

Pivot \neq Absolutive: Evidence from Formosan*

VICTORIA CHEN

University of Hawai‘i at Mānoa

1 Introduction

Austronesian languages known as the Philippine-type are recognized for their typologically unique voice system, as characterized by the following traits (1).

- (1) *Typical traits of a Philippine-type voice system*
 - a. In each clause, only one phrase can be \bar{A} -extracted. This phrase is conventionally called the Pivot.
 - b. The selection of the Pivot in each clause is indicated by affixal morphology on the verb, conventionally called ‘voice affix’.
 - c. When an argument is non-Pivot-marked, it carries a fixed morphological marking (depending on its thematic role) regardless of voice type.

The case pattern in these languages is presented in (2), using the labels Pivot, X, Y, and Z to stand for the morphological marking on Pivot phrases, non-Pivot external arguments, non-Pivot internal arguments, and Locative phrases, respectively.¹

- (2) *Shared case pattern in conservative Philippine-type languages*

	Actor voice	Patient voice	Locative voice	Circumstantial voice
External argument	Pivot	X	X	X
Internal argument	Y	Pivot	(Y)	(Y)
Locative	(Z)	(Z)	Pivot	(Z)
Instrumental/ Benefactor	(Y)	(Y)	(Y)	Pivot

Whether the case system in (2) morphologically encodes an accusative, ergative, or typologically unique alignment has been a long-standing question in Austronesian syntax. One well-accepted theory built on the ergative approach to these languages argues for the following analysis (3) for the case pattern in (2).

- (3) *The ergative approach to a Philippine-type voice system (Aldridge, 2004, et seq.)*
 - a. Pivot-marking realizes structural case from T (Absolutive).
 - b. X marks inherent case from transitive Voice assigned to its specifier (Ergative).

*This paper is based on data collected in 2015 and 2016 from Nanwang Puyuma, Central Amis, and Tgdaya Seediq. I am grateful to Atrung Kagi (Min-ying Sun), Lisin Kalitang (Jin-hua Wu Tseng), and Dakis Pawan (Ming-cheng Kuo) for teaching me about their languages, and to Academia Sinica and Prof. Elizabeth Zeitoun for fieldwork funds and all kinds of resources. I would like to thank Micheal Erlewine, Dan Kaufman, Omer Preminger, Lisa Travis, especially Shin Fukuda, as well as the audience *NELS 46* and *BLS 42* for helpful feedback on this paper. All errors are mine.

¹The following glosses are used throughout the paper: ACC=accusative; AV=actor voice; ABS=absolutive; APPL=applicative; C=complementizer; CAU=causative; CV=circumstantial voice; DF=definite; ERG=ergative; FOC=focus; ID=indefinite; LV=locative voice; NEG=negation; NMZ=nominalizer; NOM=nominative; OBL=oblique; PART=particle; PFV=perfective; PL=plural; PN=proper name; PST=past; POSS=possessor; PV=patient voice; SG=singular; TOP=topic.

- c. Y marks (inherent) lexical case from V assigned to its complement (Oblique).
- d. Locative-voice (LV) and Circumstantial-voice (CV) affixes are the morphological reflexes of high applicative heads, which license a specific non-core argument (e.g. Locative, Instrument, Benefactive) at the highest internal argument position ([Spec ApplP]).

In this paper, I revisit the hypothesis in (3) with a careful look at (i) causative, (ii) ditransitive, and (iii) LV/CV clauses with a ‘non-core’ phrase as Pivot in three Philippine-type Austronesian languages spoken in Taiwan: Puyuma, Amis, and Seediq, and demonstrate that the case patterns in these constructions are difficult to account for under an ergative analysis. These languages each belong to a different Austronesian primary branch and have a canonical Philippine-type voice system and an elaborate four-way case distinction presented in (2).² With a closer look at (i)-(iii) based on novel data, I argue for the following analysis (4).

(4) *Main claim of the paper*

- a. Pivot-marking does not realize Absolutive case.
- b. X marks Nominative case from finite T.
- c. Y marks Accusative case from Voice. The internal arguments of Actor voice (AV) clauses are structurally licensed transitive objects.
- d. LV and CV affixes are not reflexes of high applicative heads.

With this proposal and the shared case pattern in (a)-(c) across Formosan languages, I argue against the following assumptions commonly adopted in the Formosan literature (5) (e.g. Aldridge, 2004; Liao, 2004; Chang, 2011a,b; Teng, 2008).

(5) *Previous assumptions of Philippine-type Formosan languages*

- a. AV clauses are intransitive/antipassive; AV objects are non-core oblique phrases.
- b. LV and CV clauses involve argument structure alternation and the applicativization of the Pivot-marked phrase (e.g. Locative/Instrument/Benefactor).

The paper is organized as follows. I begin by summarizing the controversies in the applicative analysis for LV/CV affixes in Section 2 and outline the core questions to be explored. Section 3 examines the case-licensing mechanism in productive causatives, and shows that it is incompatible with the ergative analysis. Section 4 discusses the absence of argument structure alternation in ditransitives and its implications for the analysis of Pivot-marking. Section 5 investigates binding relations in LV/CV clauses with a Locative/Instrument/Benefactor phrase as Pivot, which argues against the applicative analysis of LV/CV affixes. Section 6 presents a Nominative-Accusative analysis for the three languages with the claim that Pivot marks topic/focus, which is in line with previous proposals for relevant languages (e.g. Chung, 1994; Richards, 2000; Pearson, 2005a). Section 7 concludes.

²Note that the morphological distinction between non-Pivot external arguments (X) and non-Pivot internal arguments (Y) is unattested in many extra-Formosan Philippine-type languages, including Tagalog, Chamorro, and Malagasy. Nevertheless, given the wide distribution of X/Y distinction in higher-level Philippine-type languages it is uncontroversial that the four-way distinction in (2) can be traced back to Proto-Austronesian (Blust, 2015; Ross, 2006).

2 Theoretical issues in the applicative analysis of LV/CV clauses

In ongoing investigation of the Philippine-type voice system, two families of analyses have been proposed to account for the characteristics described in (1)-(2): the ergative approach (e.g. Payne, 1982; Mithun, 1994; Guzman, 1988; Liao, 2004; Aldridge, 2004) and the accusative approach (e.g. Guilfoyle et al., 1992; Richards, 2000; Rackowski, 2002). A main divergence between the two approaches lies in the treatment of Pivot-marking. The former claims it to mark structural Absolutive case from T, whereas the latter analyzes it as a topic/focus marker (Richards, 2000; Rackowski, 2002; Pearson, 2005a). A crucial assumption for the former analysis is that only the structurally highest caseless argument can be Pivot-marked. A question thus arises when it comes to LV and CV clauses, where specific non-core arguments (Locative, Instrument, or Benefactor) receive Pivot status, leaving the direct object ‘Oblique’-marked, as in the Puyuma data (6a)-(6b).

- (6) a. *Case-marking in LV clauses*
 ku=pubini'-ay dra dawa na uma.
 1SG.X(ERG)=SOW-LV Y(OBL) millet PIVOT field
 ‘I sowed millet in the field.’ [Puyuma]
- b. *Case-marking in CV clauses*
 ku=pangasip-anay dra kuraw na 'urtati.
 1SG.X(ERG)=FISH-CV Y(OBL) fish PIVOT earthworm
 ‘I fished fish with earthworms.’ [Puyuma]

To account for how these ‘non-core’ phrases receive Absolutive case, LV and CV affixes have been analyzed as reflexes of a high applicative head that licenses a specific non-core phrase as applied object (e.g. Aldridge, 2004; Chang, 2015). Under this analysis, the applied object is accessible to structural case from T, with the external and internal argument inherently licensed with Ergative and Oblique case, respectively, as illustrated in (7).

- (7) a. *LV clause with a Locative Pivot*
-
- b. *CV clause with an Instrument/Benefactor Pivot*
-

However, the case patterns in causatives and ditransitives in higher-level Austronesian languages pose empirical challenges to the applicative analysis of LV/CV affixes. Consider the following pattern of Pivot-selection in causatives and ditransitives shared among Formosan languages (8).

(8) *What receives Pivot-marking in LV- and CV-marked causatives and ditransitives*

	Locative voice	Circumstantial voice
simple clauses	Locative	Instrumental, Benefactor
ditransitive	Recipient	Transported theme
causative	Causee	Caussum ³

As shown in (8), Philippine-type Formosan languages commonly mark Recipient as Pivot in LV-marked ditransitives and Transported theme in CV-marked ditransitives; as for productive causatives, Pivot-marking consistently falls on the Causee in LV-marked causatives and on the Caussum in CV-marked causatives.⁴ With the analysis that what receives Pivot-marking in LV/CV clauses is what undergoes applicativization, CV-marked ditransitives would have to be analyzed as involving a Transported theme licensed as an applied object. Similarly, CV-marked causatives must be analyzed as having an applied-object Caussum that is structurally higher than the Causee. These predictions appear incompatible with current crosslinguistic understanding of ditransitive and causative constructions.

In addition, LV and CV clauses in higher-level Austronesian languages show no morphological evidence for a valency increasing process. As in (6a)-(6b), LV/CV clauses in Formosan languages employ no transitivity marking combined with the LV/CV affix. These observations call for a reconsideration of the basic assumptions of the ergative analysis in (3).

In what follows, I begin with the discussion of the three constructions with a core concern of whether the case-licensing mechanism in these constructions is compatible with the predictions of the ergative/applicative analysis (9).

(9) *Predictions of the ergative approach*

- a. Pivot-marked phrases in LV/CV clauses are licensed as applied objects.
- b. The licensing of Pivot-marking ('Absolutive') must respect locality.
- c. The distribution of Y-marked ('Oblique') phrases is restricted to internal argument position.
- d. Voice alternation is accompanied by argument structure alternation.

For the sake of consistency, I follow the ergative analysis and use the label 'Absolutive' (Pivot), 'Ergative', and 'Oblique' to gloss the morphological marking on Pivot, non-Pivot external argument, and non-Pivot internal argument, respectively.

3 Productive causative

In this section, I discuss the case pattern in productive causatives, and investigate its implications for the predictions of the ergative approach (9). As in many other Austronesian languages, productive causatives in Puyuma, Amis, and Seediq are formed by affixal morphology on the verb. As shown in the non-causal/causal contrast between (10a) and (10b)-(10d), the causative prefix *pa-* introduces the causing event, and freely combines with different voice markers. Productive causatives in these languages thus exhibit voice alternation similar to that in simple clauses. Importantly, every productive causative carries only one voice affix; the base verb of the sentence does not carry a separate voice marker.⁵

³Based on previous descriptions in the literature, the pattern in (8) is attested in Tsou, Paiwan, Saisiyat, Atayal, Puyuma, Amis, Seediq, and Bunun (Lin, 2009; Chang, 2006; Zeitioun, 2000; Huang, 2005).

⁴In this paper, I use the term 'Caussum' to refer to the theme of the caused event.

⁵As to why (bi-eventive) productive causatives in Philippine-type languages involve only one voice affix per sentence, see the analysis in Section 6.

- (10) *Voice alternation in Puyuma productive causative*
- a. trima i senten dra aputr.
 <AV>buy SG.ABS Senten ID.OBL flower
 ‘Senten bought flowers.’ [simple clause]
- b. ∅-pa-trima=ku kan senten dra aputr.
 <AV>-CAU-buy=1SG.ABS SG.OBL Senten ID.OBL flower
 ‘I asked Senten to buy flowers.’ [AV-causative]
- c. ku=pa-trima-aw/-ay i senten dra aputr.
 1SG.ERG=CAU-buy-PV/LV SG.ABS Senten ID.OBL flower
 ‘I asked Senten to buy flowers.’ [PV/LV-causative]
- d. ku=pa-trima-anay kan senten na aputr.
 1SG.ERG=CAU-buy-VV SG.OBL Senten DF.ABS flower
 ‘I asked Senten to buy flowers.’ [CV-causative]

Across the three languages, productive causatives share the case pattern in (11).⁶ As shown in the Puyuma examples above, when a productive causative is marked in AV, ‘Absolutive’-marking falls on the Causer, with both the Causee and the Causum ‘Oblique’-marked (10b). When the sentence is marked in PV or LV, ‘Absolutive’-marking falls on the Causee, with the Causer and Causum ‘Ergative’ and ‘Oblique’-marked, respectively (10c).⁷ Finally, when the sentence is marked in CV, ‘Absolutive’-marking falls on the Causum, with the Causer and Causee ‘Ergative’ and ‘Oblique’-marked, respectively (10d). For the sake of simplicity, I refer to these constructions as AV-causative, PV-causative, and CV-causative in the following discussion.

- (11) *Shared case patterns in productive causatives in Puyuma, Amis, and Seediq*

	Actor voice	Patient/Locative voice	Circumstantial voice
Causer	[Absolutive]	[Ergative]	[Ergative]
Causee	[Ergative]	[Absolutive]	[Oblique]
Causum	[Oblique]	[Oblique]	[Absolutive]

The case pattern in CV-causatives deserves special attention, where ‘Absolutive’-marking falls on the Causum, which is presumably the lowest argument in a causative sentence, with the Causee marked as ‘Oblique’. Under the ergative analysis that Absolutive marks structural case from T, an ‘Absolutive’-marked Causum may be accounted for under one of the following analyses (12a)-(12c).

- (12) *Three possible structural relations in CV-causatives*
- a. The Causum is introduced as a high applicative phrase and base-generated higher than the Causee (under the applicative analysis of the CV affix).
- b. The Causee is inherently case-licensed by a by-phrase.
- c. The Causee is inherently case-licensed by an applicative head.

⁶According to the available literature, the case pattern in (10) is shared by the following Formosan languages: Paiwan (Chang, 2006), Tsou (Lin, 2009), Puyuma (primary data), Amis (primary data), Seediq (primary data, Tsukida, 2015), Bunun (Zeitoun, 2000), Atayal (Huang, 2005), Saisiyat (Zeitoun, 2000). The same pattern is also attested in Tagalog (Rackowski, 2002), Cebuano (Tanangkingsing, 2009), and Ilocano (Silva-Corvalán, 1978).

⁷In the three languages discussed in this paper, LV-marked causatives take the same case pattern with PV causatives and are reported to have little differences with PV-causatives. According to my Puyuma and Amis consultants, the only difference is that LV-causatives seem to denote an event that had been completed earlier than that of PV-causatives.

The analysis in (12a) is in line with the proposal of the ergative analysis, in which the CV affix realizes a high applicative head that introduces the Pivot-marked phrase as an applied object. Under (12b) and (12c), the Causee is case-licensed either by a preposition or with an inherent case, thereby allowing Absolutive case to be assigned to the Caussum.

Binding diagnostics on the three languages suggest that the analyses in (12a)-(12b) are untenable. Under (12a)-(12b), the Causee is expected to be unable to bind into the Caussum. However, as shown in (13a)-(13c), an ‘Oblique’-marked quantifier Causee can bind into an ‘Absolutive’-marked pronominal Caussum in CV-causatives in all three languages, suggesting that the Causee is structurally higher than the Caussum.

(13) *CV-causatives: A Causee can bind into a Caussum*

- a. ku=pa-deru-anay kana bulraybulrayan driya tu=bujir.
 1SG.ERG=CAU-cook-CV DF.OBL girl every 3.POSS.ABS=taro
 ‘I asked every girl_{<i>} to cook her_{<i/j>} taro.’ (bound variable reading) [Puyuma]
- b. sa-pa-pi-tangtang aku tu cimacima a ina ku futing nira.
 CV-CAU-PI-cook 1SG.ERG OBI every LK mother ABS fish 3SG.POSS
 ‘I asked every mother_{<i>} to cook her_{<i/j>} fish.’ (bound variable reading) [Amis]
- c. s-p-seeliq=mu knkingal risaw ka rodux daha.
 CV-CAU-butcher=1SG.ERG every young.man ASB chicken 3PL.POSS
 ‘I asked every young man_{<i>} to butcher his_{<i/j>} chicken.’ (bound variable reading)
 [Seediq]

This leaves us with (12c), according to which a Causee is inherently licensed by an applicative phrase, leaving the Caussum the highest caseless DP that can access Absolutive case. However, a closer look at CV-causatives shows that (12c) is also untenable. It has been observed crosslinguistically that causatives with an applicative Causee are mono-eventive and incompatible with (i) adverbs of frequency, and (ii) agent-oriented adverbs that modify the caused event (e.g. Pylkkänen, 2002; Legate, 2014). However, the examples below show that CV-causatives in all three languages can be modified by (i) and (ii).

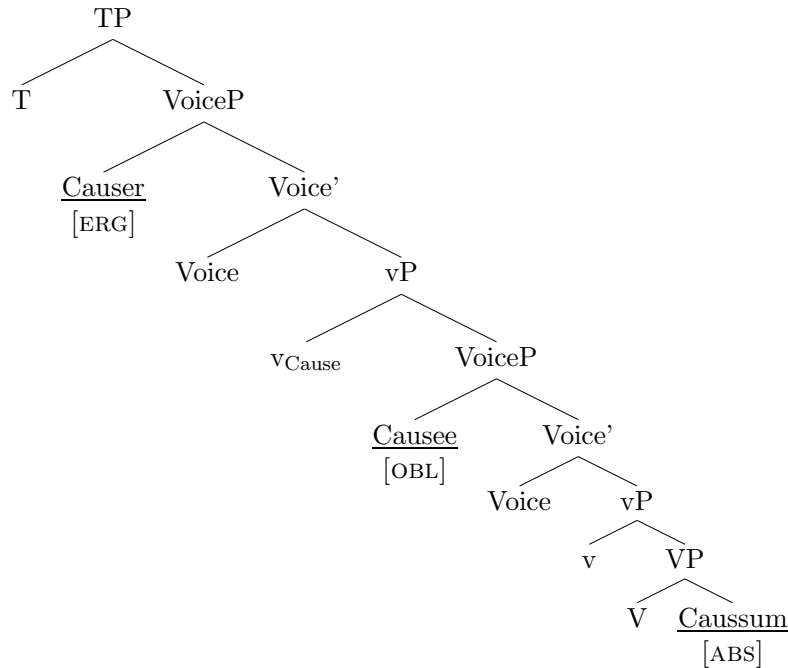
(14) *CV-causatives: The caused event can be modified by an adverb of frequency*

- a. ku=pa-base-anay kan akang masal na kiping.
 1SG.ERG=CAU-wash-CV SG.OBL Akang again DF.ABS clothes
 ‘I asked Akang to wash the clothes again.’ (Akang did so again) [Puyuma]
- b. kuna maeded-ay a wacu, sa-pa-pi-palu heca aku ci kulas-an.
 that.ABS bad-NMZ LK dog, CV-CAU-PI-beat again 1SG.ERG PN Kulas-OBL
 ‘As for that bad dog, I asked Kulas to beat it again.’ (Kulas did so again) [Amis]
- c. wada=mu s-p-pahu robo dungan ka lukus nii.
 PFV=1SG.ERG CV-CAU-wash Robo again ABS clothes this
 ‘I asked Robo to wash the clothes again.’ (Robo did so again) [Seediq]

- (15) *CV-causatives: The caused event can be modified by agent-oriented adverbs*⁸
- a. ku=pa-sabsab-anay kan sawagu pakirep na kuse.
 1SG.ERG=CAU-wash-CV SG.OBL Sawagu severely DF.ABS shoes
 ‘I asked Sawagu to wash the shoes severely.’ (Sawagu did so thoroughly) [Puyuma]
- b. sa-pa-pi-tangtang aku ci Panay-an ku futing pina’un.
 CV-CAU-PI-cook 1SG.ERG PN Panay-OBL ABS fish carefully
 ‘I asked Panay to cook the fish carefully.’ (Panay did so carefully) [Amis]
- c. s-p-sebuc=mu Walis ka knhenguuq s<m>ebuc laqi nii.
 CV-CAU-beat=1SG.ERG Walis.OBL ABS severely <AV>beat child this
 ‘I asked Walis to beat this child severely.’ (Walis did so severely) [Seediq]

The observation above suggests that CV-causatives in the three languages are best analyzed as bi-eventive with two independent VoicePs, rather than mono-eventive with an applicative Causee. Under this analysis, the Causee is introduced at [Spec VoiceP] as an external argument and c-commands the Caussum, as in (16).

- (16) *The structure and case of CV-causatives in Puyuma, Amis, and Seediq*



The present analysis provides us with a picture in which Pivot-marking is free to ‘skip’ an external-argument Causee and licenses the Caussum, indicating that the licensing of Pivot-marking is not subject to locality. A careful look at AV- and PV-causatives in the same languages provides further clues to the nature of Pivot-marking. Binding patterns with the arguments in the AV- and PV-causatives show the same results as CV-causatives, in which a quantifier Causee can bind into a pronominal Caussum regardless of voice type and case pattern, but not vice versa. Due to space limitation, I present only Puyuma data in this paper (17a)-(17b); the same observations were found in Amis and Seediq.

⁸The use of agent-oriented adverbs in Seediq CV-causatives is not as productive as those in Puyuma and Amis. Nevertheless, given that CV-causatives in Seediq are fully compatible with the adverb of frequency ‘again’ (14c) and a distinct temporal adjunct that modifies the caused event, I argue that they are bi-eventive as well.

(17) *Puyuma AV and PV-causatives: A Causee can bind into a Caussum*

- a. \emptyset -pa-base=ku kana bangsaran driya kantu=katring.
 AV-CAU-wash-CV=1SG.ABS DF.OBL young.man every 3.POSS.OBL=pants
 ‘I asked every young man_{<i>} to wash his_{<j>} pants.’ (bound variable reading) [AV]
- b. ku=pa-base-aw na bangsaran driya kantu=katring.
 1SG.ERG=CAU-wash-CV DF.ABS young.man every 3.POSS.PBL=pants
 ‘I asked every young man_{<i>} to wash his_{<j>} pants.’ (bound variable reading) [PV]

Further, parallel to that observed with CV-causatives, AV and PV-causative in all three languages are compatible with (i) adverbs of frequency, and (ii) agent-oriented adverbs that modify the caused event (18a)-(18b), suggesting invariable structural relations among arguments unaffected by voice type.

(18) *Puyuma AV and PV-causatives: Caused event’s compatibility with types of adverbs*

- a. \emptyset -pa-base=ku kana walak masal paseket kana kiping.
 AV-CAU-wash-CV=1SG.ABS DF.OBL child again thoroughly DF.OBL clothes
 ‘I asked the child to wash the clothes thoroughly again.’ (the child did so again) [AV]
- b. ku=pa-base-aw na walak masal paseket kana kiping.
 1SG.ERG=CAU-wash-PV DF.ABS child again thoroughly DF.OBL clothes
 ‘I asked the child to wash the clothes thoroughly again.’ (the child did so again) [PV]

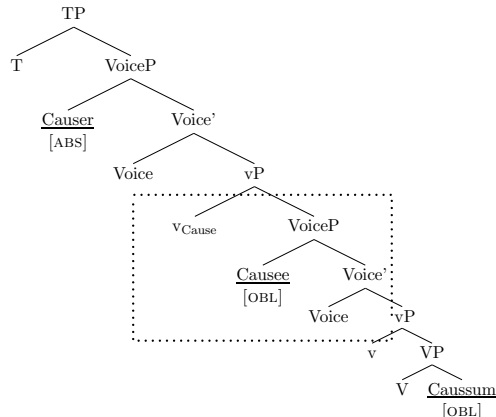
Given the observations so far, two generalizations can be made on the structure and case-licensing mechanism in productive causatives across the three languages (19).

(19) *The structure of productive causatives in Puyuma, Amis, and Seediq*

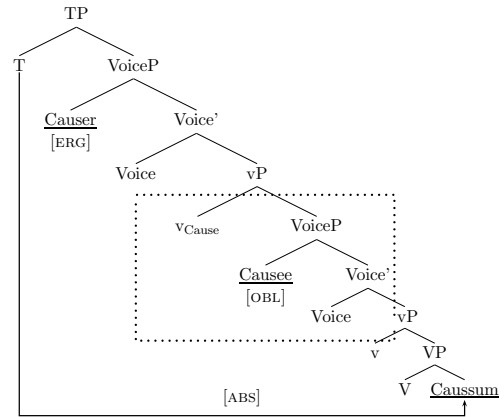
- a. Productive causatives do not vary in their structural relation among arguments regardless of voice alternation: Causer > Causee > Caussum
- b. Pivot-licensing does not respect locality, but marks the 1st, 2nd, and 3rd highest argument in the causative structure under AV, PV, and CV, respectively.

A final question to be discussed in this section is the property of ‘Oblique’-marking (Y) on the Causee in AV and CV-causatives. Given the observation that a Causee always behaves like an external argument, the presence of ‘Oblique’-marking on it is unexpected, under the analysis that ‘Oblique’ marks lexical case from V that inherently licenses antipassive objects along with theta-licensing (Aldridge, 2004, et seq.). The absence of a lexical case licenser at the external argument position (20a) suggests that the licensing of X might not be inherent/lexical, but structural.

The same ‘Oblique’-marking on the Causee in CV-causatives raises a further challenge to the ergative analysis, in that ‘structural Absolutive’ (i.e. Pivot) appear to skip a lexically licensed external argument and licenses a lower argument (i.e. the Caussum). This is unexpected on an Absolutive-case analysis for Pivot, which predicts Pivot-licensing to strictly obey locality.

(20) *Case-licensing in productive causatives: The ergative approach*a. *Case-licensing in AV-causatives*

- No ‘OBL’-licensor for the external-argument Causee

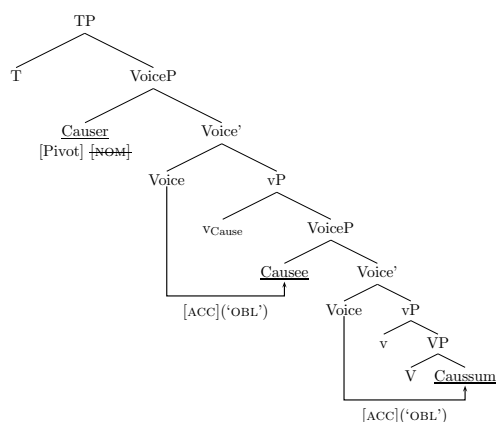
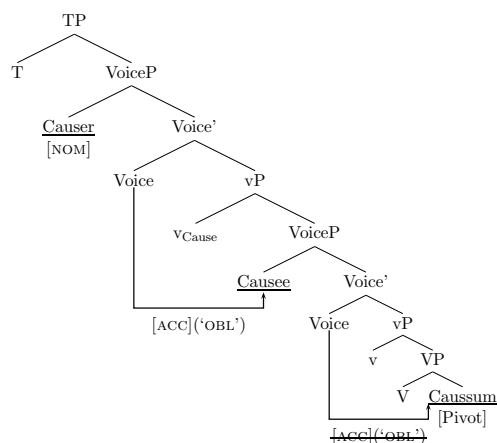
b. *Case-licensing in CV-causatives*

- No ‘OBL’-licensor for the external-argument Causee
- non-locality in ‘ABS’-licensing

I argue that an Accusative analysis for ‘Oblique’ (Y) can better account for the distribution of ‘Oblique’-marked phrases in productive causatives. Under the analysis that Y marks structural Accusative, it is predicted to be able to case-license the external argument position in an ECM-like configuration. The case pattern in AV-causatives can thus be captured under the analysis that the ‘Oblique’-marking on the Causee and Caussum realizes structural Accusative case from the matrix and embedded Voice, respectively, as in (21a).⁹

What about the ‘Oblique’-marking on the Causee in CV-causatives? Under the present analysis that Accusative case is available in AV clauses, AV clauses are true transitives with structurally licensed internal arguments. This suggests that the conventionally assumed transitivity distinction between AV and non-AV clauses can thus be eliminated. Given the analysis developed here, the nature of ‘Ergative’-marking (X) requires a new treatment as well, as it was previously assumed to be tied to transitive clauses. I argue that (i) the ‘Ergative’-marking (X) essentially realizes structural Nominative from T that always licenses the highest argument in a clause, and that (ii) Pivot-marking is a type of morphological marking that overrides morphological case, and falls on the 1st, 2nd, and 3rd highest argument in a causative sentence. Under the present analysis, both the Causee and Caussum in CV-causatives are analyzed as Accusative-licensed under the same way as that in AV-causatives (21a). The only difference is that Pivot-marking falls on the Causer in AV-causatives while the Caussum in CV-causatives, giving rise to the case pattern in (12). This proposal is illustrated in (21b). A more detailed discussion on Case-licensing in causatives is presented in Section 6.

⁹See Chen and Fukuda (to appear) for a similar Accusative analysis of ‘Oblique’ based on restructuring and raising-to-object data from the same languages.

(21) *Case-licensing in productive causatives: The present proposal*a. *Case-licensing in AV-causatives*b. *Case-licensing in CV-causatives*

4 Ditransitive

Ditransitive constructions offer another ideal environment for the investigation of case-licensing and voice in Philippine-type systems. Similar to the case of productive causatives, ditransitive verbs in Formosan languages can freely combine with different voice markers and show corresponding case alternation (22), as exemplified in the Puyuma data in (23).¹⁰

(22) *Shared case patterns in ditransitives across Puyuma, Amis, and Seediq*

	Actor voice	Patient/Locative voice	Circumstantial voice
Agent	[Absolutive]	[Ergative]	[Ergative]
Recipient	[Oblique]	[Absolutive]	[Oblique]
Theme	[Oblique]	[Oblique]	[Absolutive]

(23) *Ditransitive alternation with the verb 'send' in Puyuma*¹¹

- a. paatedr=ku kan nanali dra tigami.
 send.AV=1SG.ABS SG.OBL my.mother ID.OBL letter
 'I sent my mother a letter.' [AV-ditransitive]
- b. ku=paatedr-ay i nanali dra tigami.
 1SG.ERG=send-LV SG.ABS my.mother ID.OBL letter
 'I sent my mother a letter.' [LV-ditransitive]
- c. ku=paatedr-anay kan nanali na tigami.
 1SG.ERG=send-CV SG.OBL my.mother DF.ABS letter
 'I sent my mother a letter.' [CV-ditransitive]

¹⁰Ditransitive alternation in Formosan languages has attracted some attention in the literature (Huang, 2005; Chang, 2011b; Tsukida, 2015; Kuo, 2015). However, to the best of my knowledge, the relationship between case-marking, voice type, and the structural relation among arguments has not been carefully examined.

¹¹Similar to the case of PV and LV-marking in productive causatives, LV-marked ditransitives in the three languages share the same case pattern with PV-marked ditransitives (when a PV form is applicable). In Puyuma, many verbs have lexical gap between the PV and the LV form, and employ the LV form to introduce the argument structure of PV verbs, including the verbs *beray* 'give' and *paatedr* 'send'. On the other hand, transfer verbs in Seediq and Amis allow both the PV form and LV form.

As in (22)-(23), in AV-marked ditransitives, ‘Absolutive’-marking falls on the Agent, with both the Recipient and the Transported theme ‘Oblique’-marked. In PV and LV-marked ditransitives, ‘Absolutive’-marking falls on the Recipient, with the Agent and theme ‘Ergative’ and ‘Oblique’-marked, respectively. Finally, in CV-marked ditransitives, ‘Absolutive’-marking falls on the Transported theme, with the Agent and Recipient case-marked in the same way where they are non-Pivot. A crucial question concerning the above case pattern is whether the change in voice marking reveals a change in argument structure, thereby allowing different arguments to become the highest caseless DP in the clause under different voice types. Specifically, whether it reflects the alternation attested crosslinguistically between double-object construction and prepositional dative, as exemplified in the English examples (24a)-(24b).

(24) *Ditransitive alternation in English*

- a. John gave the girl a book. [double-object construction]
 b. John gave a book to the girl. [prepositional dative]

Considering the structural difference between (24a) and (24b), the case pattern in CV-ditransitives (23c) deserves special attention, where the Transported theme receives Pivot-marking, with the Recipient ‘Oblique’-marked. The ergative analysis predicts CV-ditransitives to have the structure of prepositional dative construction (PDC), in which the Recipient (Goal) is introduced as a PP and licensed with ‘Oblique’ case, with structural Absolutive assigned to the internal argument (i.e. Transported theme).

To clarify the question, I follow the well-accepted assumption that DOC involves a Recipient that asymmetrically *c*-commands the Transported theme, whereas PDC involves a Recipient and a Theme that *c*-command each other (e.g. Pylkkänen, 2002; Bruening, 2010). The exact structure of ditransitives under different voice types (23a)-(23c) can thus be clarified through appropriate diagnostics. For the following tests, I follow the assumption that quantificational possessors can bind pronouns outside their possessive hosts (Higginbotham, 1983; Reinhart, 1983; Barker, 2012), which is supported by empirical observations from the three languages (see the data presented in Section 5).

The availability of bound-variable reading of the pronouns inside the theme suggests that ditransitives across the languages have the same basic structure, where the Recipient *c*-commands the Transported theme regardless of voice alternation. In all three languages, a quantifier Recipient can bind into a pronominal Theme in CV-ditransitives (25), but not vice versa (26).

(25) *Binding relations in CV-ditransitives: A Recipient can bind into a Theme*

- a. ku=beray-anay [tu=lribun] [kana sinsi driya].
 1SG.ERG=give-CV [3.POSS.ABS=wages] [DF.OBL teacher every]
 ‘I gave every teacher_{<i>} his_{<i/j>} wages.’ (bound variable reading) [Puyuma]
- b. sa-paqefer aku [tu cimacima a mitiliday] [ku wuheng nira].
 send-CV SG.ERG [OBL every LK student] [ABS book 3SG.POSS]
 ‘I sent every student_{<i>} his_{<i/j>} wages.’ (bound variable reading) [Amis]
- c. s-paadis=mu [knkingal seediq] [ka pila=daha].
 CV-send=1SG.ERG [every person] [abs money=3PL.POSS]
 ‘I sent every person_{<i>} his_{<i/j>} money.’ (bound variable reading) [Seediq]

(26) *Binding relations in CV-ditransitives: A Theme cannot bind into a Recipient*¹²

- a. ku=beray-anay [kantu walak] [tu=libun kana sinisi driya].
 1SG.ABS=give-CV [3.POSS.OBL child] [3.POSS.ABS=wages LK teacher every]
 ‘I gave his_{<i>} child every teacher’s_{<*/j>} wages.’ (no bound variable reading) [Puyuma]
- b. sa-pafeli aku [tu wawa nira] [ku paysu nu cimacima a tamdaw].
 CV-send 1SG.ERG [OBL child 3.POSS] [ABS money POSS every LK person]
 ‘I gave his_{<i>} child every person’s_{<*/j>} money.’ (no bound variable reading) [Amis]
- c. wada=mu s-bege [laqi=daha] [ka pila na knkingal seediq]
 PFV=1SG.ERG CV-give [child=3.PL.POSS] [ABS money POSS every person]
 ‘I gave his_{<i>} child every teacher’s_{<*/j>} wages.’ (no bound variable reading) [Seediq]

The fact that the quantifier inside the Transported theme cannot bind into the pronominal Recipient in (26) suggests that the Recipient asymmetrically c-commands the Transported theme in CV-ditransitives, which contradicts the PDC analysis. Significantly, the same structural relation is consistently attested in both AV-ditransitives and PV/LV ditransitives across the three languages, again suggesting the absence of voice-type conditioned argument structure alternation in ditransitives. Again, I present only Puyuma data below (27)-(28), with the same observation of AV and PV ditransitives in Amis and Seediq.

(27) *Binding relations in AV-ditransitives*

- a. ∅-beray=ku [kantu=libun] [kana sinisi driya].
 AV-give=1SG.ABS [3.POSS.OBL=wages] [DF.OBL teacher every]
 ‘I gave every teacher_{<i>} his_{<i/j>} wages.’ (bound variable reading)
- b. ∅-beray=ku [kantu=libun kana sinisi driya] [kantu=walak].
 AV-give=1SG.ABS [3.POSS.OBL=wages] [DF.OBL teacher every] [3.POSS.OBL=child]
 ‘I gave his_{<i>} child every teacher’s_{<*/j>} wages.’ (no bound variable reading)
 [Puyuma]

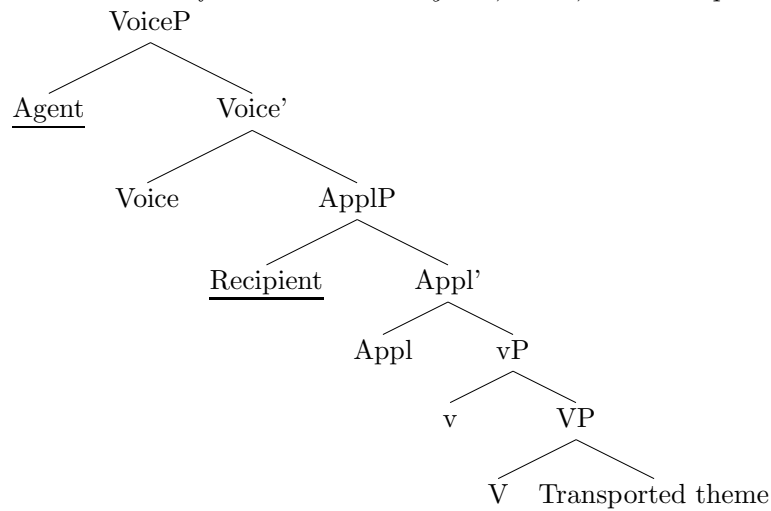
(28) *Binding relations in PV/LV-ditransitives*

- a. ku-beray=ay [kantu=libun] [na sinisi driya].
 1SG.ERG-give=LV [3.POSS.OBL=wages] [DF.ABS teacher every]
 ‘I gave every teacher_{<i>} his_{<i/j>} wages.’ (bound variable reading)
- b. ku=beray-ay [tu=walak] [kantu=libun kana sinisi driya].
 1SG.ERG=give-LV [3.POSS.ABS=teacher] [3.POSS.OBL=wages LK teacher every]
 ‘I gave his_{<i>} child every teacher’s_{<*/j>} wages.’ (no bound variable reading)
 [Puyuma]

The findings that a Recipient always asymmetrically c-commands a Transported theme regardless of voice type strongly supports a DOC analysis for ditransitives across the three languages, as illustrated in (29). This analysis is additionally supported by the ‘Oblique’-marking on both the Recipient and the Transported theme in AV-ditransitives (23a), which, under the Accusative analysis for ‘Oblique’ developed in Section 3, is in line with the double-Accusative marking on the objects in the majority of languages that employ a DOC structure (Pykkänen, 2002).

¹²Note that the absence of a bound variable reading in (26a)-(26c) is not because the transported theme involves an embedded quantifier such that it cannot c-command outside of the DP, given the availability of bound variable reading in CV-ditransitives like (29), which has a Recipient with an embedded quantifier.

(29) *The structure of ditransitive in Puyuma, Amis, and Seediq*



(30) *Structural relations among arguments in Puyuma, Amis, and Seediq ditransitives*

- a. Ditransitives under different voice types show invariable structural relation among arguments: Agent > Recipient > Theme
- b. The case-marking on the argument does not affect the structure of ditransitives.
- c. Given (a)-(b), Pivot-licensing in ditransitives does not respect locality.

5 Transitive clauses with a ‘non-core’ phrase as Pivot

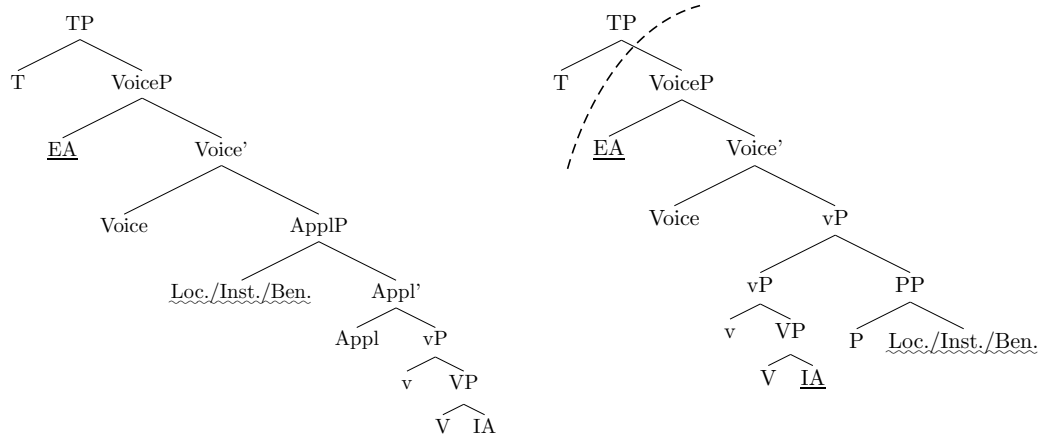
Given the findings that causatives and ditransitives across the three languages lack voice-type conditioned argument structure alternation, I have argued in the preceding sections that Pivot does not mark Absolutive. In this section, I discuss the binding relations in LV and CV clauses with a ‘non-core’ phrase (Locative/Instrument/Benefactor) as Pivot, which provides additional evidence for this claim.

As discussed in Section 2, an applicative analysis for Pivot-marked ‘non-core’ phrases in LV/CV clauses is necessary for the ergative approach to Philippine-type voice systems. This analysis predicts that the internal argument in LV/CV clauses should be unable to bind into the ‘Absolutive’-marked phrase, as it is expected to be c-commanded by the ‘Absolutive’-marked applied object, as in (31a).

Alternatively, if Pivot does not realize structural case from T, LV/CV clauses may not involve the applicativization of specific non-core phrases; these phrases may remain as adjunct PPs that adjoin to the verb phrase, and may be bound by the internal argument when the PP is right-adjoined (Bruening, 2010), as in (31b).¹³

¹³According to Bruening’s (2014) proposal of precede-and-phase-command, when an adjunct PP is right-adjoined to the verb phrase, it is possible to be bound by the internal argument, given that (i) the internal argument precedes the PP in linear order, and (ii) both are under the same phase (i.e. VoiceP).

- (31) *Predictions of binding relations in LV/CV clauses under the competing analyses*
 a. *Pivot marks Absolutive* b. *Pivot does not mark Absolutive*



The binding relation between the internal argument and the ‘Absolutive’-marked phrase in LV and CV clauses suggests that the applicative analysis is untenable. As shown in the data below, in all three languages, the internal argument of LV/CV clauses is able to bind into a Pivot-marked Locative, Instrument, or Benefactive phrase, evidenced by the bound variable reading obtained in the following examples (32)-(33).

- (32) *LV clauses with a Locative Pivot*

- a. ku=retra-ay [tu=etu] [kantu=paysu kana trawtrawtraw driya].
 1SG.ERG=put-LV [3.POSS=desk] [3.POSS=money LK persons every]
 ‘I put every person’s_{<i/j>} money on his_{<i/j>} desk.’ (bound variable reading) [Puyuma]
- b. pi-teli-an aku [tu syasing nu cimacima a wawa] [i cukuwi nangra].
 PI-put-LV 1SG.ERG [OBL picture POSS every LK child] [LOC desk 3PL.POSS]
 ‘I put every child’s_{<i/j>} picture_{<i/j>} on his desk.’ (bound variable reading) [Amis]
- c. wada=mu phuma-an [sari na knkingal rudan] [ka neepah daha].
 PFV=1SG.ERG grow-LV [taro POSS every old.man] [ABS field 3PL.POSS]
 ‘I grew every old man’s taro on his field.’ (bound variable reading) [Seediq]

- (33) *CV clauses with an Instrument/Benefactive Pivot*

- a. ku=deru-anay [tu=si’uy] [kantu=bujir kana taynaynayan driya].
 1SG.ERG=cook-CV [3.POSS=pot] [3.POSS=money LK mothers every]
 ‘I cooked every mother’s taros with her pot.’ (bound variable reading) [Puyuma]
- b. sa-pi-tangtang aku [tu futing nu cimacima a tamdaw] [ku si’uy
 CV-PI-cook 1SG.ERG [OBL fish POSS every LK person] [ABS pot
 nangra].
 3PL.POSS]
 ‘I cooked every mother’s fish with her pot.’ (bound variable reading) [Amis]
- c. s-beebu=mu [knkinal laqi] [ka qreti=daha].
 CV-beat=1SG.ERG [every child] [ABS stick=3PL.POSS]
 ‘I beat every child with his stick.’ (bound variable reading) [Seediq]

The finding that the ‘Oblique’-marked internal argument can bind into the ‘Absolutive’-marked phrase casts further doubts on the applicative analysis for LV/CV affix, and lends support to the generalization from the preceding Sections 3 and 4 that voice alternation is not accompanied by argument structure alternation.

6 Proposal

6.1 Proposal: Philippine-type ‘voice affix’ as \bar{A} -agreement markers

Having demonstrated the incompatibility of the case patterns of the three constructions with the ergative analysis in (3), I argue that the Philippine-type voice system in the three languages are better analyzed as Nominative-Accusative, with Pivot-marking as a topic/focus marker independent of Case, which overrides the morphological case of the target phrase. The case pattern in causatives and ditransitives understood in this way can thus be captured under the following analysis in (34).

(34) *Case patterns in causative and ditransitives under a Nom-Acc analysis*

	Actor voice	Patient/Locative voice	Circumstantial voice
Agent/Causer	[Nom] ‘Pivot’	[Nom]	[Nom]
Recipient/Causee	[Acc]	[Acc] ‘Pivot’	[Acc]
Theme/Caussum	[Acc]	[Acc]	[Acc] ‘Pivot’

As in (34), with an AV affix, Pivot-marking falls on the Nominative-marked phrase in a clause, no matter whether the target phrase is a Causer, Agent, or Patient-like unaccusative subject; with a PV/LV affix, Pivot-marking falls on the first Accusative-marked phrase, which can be a direct object, Causee, or Recipient.¹⁴ Finally, with a CV affix, Pivot-marking falls on a lower argument in the structure, ranging from a Transported theme, a Caussum, to adjuncts. The hierarchical nature of Pivot-selection is akin to the Noun Phrase Accessibility Hierarchy (35), and suggests a connection between ‘voice-marking’ and \bar{A} -extractions.

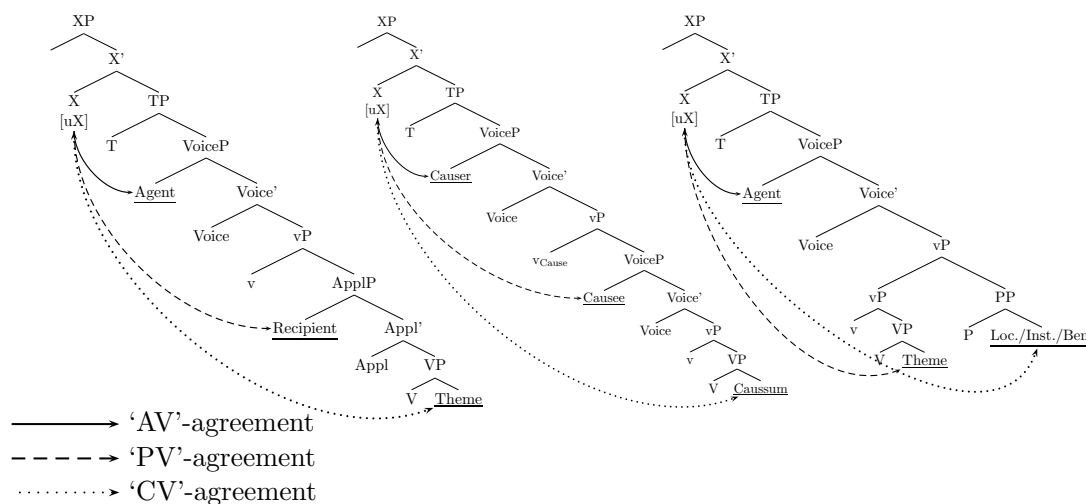
(35) *Noun Phrase Accessibility Hierarchy (Keenan and Comrie, 1979)*

- a. Subject > Direct Object > Indirect Object (> ...)

Under the analysis developed here, I propose that Philippine-type ‘voice affixes’ essentially realize an obligatory \bar{A} -agree relation between a functional head that encodes information-structural status (Topic/Focus) and a particular argument in a clause (see similar proposals for Chamorro (Chung, 1994), Malagasy (Pearson, 2005a,b), and Atayal (Erlewine, to appear)).¹⁵ A phrase under the Agree relation carries obligatory Pivot-marking, with the remainder of the arguments in the clause carrying their overt morphological case, giving rise to the case pattern in (34). This proposal is illustrated below in (36a)-(36c).

¹⁴It is important to note that although I argue for an Accusative analysis for the case assigned to AV objects, I do not mean to claim that all phrases marked as ‘Y’ (‘Oblique’) in (2) are Accusative-marked. I propose that Formosan languages lack morphological distinction between Accusative and Oblique (as similar to English). Hence, both the direct objects of AV clauses and adjunct phrases in (2) receive the same morphological marking, Y.

¹⁵See also (Erlewine et al., to appear) for a similar \bar{A} -analysis of the Philippine-type voice system.

(36) *The mapping between ‘voice affix’ and Pivot-selection in ditransitive, causative, and simple clauses*a. *Ditransitive*b. *Productive causative*c. *Simple clauses*

The present proposal has one instant advantage in explaining a remaining question in productive causatives. As discussed in Section 3, in Philippine-type Formosan languages, every productive causative sentence obligatorily carries only one ‘voice affix’, despite the analysis that they are bi-ventive with two independent VoicePs. The ‘absence’ of an embedded voice affix follows directly from this analysis, which analyzes ‘voice affix’ as an \bar{A} -agree relation that is unique per clause. On the other hand, this absence is difficult to account for under the ergative analysis, in which ‘voice affixes’ are the morphological reflexes of individual Voice heads. In the remainder of this section, I will present data from Puyuma and Amis contributing additional evidence for the topic/focus analysis for Pivot-marking.

6.2 Supporting evidence

6.2.1 Matrix voice alternation in complex sentences

Voice alternation in complex sentences offers an important piece of evidence for the present analysis. Across the three languages, knowledge and perception verbs are usually marked in AV form, and can take a fully finite CP as object, as in the Puyuma example (37). Many such verbs freely alternate with their non-AV forms, as in (38).

(37) *CP complement with AV verb*

aparu=ku ((kana ngay) [dra m-uka i arasip i atrung]).
 AV.forget=1SG.PIVOT [(DF.ACC rumor) [C AV-like LOC Arasip SG.PIVOT Atrung]]
 ‘I forgot (the rumor) that Atrung went to Arasip.’ (description of fact) [Puyuma]

(38) *CP complement with non-AV verb*

ku=aparuy [dra m-uka i arasip i atrung] (na ngay)].
 1SG.NOM=forget-LV [C AV-like LOC Arasip SG.PIVOT Atrung] (DF.PIVOT rumor)]
 ‘I forgot (the rumor) that Atrung went to Arasip.’ (emphasis on the event forgotten)
 [Puyuma]

Under the ergative analysis, the definite CP complement in (37) and (38) would have to be treated as an antipassive object and its transitive-object counterpart, respectively. Alternatively, under the topic/focus account for Pivot, the alternation between the two sentences follows from the analysis that (37) and (38) have the topic/focus status fall on the Agent and CP complement, respectively. Such an analysis is compatible with native speakers' judgements of (37)-(38), in which the AV-marked sentence presents a neutral description of a fact (37), while its NAV-marked counterpart places specific emphasis on the event described in the CP (38).

6.2.2 Topic/focus-marking in Puyuma and Amis

The shared morphological marking on topic/focus and Pivot phrases lends further support to the current analysis. First, both foci and topics in Puyuma share the same morphological marking with Pivot. As shown in the question sentences in (39a)-(39b), the *wh*-phrases 'who' (*i manay*) and 'what' (*a manay*), which serve as the focus phrase in pseudo-clefts, must bear the same marking as the Pivot phrase. Base-generated hanging topics in the language also share the same morphological-marking with Pivot-marking. As shown in (40), the topic phrase 'Atrung' is thematically linked to the X-marked agent inside the non-AV-marked embedded clause via the aboutness condition, yet must carry a morphological marking identical to Pivot-marking at the hanging topic position.

(39) *Focus-marking in Puyuma pseudo-clefts*

a. *wh-cleft with 'who'*

[i manay] na [babayan]?
[FOC thing] DF.PIVOT [woman]

'Who is the woman?'

b. i nanali i, na babayan.

FOC my.mother PART DF.PIVOT woman

'The woman is my mother.'

c. *wh-cleft with 'what'*

[a manay] i [drini]?
[FOC thing] SG.PIVOT [this]

'What is this?'

d. [a bunga] i [drini].

[FOC yam] SG.PIVOT [this]

'This is a yam.'

[Puyuma]

(40) *Topic-marking in Puyuma*

i atrungi i, ma-ladram=ku [kana ngay [dra tui=pukpuk-aw i
TOP Atrung PART AV-know=1SG.PIVOT [DF.ACC rumor [C 3.NOM=beat-PV SG.PIVOT
pilay]].
Pilay]]

'As for Atrung, I know the rumor that (she) beat Pilay.'

[Puyuma]

Second, the selection of the Pivot phrase in natural data suggests a potential connection between Pivot-marking and topic-hood. As shown in the Amis dialogue (41), in answering the question 'What happened to Sawmah?', the discourse topic 'Sawmah' must be marked as Pivot (41b). A sentence describing the same event but not marking the topic as Pivot is considered infelicitous (41c).

(41) *Question formation in Amis*

- a. na ma-maan ci sawmah?
 PST PV-what PN Sawmah.PIVOT
 ‘What happened to Sawmah?’
- b. ma-palu ni kulas cingra.
 PV-beat NOM Kulas 3SG.PIVOT
 ‘She was beaten by Kulas.’
- c. *mi-palu=tu ci kulas cangranan.
 AV-beat=PFV PN Kulas.PIVOT 3SG.ACC
 (‘Kulas beat her.’)

[Amis]

As shown above, independent observations from these languages suggests a close relationship between the Pivot marker and information-structure marking, lending further support to the present analysis.

7 Conclusion

In this paper, I present novel data from causative (Section 3), ditransitive (Section 4), and LV/CV clauses with a ‘non-core’ phrase as Pivot (Section 5) from Puyuma, Amis, and Seediq, three Philippine-type Formosan languages. With evidence from the three constructions, I demonstrate that (i) Pivot-marking does not realize Absolutive case from T, (ii) AV clauses are not intransitive/antipassive, but true transitives, and (iii) LV and CV affixes are inappropriately analyzed as the morphological reflexes of high applicative heads. Based on the present findings, I argue for an Agreement analysis of Philippine-type voice affixes and a topic/focus analysis for Pivot-marking, which is in line with previous proposals for Chamorro and Malagasy. With the case patterns in the three constructions shared across Formosan languages, I propose that the voice systems of higher-level Philippine-type languages can be accounted for under the standard assumptions of a Nominative-Accusative system.

References

- Aldridge, Edith. 2004. Ergativity and word order in Austronesian languages. Doctoral Dissertation, Cornell University.
- Barker, Chris. 2012. Quantificational binding does not require *c*-command. *Linguistic Inquiry* 43:614–633.
- Blust, Robert. 2015. The case-markers of Proto-Austronesian. *Oceanic Linguistics* 54:436–491.
- Bruening, Benjamin. 2010. Ditransitive asymmetries and a theory of idiom formation. *Linguistic Inquiry* 41:519–562.
- Bruening, Benjamin. 2014. Precede-and-command revisited. *Language* 90:342–388.
- Chang, Anna Hsiou-chuan. 2006. A reference grammar of Paiwan. Doctoral Dissertation, Australian National University.

- Chang, Henry Yung-li. 2011a. Transitivity, ergativity, and the status of O in Tsou. In *Language and cognition: Festschrift in honor of James H-Y. Tai on his 70th birthday*, ed. J. Chang and J. Kuo, 277–308. Taipei: The Crane Publishing.
- Chang, Henry Yung-li. 2011b. Triadic encoding in Tsou. *Language and Linguistics* 12:799–843.
- Chang, Henry Yung-li. 2015. Extraction asymmetries in Tsou causative applicatives. *Lingua Sinica* 48:1–48.
- Chen, Victoria, and Shin Fukuda. to appear. “Absolutive” marks extractions, not case: Against the syntactic ergative analysis for Austronesian-type voice system. In *Proceedings of the 46th annual meeting of the North East Linguistics Society (NELS 46)*.
- Chung, Sandra. 1994. Wh-agreement and “referentiality” in Chamorro. *Linguistic Inquiry* 25:1–44.
- Erlewine, Michael. to appear. Subject marking on non-subjects in Squiliq Atayal. *Proceedings of the 20th meeting of the Austronesian Formal Linguistics Association (AFLA 20)*.
- Erlewine, Michael, Theodore Levin, and Coppe van Urk. to appear. Ergativity and Austronesian-type voice systems. In *Oxford handbook of ergativity*, ed. J. Coon, D. Massam, and L. Travis. Oxford University Press.
- Guilfoyle, Eithne, Henrietta Hung, and Lisa Travis. 1992. Spec of IP and Spec of VP: Two subjects in Austronesian languages. *Natural Language and Linguistic Theory* 10:375–414.
- Guzman, Videa De. 1988. Ergative analysis for Philippine languages: An analysis. In *Studies in Austronesian linguistics*, ed. R. McGinn, 323–345. Ohio University Press.
- Higginbotham, James. 1983. Logical Form, binding, and nominals. *Linguistic Inquiry* 14:395–420.
- Huang, Shuan-fan. 2005. Split O in Formosan languages - A localist interpretation. *Language and Linguistics* 6:783–806.
- Keenan, Edward L., and Bernard Comrie. 1979. Noun phrase accessibility revisited. *Language* 55:649–664.
- Kuo, Jonathan Cheng-Chuen. 2015. Argument alternation and argument structure in symmetrical voice languages: A case study of transfer verbs in Amis, Puyuma, and Seediq. Doctoral Dissertation, University of Hawai’i at Manoa.
- Legate, Julie Anne. 2014. *Voice and v: Lessons from Acehnese*. MIT Press.
- Liao, Hsiu-chuan. 2004. Transitivity and ergativity in Formosan and Philippine languages. Doctoral Dissertation, University of Hawai’i at Manoa.
- Lin, Gu-jing. 2009. Argument structure of Tsou: Simplex and complex predicates. Doctoral Dissertation, Rice University.
- Mithun, Marianne. 1994. The implications of ergativity for a Philippine voice system. In *Voice: Form and function*, ed. B. Fox and P. Hopper, 247–277. John Benjamins.
- Payne, Thomas. 1982. Role and reference related subject properties and ergativity in Yup’ik Eskimo and Tagalog. *Studies in Language* 6:75–106.

- Pearson, Matthew. 2005a. The clause structure of Malagasy: A minimalist approach. Doctoral Dissertation, UCLA.
- Pearson, Matthew. 2005b. The Malagasy subject/topic as an A'-element. *Linguistic Theory* 23:381–457.
- Pylkkänen, Liina. 2002. Introducing arguments. Doctoral Dissertation, MIT.
- Rackowski, Andrea. 2002. The structure of Tagalog: Specificity, voice, and the distribution of arguments. Doctoral Dissertation, MIT.
- Reinhart, Tanya. 1983. *Anaphora and semantic interpretation*. Chicago: University of Chicago Press.
- Richards, Norvin. 2000. Another look at Tagalog subjects. In *Formal issues in Austronesian linguistics*, ed. I. Paul, V. Phillips, and L. Travis, 105–116. Kluwer.
- Ross, Malcolm. 2006. Reconstructing the case-marking and personal pronoun systems of Proto Austronesian. In *Streams converging into an ocean: Festschrift in honor of professor Paul Jen-kuei Li on his 70th birthday*, ed. H. Chang, L. Huang, and D. Ho, 521–563. Taipei: Institute of Linguistics, Academia Sinica.
- Silva-Corvalán, Carmen. 1978. The Ilokano causative in Universal Grammar. *Proceedings of the 4th Annual Meeting of the Berkeley Linguistics Society* 223–238.
- Tanangkingsing, Michael. 2009. A functional reference grammar on Cebuano. Doctoral Dissertation, National Taiwan University.
- Teng, Stacy Fang-ching. 2008. *A grammar of Puyuma, an Austronesian language of Taiwan*. Canberra: Australian National University.
- Tsukida, Naomi. 2015. Ditransitive alignment and causative in Seediq. In *New advances in Formosan linguistics*, ed. E. Zeitoun, S. Teng, and J. Wu, 223–251. Canberra: Asia Pacific Linguistics.
- Zeitoun, Elizabeth. 2000. *A reference grammar of Amis (in Chinese)*. Taipei: Yuan-liu.