

“Voice” Markers in Amis: A Role and Reference Grammar Analysis*

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This paper reanalyzes the voice markers in Amis within the RRG framework. The traditional four-voice system in this language is first regrouped into a voice system and an applicative system. The former contains two voice operations: actor voice and undergoer voice, while the latter subsumes the instrument applicative and the locative applicative constructions. The applicative constructions follow the undergoer voice pattern. These two systems operate at the two different phases of the linking from semantics to syntax; the applicative markers indicate a marked choice of the undergoer, while the voice markers influence the selection of the privileged syntactic argument. Three most productive voice forms, *mi-* (AV), *ma-* (AV and UV), and *-en* (UV), are further decomposed into logical structures to account for their derivational functions and other semantic features such as TAM marking and agentivity indication. The prefix *mi-* contains an activity predicate with an optional motional/purposive component. The suffix *-en* is analyzed as an agentive accomplishment marker. As for the form *ma-*, it exhibits four different logical structures: activity, result state, transient/plain state, and active/causative accomplishment.

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1. Introduction

Due to their semantic and functional complexity, the voice or focus markers in the

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Philippine and the Formosan languages have long been a research interest in the Austronesian literature.¹ Upon reviewing the Philippine-type voice related morphology, Himmelmann (2002:9) makes three comments regarding a system like that in Table 1:

Table 1: Possibly voice-related morphology in Philippine-type languages

Prefix	Infixes	Suffixes
si-/i-	-um/M-	-en/-in
	-in-	-an
		-i
		-a

First, it is not clear whether they are all actually voice affixes. Second, it is not obvious in what sense these forms actually form a system. Third, it is unclear whether the idea of a “focus system” on a morphological level includes morphological formatives beyond the formatives that appear to be directly involved in voice alternations. The voice markers in Amis,² in addition to their canonical function of indicating the thematic role of the grammatical subject with a verbal affix, also exhibit some intriguing formal and functional complexities that echo Himmelmann’s comments, especially the first two.

In this paper, I re-examine these voice markers in the framework of Role and Reference Grammar (henceforth RRG based on Van Valin & LaPolla (1997), referred to as VVLP (1997), and Van Valin (2005), referred to as VV (2005)). Two major analyses are proposed in the discussion. First, I argue that these voice markers are actually composed of a set of voice markers and a set of applicative markers. The former affects the selection of the privileged syntactic argument and the Aktionsart features of the predicates, while the latter mainly signals a marked undergoer choice by either adding a

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¹ To avoid terminological confusion with the “pragmatic focus”, I shall use the term “voice” instead of “focus” to refer to this set of markers, following Chang (1997) and Liu (1999).

² Amis is spoken in the east coast of Taiwan. It has the largest population of speakers (around 170,000, according to the statistics published by the Council of Indigenous Peoples, Executive Yuan of the ROC, in July 2005) among all the Formosan languages (i.e. Austronesian languages spoken in Taiwan). According to Tsuchida (1988), Amis divides into five major dialects: Sakizaya (or Sakiraya), Northern (or Nanshi Amis), Tavalong-Vataan, Central (Haian Amis and Hsiukulan Amis excluding Tavalong-Vataan) and Southern (Peinan Amis and Hengchun Amis). The data discussed in this paper is based on the Haian Amis (i.e. Coastal Amis), one of the Central dialects, spoken in Changpin, Taitung County.

new argument to the core of the predicate to become the undergoer or giving the macrorole status to a non-macrorole core argument. Second, I show that the derivational functions and semantic features carried by three voice forms *mi-* (AV), *-en* (UV), and *ma-* (AV and UV) can be more adequately accounted for through a decompositional analysis.

This paper is organized as follows. Section 2 provides an overview of the forms and functions of the voice markers in Amis based on the four-voice system proposed in previous studies. In particular, I show the asymmetrical properties displayed between the actor/patient voice set and the instrument/locative set and the potential inadequacy of placing all the markers under a single voice system. Section 3 introduces the RRG framework, especially the two-phase linking from semantics to syntax and the decompositional modal for analyzing predicates. Sections 4 and 5 are the central part of this paper, especially §5. In §4, a reanalysis of the voice system is proposed. There are two voice distinctions in this system: actor and undergoer; the so-called instrument voice and locative voice are treated as applicative constructions, which follow the undergoer voice pattern by default. After the separation of voice markers and applicative markers is established, §5 presents the logical structures of the three most commonly found voice markers *mi-* (AV), *-en* (UV), and *ma-* (AV and UV) in the RRG-based decompositional modal. Section 6 summarizes and concludes this paper.

2. An overview of forms and functions of the voice affixes

Consider the examples in (1) that present a typical set of sentences illustrating the voice phenomenon in Amis:³

- (1) a. **mi**-adup Ø-ci mama t-u fafuy n-u lutuk.
 AV-hunt NOM-PPN father DAT-CN pig GEN-PPN mountain
 ‘Father is hunting mountain pigs.’
 ‘Father is going to hunt mountain pigs.’

³ The phonetic symbols used in the transcription generally follow the IPA system, with the following exceptions: /e/ stands for schwa [ə], /d/ for voiceless lateral [ɬ], /ʔ/ for glottal stop [ʔ], /q/ for epiglottis stop [ʔ̤], and /ŋ/ for /ŋ/. The glosses used in this paper (see list of abbreviations at the beginning of this volume) follow Wu (2006), after Liu (1999) with some modification. Notice that the morphemic glosses for the voice markers are different before and after §4. Before that, these voice markers are glossed based on the previous analysis, but they are glossed according to the new analysis proposed in the paper after §4.

- b. **ma**-adup n-i mama k-u fafuy n-u lutuk.
 PV-hunt GEN-PPN father NOM-CN pig GEN-PPN mountain
 ‘Father hunted the mountain pig.’
 ‘The mountain pig was hunted by Father.’
- c. **sa**-pi-adup n-i mama t-u fafuy n-u
 INV-PI-hunt GEN-PPN father DAT-CN pig GEN-CN
lutuk k-u iduc.
 mountain NOM-CN spear
 ‘Father hunts mountain pigs with the spear.’
 ‘The spear is what Father hunts mountain pigs with.’
- d. pi-adup-**an** n-i mama t-u fafuy
 PI-hunt-LV GEN-PPN father DAT-CN pig
k-u-ni a lutuk.
 NOM-CN-this LIN mountain
 ‘Father hunts mountain pigs in this mountain.’
 ‘This mountain is where Father hunts (mountain) pigs.’

As shown in (1), there is an affix on the verb (the boldfaced part) that varies according to the semantic role the NP marked by the nominative case (the underlined part). Previous studies such as Yan (1992), Wu (1995, 2000), Liu (1999), and Liu (2003) have treated the sentences in (1a-d) respectively as agent/actor⁴ focus/voice, patient focus/voice, instrument focus/voice, and locative focus/voice sentences, as the NPs marked by the nominative case in these sentences bear the roles of agent/actor, patient, instrument, and location respectively. By the same token, the sentence in (1e) is also treated as a kind of patient focus/voice construction, as the NP marked by the nominative case also bears the patient role in the sentence, which is the same as (1b).

- (1) e. mi-adup-**an** n-i mama k-u fafuy n-u lutuk.
 PV-hunt-PV GEN-PPN father NOM-CN pig GEN-PPN mountain
 ‘Father hunted the mountain pig.’
 ‘The mountain pig was what Father hunted.’

Based on examples like (1a-e), the studies mentioned above have claimed that Amis makes four voice distinctions. Such a four-voice system can be illustrated by the following table, revised from Liu (1999:19):

⁴ Liu (2003) uses the term “actor” voice, while Yan (1992), Wu (1995, 2000), and Liu (1999) use the “agent” focus/voice.

Table 2: Previous analysis of the voice system of Amis

Actor Voice (AV) Markers ⁵ (or Agent Voice Markers)	mi-	-um-	ma-
Patient Voice (PV) Markers	ma-	ma-...(-um-)...	ma-ka-
	mi-...-an		ka-...-an
	-en		ka-...-en -en
Instrument Voice (INV) Markers	sa-		
Locative Voice (LV) Markers	-an		

Table 2 illustrates the most frequently found analysis of the voice system in studies of Amis grammar, though members included in each voice set might vary. In fact, a multi-voice system like Table 2 is quite prevalent in the study of the Formosan languages. Table 3 presents the voice (focus) affixes found in the Formosan languages discussed in Zeitoun et al. (1996):⁷

Table 3: List of the focus affixes of some Formosan languages in Zeitoun et al. (1996)

	AF	PF	LF	IF/BF
Wulai Atayal	m-, -m-, Ø	-un	-an	s-
Mayrinax Atayal	m-, -um-, Ø	-un	-an	si-
Isbukun Bunun	m-, ma-, Ø	-un	-an	ʔis-
Stimul Paiwan	-əm-	<in>, -in	-an	si-
Nanwang Puyuma	-əm-, ma-, mi-, m-, Ø	-ay, -aw	-an	-anay
Saisiyat	-om-, ma, m-, Ø	-ən	-an	si-
Tsou	mo, ɸ-, mi, m-, -m-	-a	-i	-eni

Compare Tables 2 and 3. We can find at least two striking differences between the voice system in Amis and those in other Formosan languages. First, the dual presence of the form *ma-* in both AV and PV sets is only found in Amis but not in other Formosan

⁵ The actor voice set actually also includes a zero form (i.e. Ø, as seen in Table 3), which appears with unaffixed predicates that have an actor NP marked by the nominative case. However, since there is no evidence showing the necessity of postulating a zero form, I thus exclude it from this table.

⁶ Both *ma-...-um-* and *ma-ka-* have limited occurrences, especially *ma-...-um-*. I have only found a *ma-...-um-* example in my field notes; the UV form that is more commonly elicited for *-um-* verbs is *ma-*. As for *ma-ka-*, it is more commonly found in *ma-* psych-predicates such *ma-ka-ulah* (cf. *ma-ulah* ‘like’) and *ma-ka-ngudu*.

⁷ The original transcription in Zeitoun et al. (1996) is kept in the table, but the information on Amis is excluded.

languages, in which *ma-* is only found in the AV (AF) set. The use of *ma-* as a patient voice marker makes Amis a bit like the Philippine languages, as this prefix also appears in the NAV set (e.g. goal voice) in the Philippine languages such as Tagalog (for potentive aspect/mood as discussed in Himmelmann 2005b) and Cebuano (for abilitative (+intention) as seen in Payne 1994). Second, as noted in Zeitoun et al. (1996), the Amis INV and LV markers *sa-* and *-an* have to appear with other affixes (e.g. *pi-* in *sa-pi-adup* in (1c) and *pi-adup-an* in (1d)), and these affixes are the morphological variants of the AV markers. I shall further discuss this point in §2.2.

Like the Philippine-type voice system discussed in Himmelmann (2002), the voice system in Amis also exhibits semantic/functional and morphosyntactic peculiarities, especially the asymmetrical properties observed between the AV/PV and INV/LV sets. Such asymmetries, discussed in §2.1 and §2.2, thus challenge a unified analysis that groups these forms into a single system under the rubric of voice.

2.1 Semantic/functional asymmetries between the AV/PV and INV/LV sets

In spite of sharing the same function of indicating the semantic role of the NP marked by the nominative case in the sentence, the AV/PV markers have been reported to show close interaction with the semantics of the predicates that they attach to, but such interaction has not been found between the INV/LV markers and the predicates. The relation between AV/PV markers and verbal semantics can be illustrated by following observations. To begin with, these markers, especially the AV set, are often utilized as verb class differentiators in previous studies (e.g. Huang 1988, Yan 1992, Liu 2003).⁸ As one can see in Table 2, there are three forms in the AV set: *mi-*, *-um-*, and *ma-*. Generally speaking, the roots appear with one of these three forms by default,⁹ and this default choice often reveals the information of the types of the derived verbs. For example, *mi-* verbs can be characterized to be (syntactically) transitive verbs with a more dynamic nature, e.g. *mi-nanum* ‘(go to) drink (water)’ from *nanum* ‘water’ and *mi-palu* ‘(go to) beat someone’ from *palu* ‘beat’, *-um-* verbs are mostly intransitive,¹⁰

⁸ The prefix *mi-* has especially been employed as the major indicator for verb classification in Amis.

⁹ “By default” means that the affix is usually the one that goes with the root upon data elicitation, or this affix is the one that is provided by the speakers when they are asked to provide Amis equivalents for the verbs in Mandarin Chinese or in English.

¹⁰ Strictly speaking, these affixes have no voice functions for intransitive verb, as the only argument of such verbs is always marked by the nominative case, and thus there is no “voice” function associated with such markers. Only the derivational properties are relevant for the intransitive verbs. For such examples, these affixes will be glossed as “neutral” (NEUT) instead of AV.

physical activities that are less dynamic, e.g. *k-um-a'en* ‘eat’ from *ka'en* ‘eat’ and *r-um-akat* ‘walk’ from *rakat* ‘walk’, and *ma-* verbs are frequently associated with involuntary activities or states, e.g. *ma-kerker* ‘shiver’ from *kerker* ‘shiver’ and *ma-ulah* ‘like’ from *ulah* ‘like; love’. Some of the roots can appear with members in the AV set other than the default choice, but the derived verb types will be changed.¹¹ Consider the examples in (2):

- (2) a. *r-um-adiw* ‘sing’ > *radiw* ‘song’
 a’. *mi-radiw* ‘go to sing a specific song’
 a”. *ma-radiw* ‘good at singing’
 b. *ma-tayal* ‘work’
 b’. *mi-tayal* ‘go to do a certain work’
 c. *ma-tuniq* ‘soft’
 c’. *mi-tuniq* ‘soften’

The root form *radiw* ‘song’ appears with *-um-* by default. As shown in (2a-a’), the *mi-* version of a *-um-* verb adds a motional/purposive feature to the predicate, while the *ma-* version of the same root becomes a state predicate. The root form *tayal* ‘work’ co-occurs with *ma-* by default. The *mi-* form of a *ma-* activity verb also generates a motional/purposive reading as one can see in the comparison between (2b) and (2b’). The root *tuniq* ‘soft’ also appears with *ma-* by default. The examples in (2c-c’) show that the *mi-* form of a *ma-* state verb will become a causative predicate. These semantic changes will be further explicated in §4.

Furthermore, these voice affixes have been claimed by Yan (1992) as an index of transitivity, in a sense based on Hopper & Thompson (1980), for the verbs affixed by them. Based on parameters proposed by Hopper & Thompson, Yan postulates a scale of semantic transitivity for the voice affixes (or focus affixes in his terminology), *ni-* verbs (i.e. *mi-* verbs in the dialect that I investigated) occupy the highest-ranking position while a class of *ma-* verbs¹² that denotes state of nature or human propensity (e.g.

¹¹ Some of the root forms such as *ranam* ‘breakfast’ have to be affixed with *ka-* when they are affixed with *mi-*, e.g. *mi-ka-ranam* ‘go to some place to have a special breakfast’ instead of **mi-ranam*. The presence of *ka-* seems to be a retention of *ma-*, as such roots appear with *ma-* by default, e.g. *ma-ranam* ‘have breakfast’, and *ma-* verbs typically become *ka-* verbs in many morphological processes. Nevertheless, this *ma-* → *mi-ka-* process seems to be an idiosyncratic pattern for some *ma-* verbs only rather than a common morphological rule, as it is only limited to some unpredictable set of *ma-* verbs but not all of the *ma-* verbs.

¹² There are four classes of *ma-* verbs differentiated in Yan’s work. These *ma-* verbs are classified based on their semantic features, number of arguments, and the possibility to undergo *mi-* derivation. As mentioned, he ranks the transitivity of the predicates based on the parameters

ma-cidal ‘sunny’ and *ma-laluk* ‘diligent’) is placed at the lowest-ranking position on the scale. A similar observation regarding the semantic transitivity has also been claimed by Tsukida (1993) for the PV suffix *-en*, as she mentions that this suffix signals the rising possibility of the happening of an event and the intention of the actor for a verb.

Finally, as pointed out by Zeitoun et al. (1996), the AV and PV markers carry default tense-aspect-modality (TAM) information for the predicates that they attach to, but such information is not found with the INV/LV sets; the INV and LV predicates seem atemporal in Amis. The default TAM information carried by the voice markers refers to the observation that when the contextual information is available in a sentence, the voice markers of a verb will correlate with the temporal readings summarized in Table 4:

Table 4: Voice markers and TAM markings (based on Zeitoun et al. 1996)

Voice Markers	Default Tense/Aspect
<i>mi-</i>	on-going or future
<i>ma-</i> (AV)	on-going
<i>-um-</i>	on-going
Ø (unaffixed verbs in this study)	on-going or future
<i>ma-</i> (PV)	past
<i>-en</i>	future

As shown in Table 4, the voice markers in general make two tense-aspect distinctions: past (expressed by *ma-* (PV)) and non-past (expressed by AV markers *mi-*, *ma-*, *-um-*, and the UV suffix *-en*).¹³ However, once the contextual information is made clear, the default TAM information carried by these voice markers will be neutralized. Such neutralization can be illustrated by the examples in (3):

- (3) a. **mi**-palu Ø-ci kilang ci canglah-an *anini/anudafak/inacila*.
 AV-beat NOM-PPN Kilang NCM Canglah-DAT now/tomorrow/yesterday
 ‘Kilang is beating Canglah now.’
 ‘Kilang is going to beat Canglah tomorrow.’
 ‘Kilang beat Canglah yesterday.’

proposed by Hopper & Thompson (1980), and his ranking includes both two-place and one-place predicates. As we can see, his *ma-* verbs at the lowest-ranking end on the scale are actually intransitive verbs.

¹³ As reported in Zeitoun et al. (1996), the unmarked TAM distinctions designed by the voice affixes in Amis are different from other Formosan languages investigated in that paper; in those languages, the TAM distinctions are made between realis and irrealis.

- b. **ma-ka'en** n-i aki k-u-ya futing *anini/anudafak/inacila*.
 PV-eat GEN-PPN Aki NOM-CN-that fish now/tomorrow/yesterday.
 ‘Aki is eating that fish now.’
 ‘Aki will eat that fish tomorrow.’
 ‘Aki ate that fish yesterday.’

The example in (3) shows that once the contextual information is made clear, the default TAM meaning carried by the voice markers is no longer retained. For example, the unmarked reading of *mi-* verbs is either on-going or (immediate) future, but as seen in (3a), the *mi-* verb can actually co-occur with the time expression that indicates a past temporal frame. By the same token, the *ma-V* verbs usually denote past events, but they can appear time expressions that show an on-going or a future temporal frame, as seen in (3b). The neutralization illustrated in (3) indicates the TAM meaning is inferred from rather than absolutely marked by the voice markers, and such inference is related to the semantics of these voice markers, in particular, their lexical aspect features. These features will be further discussed later in this paper.

The above-mentioned functions served by the AV and PV voice markers strongly indicate that these markers are primarily derivational, as they seem to have their own semantic content, and they can change the semantic structures of the verb (e.g. changing the verb types). These features make them more like derivational morphemes rather than the inflectional category canonically associated with voice markers. Notice that the argument that I propose here for the derivational nature of the Amis voice affixes is not quite the same as the one proposed for the voice markers in the Philippine languages as derivational morphemes. The rationale of the latter primarily consists of three properties displayed by the voice markers in the Philippine languages, as mentioned in Reid & Liao (2004:453). First, these markers cannot freely occur on all verbs. Second, they do not freely alternate with one another as in a voice-marking system, and third, they are typically preserved in nominalization and other derivational processes. In fact, these three properties are also found in Amis, as we shall see in the verbal paradigms discussed later.

2.2 Morphosyntactic asymmetries between the AV/PV and INV/LV markers

In addition to the semantic/functional asymmetries presented in the previous section, there are at least two morphosyntactic asymmetries found between the AV/PV and INV/LV markers.

To begin with, the AV/PV and INV/LV sets show asymmetrical paradigms in some morphological processes. While most of the AV/PV predicates conjugate in these morphological processes, the INV/LV ones are often exempt from the conjugation. There are at least two types of morphological processes that can be identified based on

the changes of the forms of the voice markers. The first type, termed full-preservation type, involves the addition of affixes but no formal changes of the voice markers; in other words, the voice markers are fully preserved during the morphological process. In the second type, termed *pi-/ka-* alternation type, the voice markers become either *pi-* or *ka-* with or without additional affixation. Roughly speaking, verbs affixed with *mi-* become *pi-* + V in these processes, while verbs appearing with affixes other than *mi-*, such as *ma-* and *-um-*, become *ka-* + V.¹⁴ The full-preservation type can be found in the formation of the factual mood and the irrealis mood. These two mood forms can also be used in the formation of a relative clause. The *pi-/ka-* alternation pattern is found in the imperative construction, in the position following the negative predicate *ca'ay* 'not', and even in the formation of INV and LV forms. These processes will be discussed below, and a more complete list of morphological processes that display the two patterns is provided in the appendix.¹⁵

Consider Table 5, which presents two processes showing the full-preservation pattern:

Table 5: Two morphological processes showing the full-preservation pattern of the voice markers

Voice Markers		Examples	Irrealis Mood (Ca Reduplication-V)	Factual Mood (V-ay)
AV	mi-	<i>mi-palu</i> 'go to beat'	ma- mi- (<i>ma-mi-palu</i>)	mi ...-ay (<i>mi-palu-ay</i>)
	-um-	<i>r-um-adiw</i> 'sing'	Ca-...- um- (<i>ra-r-um-adiw</i>)	- um ...-ay (<i>r-um-adiw-ay</i>)
	ma-	<i>ma-ulah</i> 'like'	ma- ma- (<i>ma-ma-ulah</i>)	ma ...-ay (<i>ma-ulah-ay</i>)
PV	ma-	<i>ma-palu</i> 'beat; get beaten'	ma- ma- (<i>ma-ma-palu</i>)	ma ...-ay (<i>ma-palu-ay</i>)
	-en	<i>palu-en</i> 'beat (for sure)'	Ca-...- en (<i>pa-palu-en</i>)	----
	mi-...-an	<i>mi-palu-an</i> 'beat'	----	----
INV	sa-	<i>sa-pi-palu</i> 'use something to beat'	----	----
LV	-an	<i>pi-plau-an</i> 'beat at some place'	----	----

¹⁴ There has been no attempt at glossing *pi-* and *ka-* in the present paper due to the difficulty to summarize the complicated semantics of these two affixes (and especially *ka-*).

¹⁵ For more details of the discussion of the table, please refer to Wu (2006).

We can see the two morphological processes that form the irrealis and factual moods of the predicates in Table 5. The irrealis mood is formed by a process known as *Ca-reduplication*¹⁶ and then attaching the reduplicant to the predicate. The factual mood is formed by attaching the factual suffix *-ay* to the predicate. In these two processes, the forms of the voice markers are fully preserved. As shown in Table 5, only the AV markers *mi-*, *-um-*, *ma-*, and the UV markers *ma-* and *-en* participate in the two morphological processes though the UV *-en* cannot be affixed with the factual mood marker *-ay*.¹⁷ The INV and LV forms do not participate in these two processes. As mentioned earlier, these two mood forms, especially the *-ay* form,¹⁸ are also the forms that can show up in relative clauses. In fact, the voice-marked predicates, except the INV and LV forms, cannot appear in relative clauses in their bare forms; they have to, for example, be inflected with mood expressions such as *-ay* or *Ca-reduplication*. The examples are given in (4):

- (4) a. *ma-patay tu k-u-ya mi-kalat-ay/*mi-kalat*
 NEUT-dead ASP NOM-CN-that AV-bite-FAC/*AV-bite
ci aki-an (a) wacu.
 PPN Aki-DAT LIN dog
 ‘That dog that bit Aki is dead.’
- b. *tati’ih k-u-ya ma-ka’en-ay/*ma-ka’en n-i*
 bad NOM-NCM-that PV-eat-FAC/PV-eat GEN-PPN
aki (a) tali.
 Aki LIN taro
 ‘That taro that Aki ate was bad.’
- c. *tati’ih k-u-ya ka-ka’en-en/*ka’en-en n-i aki*
 bad NOM-NCM-that IRR-eat-PV/eat-PV GEN-PPN Aki
 (a) *tali.*
 LIN taro
 ‘That taro that Aki ate was bad.’

¹⁶ This reduplication pattern consists of the copying of the first consonant of the stem and the addition of a vowel /a/ following the reduplicated consonant. That is why this reduplication pattern is often referred to as the *Ca-reduplication*.

¹⁷ There are two possible reasons for such incompatibility. First, it is rare, if not impossible, to find the co-occurrence of two or more suffixes in Amis. Second, as the suffix *-en* indicates a future event by default, it is less likely to construe the combination of a future event with a factual mood marker.

¹⁸ The suffix *-ay* has been analyzed as a nominalizer in Lin (1995) and Liu (1999). However, Wu (2003) argues that this suffix is actually a mood marker for factuality.

- d. tati'ih k-u-ya **mi-ka'en-an** **n-i** **aki** (a) tali.
 bad NOM-CN-that PV-eat-PV GEN-PPN Aki LIN taro
 'That taro that Aki ate was bad.'
- e. ma-futiq k-u-ya **ka-ulah-an** **n-i** **panay** (a) wawa.
 NEUT-sleep NOM-CN-that PV-like-PV GEN-PPN Panay LIN child
 'The child who Panay likes is sleeping.'
- f. ma-pitek aku k-u **sa-pi-cikcik** **n-i** **aki**
 UV-break 1S.GEN NOM-CN INV-PI-cut GEN-PPN Aki
t-u **dateng** (a) pu'ut.
 DAT-CN vegetable LIN knife
 'I broke the knife with which Aki cuts the vegetables.'
- g. tayra Ø-ci panay mi-ladum i
 go NOM-PPN Panay AV-fetch water PREP
pi-ladum-an **n-i** **aki** (a) tefun.
 PI-fetch water-LV GEN-NCM Aki LIN well
 'Panay went to fetch water at the well where Aki fetched water.'

As illustrated in the relative clauses in (4), the AV predicates and the PV predicates marked by *ma-* and *-en* have to show up with either the factual mood or the irrealis mood, but the *-an* PV forms (e.g. *mi-...-an* and *ka-...-an*), the INV form, and the LV forms can only appear in the bare form in the relative clause.

The morphological processes showing the *pi-/ka-* alternation are exemplified in Table 6.

Table 6: Some morphological processes with the *pi-/ka-* alternation of the AV/PV markers¹⁹

Voice Markers		Examples	Imperative Mood	<i>ca'ay</i> Negative Construction
AV	mi-	<i>mi-palu</i> '(go to) beat'	pi- (<i>pi-palu</i>)	pi- (<i>pi-palu</i>)
	-um-	<i>r-um-adiw</i> 'sing'	ka-...-um- ²⁰ (<i>ka-r-um-adiw</i>)	ka-...-um- (<i>ka-r-um-adiw</i>)
	ma-	<i>ma-ulah</i> 'like'	ka- (<i>ka-ulah</i>)	ka- (<i>ka-ulah</i>)
PV	ma-	<i>ma-palu</i> 'beat; get beaten'	----	ka- (<i>ka-palu</i>)

¹⁹ The INV forms for *ma-* (UV) and *-en* should be placed in the table that shows the full-preservation (i.e. Table 5), as the *pi-/ka-* alternation does not occur in this morphological process.

²⁰ The infix *-um-* is also retained in the *pi-/ka-* alternation pattern.

	-en	<i>palu-en</i> ‘beat (for sure)’	(ka-)...-en ²¹ (<i>palu-en</i>)	(ka-)...-en ((<i>ka-</i>) <i>palu-en</i>)
	mi-...-an	<i>mi-palu-an</i> ‘beat’	----	----
INV	sa-	<i>sa-pi-palu</i> ‘use something to beat’	sa-...-en (<i>sa-pi-palu-en</i>)	ka-sa- ... (<i>ka-sa-pi-palu</i>)
LV	-an	<i>pi-plau-an</i> ‘beat at some place’	----	----

As we can see from this table, the AV predicates and the UV predicates marked by *ma-* or *-en* become either *pi-* or *ka-* in the imperative construction and the *ca’ay* negative construction. Verbs affixed by *mi-* become *pi-* + V, while verbs appearing with affixes other than *mi-* become *ka-* + V. Notice that for *-en* verbs, the prefix *ka-* is optional, and in fact, its absence is more frequently found in the data. The INV and LV forms behave slightly different in these two morphological processes. The INV form does not follow the *pi-/ka-* alternation pattern in the imperative sentence, but it can follow the *pi-/ka-* pattern in the *ca’ay* negative construction. However, as I shall show later in this section, there are two types of structures when an INV predicate appears after *ca’ay* ‘not’, termed the verbal type and the nominal type. The verbal type is the one that shows up in Table 6 (i.e. *ka-sa-*...), while the nominal is formed by the nominative case marker *ku* plus the INV predicate (i.e. *ku sa-*...). While the second type is generally acceptable for every speaker I have consulted, the first type is rendered ungrammatical by some speakers. Unlike the INV form, the LV form and the PV form marked by *-an* do not follow the *pi-/ka-* alternation pattern in the two processes. The LV form cannot function as a predicate in the imperative construction, nor can it show up as a verbal predicate after *ca’ay*. The LV form is preceded by a case marker after the negative predicate *ca’ay*; in other words, it is structured like a nominal predicate. I shall further discuss this structure later in this section.

The *pi-/ka-* alternation pattern is found in the formation of the INV and LV forms, as shown in Table 7:

²¹ I have only found the form *ka-...-en* in verbs denoting psych-states such as *ngudu* ‘embarrassed; humbled; respect’ and *ulah* ‘like’. For such verbs, both *ka-...-en* and *-en* forms are found, and the latter seems to suggest a stronger tone of command, though more investigation is needed to confirm this observation. I have not tried the acceptability of *ka-...-en* for other types of verbs in the imperative construction. The function of *ka-* in *ka-...-en* in the negative construction is not the same as the *ka-* in the negative construction. As mentioned, the presence of *ka-* of *ka-...-en* in the imperative construction suggests a milder tone of command, but the presence of *ka-* of *ka-...-en* in the negative construction carries an emphatic tone for the negated event. It is possible that there is more than one *ka-* involved here. More investigation is required.

Table 7: Forms of the verbs in INV and LV constructions

Actor Voice (AV)	mi-	-um-	ma-
Instrument Voice (INV)	sa-pi-	sa-ka-...-um-	sa-ka-
Locative Voice (LV)	pi-...-an	ka-...-um-...-an	ka-... -an

As seen in table 7, in the INV and LV constructions, in addition to the voice markers *sa-* and *-an*, the stems are affixed with *pi-* or *ka-*, the choice of which depends on the their corresponding AV forms; if the verb takes *mi-* as the AV marker, the INV and LV counterparts will be *sa-pi-...* and *pi-...-an*, while *sa-ka-* and *ka-...-an* are the INV and LV forms for AV verbs that are marked other than *mi-*. This observation indicates the possibility that the AV forms are derived prior to the INV and the LV sets, as the AV forms will decide their corresponding INV and LV forms.

Besides the asymmetrical paradigms presented in Tables 5 and 6, there is another morphosyntactic asymmetry displayed between the AV/PV forms and INV/LV forms. As mentioned, there are two types of structures following the negative predicate *ca'ay* 'not': the verbal type and the nominal type. The major difference between the two structural types is that in the latter, the case marker *ku* will show up between *ca'ay* and the other predicate; in other words, this predicate is constructed as a nominal structure. The AV forms and the PV forms marked by *ma-* and *-en* all have the verbal type of structure in the *ca'ay* negative construction. Some examples are given in (5):

- (5) a. **mi-tangtang** kaku t-u futing.
 AV-cook 1S.NOM DAT-CN fish
 'I am going to cook fish.' or 'I am cooking fish.'
- a'. *ca'ay* **pi-tangtang** kaku t-u futing.
 NEG PI-cook 1S.NOM DAT-CN fish
 'I didn't cook fish.' (Negative, Actor Voice)
- b. **ma-palu** n-i ina kaku.
 PV-beat GEN-PPN mother 1S.NOM
 'Mother beat me.'
- b'. *ca'ay* **ka-palu** n-i ina kaku.
 NEG KA-beat GEN-PPN mother 1S.NOM
 'Mother didn't beat me.' (Negative, Patient Voice)
- c. **palu-en** n-i mayaw Ø-ci dongi.
 beat-PV GEN-PPN Mayaw NOM-PPN Dongi
 'Mayaw will beat Dongi.'
- c'. *ca'ay* (**ka**)-**palu-en** n-i mayaw Ø-ci dongi.
 NEG KA-beat-PV GEN-PPN Mayaw NOM-PPN Dongi
 'Mayaw (never) beats Dongi.' (Negative, Patient Voice)

As shown in (5), the AV and PV forms appear immediately after *ca’ay*, following the *pi-/ka-* alternation pattern that I have discussed earlier. Moreover, there is no case marker showing up between the negative predicate and the non-negative predicate, and the voice marking function of the non-negative predicate is also preserved. On the contrary, the INV and LV predicates appear with nominal structure, as exemplified in (6):

- (6) a. **sa-pi-palu** n-i mayaw ci dongi-an
 INV-PI-beat GEN-NCM Mayaw PPN Dongi-DAT
 k-u-ni a sastiq.
 NOM-CN-this LIN stick
 ‘It is this stick that Mayaw beat Dongi with.’
- a’. *ca’ay* **k-u** **sa-pi-palu** n-i mayaw ci
 NEG NOM-CN INV-PI-beat GEN-PPN Mayaw PPN
 dongi-an k-u-ni a sastiq.
 Dongi-DAT NOM-CN-this LIN stick
 ‘Mayaw didn’t use this stick to beat Dongi.’
- a’’.? *ca’ay* **ka-sa-pi-palu** n-i mayaw ci
 NEG KA-INV-PI-beat GEN-PPN Mayaw PPN
 dongi-an k-u-ni a sastiq.
 Dongi-DAT NOM-CN-this LIN stick
 ‘Mayaw did not use the stick to beat Dongi.’
- b. *ca’ay* **k-u** **pi-palu-an** n-i mayaw ci
 NEG NOM-CN PI-beat-LV GEN-PPN Mayaw PPN
 dongi-an k-u-ni anudafak.
 Dongi-DAT NOM-CN-this tomorrow
 ‘This is not the place where Mayaw is going to beat Dongi tomorrow.’
- b’.* *ca’ay* **ka-pi-palu-an** n-i mayaw ci
 NEG KA-PI-beat-LV GEN-PPN Mayaw PPN
 dongi-an k-u-ni anudafak.
 Dongi-DAT NOM-CN-this tomorrow

As shown in (6), the INV and LV forms are preceded by the nominative case marker *ku* in this negative construction beginning with *ca’ay* ‘not’. Notice that it is also possible for the INV form to show up with the verbal type of structure in the *ca’ay* negative construction, as seen in (6a’). However, such a structure is treated as ungrammatical by some speakers, and that is why a question mark “?” is placed at the beginning of the sentence. The nominal properties of INV and LV forms can also be observed in the affirmative sentences. While the INV and LV forms can appear at the predicate positions

exemplified in (1c-d), they often appear with the nominal identificational constructions like (7). However, such a structural variety or even preference has not been found for AV and PV forms.

- (7) a. u sastiq k-u sa-pi-palu n-i mayaw
 CN stick NOM-CN INV-PI-beat GEN-PPN Mayaw
 ci dongi-an.
 PPN Dongi-DAT
 ‘Mayaw used the stick to beat Dongi.’
 (LIT. ‘The stick is what Mayaw used to beat Dongi.’)
- b. u-ni cacanuyan k-u pa-teli-an n-i
 CN-this cradle NOM-CN CAUS-put-LV GEN-PPN
 ina t-u wawa.
 mother DAT-CN child
 ‘Mother put the child in this cradle.’
 (LIT. ‘This cradle is where Mother put the child.’)

The above-demonstrated semantic/functional as well as morphosyntactic asymmetries indicate the AV and PV predicates are treated rather differently from the INV and LV sets, and hence, question the adequacy of giving a unified treatment of these forms.

Perhaps the most convincing examples that support a non-unified analysis for these voices markers are ones like (8):

- (8) a. aka sa-pi-litek-en k-u-ra caklis
 NEG.IMP INV-PI-chop tree-PV NOM-CN-that ax
 t-u-ra kilang!
 DAT-CN-that tree
 ‘Don’t use that ax to chop down the tree!’
- b. ma-sa-pi-sanga n-i aki t-u takid k-u-ya a’ol.
 PV-INV-PI-make GEN-NCM Aki DAT-CN bottle NOM-CN bamboo
 ‘Aki used use that bamboo to make the bottle.’

The PV markers co-occur with the INV marker in (8). If both of them serve the voice operation functions, we shall expect that there are two possible voice choices in each sentence: the patient or the instrument. However, it is always the latter that is chosen to be the grammatical subject (i.e. marked by nominative case), not the former. This observation indicates that these two markers should have different functions in the sentence, and again, challenges the unified analysis of treating both of them as voice markers as

seen in the previous studies. Hence, in this paper, I shall propose a reclassification of the voice system that teases apart the AV/PV and INV/LV sets. But before proceeding to the major discussion of this paper, I would like to briefly introduce the relevant theoretical perspectives from RRG adopted in my analysis.

3. Theoretical framework

The RRG framework adopted here follows the versions introduced in VVLP (1997) and VV (2005). A general organization of this RRG framework is diagrammed in Figure 1:

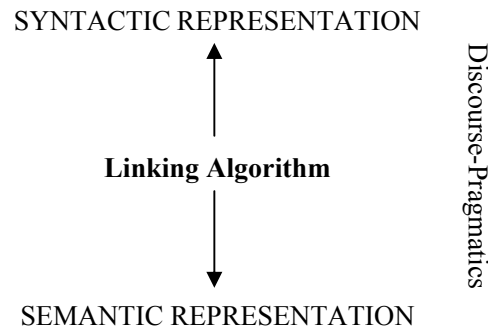


Figure 1: The general organization of RRG

As shown in Figure 1, RRG posits a direct mapping (i.e. the Linking Algorithm) between the semantic representation of a sentence and its syntactic representation. The semantic representation part of the theory is what the major discussion of the paper is based on. This part consists of a compositional representation of the predicates, termed the logical structures (LS). The content of the logical structures is based on the various properties of lexical aspects displayed in the predicates (i.e. *Aktionsart*, as first discussed in Vendler (1967) and later elaborated in Dowty (1979)). Five basic *Aktionsart* classes are differentiated based on the features such as punctuality and telicity. These classes are shown in Table 8 with examples from English, and their logical structures are given in Table 9. These logical structures constitute the semantic representation in RRG, in which the arguments are linked to different argument positions in the syntactic representation.

Table 8: Aktionsart classes, their features, and some English examples

Class	Aktionsart Features	English Examples
State	[+static], [−dynamic], [−telic], [−punctual]	<i>be sick, be tall, be dead, love, know, believe, have</i>
Activity	[−static], [+dynamic], [−telic], [−punctual]	<i>march, walk, roll</i> (intransitive), <i>swim, think, snow, write, drink</i>
Achievement	[−static], [−dynamic], [+telic], [+punctual]	<i>pop, explode, collapse, shatter</i> (intransitive)
Semelfactive	[−static], [±dynamic], [−telic], [+punctual]	<i>flash, cough, tap, glimpse</i>
Accomplishment	[−static], [−dynamic], [+telic], [−punctual]	<i>melt, freeze, dry</i> (intransitive), <i>learn</i>
Active Accomplishment	[−static], [+dynamic], [+telic], [−punctual]	<i>walk to the park, eat the fish</i>

Table 9: Aktionsart classes and the logical structures

Aktionsart Class	Logical Structures
State	predicate' (x) or (x, y)
Activity	do' (x, [predicate' (x) or (x, y)])
Achievement	INGR predicate' (x) or (x, y), <i>or</i> INGR do' (x, [predicate' (x) or (x, y)])
Semelfactive	SEML predicate' (x) or (x, y), <i>or</i> SEML do' (x, [predicate' (x) or (x, y)])
Accomplishment	BECOME predicate' (x) or (x, y), <i>or</i> BECOME do' (x, [predicate' (x) or (x, y)])
Active Accomplishment	do' (x, [predicate' ₁ (x) or (x, y)]) & INGR predicate' ₂ (z, x) or (y)
Causative	α CAUSE β , where α, β are LSs of any type

Another perspective taken from RRG is its view of agency; that is, the notion “agency” is not necessarily lexically marked. As argued in Van Valin & Wilkins (1996), in most cases, agency is an implication of the way a particular verb is used in a sentence, and not an inherent lexical property (e.g. *kill* vs. *murder* in English). The operator DO will only show up in the logical structure for the verbs with lexicalized agency such as English *murder* (DO' (x, [**do'** (x, [**kill'** (x, y)])])). As one can see in Table 9, DO does not show up as a primitive operator in the logical structures, as in contrast to **do'**, which is deemed as a primitive operator for activity predicates with or without agentive implicature (e.g. plain activity verbs and involuntary activity verbs).

In addition to the above-mentioned compositional analysis, another theoretical perspective that will be utilized in the analysis is the linking system of RRG, especially the two-phase linking from the argument position in the logical structures to the syntactic

representation. Figure 2 gives a summary of the whole linking system:

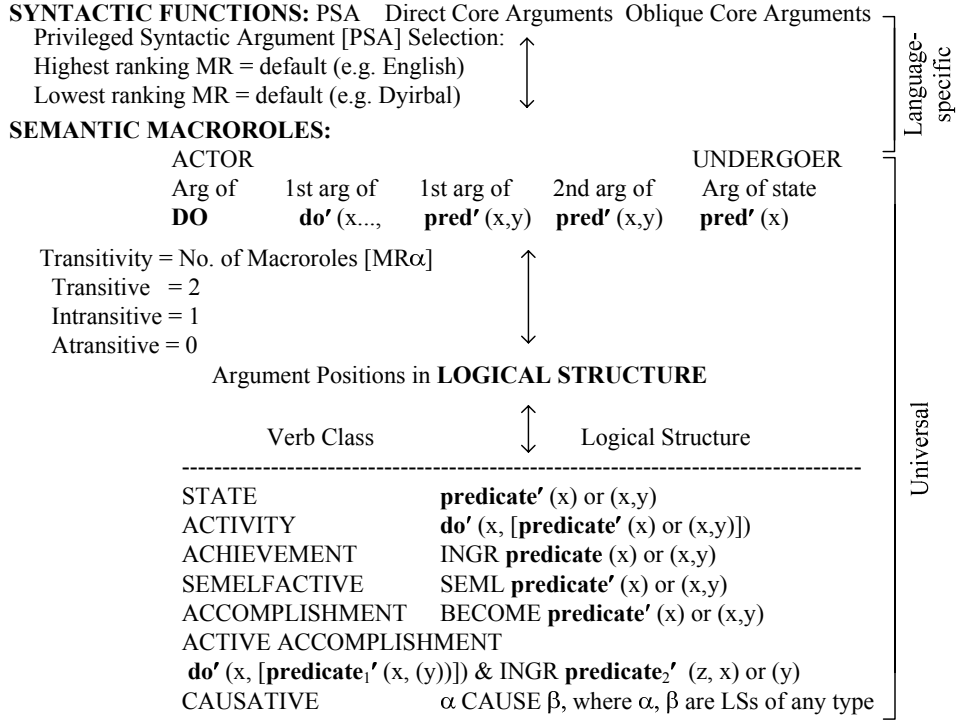


Figure 2: Summary of RRG linking system

As shown in Figures 1 and 2, the linking in RRG is supposed to work both ways from semantics to syntax and from syntax to semantics; this bi-directional linking is indicated by the bi-directional arrows (i.e. \leftrightarrow), and there are three phases or steps for the whole linking process. However, in this paper, I only focus on the linking from semantics to syntax, especially the last two phases.²² A simplified version for these two phases is given in Figure 3 and the tasks of each phase are also specified.

²² For the scope of this paper, I shall not discuss the details of Figure 2. Please refer to VVLP (1997) and VV (2005) for more discussion. Information regarding this figure can also be found in Wu's Chinese introduction to Role and Reference Grammar in this volume.

Phases	Linked Levels	Description
Phase 2	Syntactic Functions ↑	Link the macrorole and non-macrorole arguments to proper syntactic functions based on the PSA selection hierarchy in Figure 5 and PSA selection principles stated in (10).
Phase 1	Semantic Macrorole ↑ Argument position in LS	Link the arguments to the semantic macroroles based on the Actor-Undergoer Hierarchy in Figure 4 and the principles of macrorole assignment stated in (9).

Figure 3: The two-phase linking from semantics to syntax

As shown in Figure 3, the first phase links a given argument in the LS to semantic macroroles, which refer to semantic roles generalized across thematic relations. Two macroroles, actor and undergoer, are distinguished in RRG, and these two roles correspond to the primary arguments in a prototypical transitive sentence.²³ The assignment of macroroles to a given argument makes crucial reference to its position in the logical structure. The default choice follows the hierarchy in Figure 4 (VV 2005:126) and a set of principles stated in (9):

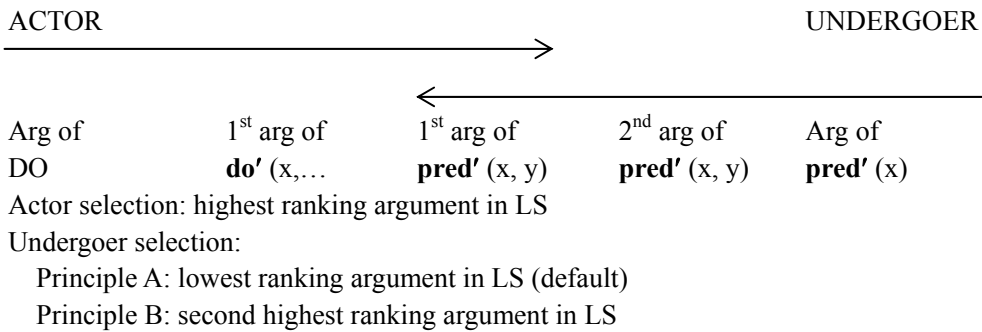


Figure 4: Actor-Undergoer Hierarchy (AUH)

²³ The two macroroles generally correspond to the Agent and Patient of transitive verbs in Formosan languages. However, this correspondence breaks down with intransitive verbs. As mentioned in the principles in (9), in RRG terms intransitive predicates also make the Actor/Undergoer macrorole distinction. However, in Formosan languages, an intransitive predicate with a single core argument marked by the nominative case tends to be marked morphologically as Agent Focus (or Actor Focus) even when the core argument is Undergoer in RRG terms.

(9) Default Macrorole Assignment Principles²⁴

- a. Number: the number of macroroles a verb takes is less than or equal to the number of arguments in its LS:
 1. If a verb has two or more arguments in its LS, it will take two macroroles.
 2. If a verb has one argument in its LS, it will take one macrorole.
- b. Nature: for verbs which take one macrorole:
 1. If the verb has an activity predicate in its LS, the macrorole is actor.
 2. If the verb has no activity predicate in its LS, the macrorole is undergoer.

The second phase of linking maps the arguments (macrorole and non-macrorole arguments) onto the syntactic representation, and this phase includes a sub-step of privileged syntactic argument (PSA, or grammatical subject) selection from the arguments. The PSA selection follows the hierarchy in Figure 5 and a set of principles in (10):

Arg of DO > 1st arg of **do'** > 1st arg of **pred'** (x, y) > 2nd arg of **pred'** (x, y) > Arg of **pred'** (x)

Figure 5: PSA Selection Hierarchy

(10) Privileged Syntactic Argument Selection Principles

- a. Syntactically accusative language constructions: highest ranking macrorole is default choice.
- b. Syntactically ergative constructions: lowest ranking macrorole is default choice.

Based on the hierarchy and the principles, accusative languages will choose actor as the PSA, while in ergative languages undergoer will be the default choice. It is at this step that voice comes into play, as one of the major functions of voice is to offer multiple choices of PSA for the languages that employ this mechanism.²⁵ Thus, passive in

²⁴ These principles are only relevant to the default cases of macrorole assignment. However, there may be marked cases such as applicative constructions. For such marked cases, their macrorole assignment will be stated in the construction schema of each construction. For example, as I shall argue later, the INV and LV constructions are actually applicative constructions that indicate a marked choice of undergoer (e.g. instrument and location, instead of patient). For these applicative constructions, their undergoer selection does not follow the default rules stated in Figure 4 and the rules in (10); it will be specified in their construction schema.

²⁵ The major cross-linguistic functions of voice are discussed in RRG: PSA modulation and argument modulation. The former permits an argument other than default argument in terms of the PSA selectional hierarchy in Figure 5 to function as the PSA, while the latter gives a non-canonical realization to a macrorole argument (e.g. realizing the macrorole as an oblique

accusative languages tend to choose the lowest-ranking macrorole as the PSA, while the antipassive voice in ergative languages will pick the highest-ranking macrorole as the PSA.

In the following section, I shall incorporate the RRG framework introduced above into the analysis of the voice system in Amis.

4. The dichotomy of the voice system

Based on the formal and functional differences of the AV/UV sets and INV and LV sets of voice markers discussed in §2, I propose a new analysis of the Amis voice system as shown in Table 10:

Table 10: A new analysis of the Amis voice system

Actor Voice (AV)				mi-	-um-	ma-
Undergoer Voice (UV)	Plain			ma- -en	ma-...(-um-) -en	ma-ka- ka-...-en -en
	Applicative	Instrument (INA) ²⁶		(ma)-sa- sa-...(-en)		
		Locative (LA)	Goal-Locative	mi-...-an	----	----
			Patient-Locative	mi-...-an	-um-...-an	ka-...-an
			Location-Locative	pi-...-an	ka-...-um-...-an	ka-...-an

In this new analysis, there are only two voice alternations in Amis: actor and undergoer. The other two so-called voice markers *sa-* and *-an* are treated as applicative markers for instrument applicative and locative applicative constructions, and these applicative constructions constitute a sub-type of the undergoer voice.

There are two functions performed by these applicative markers, and both functions affect the first phase of linking (i.e. the macrorole assignment) displayed in Figure 3.

element like the actor in the passive construction of English, or stripping the macrorole status off a macrorole argument like the undergoer in the actor voice construction of Amis.). See VV (2005) for more discussion.

²⁶ Notice that the co-occurring affixes of the applicative constructions such as *pi-* and *ka-* are left out in the role of instrument applicative but are retained for the locative applicative constructions, as for the latter, these co-occurring affixes will affect the types of the semantic roles of the applied argument. For example, *pi-...-an* indicates a different semantic role from *mi-...-an*.

These applicative markers either signal a marked choice of undergoer²⁷ by adding an adjunct-like argument to the core, or assign the undergoer status to a non-macrorole core argument. The first function is mainly found with the instrument applicative, the goal-locative, and location-locative applicative constructions. Some examples are given in (11), where we can see that an otherwise adjunct NP becomes a core argument once the verb is applied:

- (11) a. **mi**-dohdoh kaku t-u titi i falah.
 AV-roast 1S.NOM DAT-CN meat PREP coal
 ‘I am going to roast (the) meat over the coal.’
- a’. **sa**-pi-dohdoh aku t-u titi k-u falah.
 INA-PI-smoke 1S.GEN DAT-CN meat NOM-CN coal
 ‘I use the coal to smoke the meat.’
- b. **mi**-adup Ø-ci mama t-u fafuy i lutuk.
 AV-hunt NOM-PPN father DAT-CN pig PREP mountain
 ‘Father is going to hunt the (mountain) pig on the mountain.’
- b’. pi-adup-**an** n-i mama t-u fafuy
 PI-hunt-LA GEN-PPN father DAT-CN pig
k-u-ni lutuk.
 NOM-CN-this mountain
 ‘Father hunted the (mountain) pig on this mountain.’
- c. **mi**-cikay kaku i pitilidan mi-ala t-u-ra cudad.
 AV-run 1S.NOM PREP school AV-take DAT-CN-that book
 ‘I am going to run to school to get that book.’
- c’. mi-cikay-**an** aku i pitilidan k-u-ni a cudad.
 MI-run-LA 1S.GEN PREP school NOM-CN-this LIN book
 ‘I ran to school for (getting) this book.’
- c’’. mi-cikay-an/??c-um-ikay-an aku tayra i lumaq
 MI-run-LA/run<UM>LA 1S.GEN go PREP house
 n-i panay k-u-ni qayam.
 GEN-PPN Panay NOM-CN-this bird
 ‘I ran to Panay’s place to get this chicken.’

As seen above, the locative-instrument in (11a) and the location (11b) become the core arguments in the applicative constructions in (11a’) and (11b’). These two arguments subsequently replace the default undergoer *titi* ‘meat’ and *fafuy* ‘pig’ assigned based on

²⁷ This is similar to the split-O phenomenon discussed in Huang (2005).

the AUH in Figure 4 and become the new undergoer in (11a') and (11b'). That is, the presence of these applicative markers can override the general principles of default macrorole assignment stated in Figure 4 and (9). The addition of a core argument is also found in examples (11c-c'). The goal NP in (11c) shows up as a core argument of a non-initial predicate in a serial verb construction. This is the only way to mention a goal NP in an AV sentence in Amis. In the goal-locative applicative construction in (11c'), the goal NP becomes the core argument of the initial predicate in (11c'), which is now the only predicate in (11c'), and the goal NP subsequently becomes the undergoer of this sentence. Notice that the goal NP is only found with the form *mi-...-an*, as we can see in (11c''), the form *c-um-ikay-an* is not preferred to show up in this sentence.²⁸

As for the second function, it is mostly found with the patient-locative applicative construction, which involves no addition of a core argument but simply gives the macrorole status to a non-macrorole core argument. Examples follow:

- (12) a. *mi-adup Ø-ci aki t-u _____ fafuy n-u lutuk.*
 AV-hunt NOM-PPN Aki DAT-CN-that pig GEN-CN mountain
 'Aki is going to hunt mountain pigs.'
 'Aki is hunting mountain pigs.'
- a'. *ma-adup n-i aki k-u-ra _____ fafuy n-u lutuk.*
 UV-hunt GEN-PPN Aki NOM-CN-that pig GEN-CN mountain
 'Aki hunted that mountain pig.'
- a''. *adup-en n-i aki k-u-ra _____ fafuy n-u lutuk.*
 hunt-UV GEN-PPN Aki NOM-CN-that pig GEN-CN mountain
 'Aki will hunt that mountain pig (for sure).'
- b. *mi-adup-an n-i aki k-u-ra _____ fafuy n-u lutuk.*
 MI-hunt-LA GEN-PPN Aki NOM-CN-that pig GEN-CN mountain
 'Aki hunted that mountain pig.'

The sentence in (12a) is an AV sentence, and its plain UV counterparts are given in (12a') and (12a''). As shown in the data, the applicative UV construction in (12b) show the same argument structure as the plain UV constructions in (12a'-a''). In other words, there is no addition of the core argument in the semantics of the predicate. The function of *mi-...-an* in (12b) is to make the non-macrorole core argument in (12a) (i.e. the NP

²⁸ The semantic roles of the NPs affected by *mi-cikay-an* and *c-um-ikay-an* are different; *mi-cikay-an* indicates an enhanced goal NP, while *c-um-ikay-an* indicates an enhanced patient NP (e.g. something that is run upon). However, while it is impossible for the form *-um-...-an* to affect a goal NP, it is also possible that *mi-...-an* affects the status of a patient NP, as seen in (12b).

marked by the dative case) a macrorole.²⁹ This function is also found in the examples in (13) in which the applicative form *ka-...-an* in (13b) also involves no addition of a core argument, as shown in the comparison between the applicative UV construction in (13b) and the plain UV construction in (13a’).

- (13) a. ma-ulah kaku ci panay-an.
 AV-like 1S.NOM PPN Panay-DAT
 ‘I like Panay.’
 a’. ma-ka-ulah aku Ø-ci panay.
 UV-KA-like 1S.GEN NOM-PPN Panay
 ‘I like Panay.’
 b. ka-ulah-an aku Ø-ci panay.
 KA-like-LA 1S.GEN NOM-PPN Panay
 ‘I like Panay.’

Sometimes the function of the applicative construction can be ambiguous. For example, the form *mi-radiw-an* in (14b) has two readings that correspond to the two

²⁹ One of the indexes for the non-macrorole status of the NP marked by the dative case is the possible non-specific reading of the NP, in contrast with NP marked by the nominative case, which always receives a definite reading. Consider:

- (12) c. mi-nanum kaku (t-u nanum).
 AV-water 1S.NOM DAT-CN water
 ‘I am going to drink (**water**).’ or ‘I am drinking (**water**).’
 c’. ma-nanum aku k-u nanum.
 UV-water 1S.GEN NOM-CN water
 ‘I drank **the water**.’
 d. kalamkam-en aku k-um-a’en t-u hemay.
 fast-UV 1S.GEN eat<NEUT> DAT-CN rice
 ‘I will eat (meal) fast.’
 d’. kalamkam-en aku k-um-a’en k-u hemay.
 fast-UV 1S.GEN eat<UM> NOM-CN rice
 ‘I will eat the rice fast.’

As shown in the examples, while the NP marked by the dative case receives a generic reading, the NP marked the nominative case gets a referential, specific reading. This is especially obvious in the contrast between (12d) and (12d’), as we can see that the dative NP in (12d) does not really refer to ‘rice’ but ‘meal’ in general. However, when marked by the nominative case, *hemay* ‘rice’ will refer to a bowl of rice. This contrast is similar to the examples *Pat drank beer* vs. *Pat drank the beer* discussed in VV (2005:64), in which it is argued that *beer* in *Pat drank beer* is not a macrorole. Notice that it is possible to omit this generic NP, as shown in (12c). See Wu (2006) for more discussion.

functions discussed above.

- (14) a. mi-radiw kaku t-u-ni a radiw.
 AV-song 1S.NOM DAT-CN-this LIN song
 ‘I am going to sing this song.’
 b. mi-radiw-an aku k-u-ni.
 MI-song-LA 1S.GEN NOM-CN-this
 ‘I sang this.’ (Patient-Locative Applicative)
 ‘I sang for (getting) this.’ (Goal-Locative Applicative)

An important feature of the applicative sentences discussed above is that they all follow the undergoer voice pattern, as the undergoer of these applicative sentences is marked by the nominative case. Compare (11b) and the sentences in (8), and we can see that without the voice markers *ma-* and *-en*, (11b) still follows the UV pattern. This comparison shows that applicative constructions are by default UV constructions. Given the ergative nature of Amis (Chen 1987), it is not surprising that this language will have the undergoer as the default choice of the PSA even without the presence of the undergoer voice marker.

The functions of the voice markers are related to the second phase of linking. That is, they affect the linking of the macrorole and non-macrorole arguments to the syntactic functions. In particular, they serve the functions of indicating the PSA choice between actor and undergoer, and they may also give a non-canonical realization of a macrorole argument as a non-macrorole core argument. The second function is found in the undergoer argument of an actor voice sentence; this argument is realized as non-macrorole argument syntactically. See Wu (2006) for more discussion.

The new analysis outlined in Table 10 offers a good reason for why the instrument NP is the PSA when there is a co-occurrence of *ma-* and *sa-* or *sa-* and *-en*, as seen in (8). The marker *sa-* indicates that there is marked choice of the undergoer (i.e. instrument in this case), and the voice markers *ma-* and *-en* show that the undergoer is the PSA. In other words, these two markers operate at different phases of the linking from semantics to syntax.³⁰ After separating the voice markers and the applicative markers and discuss

³⁰ As pointed out by the reviewer, the co-occurrence of a voice marker and an applicative marker in Amis presents an atypical case that is not found in other Formosan languages. Nevertheless, the analysis of treating so-called instrument voice and locative voice as applicative constructions has also been proposed by Huang (2005) for other Formosan languages. I assume that the applicative constructions and the voice operations in these Formosan languages are also related to different phases of linking from semantics to syntax, in RRG terms. In this regard, Amis does not seem to present an atypical case.

their functions in the linking system, I shall focus on the exploration of the semantics of the voice markers in the following section.

5. A decompositional analysis of the voice markers

In this section, I offer an RRG-based decompositional analysis for the following voice markers: *mi-* (AV), *-en* (UV), and *ma-* (AV and UV). As I show later, these decompositional representations can not only account for their semantic properties, especially their default TAM reading, but also their derivational possibilities. I begin with *mi-*.

5.1 The analysis of *mi-*

The prefix *mi-* is found most frequently in the following two types of examples:

- (15) a. mi-nanum Ø-ci aki t-u nanum.³¹
 AV-water NOM-PPN Aki DAT-CN water
 ‘Aki is going to drink water.’ or ‘Aki is drinking water.’
- b. mi-palu Ø-ci sawmah ci mayaw-an.
 AV-beat NOM-PPN Sawmah PPN Mayaw-DAT
 ‘Sawmah is going to beat Mayaw.’ or ‘Sawmah is beating Mayaw.’

As seen in (15a), this prefix is attached to a root denoting an object and derives a verb expressing an activity with the object denoted by the root as its cognate object. It can also be attached to a root expressing an activity and derive a verb expressing that activity, e.g. (11b). Notice that the *mi-* verbs in (11) can have a progressive reading or a motional/purposive reading. This was noted by Zeitoun et al. (1996).

An activity verb in Amis is not necessarily derived from the affixation of *mi-*; other affixes such as *ma-* or *-um-* can also derive an activity verb. Unlike *mi-* activity verbs, *ma-* and *-um-* activity verbs only get the progressive reading, as reported in Zeitoun et al. (1996). While most roots tend to occur with only one of the affixes to form an activity verb, some roots have more than one possibility. However, the *mi-* forms of the roots that take either *-um-* or *ma-* to form an activity by default always carry a motional/

³¹ According to Yan (1992), the *mi-* affix (equivalent to *ni-* in his paper) can be omitted in his dialect (one of the Southern dialects). However, as remarked by my informants, such sentences, though understandable, sound very childish.

purposive reading,³² and the goal is preferably specified in the sentence. Consider:

- (16) a. ma-ranam kaku.
NEUT-have breakfast 1S.NOM
'I am having my breakfast.'
- b. mi-ka-ranam³³ kaku i ci kaka-an.
AV-KA-have breakfast 1S.NOM PREP PPN older sibling-DAT
'I am going to Brother's place to have (a special) breakfast.'
- c. k-um-a'en kaku t-u pawli.
eat<AV> 1S.NOM DAT-CN banana
'I am eating a banana.'
- d. mi-ka'en kaku i ci panay-an.
AV-eat 1S.NOM PREP PPN Panay-DAT
'I am going to Panay's place to have a banquet.'
- e. ma-tayal kaku.
NEUT-work 1S.NOM
'I am working.'
- f. mi-tayal kaku t-u demak n-i panay.
AV-work 1S.NOM DAT-CN matter GEN-PPN Panay
'I am going to do Panay's work.'

As we can see in (16), *mi-* form adds motional/purposive reading for the verb (i.e. 'go to a certain place to do something'), although the place or the goal is not always mentioned in the sentence. The motional/purposive reading of *mi-* offers a possible reason for why only *mi-* form can combine with applicative marker *-an* and adds a goal argument in the core, but not *-um-* or *ma-*, as seen in the discussion of the applicative constructions.

Based on the above observations, the following logical structure is proposed for *mi-*:

- (17) *mi-*: ((**do'** (x, [**go'** (x)]) & INGR **be-at'** (z, x)) PURP) **do'** (x, [**pred'** (x, y)])

The LS in (17) is composed of two parts. The first part is a motional/purposive component expressed by the logical structure “((**do'** (x, [**go'** (x)]) & INGR **be-at'** (z, x)) PURP)”, while the second part is a plain activity represented by “**do'** (x, [**pred'** (x, y)])”.

³² This purposive reading is also obtained for some *ma-* predicates (e.g. *mi-ulah*, *mi-liyang*).

³³ As remarked by the informant, such kind of *mi-* forms are used in a relatively restricted way. For example, it is difficult to elicit the progressive meaning for verbs like *mi-ka-ranam* and *mi-ka'en*.

Notice that the motional/purposive component is parenthesized as it can be optional for some verbs (i.e. verbs that take *mi-* by default). However, the plain activity part is indispensable for all *mi-* activity verbs. In other words, the TAM reading of *mi-* can help distinguish at least two verb classes. In other words, the first class of verbs, which allows the optionality of the motional/purposive component, can have two readings with *mi-* (i.e. the motional/purposive and the progressive) (e.g. *mi-palu* > *palu* ‘beat’, *mi-nanum* > *nanum* ‘water’), while the second class with the obligatory presence of the motional/purposive component only allows the motional/purposive reading (e.g. *mi-tayal* > *tayal* ‘work’ and *mi-ka’en* > *ka’en* ‘eat’). The examples in (18) illustrate the application of the LS of *mi-* in these two verb classes:

- (18) a. mi-palu Ø-ci sawmah ci mayaw-an.
 AV-beat NOM-PPN Sawmah PPN Mayaw-DAT
 ‘Sawmah is going to beat Mayaw.’
 ‘Sawmah is beating Mayaw.’
 a’. ((**do’** (Sawmah, [**go’** (Sawmah)])) & INGR **be-at’** (z, Sawmah)) PURP **do’**
 (Sawmah, [**beat’** (Sawmah, Mayaw)])
 a’’. **do’** (Sawmah, [beat’ (Sawmah, Mayaw)])
 b. mi-ka’en kaku i ci panay-an.
 AV-eat 1S.NOM PREP PPN Panay-DAT
 ‘I am going to Panay’s place to have a banquet.’
 b’. **do’** (kaku, [**go’** (kaku)]) & INGR **be-at’** (ci panay-an, kaku) PURP **do’**
 (kaku, [**eat’** (kaku, y)])
 c. mi-tayal kaku i ci panay-an.
 AV-work 1S.NOM PREP NOM Panay-DAT
 ‘I am going to do some work at Panay’s place.’
 (i.e. I am going to do the work of Panay’s family.)
 c’. **do’** (kaku, [**go’** (kaku)]) & INGR **be-at’** (ci panay-an, kaku) PURP **do’**
 (kaku, [**do’** (kaku, y)])

The representation of the optional motional/purposive part in *mi-* has some important consequences. First, it explains why the applicative *mi-...-an* can occur with a goal participant (e.g. (11c’)) or a patient participant (e.g. (12b)). The goal participant is an argument of the plain activity following the motional/purposive part, while the patient participant is an argument of the plain activity without a motional/purposive component. A comparison is exemplified below.³⁴

³⁴ The semantic representation for the purposive part is based on the representation of English *for* (e.g. *Mary sang for fun*) proposed in Jolly (1993).

- (19) a. **mi-cikay-an** aku i pitilidan k-u-ni a cudad.
 MI-run-LA 1S.GEN PREP school NOM-CN-this LIN book
 ‘I ran to school for (getting) this book.’
- a’. [**do’** (aku, [**run’** (aku)]) & INGR **be-at’** (pitilidan, aku)] PURP
 [BECOME **have’** (aku, cudad)]
- b. **mi-rakat-an** tu n-i aki k-u-ni a lalan.
 MI-walk-LA ASP GEN-PPN Aki NOM-CN-this LIN road
 ‘Aki has already walked on this road.’
- b’. **do’** (aki, [**walk’** (aki, lalan)])

The *mi-* verb class that only has the motional/purposive reading can be further subcategorized into two classes based on the attachment of {paka}. This phonological string has at least three interpretations: ‘be able to; happen to’, ‘cause to do or become’, and ‘through; by means of’. For the sake of our main concern, I only discuss the first two interpretations of {paka}. The first meaning is similar to the “agency canceller” discussed in Walton (1986) for the verbs in Sama, a Philippine language, as this prefix cancels the “agentive” element inherent in the verbs.³⁵ We may call this *paka-* as an abilitative marker. The second meaning of {paka} is derived from *pa-ka-*, which contains the causative morpheme *pa-* and the prefix *ka-* (see Zeitoun & Huang 2000).³⁶ The *mi-* verbs that only allow the motional/purposive reading do not all behave in the same way when they are prefixed with {paka}. As illustrated in (20), for verbs that usually appear with *-um-*, like verbs appearing with *mi-* by default, the form with {paka} gets the agency canceling reading, while for verbs that usually co-occur with *ma-*, {paka} is rendered (by default) as *pa-ka-*, the causative reading:

- (20) a. {paka}-nengneng (> mi-nengneng ‘(go to) watch’ > nengneng ‘see’)
 ‘happen to see; able to see’

³⁵ Walton (1986:83-86) calls these forms “DO Cancellers”. In fact, the forms *maka-/paka-* or their phonological variants are quite widespread in the Philippine languages (Hsiu-chuan Liao, p.c.). These forms are also called potitives, as in Himmelmann (2005a). As remarked by Himmelmann (2005a), these forms may refer to accidental actions, involuntary actions, and they may convey an abilitative meaning. The existence of such markers in Amis indicates the possibility that Amis is closer to the Philippine languages in terms of sub-grouping, though it is not clear to me if such markers also exist in other Formosan languages. However, as the issue of subgrouping is not the main concern of this paper, I shall leave it for further research.

³⁶ The affix *ka-* is found in many syntactic constructions (e.g. *ca’ay* negative sentences and imperative sentences) related to verbs that take prefixes other than *mi-*. We have discussed this in §2.

- b. {paka}-ka'en (> k-um-a'en 'eat' > ka'en 'eat')
'able to eat; dare to eat'
- c. {paka}-tayal (> ma-tayal 'work' > tayal 'work')
'cause to do something'

The comparison exemplified in (20) shows that the activity verbs in Amis can be further categorized into the one with potential agentivity (i.e. *mi*- and *-um*- classes) and the one without (i.e. the *ma*- class). The reason that the term “potential” is adopted here is because such agentivity is cancelable with the attachment of *paka*- ‘abilitative’ and the expression such as *ca'ay ku patudaan* ‘unintentionally (or not the intention)’, while true agentivity marked by *-en* cannot not be cancelled by the two expressions.

When it is attached to a root denoting a state, the prefix *mi*- can also derive a causative accomplishment verb. For instance:

- (21) a. ma-patay tu k-u-ni oner.
NEUT-dead ASP NOM-CN snake
'The snake is dead.'
- a'. mi-patay k-u matu'asay t-u oner.
AV-dead NOM-CN old man DAT-CN snake
'The old man is going to kill a snake.'
'The old man is killing a snake.'
- b. ma-tuniq k-u ti'ti'.
NEUT-soft NOM-CN meat
'The meat is soft.'
- b'. mi-tuniq k-u kuwaq t-u ti'ti'.
AV-soft NOM-CN papaya NOM-CN meat
'The papaya will soften meat.'
- c. kuhcah k-u hana.
white NOM-CN flower
'The flower is white.'
- c'. mi-kuhcah k-u safun t-u pising isu.
AV-white NOM-CN soap DAT-CN face 2S.GEN
'The soap will whiten your face.'

As shown in (21), when prefixed to a root expressing a state (either attribute or transitory/result states), *mi*- generates a causative accomplishment verb (i.e. ‘cause to become’), in which the causer brings about the existence of the state. The causer is typically inanimate, and this seems to be a natural interpretation for *mi*- + state, as an

inanimate causer such as *kuwaq* ‘papaya’ is incompatible with the motional/purposive part in *mi-*, and consequently only the activity component (i.e. **do'** (x, [**pred'** (x, (y))])) in the LS of *mi-* is retained in the derivation of *mi-* + state. For an activity to be able to co-occur with a state, the desired result will be the activity bringing about the state (hence, causative accomplishment). The possibility to co-occur with inanimate causers of *mi-* also indicates that the actor argument of *mi-* verbs is not a true agent; the agentivity of *mi-* verbs is construed through the context. As we shall see later, the agentive accomplishment marker *-en* also derives causative accomplishments when attached to state roots. However, unlike *mi-*, the causer in *-en* causative accomplishment verbs has to be human. As I shall argue in the following section, this human causer requirement has to be attributed to the agentivity property pertaining to *-en*.

5.2 The analysis of *-en*

The suffix *-en* is also found with a variety of roots; it is attached to roots denoting an object, an activity, and a state. Observe:

- (22) a. nanum-en aku k-u-ra sayta.
 water-UV 1S.GEN NOM-CN-that soda
 ‘I will drink that soda (for sure).’
- b. palu-en n-i aki Ø-ci panay.
 beat-UV GEN-PPN Aki NOM-PPN Panay
 ‘Aki will beat Panay (for sure).’
- c. fa'det-en aku k-u-ya dateng.
 hot-UV 1S.GEN NOM-CN-that vegetable
 ‘I will heat up that dish (for sure).’

As seen in the above examples, verbs derived by suffixing *-en* are similar to those derived by attaching *mi-*; *-en* also derives an activity from the root denoting an object (e.g. (22a)) or the root designating an activity (e.g. (22b)), and a causative accomplishment verb (22c) from a root form designating a state. These similarities seem to suggest that *mi-* and *-en* share the same meaning and function. However, there are some crucial differences between *mi-* and *-en* verbs. First, there is no “motion” component implied in the *-en* verb; while there is often a distance between the effector and the patient arguments of the *mi-* verbs, the patient argument is close to or right in front of the actor when an *-en* verb is used. Compare the corresponding imperative sentences in (23):

- (23) a. pi-patay t-u-ra oner!
 PI-dead DAT-CN-that snake
 ‘(Go to) kill that snake!’ (Imperative, Actor Voice)
 (The snake is far away from the speaker and the addressee.)
- b. patay-en k-u-ra oner!
 dead-UV NOM-CN-that snake
 ‘Kill that snake (for sure)!’
 (The snake is near the speaker and the addressee.)

Second, as mentioned earlier, *-en* only occurs with a human effector (Tsukida 1993), but such a restriction is not found with *mi-* verbs. Compare:

- (24) a. mi-tuniq k-u kuwaq t-u ti’ti’.
 AV-soft NOM-CN papaya DAT-CN meat
 ‘The papaya will soften the meat.’
- b. tuniq-en aku/*n-u kuwaq k-u ti’ti’ aca.
 soft-UV 1S.GEN/GEN-CN papaya NOM-CN meat a little
 ‘I/*Papaya will soften the meat a little.’

Third, while *mi-* has a motional/purposive reading, *-en* emphasizes more on the intention of the actor. This feature of *-en* has been pointed out in Tsukida (1993):

In conclusion, when an *-en* form expresses an event, it gives an impression that the probability for the event to occur had risen or is rising higher during the situation, and that it occurred or will occur at a particular point in time, at that very time at last...If that point in time comes after the time of utterance, the probability is already rising at the time of the utterance, and gives an impression that the event will positively occur in the immediate future... When the probability rises, a rise of the motivation on the side of the agent must accompany it. The agent does the action intentionally. (Tsukida 1993: 137-38)

In fact, while *mi-* verbs are allowed to co-occur with the expression “unintentionally”, *-en* verbs are banned in such contexts.

- (25) a. ca’ay k-u pataduan n-i aki mi-curah t-u lumaq.
 NEG NOM-CN intention GEN-PPN Aki AV-burn DAT-CN house
 ‘It is not Aki’s intention to burn the house.’

- b. *ca'ay k-u pataduan n-i aki curah-en k-u lumaq.³⁷
 NEG NOM-CN intention GEN-PPN Aki burn-UV NOM-CN house

Furthermore, when {paka} is attached to *-en* verbs, they never get the abilitative reading.³⁸ Compare the following examples with (20a-b):

- (26) a. {paka}-palu-en
 PAKA-beat-UV
 'let someone be beaten severely'
 *'able to beat somebody or happen to beat somebody'
 b. {paka}-nengneng-en
 PAKA-watch-UV
 'let someone be see watched carefully'
 *'able to watch or happen to see'

Finally, when appearing with the aspectual marker *ho* that indicates an incomplete status for the predicate (rendered as 'yet' or 'still' in English), *-en* verbs often refer to the state that has not yet resulted (i.e. the anticipatory telic point, the 'yet' reading) (e.g. (27a)) or get an iterative reading (e.g. (27b)), while *mi-* verbs can get both the progressive reading (the 'still' reading) and the anticipatory telic reading (e.g. (27c)):

- (27) a. pa-ka-pi-nanum-**en** ho kaku, ta l-um-uwad.
 CAUS-KA-PI-water-UV ASP 1S.NOM then set off<NEUT>
 'Let me yet drink some water, and then (we) will set off.'
 b. ranam-**en** ho!
 breakfast-UV ASP
 'Eat the same thing for the breakfast again!'

³⁷ Another possible explanation for this construction may be due to the voice restriction following the "unintentionally" expression. However, as discussed in Wu (1995), in a purposive construction with two predicates, the second predicate is allowed to appear in the UV *-en* form, which indicates a less tight linkage between the two predicates compared with the one with the second predicate as an AV form.

³⁸ The analysis of {paka} in (26) is not clear to me at this moment. The reading of this form indicates that it is similar to the causative form *pa-ka-* in (20c). However, the forms in (26) are frequently used in the imperative sentences in which there is no clear involvement of any causer. I therefore leave this form unglossed.

- c. **mi**-nanum ho Ø-ci panay t-u sayta.
 AV-water ASP NOM-PPN Panay DAT-CN soda
 ‘Panay is still drinking soda.’
 ‘Panay went to drink some soda first.’

Based on the above-mentioned features, I postulate the following logical structure for *-en* as in (28a) with examples illustrating this LS in (28b-c):

- (28) a. *-en*: DO (x, [**do'** (x, [**pred'** (x, (y))])])INGR/BECOME **pred'** (x, y)
 b. palu-en n-i aki Ø-ci panay
 beat-UV GEN-PPN Aki NOM-PPN Panay
 ‘Aki will beat Panay (for sure).’
 b'. DO' (aki, [**do'** (aki, [**beat'** (aki, panay))]) ... BECOME **beaten'** (aki, panay)³⁹

This logical structure captures the two essential features of *-en*: [+agentive] (by DO) and [+telic] (by BECOME (**pred'**)). When suffixed to an activity verb, *-en* derives an agentive active accomplishment. The agentive component DO explains why this suffix can only appear with [+human] effector or causer (e.g. (24b)), and it cannot appear with expressions such as “unintentionally” and the agency canceling prefix *paka-*. The accomplishment component is there because *-en* verbs always have a strong implicature of the completion of the action, which accounts for why the *-en* verb only refers to the state that has not been resulted but never the progressive aspect of an activity when appearing with the aspectual marker *ho*.

5.3 The analysis of *ma-*

Unlike *mi-* and *-en*, it is rather difficult to pin down a unified meaning for *ma-*. Recall that in Table 2, we have seen the dual presence of *ma-* in the voice system. However, there are actually more than two *ma-s* distinguished in this language. For instance, Yan (1992) proposes four classes of *ma-* verbs based on the argument structure and their possible derivation through the attachment of *mi-*. Here I would like to discuss the types of *ma-* from different perspectives. To begin with, in terms of the default TAM information discussed earlier, *ma-* verbs carry two types of reading: stative and progressive. The stative reading is found with *ma-* state predicates, which include

³⁹ The “...” part in the LS leaves the possibility to place a CAUSE between the two parts in the LS, as it is also possible for *-en* to derive a causative accomplishment when it attaches to a state root.

transient/result state and plain state predicates. The progressive reading of *ma-* has been discussed in Zeitoun et al. (1996), and it is found with predicates denoting activities that have low induced agency, as seen in the diagnostic test by the occurrence of {paka} illustrated in (20c). These *ma-* activity verbs are exemplified below:

- (29) a. ma-tayal Ø-ci sawmah.
 NEUT-work NOM-PPN Sawmah
 ‘Sawmah is at work.’ or ‘Sawmah is doing some job.’
 b. ma-kerker Ø-ci panay.
 NEUT-shiver NOM-PPN Panay
 ‘Panay is shivering.’

As seen in (29), though both verbs get a progressive reading, they differ from each other in terms of volition. That is, presumably, *ma-tayal* ‘work’ is volitional, while *ma-kerker* ‘shiver’ is involuntary. However, the picture is not that clear, as the {paka-} test shows that {*paka-*}-*tayal* does not by default get the agency-canceling reading that is found in *mi-* and some *-um-* verbs. A possible reason for the preferred interpretation of {paka-} as *pa-ka-* for *ma-* activity verbs may be due to the fact that *ka-* is morphologically related to *ma-* in many syntactic constructions such as negative sentences and imperative sentences, as seen in §2. In other words, this interpretation is possibly due to an analogy of treating the *ka-* part of {paka-} as a morphological variant of *ma-*. Nevertheless, comparatively speaking, *ma-* activity verbs do imply lesser degree of agentivity than their *mi-* or *-um-* counterparts, and this prefix is found in many verbs denoting involuntary actions such as *ma-kerker* ‘shiver’ in (29) and *ma-tukatuk* ‘doze off’. The logical structure for *ma-* activity verbs (i.e. *ma-1*) is given in (30):

- (30) *ma-1* (*ma-* activity verbs): **do'** (x, [**pred'** (x, (y))])

In addition to activities, *ma-* is also frequently found with state predicates as we have shown examples at a few places earlier. Nevertheless, there are finer distinctions among these *ma-* state predicates, as they can be either result state as exemplified in (31) or plain states illustrated in (32):

- (31) a. *ma-adah* tu kaku.
 NEUT-recover ASP 1S.NOM
 ‘I have recovered (from illness).’
 ‘I have started to recover (from illness).’

- b. ma-ruhem tu k-u pawli.
 NEUT-ripe ASP NOM-CN banana
 ‘The banana is ripe (just now).’
- c. ma-fasaw tu k-u nanum.
 NEUT-cool down ASP NOM-CN water
 ‘The water is cooled down (just now).’
- (32) a. ma-laluk Ø-ci sawmah.
 NEUT-diligent NOM-PPN Sawmah
 ‘Sawmah is diligent.’
- b. ma-radiw k-u-ra kaying.
 NEUT-song NOM-CN-that young lady
 ‘That young lady is good at singing.’
- c. ma-ulah Ø-ci sawmah (i) ci panay-an.
 AV-love NOM-PPN Sawmah PREP PPN Panay-DAT
 ‘Sawmah likes Panay.’

There are some differences between the two groups of *ma-* verbs in (31) and (32). Crucially, the verbs in (31) are interpreted as a result state that implies a process before reaching the state, while those in (32) simply denote a plain state. This semantic difference is also reflected in their syntactic structures. To begin with, the root forms of the result state predicates in (31) are coded differently in the ideophone-forming construction *X sa* in Amis from the root forms of the plain states in (32); the former cannot appear in the *sa-X sa* frame, in which the latter can occur. Consider:

- (33) a. sa-usuy sa cingra.
 INT-slow say so 3S.NOM
 ‘He is so slow.’
- b. *sa-icang sa k-u rikor.
 INT-become dry say so NOM-CN clothes
- c. icang sa k-u rikor.
 become dry say so NOM-CN clothes
 ‘The clothes are dry.’

Secondly, the predicates in (31) tend to appear with the perfective/inchoative aspectual marker *tu*, but such a tendency is not found with verbs in (32) as implied in the examples. Furthermore, it is difficult to elicit the verbs in (31) with the incomplete aspectual marker *ho* in (affirmative) sentences, but there is no such difficulty for verbs in (32). Compare:

- (34) a. ?? *ma-adah* *ho* *kaku*.
 NEUT-recovered ASP 1S.NOM
 ‘I am still recovering.’
- b. **ma-ruhum* *ho* *k-u-ni* *a* *pawli*.
 NEUT-ripe ASP NOM-CN-this LIN banana
 ‘The banana is still ripe.’
- c. *ma-laluk* *ho* *cingra*.
 NEUT-diligent ASP 3S.NOM
 ‘He is still diligent.’
- d. *ma-ulah* *ho* Ø-*ci* *sawmah* (i) *ci* *panay-an*.
 AV-like ASP NOM-PPN Sawmah PREP PPN Panay-DAT
 ‘Sawmah still likes Panay.’

As seen in (34), when appearing with the incomplete aspect marker *ho*, verbs like *ma-laluk* ‘diligent’ and *ma-ulah* ‘like’ are interpreted with an on-going status while predicates like *ma-adah* ‘recover’ and *ma-ruhem* ‘ripe’ cannot readily appear in such an environment.⁴⁰ The verbs in (31) all have an inherent ending point in the events they depict. It is quite likely that this telic feature contributes to their difficult co-occurrence with the incomplete aspect marker *ho*. Such a telic feature is not found in the non-result state verbs in (32). To capture the distinction between the two classes of predicates, we postulate the following two logical structures:

- (35) a. *ma-2* (*ma-* result state verbs): (INGR/BECOME) **pred'** (x, (y))
 b. *ma-3* (*ma-* transient/plain state verbs): **pred'** (x, (y))

The LS in (31a) indicates the telic property of the verb while the one in (31b) shows that it is a non-attribute state predicate. Notice that we put a parenthesis around the INGR and BECOME part in the LS of the result state verbs, as the process part in these verbs is not usually referred to in the sentences. That is, the above-mentioned features of the result state verbs seem more relevant to the telic point inherent in these predicates but not the punctual/non-punctual features of these verbs. Even though a process before reaching an ending point is entailed in the semantics of verbs like *ma-adah* ‘recover’, it is difficult to refer to that process; the unmarked reading of the *ma-* telic verbs is always the result state, and the aspectual marker *tu* is preferred if one wants to refer to the

⁴⁰ This sentence sounds more natural if it is an interrogative sentence:

- (34) a'. *ma-adah* *ho* *cingra*?
 NEUT-recovered ASP 3S.NOM
 ‘Is he still recovering?’

inception of the result state (i.e. change of state). One of the possible ways to test if there is a process is by means of the co-occurrence of pace predicates such as *ma-usuy* ‘slow’ and *harakat* ‘fast’, as exemplified in the following sentences:

- (36) a. *harakat/ma-usuy* *ma-adah* *k-u* *adada*.
 fast/NEUT-slow NEUT-recovered NOM-CN ailment
 ‘The ailment recovered fast/slowly.’
 b. *harakat/ma-usuy* *ma-likat* *k-u-ra* *simal*.
 fast/NEUT-slow NEUT-light up NOM-CN-that light
 ‘The light became lit up fast/slowly.’

The pace predicates in (36) show that there is a process before reaching the result states denoted by the *ma-* verbs.

The distinctions between *ma-* result state verbs and *ma-* non-result state verbs can also be observed in the sentences containing *-en₂*, a suffix roughly rendered as ‘feel...; judge...’ There are at least two *-ens* in Amis; the first one, referred to as *-en* in the discussion, is analyzed as marker for agentive accomplishment and it follows the UV case marking pattern (i.e. Genitive-Nominative), while the second one, referred to and glossed as *-en₂*, follows the AV pattern (i.e. Nominative-Dative), as seen in (37b). Usually, *ma-* result state verbs (e.g. (38)) are not allowed to appear with *-en₂* unless a specific context is provided. The examples are given below:

- (37) a. *fa’det-en* *kaku* *t-u-ya* *nanum*.
 hot-EN₂ 1S.NOM DAT-CN-that water
 ‘I feel that water is very hot.’
 b. *ma-ulah-en* *cingra_i* *t-u* *nguhah* *nira*,
 AV-like-EN₂ 3S.NOM DAT-CN lover 3S.GEN
 sa-pi-kadafu-an *tu* *cingra_i*.
 INA-PI-marry-MOOD ASP 3S.NOM
 ‘She likes her lover very much, so she wants to get married.’
 (38) a. ?? *ma-ruhem-en* *cingra* *t-u-ya* *pawli*.⁴¹
 NEUT-ripe-EN₂ 1S.NOM DAT-CN-that banana
 ‘He feels that the banana is too ripe.’
 b. ?? *ma-icang-en* *kaku* *t-u-ra* *rikor*.
 NEUT-dry-EN₂ 1S.NOM DAT-CN-that clothes
 ‘I feel the clothes are too dry.’

⁴¹ The acceptance of (34a-b) varies among speakers.

- c. *ma-icang-en* *kaku* *t-u-ra* *kudasing*.
 NEUT-dry-EN₂ 1S.NOM DAT-CN-that peanut
 ‘I feel that those peanuts are over sun-dried.’
- d. *ma-’efcang-en* *kaku* *t-u-ra* *a’ol*.
 NEUT-stiff-EN₂ 1S.NOM DAT-CN-that bamboo
 ‘I feel the bamboo is too stiff.’ (The bamboo is not grated thin enough.)

As seen in (38), the result state verbs do not readily take *-en₂*. They have to appear in a specific context in which the state results from a process that is not naturally initiated, e.g. (38c-d). Such a context is not required for the non-result state verbs exemplified in (37). A possible reason for this peculiarity is that the suffix *-en₂* suggests a desired state or a desired limit assigned by the speaker for the unbound state predicate it attaches to; the assigned limit is redundant with regard to the telic point inherent in the result state verbs. Therefore, it is sometimes difficult to construe the combination of *-en₂* with a result state predicate, unless, first, there is a special context in which the result state is not naturally triggered, or, second, the derived form is rendered as the sustaining of the result state. The example in (38e) illustrates the second possibility:

- (38) e. *ma-adah-en* *tu* *kaku*.
 NEUT-recover-EN₂ ASP 1S.NOM
 ‘I feel I am recovered now.’

Notice that although the combination of telic verbs and *-en₂* is possible in (38e), the over-the-limit reading of the result state is no longer obtained.⁴²

The structure of *-en₂* also leads us to the distinction of another type of *ma-* verb:

- (39) a. *ma-palu* *n-i* *sawmah* *Ø-ci* *mayaw*.
 UV-beat GEN-PPN Sawmah NOM-PPN Mayaw
 ‘Mayaw was beaten by Sawmah.’
- b. **ma-palu-en* *Ø-ci* *sawmah* *ci* *mayaw-an*.
 UV-beat-EN₂ GEN-PPN Sawmah PPN Mayaw-DAT

The predicate in (39a) is not allowed to appear with *-en₂*, as shown in (39b). The *ma-* here is the UV marker in Table 10. It is often prefixed to a verb with potential agency (i.e. verbs with *mi-* or *-um-* by default) and the derived predicate carries an unmarked interpretation of a completed action. The UV *ma-* verb in (39a) seems to also possess a

⁴² As remarked by the informant, these two sentences are used to argue against someone’s assumption.

kind of telic point, as it indicates that the action is completed. However, unlike the telic result state verbs discussed earlier, the UV *ma-* verbs receive an iterative reading when appearing with *ho*, as shown in (40):

- (40) a. ma-palu heca/ho n-u-ya mama k-u wawa.
 UV-beat again/ASP GEN-CN-that father NOM-CN child
 ‘The child was beaten again by that father.’
 b. ma-nengneng ho aku.
 UV-see ASP 1S.GEN
 ‘I have just watched (it), and now you want me to watch (it) again.’

Note that the co-occurrence of a UV *ma-* verb with *ho*, like the combination of *ma*-result state verbs and *ho*, is not very common; the preferred choice in this context is *heca* ‘again’. The LS of this set of *ma-* verbs is given in (41). This LS indicates that *ma-* adds a telic point to an activity verb or verbs that contain a **do'** element:

- (41) *ma*-4 (active/causative accomplishment):
 ...**do'** (x, [**pred'** (x, y)]) INGR/BECOME **pred'** (x, y)

There are two parts to the logical structure, an activity and an accomplishment. However, unlike the active accomplishment predicates specified in Table 9 (e.g. the consumption or creation verbs such as *eat the pizza* discussed in VV (2005:44), there is no ampersand between the two predicates in the LS. The unspecified part between the activity and the accomplishment in (41) leaves the possibility that the activity can be a causing event that brings about the accomplishment part. An example like this is *ma-patay* ‘kill’ illustrated in (42). If there is no causing event, then the LS of this type of *ma-* verbs will be just like that of an active accomplishment.

- (42) a. ma-patay n-i aki k-u-ra fafuy.
 UV-dead GEN-PPN Aki NOM-CN-that pig
 ‘That pig was killed by Aki.’
 b. [**do'** (aki, Ø)] CAUSE [BECOME **dead'** (fafuy)]⁴³

The activity part also explains why this type of *ma-* verb is allowed to appear with *ho* though it is marginally acceptable sometimes. This aspectual marker goes well with an activity verb but not a result state predicate. The logical structure in (41) is similar to

⁴³ The logical structure “**do'** (x, Ø)” before CAUSE represents an unspecified causing action (VVLP 1997:107).

that of *-en* in (28a); the only difference lies in the agentivity part carried by *-en*. Such agentivity is not found with *ma*-4 verbs.

So far we have made four distinctions among *ma*- verbs: activity, result state, plain (or transient) state, and active/causative accomplishment. Except for the *ma*- activity verbs, it is sometimes difficult to tell which LS a particular *ma*- verb carries, as the same root may appear with more than one *ma*-. Hence, there may be ambiguity for a *ma*- verb in terms of the verb type if no contextual information is provided. Consider:

- (43) a. ma-radiw k-u-ra kaying.
 NEUT-song NOM-CN-that young lady
 ‘That young lady is good at singing.’
 a’. **good at singing’** (kaying)
 b. ma-radiw n-i aki k-u radiw aku.
 UV-song GEN-PPN Aki NOM-CN song 1S.GEN
 ‘My song was sung by Aki.’
 b’. **do’** (aki, [**sing’** (aki, radiw aku)]) & BECOME (**sung’** (aki, radiw aku))
 c. ma-patay k-u-ra fafuy.⁴⁴
 NEUT-dead NOM-CN-that pig
 ‘That pig is dead.’ or ‘That pig is killed.’
 c’. BECOME **dead’** (fafuy)
 d. ma-patay n-i aki k-u-ra fafuy.
 UV-dead GEN-PPN Aki NOM-CN-that pig
 ‘That pig was killed by Aki.’
 d’. [**do’** (aki, Ø)] CAUSE [BECOME **dead’** (fafuy)]

As demonstrated in (43), to disambiguate the verb types of *ma-radiw* and *ma-patay*, proper contextual information has to be provided, or one can perform tests like those with *-en*₂ and *ho* to distinguish the verb types.

6. Conclusion

In this paper, I have offered an RRG analysis for the voice system in Amis. I first reclassify the so-called four voice markers into two sets: voice markers and applicative markers. I argue that Amis makes only a two-voice distinction, and that the so-called instrumental and locative voices are actually applicative constructions that indicate a

⁴⁴ A more natural interpretation of (43c) is the first translation, as the verb for “killing pigs” is *mi-pacuk* ‘slaughter (pigs)’; *mi-patay* is not usually used in such a context.

marked undergoer selection. These two sets of markers thus perform different functions at the two phases of linking from semantics to syntax. The applicative markers affect the undergoer choice while the voice markers influence the PSA selection.

Furthermore, I propose a decompositional analysis for three commonly found forms in the voice system: *mi-* (AV), *-en* (UV), and *-ma* (AV and UV). The logical structures of these forms are summarized in Table 11 and their most likely associated voice functions are also indicated in the table.

Table 11: The logical structures of some voice affixes

“voice” affixes	Logical Structures
<i>mi-</i> (AV)	((do' (x, [go' (x)]) & INGR be-at' (z, x)) PURP) do' (x, [pred' (x, y)]) (motional/purposive) activity
<i>-en</i> (UV)	DO (x, [do' (x, [pred' (x, (y))])])BECOME (pred' (x, y)) agentive active/causative accomplishment
<i>ma-1</i> (AV or NEUT ⁴⁵)	do' (x, [pred' (x, (y))]) activity
<i>ma-2</i> (NEUT)	(INGR/BECOME) pred' (x, (y)) result state
<i>ma-3</i> (UV)	do' (x, [pred' (x, (y))])BECOME pred' (x, y) active/causative accomplishment
<i>ma-4</i> (AV or NEUT)	pred' (x, (y)) transient/plain state

On the one hand, the decompositional analysis proposed here can help us better understand the phenomena related to these markers in the Amis grammar. For example, the specification of the agency component in *-en* explains the reason why it only goes with human (or personified) actor, while the lack of such specified agency in *mi-* accounts for why the actor is not necessarily human or even animate. On the other hand, such an analysis also better describes the derivations among these verb classes regarding why and how the derived meaning is obtained. For instance, the logical structure of *mi-* tells us why it can derive a motional/purposive activity as well as a causative predicate from different types of roots.

The RRG-based decompositional analysis offers us a new perspective for looking into these voice markers. Such an analysis also has brought out some interesting issues for future study. First, as a voice-marked predicate may contain more than one logical

⁴⁵ ‘NEUT’ refers to the situation when these affixes do not have voice marking function. See Footnote 10.

structure (one from the voice affix and one from the root or stem), these logical structures may interact with each other. Therefore, we would expect that there might be some complexities regarding the performance of the *Aktionsart* test and the *Aktionsart* type of the derived verbs. Second, the discussion of Amis voice markers also calls for the necessity to offer finer distinctions among the basic *Aktionsart* classes. For instance, as demonstrated in the discussion, activity verbs in Amis vary in degrees of induced agentivity. However, within the current RRG model, such finer distinctions cannot be properly expressed. The same difficulty is also encountered in the differentiation of state predicates, especially that between result state and transient state. In RRG, both types of state predicates are expressed by **pred'** (x, (y)). However, the two types of state verb in Amis behave differently, as illustrated in the *-en*₂ sentences and in *ho* sentences. In the present analysis, I propose a tentative solution to present the result state *ma-* with a parenthesized BECOME/INGR in the LS. Nevertheless, a decompositional modal with further specifications is definitely a necessary part for the further development of RRG (cf. Mairal & Faber 2002, 2005).

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Appendix: The major conjugations of Amis verbs in affirmative sentences (“*” indicates logically possible forms, not found in the corpus so far)

Verbal Affixes		mi-		-um-		ma-		unaffixed	
Semantic Features		(motional purposive) activities	plain activities	plain activities	plain involuntary activities or states	plain, involuntary activities or states	motion activities or states		
Affirmative	Non-Causative	SemanticValence		1 or 2	1	1 or 2	1 or zero	1 or zero	
		Plain	mi-	-um-	-um-	ma-	unaffixed		
		Mood	mi-	-um-	---	ma-	---		
		UV	ma-	ma- or ma-um-*	---	ma-ka-*	---		
			Future/+Agentive	-en	---	-en	---		
			Instrument	sa-ka-um-	sa-ka-um-	sa-ka-	sa-ka-		
			Past and ±agentive	ma-sa-ka-...-um-	ma-sa-ka-...-um-*	ma-sa-ka-	ma-sa-ka-*		
		Factual Mood	Future and +agentive	sa-ka-...-um-...-en	sa-ka-...-um-...-en*	sa-ka-...-en*	sa-ka-...-en*		
			Locative	---	---	---	---		
			Goal	mi-...-an	---	---	---		
Patient	mi-...-an		-um-...-an	ka-...-an	---				
Location	pi-...-an		ka-...-um-...-an	ka-...-an	ka-...-an				
UV	mi-...-ay		-um-...-ay	-um-...-ay	ma-...-ay				
Irrealis Mood	AV or neutral	ma-...-ay	ma-...(-um-)...-ay	---	ma-...-ay	---			
	UV	Ca RED-mi- (=ma-mi-)	Ca RED-...-um-	Ca RED-...-um-	Ca RED-ma- (=ma-ma-)	Ca RED-			
	UV	Ca RED-...-en	Ca RED-...-en	---	---	---			
	Optative, or timerative	mi-...-aw	-um-...aw	-um-...aw	ma-...-aw	---			
Volitive Mood	AV or Neutral	Root-aw	Root-aw	---	Root-aw	Root-aw*			
	Optative ₁	ma-...-aw	ma-...(-um-)...-aw	---	ma-ka-...-aw*	Root-aw*			
	Optative ₂	sa-pi-...-an	sa-ka-...-um-...-an	sa-ka-...-um-...-an	sa-ka-...-an	sa-ka-...-an			
	UV (Instrumental)	sa-pi-...-aw	sa-ka-...-um-...aw	sa-ka-...-um-...-aw	sa-ka-...-aw	sa-ka-...-aw			
Imperative Mood	Neutral	---	---	ka-...-um-	---	ka-*	ka-*		
	AV	pi-	ka-...um-	---	ka-	---	---		
	UV	Plain	-en	---	-en	---	---		
	Instrumental	sa-pi-...-en	sa-ka-...-um-...-en	sa-ka-...-um-...-en	sa-ka-...-en	sa-ka-...-en*	sa-ka-...-en*		
pa-causative	AV	pa-pi-	pa-...-um-	pa-ka-...-um-	pa-ka-*	pa-ka-*	pa-ka-*		
	UV	ma-pa-pi-	ma-pa-...-um-	ma-pa-...-um-	ma-pa-ka-*	ma-pa-ka-*	ma-pa-ka-*		
	Future: +Agentive	pa-pi-...-en	pa-...-um-...-en	pa-...-um-...-en	pa-ka-...-en*	pa-ka-...-en*	pa-ka-...-en*		

阿美語的“語態”標記： 一種角色指稱語法的分析

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本文採用角色指稱語法 (Role and Reference Grammar, RRG) 的理論架構，重新分析阿美語的語態系統（或稱焦點系統）。文中首先指出，一般所認為的阿美語的四種語態（即主事語態、受事語態、工具語態、處所語態），實際上包含兩種系統：語態系統及應用句式系統。前者僅包含兩種語態，即行動者語態 (actor voice, AV)，與承受者語態 (undergoer voice, UV)，後者則包含工具應用句式 (instrument applicative) 與處所應用句式 (locative applicative)。應用句式可視為是一種特別的承受者語態。就 RRG 的聯結系統而言，這兩種系統分別作用於兩種不同的聯結階段，應用句式標記指出特別的承受者選擇，而語態標記則是指出該句的特權語法論元 (privileged syntactic argument) 是行動者還是承受者。本文接著將三個最常見的語態標記形式 *mi-* (AV)、*ma-* (AV, UV)，及 *-en* (UV) 加以解構，並以邏輯結構呈現其語意內容來解釋這些標記的特性，像是具有隱含的時貌意義或是主事性指標等。本文指出前綴 *mi-* 的語意是一個活動述語，並帶有一個可省略的移動性/目的性成分，後綴 *-en* 的語意則分析為一個具主事性的成就述語標記，而 *ma-* 的語意型態最為複雜，可用四種邏輯結構來呈現：活動述語、結果狀態、一般狀態、及活動/使動成就述語。

關鍵詞：阿美語，語態標記，應用句式標記，RRG，詞彙解構