, at least two researchers have reported similar observations in Tagalog, where the theme pivot in an CV construction can be bound by a non-pivot recipient – consider (93a-b).

(93) a. **I**-ni-abot niya sa bata ang kaniya ng sarili ng larawan.
CV-PFV-hand 3SG.GEN DEF.DOM.ACC child PIVOT 3SG-LK self LK picture
'He$_{<i>}$ handed the child$_{<j>}$ a picture of himself$_{<i/j>}$.' (Andrews 1985:143)

b. **I**-b<in>igay ni joy kay lia ang sarili niyang larawan.
CV<PFV>give PN.GEN Joy PN.DOM.ACC PIVOT self 3SG.POSS picture
'Joy$_{<i>}$ gave Lia$_{<j>}$ a picture of herself$_{<i/j>}$.' (Chen 2021a:99)

Rackowski (2002) also reports a similar example, quoted below in (94).

(94) **I**-p<in>a-ayos ko kay carlos ang kanyang sariling kotse.
CV-<PFV>CAUS-repair 1SG.GEN PN.DOM.ACC Carlos PIVOT POSS self car
'I made Carlos$_{<i>}$ repair his$_{<i>}$ (own) car.' (Rackowski 2002:68)

See also Chen (2017, 2021a) for a similar binding pattern observed with CV-marked constructions in Tagalog, Puyuma, Amis, and Seediq.

[33] See Schachter & Otanes (1972), Shibatani (1988), Richards (2000), and Chen (2017) for specific arguments for analyzing pivot-marking as a topic marker. See also recent descriptions of a similar type of verbal morphology in western Nilotic (Anderson 1991, 2007, 2015; van Urk 2015) that has also been analyzed as topic agreement morphology.

Not only is this analysis supported by the conclusion in section 3 that Philippine-type voice is hosted above grammatical aspect, but it also follows from the tight correlation between voice designation and topichood in Puyuma. In Puyuma question-answer sequences that contain a clear discourse topic, AV morphology is obligatorily used when the discourse topic (e.g. *Atrung* in (97)) constitutes the *subject* of the answer sentence, as in (97b). An answer not constructed with AV morphology is considered unnatural and improper, as in (97c).

(97) a. *Q: Discourse topic: Atrung*
Makakuda **i** **Atrung** uninan?
AV.what.happen **PN.PIVOT** **Atrung** today
'What did *Atrung* do today?'

b. *A1: The discourse topic (subject) is pivot-marked with AV morphology*
D⟨**em**⟩eru **(pro)** dra abay.
⟨**AV**⟩cook **(3SG.PIVOT)** INDF.ACC rice.ball
'*She* cooked rice balls'.

c. *A2: Answering with a non-AV clause with the topic not pivot-marked*
***Tu=deru-**aw** na abay.
3.NOM=cook-**PV** DEF.PIVOT rice.ball
(intended: 'She cooked *rice balls*).'

This observation lends support to the consensus among all previous Ā-agreement approaches that AV morphology indexes *subject topics* (Richards 2000; Pearson 2001, 2005; Chen 2017, 2021a). As already pointed out in a number of recent work, a direct implication of this analysis is that Philippine-type is similar to a similar type of topic-indicating morphology observed in western Nilotic, which also inflects for the grammatical role of the topic. See Anderson (2015), van Urk (2015), Erlewine et al. (2017), and Chen (2021b) for specific comparisons of these two types of verbal morphology.

Consistent with this approach, Puyuma also presents empirical evidence for Philippine-type 'voice' affixes as agreement morphology rather than the spell-out of an individual functional head. Consider examples (98)-(99), which show that voice morphology in Puyuma obligatorily cliticizes to the highest predicate of a clause, with the rest of the lexical verbs marked in default voice-marking – even when that highest predicate is an adverbial verb that cannot stand alone without a main verb, as in (98c) and (99c).[34] This phenomenon follows consistently from the current proposal that it constitutes (Ā) agreement morphology, and casts further doubt on the claim that LV/CV affixes are applicative markers.

(98) a. Ku=beray-**ay** **na** **walak** kana aputr.
1SG.NOM=give-**LV** **DEF.PIVOT** **child** DEF.ACC flower
'I gave the child the flowers.' (LV morphology on the lexical verb)

b. Ku=talam-**ay** ∅-beray **na** **walak** kana aputr.
1SG.NOM=try-**LV** DEFV-give DEF.PIVOT child DEF.ACC flower
'I ***try*** to give the child the flowers.' (LV morphology cliticized onto the highest verb)

c. Ku=trakatrakaw-**ay** talam ∅-beray **na** **walak** kana aputr.
1SG.NOM=**secretly-LV** try<DEFV> give.DEFV **DEF.PIVOT** **child** DEF.ACC flower
'I ***secretly*** try to give the child the flowers.' (LV morphology cliticized onto an adverbial verb)

(99) a. Ku=beray-**anay** kana walak **na** **aputr**.
1SG.NOM=give-**CV** DEF.ACC child **DEF.PIVOT** **flower**
'I gave the child the flowers.' (CV morphology on the lexical verb)

b. Ku=talam-**anay** ∅-beray kana walak **na** **aputr**.
1SG.NOM=**try-CV** DEFV-give DEF.ACC child **DEF.PIVOT** **flower**
'I ***try*** to give the child the flowers.' (CV morphology cliticized onto the highest verb)

[34] See footnote 21 for a discussion of default voice morphology in Puyuma's infinitival environments.

c. Ku=trakatrakaw-**anay** talam ∅-beray kana walak **na** **aputr**.
1SG.NOM=**secretly-CV** try<DEFV> DEFV-give. DEF.ACC child **DEF.PIVOT** **flower**
'I ***secretly*** try to give the child the flowers.' (CV morphology cliticized onto an adverbial verb)

The new insights from Puyuma that Philippine-type 'voice' behave like agreement morphology associated with topichood thus reinforce existing Ā-agreement approaches to Philippine-type 'voice', and call for a reconsideration of previous ergative approaches to languages with a similar 'voice' system. See Chung (1994), Pearson (2005), and Chen (2017) for specific accounts of the nature of the four-way distinction in the topic agreement.

A final question is whether a true case of voice alternation also exists in other Austronesian languages and, like in Puyuma, intertwines with Philippine-type voice. The answer to this is affirmative. A recent study has shown that the detransitivizer *u-* is attested in at least five other Philippine-type Formosan languages and can be reconstructed to Proto-Austronesian along with the Philippine-type voice system (Chen 2020). This suggests that the two-way alternation observed here in Puyuma is likely to be part of the design of Philippine-type syntax, rather than a secondary innovation that exists only in particular languages. This conclusion follows consistently from the current analysis that Philippine-type voice is functionally distinct from true cases of voice alternation and is hosted in a distinct projection.

Finally, it is important to note that the western Nilotic language Dinka, which possesses topic-indicating morphology similar to Philippine-type voice, also displays an independent voice alternation (transitive vs. antipassive) that may co-occur with its topic-indicating morphology. Similar to the detransitivizer *u-* ((41)-(42)), antipassive morphology in Dinka is tied to the lexical verb, whereas its topic-indicating morphology must appear on the highest head, as is Philippine-type voice in Puyuma ((98)-(99)). See Anderson (1992) and Erlewine et al. (2017) for details. This observation reinforces the topic-agreement approach to Philippine-type voice, and strengthens the view that Philippine-type 'voice' is fundamentally different from *voice* in the traditional sense.

5 Implications for theories of verb phrase structure

The current observations from the *u*-construction also lend new empirical support for recent refinements of verb phrase structure.

First, the co-occurrence of the detransitivizer Voice and causative morphology (§2.2.1) in Puyuma offers independent evidence that the functional project responsible for the licensing of the external argument (Voice) is independent from, and higher than, *v*, the functional head responsible for encoding event types. Second, the availability of the Voice-indicating affix *u-* in derived intransitive constructions also lends support to existing claims based on evidence from typologically distinct languages that constructions without an external argument may still possess a Voice layer (Harley 2013; Legate 2014).

Third, the *u*-construction's incompatibility with *by*-phrases, in contrast to passives, also enriches our understanding of the variation in the flavor of Voice. It indicates that deficient Voice contains at least two subtypes: one present in passives, where the initiator θ-role is existentially bound and may be present as a *by*-phrase (Legate 2014:42), and the other that is incapable of introducing the initiator role and features the entire absence of the initiator, as observed in the *u*-construction. Future investigation of similar constructions in other Austronesian languages would shed more light on how (un)common the latter is.

Finally, the current claim that *u-* marks a deficient Voice head also captures the observation in §2.1.1 that the *u*-construction is compatible only with adjuncts that introduce a cause and not agent-denoting PPs (*by*-phrases). Assuming that *by*-phrases and cause-denoting PPs are attached to different levels of verb phrase (VoiceP and *v*P) respectively, the construction's asymmetrical compatibility with these two types of adjunct follows from the current proposal that the *u*-construction contains a deficient VoiceP with an independent, active *v*P (100b), which in principle should be compatible with cause-denoting adjuncts (Alexiadou et al. 2006 et seq.).

(100) a. **M-u**-sabsab na palridring (✓dra udal/*kana walak).
AV-U-wash DEF.PIVOT car (INDF.OBL rain/*DEF.OBL child)
'The car was washed (✓from the rain/*by the child).'

b. **M-u**-deru na kuraw (✓dra kadaw/✓dra karayag/*kan Senten).
AV-U-cook DEF.PIVOT fish (INDF.OBL sun/INDF.OBL foehn/PN.OBL Senten)
'The fish was cooked (from sunshine/from foehn/*by Senten).'

6 Conclusion

In this paper, I have examined the interaction of two types of voice alternations in the Austronesian language Puyuma, where an Indo-European-style two-way alternation unexpectedly co-occurs with Philippine-type voice. I demonstrated that the compatibility of these two systems follows from Puyuma-internal evidence that only the latter (Indo-European-type voice) constitutes a true case of *voice alternation*. In contrast, Philippine-type 'voice' in Puyuma is hosted in the left periphery, and has no direct correlation with valency-rearranging operations, hence its compatibility with true cases of voice alternation.

The current observation from Puyuma offers novel empirical evidence for VoiceP (the highest layer of the core verbal projections) as responsible for the presence and absence of the external argument and being the locus of voice alternation. It also reinforces previous claims for Chamorro, Malagasy, and Tagalog that Philippine-type 'voice' constitutes Ā agreement morphology hosted in the C domain (Chung 1994; Pearson 2005; Chen 2017). This conclusion posits a direct challenge to the ergative approach to Puyuma that hinge on an opposite assumption, and indicates that the term Philippine-type 'voice' is best viewed as a pre-theoretical label. The observations from Puyuma thus reinforce the importance of approaching conventional labels and umbrella terms with caution. It also highlights the importance of thorough examination of understudied languages for the refinement of syntactic typology.

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