

The Origins of the Voice/Focus System in Austronesian

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February 16, 2016

Abstract

This paper puts forward a new explanation for the development of the Austronesian voice system. I argue that both voice marking and the nominalizing function of the affixes are present already at the Proto-Austronesian stage and propose that these affixes ultimately go back to reflexive markers (which further developed into intransitive markers) and prepositions. I offer a historical explanation for the development, which saw a typologically common system of transitivity markers and prepositional phrases transformed into the typologically rare voice system seen in Austronesian today. The proposal capitalizes on simple and well-motivated syntactic features: case marking, the shift from prepositions to preverbs, and reanalysis. Several previously troubling facts fall out straightforwardly from my proposal: promotion of arguments to the subject position and their semantic prominence, Subject-Only Restriction, the existence of various peripheral functions of the voice affixes, the placement of the affixes, asymmetries in their functions, and tendencies in the later development. This paper explores the extent of the effectiveness of internal reconstruction as a tool of historical syntax. In the final part of the paper, I show how the diachronic development I have described projects to synchronic syntactic processes: historical development has transformed the Austronesian system of preverbs and transitivity markers into a system of low and high applicatives. I further show that the proposed analysis captures descriptive facts of the only similar morphosyntactic system: voice system in Dinka which further strengthens the proposal. I also analyze the synchronic syntactic stages in the development of Proto-Austronesian and use this analysis to explain the typology of preverb placement cross-linguistically.

Keywords: historical syntax, morphosyntax, Austronesian languages, nominalization, voice, applicatives

1 Introduction

The voice system is one of the most prominent (and most thoroughly investigated) morphosyntactic categories in Austronesian (AN), and particularly in the Philippine-type subset of AN languages (cf. Wouk and Ross 2002).¹ The descriptive properties of this typologically highly unusual system are generally agreed upon: one argument in a clause has a special, “pivotal” role; depending on the semantic role of that argument, this special role is overtly marked on the verb (Chung and Polinsky 2009; Blust 2013). The “special” argument bears a set of morphological and syntactic properties that mark it as prototypical subject: it surfaces in subject position (clause-finally in VOS languages), can be marked for nominative case, can be extracted (under the Subject Only restriction), etc.

1. Various terms for this phenomenon have been proposed in the literature, the most common being “voice” and “focus”; alternative terms include “trigger” or “case.” I will use the term voice throughout this paper, in keeping with the majority of the literature (for a thorough overview and statistical breakdown of each term used in the literature, see Blust 2013).

A typical Philippine-type language can have up to five different voices. An example from Tagalog (data from Blust 2013:441-4) illustrates a typical voice system, with active voice (AV), passive voice (PV), locative voice (LV), benefactive voice (BV), and instrumental voice (IV). The promoted argument surfaces in subject position and is marked for nominative case, while the verb in initial position carries a marker indicating the argument's semantic role.

- (1) a. *b-um-ilí naŋ kotse aŋ lalake*
 buy-AV GEN car NOM man
 "The man bought a car."
 b. *b-in-ilí naŋ lalake aŋ kotse*
 buy-PV.PF GEN man NOM car
 "A man bought the car."

The example in (1a) shows the agent surfacing in subject position, marked for nominative case, while the verb is marked for active voice. If the verb is marked for passive voice, it is the patient of the clause that surfaces in the subject position with nominative marking. This alternation resembles the traditional active-passive distinction; the sentence in (1b) can also be translated as "The car was bought by a man." Unlike the passive in traditional voice systems, however, the AN passive voice requires an obligatory *by*-phrase: both active and passive verbs are obligatorily transitive. Additionally, both active and passive voice are morphologically marked, meaning that neither can be analyzed as morphologically basic; these facts have led some scholars to label the Philippine-type system as a *symmetrical voice system* (Himmelman 2005a:112).

Perhaps the most peculiar property of the AN voice system is that, beside active and passive voice, it features two or more other voices. In other words, arguments with non-core semantic roles (such as location and instrument) can also surface in the subject position. The examples in (2) from Blust (2013:441-4) show location, beneficiary, and instrument DPs in subject position with respective voice markers.²

- (2) a. *b-in-i-bilh-án naŋ laláke naŋ isdá? aŋ báta?*
 RED-PERF-buy-LV GEN man GEN fish NOM child
 "A man is buying fish from the child."
 b. *i-b-in-ilí naŋ laláke naŋ isdá? aŋ báta?*
 BV-PERF-buy GEN man GEN fish NOM child
 "A man bought some fish for the child."
 c. *(i)-p-in-am-bilí naŋ lalake naŋ isdá? aŋ pera?*
 IV-PERF-buy GEN man GEN fish NOM money
 "A man bought some fish with the money."

Other Philippine-type languages have similar voice systems to the one outlined above. There exists some variation from language to language in the number of distinct voices, their semantics, and in the case marking of their internal arguments (discussed in more detail below), but the descriptive facts of these voice systems are nevertheless fairly straightforward. Theoretical analyses of AN voice system, on the other hand, are very heterogeneous; among the treatments proposed in the literature are those relying on focus marking, case marking, or simply agreement marking between the "special" subject and the verb (Huang 2001). The motivations that drive scholars to analyze the AN voice system as a focus phenomenon are clear and involve both syntax and pragmatics: the promoted argument is displaced, allows extraction, and has been understood to have "the pragmatic effect of highlighting it as the center of attention in a clause" (Huang 2002). This paper will offer insight into how these focus-related syntactic and pragmatic functions arose: in section 4,

2. The promotion to external argument thus roughly follows the thematic hierarchy: Agent > Patient > Instrument > Locative (cf. Baker 1996; Donohue and Donohue 2004).

I show that its functions are a consequence of the genesis of the voice system and relate to the diachronic shift from prepositions to preverbs.

Besides the question of whether the system regulates voice or focus, scholars also disagree on whether arguments in the clause structure are base-generated where they surface or whether the surface structure is derived via movement (Chung and Polinsky 2009). Some scholars have even analyzed AN passive voice as a reflection of ergative alignment and the active voice as an antipassive construction (see Aldridge 2004). Despite the vast attention paid to the AN voice system in the syntactic literature, there has been almost no consensus reached so far on how to synchronically analyze this unusual phenomenon.

Much less work has been done on determining how the typologically unusual AN voice system developed historically. Various proposals exist in the literature (cf. Dahl 1973, 118ff.; Pawley and Reid 1979; Starosta et al. 1981, 1982; Blust 2002; Ross 2002), but here, too, no consensus has been reached. How did the AN voice system develop? What morphosyntactic stages and processes gave rise to this peculiar system? The aim of the present paper is tackle these questions; in a broader sense, I will also show how an understanding of historical development can crucially inform our synchronic analysis. To pursue these goals, I first show that neither of the proposals mentioned above is sufficient to capture the data in Proto-Austronesian (PAN); instead, I propose to unite the two opposing analyses by reconstructing *both* nominalizing *and* voice marking functions for the PAN affixes. I then offer a new historical syntactic explanation of the origins of this system and describe the morphosyntactic processes that caused it to develop into the voice system we see today. My proposal eliminates complicated models of development and proposes a solution in which both the nominalizing function and the voice marking function are easily derivable. I also provide synchronic analyses of the reconstructed stages and discuss how historical development can crucially inform synchronic analysis and explain various asymmetries in the system.

The analysis presented in this paper crucially relies on internal reconstruction of the syntactic stages of both the proto-language and its pre-proto-stages. This paper thus also constitutes a case study in how far internal reconstruction can bring us in diachronic syntax, especially when dealing with historical analyses of typologically unusual syntactic constructions like AN voice. In addition to the actual reconstruction, the study also develops a set of methodological models that can be applied in future research on pre-stages of typologically unusual syntactic phenomena.

Some aspects of the historical development considered here are straightforward. A voice system very similar to what we have in today's Philippine-type languages can be reconstructed back to the proto-language. Wolff (1973) reconstructs four voices for PAN — active, direct passive, local passive, and instrumental passive — along with their corresponding affixes (cf. also Dahl 1973:118ff.; Blust 2002; Ross 2002). The systems in the daughter languages do not crucially differ from this reconstruction, which makes the reconstruction well-grounded and broadly accepted. The attestation of a voice system already in the Formosan languages also lends strong support to the notion that the system can be projected back to the proto-language.

The origin of this voice system, however, is less clear, and has been subject to various different proposals over the years. Common to all of these proposals is the observation that voice affixes often serve a second function as nominalizers. Previous proposals have suggested that affixes marking voice and nominalization have the same origin, although no consensus has been reached concerning which of these two functions was primary. Whether one believes (a) that the affixes originally had the nominalizing function, which led to the development of the voice system, or (b) that the affixes originally functioned as voice markers, and that from this function the nominalizing affixes emerged, one is left with a complicated model of development that derives one system from another.

The body of this paper is structured as follows: in the first part, I present the reconstructed PAN voice system (from Wolff 1973) as well as descriptive facts from six AN languages that are particularly informative for reconstruction of the proto-system as well as its earlier stages: Mayrinax Atayal, Tagalog, Ilokano, Saisiyat, Tondano, and Chamorro. In section 3, I discuss previous accounts of the development of the AN

voice system and point to their weaknesses. Section 4 discussed methodology, section 5 presents my new proposal on the origins of PAN voice system, section 6 shows that Subject-Only Restriction automatically follows from my proposal, while section 7 outlines the synchronic implications of this new explanation. In section 8 I discuss outstanding issues, in section 9 I show that the same explanation works for Dinka's voice system which is highly reminiscent of that of PAN. Section 10 concludes the paper.

2 The Data

In this section, I present the data that will serve as the basis for establishing how the voice system in PAN developed. I start by offering some descriptive facts on the reconstructed system (primarily based on Wolff 1973 and Blust 2013), focusing on the reconstructed affixes and the functions that they had in the proto-language. The most prominent feature of the PAN voice marking affixes is that most of them had a nominalizing function in addition to their voice-marking function. I then present descriptive facts on the voice systems of six languages that offer crucial data for modeling the diachronic development of the modern-day AN voice system. I also point to some developments that occurred later in the daughter languages that reveal tendencies in the development of the voice system.

2.1 Proto-Austronesian

Wolff (1973) reconstructs four morphologically distinct voices for Proto-Austronesian: active voice, passive, locative, and instrumental voice.³ Beside the instrumental voice, there was also a morphologically undifferentiated voice with the same prefix, but probably a slightly different function: benefactive for animate subjects vs. instrumental for inanimate subjects (Blust 2013:438).

2.1.1 The Active Voice

The active voice is marked on verbs by the infix **-um-*. Although the main function of this affix in AN languages is to mark active voice, it also shows several other more or less productive functions. However, the affix **-um-* differs from the other four voice-marking affixes in several crucial respects. Unlike the other affixes, **-um-* does not have a nominalizing function. This fact was already observed in Blust (2013:385): “the reflex of **-um-* nearly always has exclusively verbal functions.” Thus, deriving a nominal from a verb with the **-um-* infix requires the use of a special nominalizing marker (Blust 2013:385). This is an important observation that has not received sufficient explanation in accounts on the development of AN voice thus far, but will follow automatically from the new proposal presented in this paper.

Two other functions borne by **-um-* have also been noted in the literature, but no adequate explanation has yet been proposed for their origins. As Blust (2013:383) notes, PAN reconstructions with **-um-* are “almost always intransitive”: consider **k-um-aen* ‘to eat’ from **kaen* ‘eating’ or **C-um-aŋis* ‘weep, cry’ from **Caŋis* ‘weeping, crying’. This function is even more prominent in languages that innovate active voice morphology and introduce prefixes such as **maŋ-* to their system that predominantly appear on transitive verbs. The strong tendency of **-um-* to appear on intransitive verbs suggests that, at some stage of development, **-um-* had intransitive-marking function.

The third function of **-um-* is even more unexpected: data show that reflexes of **-um-* produce an inchoative reading. The infix is preserved as an inchoative marker in Western Malayo-Polynesian, for in-

3. Wolff (1973) terms the voices “active,” “direct passive,” “instrumental passive,” and “local passive.” Various other terminology has been employed in the literature: agent/actor voice, patient voice, etc. In this paper I will refer to active, passive, instrumental, benefactive, and locative voice. While terminology differs across the literature, the facts behind the terms are mostly agreed upon: when the agent is the external argument, we have active voice; when the patient is the external argument, we have passive voice; when the location is the external argument, we have locative voice, etc.

stance.⁴ The following examples illustrate this function: Bontok *bikas* ‘energetic’ vs. *b-um-ikas* ‘he is becoming energetic’; Tagalog *sakit* ‘pain’ vs. *s-um-akit* ‘become painful’; Tindal Dusun *gayo* ‘big’ vs. *g-um-ayo* ‘become big’; Mukah *gaduy* ‘green’ vs. *mə-gaduy* ‘become green; make something green’ (from Blust 2013:383). The inchoative function, too, has not been sufficiently explained in the literature on the origins of the PAN voice system.

Beside **-um-*, there are two other affixes in AN languages that commonly function as active voice markers: **maŋ-* and **mar-*. The two prefixes are most likely a later innovation and their voice marking function cannot be reconstructed for PAN. Nevertheless, they offer important insight into the development of the voice system. Unlike reconstructions with **-um-*, reconstructions with **maŋ-* are generally transitive, although this transitive function frequently gets blurred by further developments. For instance, where **maŋ-* is attested (outside the Formosan group in Tagalog, Malagasy, and Chamorro; Blust 2013:378, 383), we find variation between the infix **-um-* and the prefix **maŋ-* or **mar-* with no clear distinction in transitivity. In some languages, such as Malagasy, **maŋ-* even replaces **-um-* to the degree that the latter surfaces only in a few verbs and its distribution is simply lexical (Blust 2013:383).

Occasionally, however, the two prefixes do exhibit a pattern of complementary distribution according to verbal transitivity. One such system occurs in Kelabit, where the prefix **maŋ-* and the infix **-um-* surface with transitive and intransitive forms, respectively, even within the same verb. Thus, we have unaffixed *kilu?* ‘bend, curve, as a path or river’ vs. *ŋilu?* (with the prefix **maŋ-*) ‘bend something, as a wire’ vs. *kəmilu?* (with the infix **-um-*) ‘wind, meander, as a path or a river’ (Blust 2013:383). Examples like this show that the infix **-um-* is used specifically for intransitive verbs, while **maŋ-* marks transitive verbs. Indeed, it may even be the case that **maŋ-* forms transitive verbs while **-um-* forms intransitive verbs. Consider another example from Kelabit *riər* ‘turn, roll’ vs. *ŋə-riər* (with the **maŋ-* prefix) ‘turn or roll something’ vs. *r-əm-iər* ‘roll without human intervention’ (with the **-um-* infix). The **maŋ-* prefix occasionally also surfaces as a causative prefix, e.g. *riər* ‘turn’ vs. *ŋə-riər* ‘make something turn’ → ‘turn something’. This distinction clearly suggests that **maŋ-* once functioned as a transitivity/causative marker and later got incorporated into the voice-marking paradigm.

The reflexes of the prefix **mar-* in the daughter languages show even more intriguing functions. It is difficult to reconstruct the exact function of **mar-*, but in most of the daughter languages, its reflexes are connected to intransitivity. **mar-* usually marks intransitive verbs and has a reflexive and reciprocal meaning component, e.g. Tagalog *um-ahit* ‘to shave others’ vs. *mag-ahit* ‘to shave one’s self’ or *g-um-amót* ‘to treat illness’ vs. *mag-gamót* ‘to treat one’s self for an illness’ (Reid and Liao 2004:457; Brill 2005; from Pittman 1966:12, 13). Reflexes of **-um-* and **mar-* may also pair together in marking intransitive verbs, whereas reflexes of **maŋ-* mark transitive verbs. This distinction is preserved in Malay, Toba Batak, and Tindal Dusun of Sabah. In these languages **-um-* and **mar-* almost exclusively surface on intransitive verbs and there is no clear functional distinction between the two affixes: often, the distribution between the two affixes is lexical. Reflexes of **maŋ-*, on the other hand, usually surface on transitive verbs, although intransitive verbs are sometimes allowed to be marked by this prefix as well (Blust 2013:378f.).

The prefix **mar-* has yet another peculiar function that has not received due attention in the literature: it forms verbs from nouns. This verbalizing function is attested in Botolan Sambal and in traces in Tindal Dusun of Sabah. In the former language, the function is productive and as Antworth (1979:15) points out, “the prefix forms intransitive verbs by verbalizing nouns.” The examples he lists speak in favor of productivity of the prefix: *mag-basketbol* ‘to play basketball’, *mag-pansit* ‘to make *pansit*’, *mag-tagalog*

4. It is not entirely clear whether this function can be reconstructed for the proto-language as well. There are two possibilities: (a) to assume that **-um-* functioned as an inchoative marker already in PAN, but was preserved in this function only in Western Malayo-Polynesian; or (b) to assume that the infix developed the function of forming inchoatives only in Western Malayo-Polynesian. The first option seems much more probable, as it would be difficult to imagine a development from voice marking to inchoative marking. The development from voice marking to inchoative marking would be completely unprecedented. For more discussion, see below.

‘to speak Tagalog’.⁵ Although the prefix does not exhibit productive verbalization in present-day Tindal Dusun of Sabah, we have clear examples that confirm the verbalizing function of **mar-* for earlier stages: *mag-anak* ‘to have children’ from (*t-*)*anak* ‘child’ or *mag-asu* ‘to hunt with a dog’ from (*t-*)*asu* ‘dog’ (data from Robinson 2005).

In sum, the only active voice affix reconstructable to the PAN stage is **-um-*. Both **maŋ-* and **mar-* must be later innovations of the Proto-Malayo-Polynesian branch. **-um-* has three functions: it marks active voice, intransitives and inchoatives⁶. It has no nominalizing function. **maŋ-* functions as a transitivity marker and **mar-* has two functions: intransitivity/reflexive marking and forming denominative verbs. The origins of the two affixes and the process by which they were incorporated into the voice marking system will be discussed in section 4.

2.1.2 The Passive Voice

The passive voice was marked in PAN by the suffix **-en*, which also served to form patient nominals from verbs. One example of this function can be seen in Thao *kan-in* in the meaning ‘be eaten’ as well as ‘food’ (Blust 2013:395). Other languages in which **-en* has the nominalizing function include Yami, Ilokano, Casiguran Dumagat, Botolan Sambal, Kalagan, Kalamian Tagbanwa, Tausug, and Malagasy. It is significant that the nominalizing function is present even in languages that do not have the Philippine-type voice system: Mukah Melanau, Kayan, Palauan, Tongan, Rennellese, Nukuoro. In this latter group of languages, however, the nominalizing function of *-en* is limited to a single noun derived from the verb ‘to eat’, as seen above. Elsewhere, such nominalization is rare (Blust 2013:395-6). Nevertheless, the fact that even outside the Philippine-type languages the suffix functions as a nominalizer is in and of itself informative and strongly suggests that the function was present already in the proto-language.

Proto-Austronesian had only a handful of suffixes; indeed, aside from *-en*, the only other suffixes with a firm PAN reconstruction are the locative voice suffix *-an* and the future-tense suffix **-ay*. Additional suffixes attested across the family cannot be reconstructed to the proto-language and are generally understood to originate in PAN prepositions (Blust 2013:394).

2.1.3 The Locative Voice

The reconstructed locative voice suffix is, as mentioned, **-an*. The suffix requires promotion of the noun denoting location of the verbal action to the subject position. One illustrative example comes from Tagalog: *ma-túlog* ‘to sleep’ vs. *pag-tulúg-an* ‘to sleep in’ or *maŋ-isdá?* ‘go fishing’ vs. *paŋ-isda?-án* ‘go fishing in’.

Beside this function, the suffix also forms locative denominals (and perhaps deverbatives). Just like the passive suffix **-en*, **-an* appears as a nominalizer in both the Philippine-type languages and in languages without rich voice morphology. An example of **-an* in the denominative function is found in Tagalog *títis* ‘cigar or cigarette ash’ vs. *titis-án* ‘ash tray’ or *hábi* ‘texture, woven pattern on fabric’ vs. *habih-án* ‘loom’ (Blust 2013:395). Some examples of the deverbative function are: Kelabit *guta* ‘wade across the river’ vs. *gəta-an* ‘fording place’, *tələn* ‘to swallow’ vs. *tələn-an* ‘throat’ or the even more trivial *əntəŋ* ‘stand’ vs. *əntəŋ-aŋ* ‘place where one stands’ (Blust 2013:395).

The fact that this nominalizing function is attested across the PAN family again speaks in favor of the conclusion that this function was already present in the proto-language. It thus seems as if the two functions (voice marking and nominalization) coexisted already in PAN.

5. An anonymous reviewer pointed out to me that examples from Botolan Sambal might be borrowings from Tagalog. No such claim has been made for Tindal Dusun of Sabah, which also forms verbs from nouns.

6. For the discussion on inchoative function, see 5.1.

2.1.4 The Instrumental Voice

The reconstructed PAN prefix for marking the instrumental voice is **Si-*. Of all the reconstructed affixes discussed so far, **Si-* is historically the most opaque. There are two variants of the prefix, *(*S*)*a-* and **Si-*, and the distribution between the two is not entirely clear. The first prefix is reported in the Formosan languages Pazeh, Rukai, and Amis, as well as in Malagasy. The latter is attested in Formosan Atayal, Bunun, Paiwan, as well as in extra-Formosan Itbayaten, Ilokano, Bontok, Pangasinan, Tagalog, Bikol, and Cebuano (Blust 2013:381).⁷

One way to explain the existence of the two prefixes is to assume that one had a benefactive function and the other an instrumental function. Evidence for such an analysis comes from a systematic gap that we observe for *(*S*)*a-*. Specifically, the *(*S*)*a-* prefix never marks the benefactive voice, whereas **Si-* marks both instrumental and benefactive, as well as some other relationships (Blust 2013:381). This distributional pattern suggest a stage in the development of PAN in which *(*S*)*a-* marked instrumental and **Si-* benefactive, following which the **Si-* prefix spread to the instrumental function and became the productive prefix for this function in some branches (Blust 2013:381). Blust (2013:381) proposes a possible trajectory for this development: following Wolff (1973), he assumes that instrumental and benefactive voice go back to the same affix, which showed complementary distribution based on function: for animate arguments, it marked instrumental function, and for inanimate arguments, benefactive function. There is at least one language where reflexes of both affixes are perhaps attested: within the magical texts of the Antemoro dialect of Malagasy (see Dahl 1986:27-31, 39).

Like the **-en* and **-an* suffixes, **Si-* also probably had the function of forming instrumental denominatives. Although the evidence is sparse, we have some examples attested that clearly point to the nominalizing function: Fijian *sele-va* ‘to cut’ vs. *i-sele* ‘knife’ Blust (2013:381).

Note also that, unlike suffixes, prefixes are much more numerous and well-attested in Austronesian. Blust (2013:371) lists at least eleven different affixes for PAN with even more different functions.

The table below summarizes the reconstructed PAN non-past voice affixes (Blust 2013:438):⁸

| Voice | Affix |
|--------------|-------|
| active | *-um- |
| passive | *-en |
| locative | *-an |
| instrumental | *Si- |

2.1.5 Non-Past vs. Past

So far, I have pointed out several descriptive facts of the reconstructed PAN voice system which any historical account will have to take into consideration. We have seen that the active voice affix **-um-* behaves differently from the other three affixes in that it bears no nominalizing function. The **-um-* affix does, however, take other functions: besides active voice marking, we see traces of **-um-* as an intransitive marker as well as an inchoative marker. The latter two functions are, however, attested exclusively for the **-um-* affix and are not found in other voice-marking affixes.

The three other voice-marking affixes (**-en*, **-an*, **i-*) also have double functions, but unlike **-um-*, they functioned as deverbal and denominative nominalizers.

7. Note that the form for the extra-Formosan languages should be reconstructed as **i*. Blust (2013:381) explains the vowel-initial form by appealing to sporadic loss of initial **h-*.

8. Infixes are marked by two hyphens before and after the morpheme, prefixes by one hyphen after the morpheme, and suffixes by one hyphen before the morpheme.

There is another affix that plays a role in AN voice marking, namely the infix *-in-*. Its primary function in PAN (as reconstructed in Wolff 1973 and Blust 2013) was to mark past tense or perfective aspect. The past forms of the four reconstructed voices are:

| Voice | Perfective |
|--------------|------------|
| active | *-in-um- |
| passive | *-in- |
| locative | *-in-, -an |
| instrumental | *i-, -in- |

The pattern of marking perfective forms in the voice system was quite straightforward: in all but the passive voice, the infix **-in-* combined with the voice-marking affix to mark perfective forms. For example, Tagalog *bilí* ‘to buy’ forms the perfective benefactive voice form *i-b-in-ilí* ‘bought for’ by combining with the benefactive voice prefix *i-* and the perfective infix *-in-*. For passive voice, however, only the perfective marker surfaced and marked both perfective and passive voice.

It is significant that, just like voice-marking affixes, **-in-* also had nominalizing function in PAN. The reflexes of **-in-* form deverbative (and occasionally denominative) nouns, but it is difficult to establish the exact semantics that unify all the reflexes of **-in-* in the nominalizing function. The closest approximation is to assume that **-in-* formed perfect participial nouns, e.g. *mátay* ‘to die’ and *m-in-átay* ‘corpse’; *bayu-en* ‘to mill rice, crush, bruise’ and *b-in-áyo* ‘milled (uncooked) rice’; Tagalog *tápa* ‘to slice thinly, as meat’ and *t-in-ápa* ‘meat sliced thinly’; Hoava *babana* ‘to tow’ and *b-in-abana* ‘towed object’; *mae* ‘come’ and *m-in-ae* ‘people who have arrived’ (data from Blust 2013, 387). In some non-Philippine-type languages, nominalization is the only function of **-in-*, as is the case for other voice-marking affixes in these languages.

2.1.6 Other paradigms

Beside non-past and past forms, there were three other paradigms of voice-marking affixes in PAN: future-general action, dependent, and subjunctive. These formations are, however, less well-attested and will not play a crucial role in establishing the development of the voice system. Reconstruction of these categories is often unreliable; due to sparse data in the languages in question, the reconstructed paradigms are incomplete, often with only a subset of voice forms reconstructed (see Ross 2009, 2012 and Aldridge 2014 for a discussion). Nevertheless, some aspects of these paradigms will offer additional arguments in favor of the new explanation, as will be shown in the discussion below.

The formation of the future-general voice paradigm follows the same basic pattern as the formation of the non-past voice paradigm with the addition of reduplication. The data in the daughter languages, however, allow only reconstruction of passive and locative voice. For example, in Samar-Leyte Visayan, the verb *palit* forms the future-general passive *pa-palit-an* and the locative instrumental *pa-palit-an*, corresponding to the present passive and locative voice (Wolff 1973:90). The table below summarizes the future-general voice paradigm (Wolff 1973, Blust 2013:438).

| Voice | Future-general |
|--------------|----------------|
| active | ? |
| passive | *RED, -en |
| locative | *RED, -an |
| instrumental | ? |

Here, too, we see the nominalizing function of the suffixes **-en* and **-an*. It appears as if the two suffixes have the same nominalizing function whether they are added to the present stem or the future stem (which in this case is reduplicated). Examples of the nominalizing function come from petrified derivatives such as

Javanese *lə-lak-an* ‘event, thing gone through’, from the verb *laku* ‘go’, *tə-təd-an* ‘food’ from *tədɔ* ‘to eat’, or Tongan *ka-kan-o* ‘flesh, potential food’ from *kan* ‘to eat’ (examples from Wolff 1973:89).

The other two paradigms, dependent and subjunctive, are even less transparent. According to Wolff (1973), dependent forms appeared in two positions in PAN: in the imperative function and after certain preverbs. The subjunctive forms have an even wider scope of meaning and function in the daughter languages, including imperative, optative, hortatory, concessive, etc. (Wolff 1973:90). It is difficult to reconstruct the exact semantic range of the subjunctive paradigm in the proto-language, but the data suggest that there existed a special category, distinct from the dependent forms.

As Wolff (1973:87) points out, affixes of the dependent paradigm are widely attested, but traces of the category itself are found only in a few Formosan and Philippine languages. The active voice dependent form was unmarked, formed without overt morphology. The other three voiced had overt markers: **-a*, **-i*, and **-an*. Interestingly, the passive dependent marker **-a* appears in active function in the subjunctive (see below). Another intriguing aspect of the dependent voice paradigm is the instrumental suffix **-an*, which functions as a locative voice marker in the non-past paradigms. The dependent locative voice suffix **-i* is not attested elsewhere in the PAN voice-marking paradigms. Consider the table below (data from Wolff 1973, Blust 2013:438).

| Voice | Dependent |
|--------------|-----------|
| active | *-∅ |
| passive | *-a |
| locative | *-i |
| instrumental | *-an |

The least transparent voice-marking forms are found in the subjunctive paradigm. Only two suffixes can be reconstructed: **-a* for active and **-ay* for locative. The suffix **-a* shows some parallels with the passive marker in the dependent paradigm, but the semantic difference between the two functions is quite striking (active vs. passive). The suffix **-ay* is attested in the Formosan and Philippine languages as a future marker, e.g. Pazeh *hakəzəŋ-ay* ‘will grow old’ from *hakəzəŋ* ‘old’ (Blust 2013:396, 438). For a recent treatment of the affixes, see Ross (2009, 2012) and Aldridge (2014).

| Voice | Subjunctive |
|--------------|-------------|
| active | *-a |
| passive | ? |
| locative | *-ay |
| instrumental | ? |

The lack of passive and instrumental voice markers in the subjunctive voice paradigm has a functional explanation. The result of a verbal action is difficult to project onto the patient or undergoer of the verbal action when the action is hypothetical or intended, i.e. in subjunctive mood (cf. Tsunoda 1981).

In what follows, I will discuss the voice systems of five attested AN languages that show different degrees of development from PAN. I will point to some facts and tendencies in these languages that will be crucial for our understanding of how the PAN voice system developed.

2.2 Mayrinax Atayal

Mayrinax Atayal, as a Formosan language, belongs to the most archaic layer of AN; in this capacity, it offers a particularly revealing continuation of the reconstructed PAN voice system. Although the system developed some secondary distinctions in the voice paradigm and introduced some affixes (see Huang 2000), the main affixes and functions in Atayal remain the same as in PAN. In Atayal, the instrumental can take the

benefactive function, but there is no formal difference between the two uses. The declarative/realis paradigm of the Mayrinax Atayal voice system is given in the table below (data from Blust 2013; Huang 2000; Huang 2001).

| Voice | Affix |
|--------------|----------------|
| active | -um-/m-, ma-/∅ |
| passive | -un |
| locative | -an |
| instrumental | si- |
| benefactive | si- |

As expected, the active voice is marked with the infix *-um-* (or prefix *m-*), which goes back to PAN **-um-*. We also find the *ma-/∅* pair of affixes in the active voice-marking function. The prefix *ma-* goes back to the PAN prefix **ma-* used for marking statives. The prefix and its stative function, illustrated by the following example from Tagalog (Blust 2013:376), are well-attested⁹ across the AN family: *bigát* ‘weight’ vs. *ma-bigát* ‘heavy’.

Traces of *ma-*’s stative-marking function are still present in Mayrinax Atayal. As was shown in Huang (2000:369), the *ma-/∅* pair is more likely to appear on verbs that designate less action. The stative function of **ma-* is even more directly continued in some other Formosan languages, including Paiwan and Saisiyat, where verbs with meanings such as ‘take care’ and ‘cry’, ‘threaten’ will take the *-um-/m-* pair, whereas verbs meaning ‘drunk’, ‘big’, ‘kind’, ‘afraid’, etc. will take the *ma-/∅* pair. The more intriguing aspect of languages such as Mayrinax Atayal, Paiwan and Saisiyat (Huang 2000), however, is that the stative-marking prefix **ma-* enters the voice-marking paradigm, indicating active voice. Over the course of this development, the original stative-marking function of the affix pair becomes gradually less prominent. This is precisely the case in the three Formosan languages above: in Paiwan and Saisiyat, the stative function is still prominent and the distribution is more predictable, whereas *ma-* in Mayrinax Atayal has lost the prominence of its stative function and its distribution is more of a tendency than a rule; the new main function of this prefix is the marking of active voice. This shows that various different verbal markers can enter the voice-marking paradigm: as we will see below, a similar development occurred in the pre-history of the PAN active-voice-marking affix; the Mayrinax Atayal example provides a valuable parallel to the development in PAN.

Although languages in the Formosan group innovated the active-voice-marking affixes described above, they did not introduced the prefix **maŋ-* into the system. No traces of this prefix are attested in Mayrinax Atayal or in any other Formosan language (Blust 2013).

2.3 Tagalog

As in the Formosan languages, the voice marking in Tagalog is archaic, closely reflecting the reconstructed PAN system.¹⁰ Innovation in Tagalog paralleled that of Mayrinax Atayal in targeting active voice markers; in Tagalog, however, the innovative prefixes are *maŋ-* and *mag-*. Consider the table below with data from Blust (2013:441), based on Foley (1976):

9. As Blust (2013:376) remarks, “[t]he stative prefix **ma-* is one of the most widely attested AN affixes.”

10. Some speakers reportedly distinguish a special benefactive voice, which is morphologically identical to the locative, but maintains a different word order (cf. Blust 2013:443). Otherwise, the affixes and meanings remain the same as in the proto-language. The infix *-in-* also bears an inceptive aspect meaning in combination with reduplication (see Blust 2013:444), but this is not relevant for our analysis.

| Voice | Affix |
|--------------|------------------|
| active | -um-, -maŋ, -mag |
| passive | -in |
| locative | -an |
| instrumental | i- |
| benefactive | i- |

The process that causes reflexes of the **maŋ-* prefix to become part of the voice-marking paradigm was not limited to Tagalog, but is found in many Philippine languages, as well as in Malagasy, Palauan and Chamorro (Blust 2013:378). Here, too, the new active voice marker probably goes back to an affix with a different original function: as already discussed above (in 2.1.1), the most likely function of **maŋ-* in its proto-stages was transitivity marking. **mar-* probably functioned both as an intransitive/reflexive marker and a causative/verbalizer. In Tagalog, these functions are preserved only in traces, as the choice of affix has become almost completely lexicalized. Himmelmann (2005b: 365), however, identifies some tendencies: *maŋ-* is the least frequent of the three affixes and tends to express intensive/repeated action; *mag-*, in turn, expresses greater frequency or intensity than *-um-* (e.g. *b-um-asa* ‘read’ vs. *mag-basa* ‘study’). *mag-* in Tagalog also denotes a transitive verb, while intransitive verbs are marked by *-um-*. This distinction holds primarily for verbs of motion and verbs denoting qualities: *t-um-ayó?* ‘stand up’ vs. *nag-tayó?* ‘erect’; *um-init* ‘become hot’ vs. *mag-init* ‘heat’. Elsewhere, the choice of affix becomes lexicalized and the original distribution is lost.

2.4 Ilokano

Ilokano preserves all of the voice marking affixes of PAN while also introducing several new affixes and categories of its own, yielding one of the richest voice systems in the AN family — and therefore one of the most informative systems for establishing how voice systems develop and what innovations are common within the voice-marking paradigms.

Reflecting similar observations we have made for Tagalog and several other languages, the greatest locus of innovation within the Ilokano voice system occurs within the active voice category. Similar to Tagalog, Ilokano features the inherited *-um-* and innovated *maŋ-*. It also, however, introduces a very peculiar new affix into the voice paradigm: *ag-*, e.g. *ag-katáwa* ‘to laugh’. This same prefix is also used to mark reciprocity (*N-ag-salliwásiwda* ‘they missed each other’) but has ceased to be productive in this function and is now predominantly used with inherently reciprocal verbs (Rubino 2005: 337, 343). *ag-* likely goes back to the affix **ar-*, which functioned as a reflexive or middle marker in the proto-language and can ultimately be connected to the *R* in *mar* (see discussion below). *ag-* often surfaces in combination with other affixes, e.g. Sediq *t-ag-a-li?iŋ* ‘to hide oneself’ vs. (with **-um-*) *l-em-i?iŋ* ‘to hide’ (Kaufman 2009: 7). It is perhaps surprising for a reflexive marker to develop a voice-marking function, but the situation in Ilokano clearly shows that this is possible. I argue below that exactly this shift took place at an earlier stage of PAN development.

Ilokano not only innovated in the active voice, but also introduced two new distinct voices into its system, the so-called “lesser voices”: comitative and instrumental (Rubino 2005:336). The first is marked by the prefix *ka-* (e.g. *ka-tugáw*) and the latter by the prefix *pag-* (e.g. *pag-íwa* ‘to slice with’). Consider the table below (from Rubino 2005:336):

| Voice | Affix |
|--------------|-----------------|
| active | -um-, maŋ-, ag- |
| passive | -ən |
| directional | -an |
| conveyance | i- |
| benefactive | i-, -an |
| comitative | ka- |
| instrumental | pag- |

2.5 Saisiyat and Tondano

The affixes in Tondano’s voice system are canonical and reveal no major changes in the development from PAN. There are no traces of the active voice prefix *maŋ- or *maR-. Consider the data in the following table (Blust 2013:445; based on Sneddon 1970:13):

| Voice | Affix |
|--------------|-------|
| active | -um- |
| passive | -ən |
| locative | -an |
| instrumental | i- |

The more intriguing aspect of voice marking in Tondano is the interplay of voice morphology and case/preposition marking. DPs are marked for active voice, object, instrument, and referent (Blust 2013:445); however, they remain unmarked when promoted to focus (or subject) position. In example (3) below, the preposition *wo* ‘with’ surfaces with its DP when the verb is in active, passive, or referent voice; however, when the verb is in instrumental voice, the preposition does not appear.

- (3) a. *si tuama k-um-eoŋ roda wo tali waki pasar*
 TOP man AV-will.pull card with rope to market
 “The man will pull the cart with the rope to the market.”
 b. *tali i-keoŋ ni tuama roda waki pasar*
 rope IV-will.pull ACT man cart to market
 “The man will pull the cart with the rope to the market.”

This is not an isolated example. A very similar situation is reported for Saisiyat in Hsieh and Huang (2006). All other arguments have overt morphology except for subject, which is unmarked in active voice (4).

- (4) a. *korkoring k-om-i-kita’ ka ’aehoe’*
 child AV-RED-look.at ACC dog
 “The child was looking at the dog.”

2.6 Chamorro

The system in Chamorro has undergone a considerable amount of change on the way from PAN. It shows both affixes, *-um-* and *man-*, for the active voice. More significant for our discussion, however, are changes in the locative and benefactive voice: the PAN locative suffix **-an* is replaced by Chamorro *-i* and the PAN instrumental prefix **Si-* is replaced by Chamorro *-iyi*. Consider the following table, summarizing the data from Blust (2013:445).

| Voice | Affix |
|--------------|------------|
| active | -um-, man- |
| passive | -in- |
| locative | -i |
| instrumental | -iyi |

The most important fact of Chamorro comes from the locative case. Here, we see that a seemingly trivial replacement of one suffix (*-an) with another (-i) can provide crucial insight into the possible scenarios for the development of the AN voice systems. Specifically, we can observe that the new -i was originally a “generic locative marker *i ‘at, on’ which has been cliticized to the preceding verb stem” (Blust 2013:447, Starosta 1995).

Similar replacements also occur in some other languages. Consider the following distribution from Malay (Blust 2013:447): *tanam* ‘to plant’, *mə-nanam-kan* ‘to plant (object)’, and *mə-nanam-i* ‘to plant (in location) with object’. This example shows that locative markers, which do not seem to have any voice marking or nominalizing function, can become cliticized and replace a voice morpheme — in our case, the locative voice *-an. Because such a development is attested in at least one of the languages, we can assume that something similar happened in the development of the voice system in general as well. In the following discussion, I will propose an account of the development that will crucially rely on the example from Chamorro.

3 Previous Accounts

In this section I will briefly discuss previous accounts of the development of the AN voice system. There are basically two proposals in the literature, which differ crucially in their assumptions concerning which of the affixal functions presented above was original. I will identify the weak points of both explanations and propose a new account that reconstructs both functions to the proto-language. To my knowledge, such an explanation has not yet been proposed in the literature.

3.1 Voice Hypothesis

The earliest explanation of the development of the AN voice system argued that voice affixes were present already in the proto-language, whereas the nominalizing morphemes either developed from the voice system or had different sources.

Dahl (1973:121) argues that the AN voice affixes do not completely correspond to nominalizers/case markers, which he takes to mean that the nominalizing function must either have developed independently or had a different origin. Neither of these two possibilities are discussed any further. No models are given for how this could have happened, nor does the author consider any other possible sources. Dahl (1973:121) even admits the lack of evidence by saying that “[o]nly a broad comparative study can be decisive.”

Note that the development of nominalizing affixes from voice morphemes would be very unusual — indeed, to my knowledge, unprecedented. Also, the existence of almost exact correspondences between the voice morphemes and the nominalizing affixes excludes the possibility of different origins.

3.2 Nominalizing Hypothesis

A much more thorough treatment of the origins of the Austronesian voice system is presented in Starosta et al. (1981, 1982). The authors argue that the affixes discussed above originally had only the nominalizing function, from which the voice system developed. They base their proposal on four descriptive facts about Austronesian: (a) the affixes show the nominalizing function across Austronesian languages, indicating that

this function was original; (b) the marker for genitive case and *by*-phrase are the same; (c) the affixes can surface as prefixes, suffixes, and infixes, pointing to the fact that they had different origins ; and (d) the fact that the alternative explanation fails to explain persuasively why and how the nominalizing function could have developed from the voice system (Starosta et al. 1981:338f., 1982).

It is true that the alternative (voice-first) explanation has serious disadvantages and is poorly motivated, but this does not mean that the opposite account (nominalization-first) is necessarily correct. Moreover, the fact that affixes are heterogeneous and therefore come from various different sources does not mean that the actual source has to be the nominalizing affixes. There is no reason to believe that heterogeneity in the daughter languages implies nominalization as the original source.

Note also that the argument in (b) is not very convincing. It is not uncommon for *by*-phrases to be associated with the genitive case marker, even in languages where the voice system does not develop from the system of nominalizing affixes. In many languages, the *by*-phrase marker is also a possessive marker, e.g. German *von*, French *de* (Keenan and Dryer 2007:327), Slovenian *od*. Consider the Slovenian example below, where the *by*-phrase is marked by the preposition *od*, which also marks possessive relations.

- (5) a. *To je avto od mojega strica.*
 this is car of my uncle
 ‘‘This is my uncle’s car.’’
 b. *Grozdje je bilo pobrano od nas.*
 grapes was picked by us
 ‘‘The grapes were picked by us.’’

There is no reason to believe that the voice system in these languages developed from a system of nominalizing morphemes. In fact, as Keenan and Dryer (2007:327) point out, *by*-phrases¹¹ are cross-linguistically ‘‘most usually an instrumental, locative, or genitive.’’ Moreover, a voice system of Dinka, a Western Nilotic language, that is highly reminiscent of PAN voice system also marks agents with genitive case in non-active voice and I show that the origins of voice markers there are in fact prepositions (see section 9 below).

We are thus left with only one viable argument for the nominalization-first hypothesis, namely that the nominalizing function is attested across the AN language family. As already discussed above, this is a valid point and it does indicate that the nominalizing function of these affixes was present already in the proto-language. However, this does not necessarily exclude the possibility that the voice function, too, existed in PAN. I will argue below that the voice and nominalizing function of the affix paradigm coexisted in PAN.

My proposal for the development of voice system is in some ways very similar to what has been proposed in Starosta et al. (1981, 1982) and Pawley and Reid (1979) for the development of **-i* and **-aken*; these authors claim that these affixes, which later incorporated into the dependent voice-marking paradigm, originally had a ‘‘recentralizing’’ function. By ‘‘recentralization,’’ the authors denote a ‘‘derivational process which reinterprets a different case relation as Patient’’ (Starosta et al. 1981). In other words, **-i* and **-aken* were ‘‘transitive’’ suffixes that denoted various different potential semantic roles held by a patient. The two affixes are also argued to go back to prepositions. In fact, they probably still functioned as prepositions in the proto-language. The difference between the patient-marking and oblique-(prepositional)-marking function can be illustrated by the English contrast *I shot the man with a gun* vs. *I shot the gun at a man* (Pawley and Reid 1971). The proposed development includes the major elements employed in my explanation of voice-marking affixes: prepositions get reanalyzed as verbal affixes and the argument gets promoted to a different syntactic role. Starosta et al. (1981, 1982) acknowledge that this system is something ‘‘very much

11. I use the term ‘‘*by*-phrase?? for denoting agent of a sentence under non-active voice that receives structural case marking. There exist some differences in *by*-phrases of symmetrical vs. non-symmetrical voice systems: the main difference being that *by*-phrase is optional in asymmetrical voice systems and obligatory in symmetrical voice systems (as pointed out by an anonymous reviewer). However, there exist more commonalities between the two: they are both agents in non-active voice sentence and have to be governed by a case marker.

like what is called ‘focus’ in Philippine linguistics,” but they do not envision such a trajectory for the development of the voice-marking suffixes: “we do not think the ‘focus’ system of PAN was marked by the usual Philippine-style *-en, *-i-, *-an, or *-in-/ni- affixes.” They argue that these affixes were originally nominalizers and in competition with *-i and *-aken. I argue the opposite: that voice-marking affixes go back to prepositions. My proposal also differs from that found in Starosta et al. (1981, 1982) in several respects: I employ case marking as the trigger of reanalysis, propose different origins for the active-voice-marking affix, and provide a different motivation for the movement of prepositions to preverbs.

Beside the traditional approaches discussed here, there are also two fairly recent proposals on the development of voice systems presented in Blust (2013) and Ross (2002). The first capitalizes on word order and the correlation between voice systems and verb-initiality. The second proposes a typologically “rather odd” account (Ross 2002:48) in which words with voice marking are used as predicates. The explanation in Ross (2002) could potentially be compatible with the nominalization hypothesis at some early Pre-Proto-Austronesian stage. In any event, neither of these two treatments discusses the exact stages of the development; they merely point to possible scenarios without elaborating on them. For yet another explanation, see Kikusawa (2012).

Peterson (1997, 2007), in his treatment of applicatives, also discusses the origins of the AN voice system. His proposal introduces an important contribution in terms of our understanding of the two voice-marking affixes: specifically, he analyzes AN voice as an applicative construction and suggests that adpositions offer the likely origin for these applicatives. Similarly, Kaufman (forthcoming) proposes case-marking origins for *-en and *-an. Peterson (1997, 2007), however, assumes that only location and instrument voice markers to go back to adpositions: for active and patient voice markers, he follows the nominalizing hypothesis, which is problematic for the reasons outlined above. Peterson’s (1997, 2007) account of the development from adpositions to nominalizers also differs crucially from mine: he assumes that this development occurred through reanalysis of the voice-marking affixes in relative clauses. This proposal struggles to explain why nominalizing affixes can also form denominatives, not only deverbatives (as we saw in Tagalog above). Peterson’s (1997, 2007) account also fails to provide an explanation for how applicative constructions develop into a voice system with the prominent argument in subject position.

4 Methodology

As already mentioned, this paper offers a case study in methodology of historical treatments of typologically rare morphosyntactic systems. More specifically, I aim to set standards for using internal reconstruction in historical syntax of typologically unusual phenomena. Because the present paper relies heavily on internal evidence in the absence of comparative material, some clarifications on methodology in historical linguistics is in place.

Historical linguistics employs two methods for reconstructing non-existent previous stages: the comparative method (Rankin 2003) and internal reconstruction (Ringe 2003). While comparative method is more powerful and reliable, both methods have proven to be successful and are widely employed in historical linguistics. Internal reconstruction is primarily employed in the absence of historical data. Reconstructing unattested stages of a proto-language usually starts with comparative method: reconstructions are made based on the data from attested daughter languages. Comparative method, however, has its limits: once those limits are reached, historical linguists usually employ internal reconstruction for further reconstruction of the proto- or pre-proto-language. Based on the reconstructed data of a single language (in our case the reconstructed proto-language), we can further “recover” its prehistory. As Ringe (2003:244) states: “IR [internal reconstruction] proceeds by making inferences about unobservable stages of a language’s development on the basis of what is known from the observed history of languages.” The crucial condition for a success in internal reconstruction is thus an existence of a property in the reconstructed proto-language

that has frequently been observed in attested linguistic data, has a well-known source, and an established directionality of development.

An important question to raise is what makes internal reconstruction possible; and the answer lies precisely in unidirectionality of processes. Because language development usually follows well-established trajectories and change usually operates in one direction for a given target and context, we can redo the change and reconstruct the proto-stage. The one domain of language change that features the strongest unidirectionality is sound change. This is also the reason why internal reconstruction has primarily been successfully employed in the domain of sound change.

For example, let's assume that we have reconstructed a proto-language based on comparative data using comparative method. We observe that this language has the following generalization: it features two sounds, a voiceless velar stop [k] and a voiceless post-alveolar affricate [tʃ]. [k] surfaces before all vowels except before front non-low vowels [e] and [i]. [tʃ] appears to surface only before [e] and [i]. We are justified to assume that in pre-*proto-language* there was only one phoneme, [k], that surfaced in all pre-vocalic positions. [tʃ] then arose by a process called palatalization which is a very common sound change: velars develop to post-alveolar affricates before front vowels. Because this trajectory is so well established and there are virtually no cases of the development that would operate in the opposite direction. The crucial point here is that reconstruction of a system with only [k] is justified even though this hypothetical *proto-language* has no daughter languages in which [k] would be the only phoneme surfacing in all pre-vocalic environments. In other words, the reconstruction is justified solely based on internal evidence without any comparative data. This is of course a simplistic example, but the principle applies to more complicated data too. Moreover, the proposed reconstruction would be justified even if we would observe a strong tendency of [tʃ] surfacing exclusively before front vowels instead of a categorical observation. In other words, if [tʃ] primarily surfaced before [e] and [i] with a small number of exceptions, the internal reconstruction would still be justified as we know that borrowings or novel vocabulary can introduce new combinations of sounds that might not be licit at the time when the regular sound change (in our case palatalization) was active. In fact, not only is internal reconstruction justified, but for such a robust generalizations we are expected to provide explanation, especially for typologically so frequent and well-established processes.

There is another domain within language change that features robust unidirectionality and elaborate accounts of the data: the grammaticalization theory (Heine and Kuteva 2002). Precisely the established trajectories and unidirectionality of morphosyntactic developments allow us to use internal reconstruction in reconstruction of morphology and syntax.

This paper offers a case study in using the method of internal reconstruction in dealing with syntactic phenomena that are typologically rare or, as in the case of AN voice, unprecedented and offers guidelines on the methodology of internal reconstruction applied on typologically unusual data. I propose the following methodological procedure: all functions of affixes are identified and given due consideration. The most likely origin of all attested functions is reconstructed based on grammaticalization theory. We know that morphological and syntactic change follows common trajectories (Heine and Kuteva 2002). A morpheme potentially has several possible origins for a single function. If, however, multiple functions of a given morpheme are evaluated together, the range of potential origins narrows: the most likely origin of a morpheme is the one that is common likely origin to all attested functions.

Internal reconstruction works best if surface phenomena are common and have common properties. I show in this paper that using the methodology proposed in the previous paragraph, we can reconstruct the origins of typologically unusual morphosyntactic systems, too. Success of internal reconstruction in historical syntax depends on whether affixes have enough functions attested that allow us to narrow potential origins and recover the most likely origin.

5 A New Proposal

In the next section, I propose a new model for the development of the PAN voice system. Beside the two possibilities presented above (the nominalization- and voice-first hypotheses) another option exists: i.e. that both the voice marking function and the nominalizing function were present already in the proto-language. First, the fact that both Philippine-type languages and other AN languages show either a productive or a vestigial series of nominalizing affixes speaks strongly in favor of the proposal that this function goes back to the proto-language. If the nominalizing function were secondary, we would have to assume that in the non-Philippine-type languages, the voice system was still productive concurrent with the hypothetical development of the nominalizing function, and that it was lost independently after this development occurred. This is not impossible, but it is unlikely. So the distribution across the AN languages speaks strongly in favor of the existence of nominalizing affixes already in PAN.

On the other hand, the fact that voice systems are attested in the Formosan languages and across the AN family speaks in favor of the archaic status of the voice-marking affixes. Also, we have seen above that either of the two polarized options (nominalization-first or voice-first) brings its own set of problems for; these problems can be avoided if we assume that both functions go back to the proto-language.

We do not need to stop our reconstruction there, however. In fact, precisely the assumption that both functions were present in PAN offers a good deal of insight into the possible origins of this system (although at this point comparative data is lacking, so I will rely on internal reconstruction). The question to be addressed first is: where do these affixes — which developed, on the one hand, into nominalizing affixes, and on the other, into voice morphemes — originate.

A good theory of voice origins in PAN must explain both the facts that we observe in reconstructed PAN and those we observe in the daughter languages. In section 2, I presented an inventory of the functions and properties held by particular voice-marking affixes in PAN and in the daughter languages, in order to illustrate some tendencies and common patterns that these systems show in their respective developments. The numerous different functions still preserved by the PAN voice affixes offer a crucial source of information on how such a system developed. In this section, I present what I believe to be the most likely path of development for the voice marking affixes and show that my new proposal explains most of the heterogeneous functions of the affixes across AN languages.

5.1 Active voice

The only active voice affix that can be reconstructed to the PAN stage is **-um-* and there are two main facts that indicate **-um-* had a different origin than other three affixes: it is an infix as opposed to a suffix or prefix, and it usually does not have a nominalizing function.

The data in the languages show that **-um-* had three different functions in PAN. On the surface, these functions do not have much in common: (a) active voice marking; (b) intransitivity marking; (c) inchoative marking (whereby the latter can also be a Proto-Western-Malayo-Polynesian innovation, but is nevertheless informative for the reconstruction). If we allow a further step in the reconstruction, the three functions can be reconciled into a single pre-PAN **-um-* that functioned as a reflexive marker. I argue below that the most likely source of an affix that develops inchoative- and intransitive-marking functions is a reflexive marker.

There are two further conceivable options for the origin of **-um-*: (i) that it functioned as a progressive/incompletive marker or (ii) that it goes back to a detransitivizer. Before we turn to the discussion of why the most likely origin of **-um-* is a reflexive marker, I will briefly discuss the two alternatives. If we assume progressive/incompletive origin of **-um-*, verbal forms marked with such a marker would often be atelic. The atelic function could then be extended to an intransitive marking function: we know that “atelic predicates tend to appear in intransitive structures” and this connection is also experimentally confirmed (Wagner 2012). There are, however, two problems with postulating such a trajectory. First, to my knowl-

edge, there is no evidence for an atelic function of the infix **-um-*, nor is there any typological evidence of such a function from atelic markers entering the voice-marking paradigm at later stages in the development of the AN language family. Second, it would be difficult to derive the inchoative-marking function of **-um-* from an atelic-marking function, but this is less problematic as inchoative-marking function of **-um-* can be a secondary innovation of the Proto-Western-Malayo-Polynesian subgroup.

The second alternative is to assume that **-um-* functioned as a general detransitivizer. This would of course explain why it surfaces primarily on intransitive verbs. However, the question of whether **-um-* goes back to a reflexive or detransitivizer is more a question of time depth than a question of actual origin. It is possible that **-um-* at some point functioned as a detransitivizer, but the most likely origin was nevertheless a reflexive marker as detransitivizers ultimately often go back precisely to reflexives. This argument is strengthened by a typological parallel from Kannada, where *-ko[u]* functions as a reflexive, detransitivizer, and inchoativity marker (Amritavalli 2000).

I now turn to a discussion on why reflexive marker is the most likely origin of **-um-*: I show that all three functions are easily derivable under this assumption. We know that cross-linguistically, reflexives frequently develop an inchoative-marking function. Even if we assume that inchoative-marking function is a secondary Proto-Western-Malayo-Polynesian innovation, we still need to explain its origins. The fact that inchoative function develops is in and of itself informative. Because the most likely origins of inchoative-marking affixes are precisely reflexives or intransitives, the inchoative function provides argument that **-um-* goes back to a reflexive/intransitivity marker regardless of when we reconstruct it in the development. Consider the following examples from French, Spanish, and Polish, where SE functions as an inchoative morpheme (Rivero and Milojević Sheppard 2003: 100; Déchaine and Wiltschko 2012:14).

- (6) a. *La porte s' est ouverte.*
the door REFL is open.FEM
"The door opened"
- b. *El vaso se rompió.*
The vase REFL broke
"The vase broke."
- c. *Szklanka się rozbiła.*
Glass REFL broke
"The glass broke."

Similar functions are also found in Bulgarian, Bosnian/Croatian/Serbian, Czech, Slovenian, Macedonian and Slovak (Rivero 2001:170). The inchoative function of an original reflexive marker, however, is not limited to Romance and Slavic, but is the common pattern cross-linguistically. For example, in Salishan Halkomelem, *-θət* marks both reflexives and inchoatives (Gerds 1998): *laləm-θət* 'look after self'; *θi-θát* 'get big'. The following three examples from (Gerds 1998:152) illustrate how reflexive marker on transitive verbs starts functioning as inchoative:

- (7) *ʔəjǎʔθ* 'sharp' *ʔəjǎʔθ-θət* 'get sharp'
ʔijəs 'happy' *ʔijəs-θət* 'get happy'
qax̃ 'be lots' *qax̃-θət* 'get to be lots'

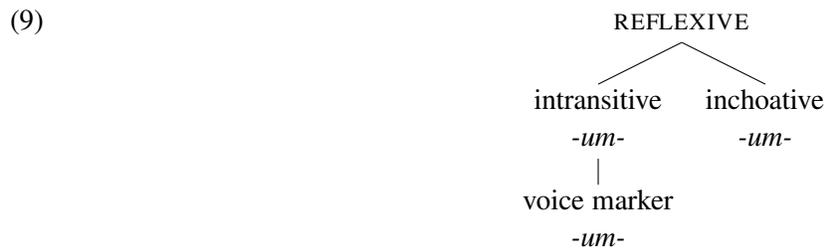
The development from reflexive marking to intransitive marking is just as straightforward. One function of the reflexive is to remove an internal argument from the predicate; over time, this valency-decreasing function can be reanalyzed as primary, rendering the reflexive a marker of verbal intransitivity. This is a common process and is attested, for example, in Aranda, where the reflexive marker *-lhe* develops into the intransitivizer *-lhe* (Heine and Kuteva 2002:252). The proposal that **-um-* developed from a reflexive thus explains two of this morpheme's functions that on the surface seemed unrelated: intransitivity and

inchoative marking. The most intriguing function of **-um-*, its active voice marking, also follows from my proposal. It is likely that, at a pre-PAN stage where the language lacked an elaborate voice system, **-um-* simply functioned as an intransitivity marker (a function that is attested still today, albeit not very productively). When the elaborate voice system with passive, instrumental, and locative voice arose (through the process described below), this intransitivity marker simply continued to surface on (intransitive) verbs or got extended as active voice marker to transitive verbs in some languages. Since the new emergent voice markers (passive, locative, and instrumental) are obligatorily transitive, **-um-* began to surface, by default, only in active voice. Intransitivity marking **-um-* could thus easily be reanalyzed as an active voice marker under the pressure of other affixes of the new voice-marking paradigm.

The fact that, at some point, **-um-* started marking transitive verbs as well poses no problems for the proposal above. Once the affix was reanalyzed as a voice marker, it could start surfacing on transitive verbs freely. This transition from reflexive to active voice marking on transitive verbs might also have been reinforced by an inter-stage with antipassive marking. Reflexives frequently develop the antipassive function. Consider the Polish example below (from Janic 2013:63):

- (8) a. *Chłopiec uchwycił klamk-ę.*
 boy grasped door.handle-ACC
 “The boy grasped the door-handle.”
 b. *Chłopiec uchwycił się klamk-i.*
 boy grasped REFL door.handle-GEN
 “The boy grasped the door-handle.”

Antipassivization suggests a possible motivator for the spread of **-um-* (once a reflexive marker) to active voice marking on transitive verbs. However, this step is not required and we know that **-um-* tends to surface more regularly on intransitive verbs even in the attested daughter languages. The proposed development of **-um-* is illustrated in (9).



Any other trajectory of development would be very difficult to justify. For example, it would be very difficult to argue that the active voice marker developed into a reflexive or inchoative marker or that the inchoative marker developed into an active voice or reflexive marker. First, such processes run against the unidirectionality of grammaticalization (since reflexives are less grammatical than voice markers). Second, it is not clear what would motivate such a change. To my knowledge, no examples exist of reflexives developing from inchoatives, whereas the development in the opposite direction is common (as seen above). Likewise, shifts from intransitive markers to reflexives are unattested, while the opposite developments are common (cf. Heine and Kuteva 2002).

There are further facts that speak in favor of **-um-* originating as a reflexive marker and developing to a voice-marking affix through a stage of intransitivity marking: the two other affixes that surface as active voice markers in AN languages, **maŋ-* and **mar-*, reveal that it is precisely (in)transitivity markers that tend to be incorporated into the voice-marking paradigm.

Both **maŋ-* and **mar-* have (in)transitivity-marking functions: the former surfaced on transitive verbs, the latter on intransitive verbs. These markers cannot be reconstructed to PAN: they are most likely a later

innovation, which means that they originated as transitivity markers and got incorporated into the voice-marking paradigm at a later stage (just as I propose happened with **-um-* at an earlier stage of development). The development of these two prefixes thus provides additional support for the proposal that **-um-* originates as a reflexive that later developed an intransitivity-marking function.

Beside (in)transitivity marking, **-maŋ-* and **-mar-* also have other functions that provide crucial insights into their prehistory. **-mar-* shows traces of a verbalizing function in the daughter languages, e.g. *mag-anak* ‘to have children’ from *(t-)anak* ‘child’ (see section 2). Both prefixes also have “counterpart” prefixes without the initial nasal: **paŋ-* and **par-*. These two prefixes formed instrumental nouns in Proto-Western-Malayo-Polynesian (Blust 2013: 378-9). In Tagalog, for example, this function is still preserved: *pam-bilí* ‘means for buying’ from *bilí* ‘to buy’ or *pang-hampás* ‘sth. for hitting’ from *hampás* ‘to hit’ (Himmelman 2005b: 373).

The prefixes **maŋ-*, **mar-*, **paŋ-*, and **par-* thus show a wide variety of functions in the daughter languages. The following table summarizes the functions of these four prefixes:

| Function | Affix |
|------------------------|-----------------------------|
| active voice marker | <i>*maŋ-</i> , <i>*mar-</i> |
| intransitives | <i>*mar-</i> |
| transitives/causatives | <i>*maŋ-</i> |
| verbalizer | <i>*mar-</i> |
| instrumental | <i>*paŋ-</i> , <i>*par-</i> |

The diverse functional properties, as well as surface phonology, of these prefixes offers crucial insight into their pre-history. First, it is very likely that the four prefixes have a common source (**paŋ-* and **par-*) and that the nasal-initial forms arose through a morphophonological operation from **p-um-aŋ-* and **p-um-ar-* — i.e., through the addition of the **-um-* infix (Wolff 1973: 72; Kaufman 2009, Blust 2013: 374). As Kaufman (2009) points out, **paŋ-* and **par-* are further analyzable into the constituent **pa-* plus *ŋ* or *r*. **pa-* was a causative prefix in PAN (e.g. Kayan *pə-taŋi* ‘make someone cry’ from *taŋi* ‘cry’, Blust 2013: 379). The functions of *ŋ* and *r* are more difficult to reconstruct, as they rarely appear in isolation; the **r* element probably functioned as a reflexive or middle voice marker, and **ŋ* perhaps as a plural object/pluractional marker (as reconstructed in Kaufman 2009).

The apparent heterogeneity can be accounted for if we assume that the **pa-* prefix goes back to a verbal element with the meaning **TAKE*. The development from a verbal form ‘to take’ to a causative marker is common and follows a well-documented grammaticalization trajectory. In Twi, for example, *de* ‘to take’ develops into a transitivizer and causative marker (from Heine and Kuteva 2002:286).

- (10) *o-de gwañ a-ba.*
 he-TAKE sheep PFV-come
 “He has brought a sheep.”

The development of the causativizer **pa-* from the verb ‘to take’ likely occurred via a stage of serial verb construction (SVC). There is not a great deal of evidence that would allow us to reconstruct widespread use of serialization at the PAN level;¹² however, we cannot exclude the fact that particular verbs were able to form SVCs. The proposal that **pa-* goes back to a verb with the meaning **TAKE* and that the prefix developed through a stage of serialization can be supported by data from certain AN languages, including Tagalog and Cebuano. In these two languages, **pa-* is reported to have yet another function: it forms verbs with the meaning ‘to go + the complement’ (Wolff 1995). The table in (10) shows that this construction

12. The serial verb construction is rare in AN, but is well attested in Melanesia (Blust 2013:158; Polinsky and Potsdam, forthcoming).

is very reminiscent of SVC. In Cebuano, this function ceases to be productive, but it is still productive in Tagalog.

(11) Prefix *pa-* in Tagalog, data from Wolff (1995)

| | | | |
|--------------|---------|-----------------|-------------------|
| <i>likud</i> | ‘back’ | <i>pa-likud</i> | ‘go in back’ |
| <i>kánan</i> | ‘right’ | <i>pa-kánan</i> | ‘go to the right’ |
| <i>lapit</i> | ‘near’ | <i>pa-lapit</i> | ‘getting near’ |

As is clear from the examples in (11), the meaning of *pa-* is equally (or more) compatible with the meaning ‘to take’: e.g. ‘take right’, ‘take near’. Furthermore, the verb ‘to take’ in such constructions can easily assume the meaning ‘to go’. Reconstructing **pa-* back to a verb **TAKE* thus best captures its functions as a causative marker and a verbal element with the meaning ‘to go’/‘to take’. Let us now turn to its function as an instrumental marker.

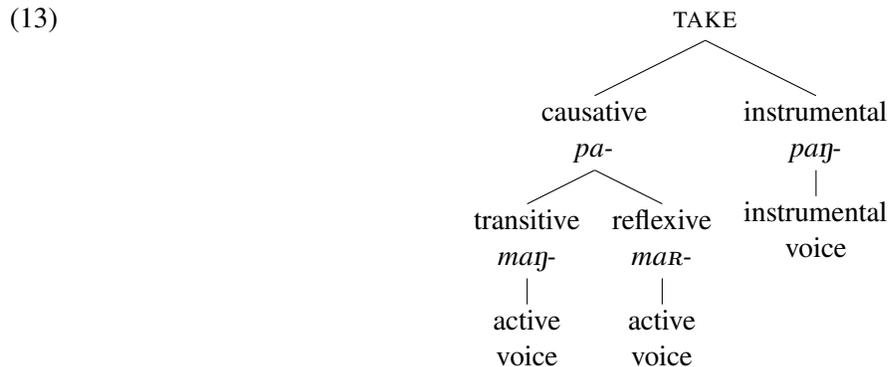
The development from a verbal element with the meaning ‘to take’ (predecessor of **pa-*) to an instrumental marker (**paŋ*) is equally well-motivated and follows a common grammaticalization trajectory. In fact, in the same language that show the development TAKE > causative, we also see a development from TAKE > comitative, which is semantically very close to the instrumental (from Heine and Kuteva 2002:286).

(12) *o-de né nnípa fòro bépow.*
 he-TAKE his men ascend mountain
 “He ascends a mountain with his men”

In Twi (12), the development resembles the PAN case even more closely: the verbal element with the meaning ‘to take’ developed to a transitivizer/causative marker on the one hand and an instrumental marker on the other hand (as reported in Lord 1989:237).

So far, I have established that **-um-* had developed from a reflexive to an intransitive marker and active voice marker already by the PAN stage. In other words, **-um-* was already a voice marker by PAN. On the way to Proto-Malayo-Polynesian (PMP), the once-causative marker **pa-* developed to a transitivity marker (with **ŋ*) and verbs began being marked overtly for transitivity (as they still are today, albeit not as productively). However, as these verbs, marked by the transitive affix, entered the voice paradigm, they received the active voice-marking infix **-um-*; thus, **paŋ* yielded **p-um-aŋ* and consequently **maŋ*. At the same time, the instrumental function of **paŋ* remained unaltered. The causative origin of **pa-* in **maR-* is preserved in the verbalizing function of **maR-*: (*mag-pansit* ‘to make *pansit*’). However, **maR-* also acquired an intransitivity-marking function by the addition of the **R* element, which likely goes back to a reflexive (the reflexive function is still attested today).

The development is illustrated in (13):



**maŋ-* and **maR-* thus functioned, at some stage of development, as (in)transitivity markers. However, just as we saw with **-um-* above, such (in)transitivity markers can lose this function and be reanalyzed simply as active voice markers. In Malagasy, for example, **maŋ* functions only as an active voice marker; indeed, this morpheme has almost completely replaced **-um-* in this function, with the latter preserved only in a small subset of verbs (Blust 2013: 383). The trend for (in)transitivity markers to yield active voice markers in AN is thus once more confirmed.

As I pointed out for the development of **-um-*, it would be very difficult to maintain any other trajectory of the development for *maŋ-* and **maR-*. It would be difficult to explain how an active voice marker would develop into a transitive, intransitive, causative, or instrument noun marker.

Further evidence for the incorporation of reflexive markers into the voice-marking system comes from a more recent layer of AN development: in Ilokano, *ag-* is an innovative prefix that marks active voice. The prefix likely goes back to *(*a*)*R*, which had a reflexive/reciprocal marking function. The reciprocal function is still preserved in Ilokano today, although it has ceased to be productive (e.g. *N-ag-salliwásiwda* ‘they missed each other’).

5.2 Non-active voices

In section 2.1, I argued that the active voice affixes most likely had different origins than the other affixes in the voice-marking paradigm. First, other voice-marking affixes are suffixes (or prefixes, in the case of **Si*), not infixes. Second, other voice markers all have a well-attested nominalization function, whereas **-um-* most likely did not have the nominalization function in the proto-language.

Because the Austronesian voice system is morphosyntactically rare, there are almost no typological data to point to the likely origins of the AN voice-marking affixes.¹³ One case that exhibits some common properties with AN voice is reported in Rude (1991:185) for Nez Perce, Sahaptin, and Klamath. Voice morphology in these languages promotes “non-patient case roles to objects.” The affixes here are, however, argued to go back to verbs. Moreover, no promotion to subject occurs (as in AN), which makes this parallel unappealing.

Although the AN system is typologically very rare, we can nevertheless reconstruct the likely origins of the voice system, primarily by capitalizing on historical hints gleaned from the various functions that the affixes have in the daughter languages. Beside their voice-marking function, these affixes always function as nominalizers, too. The semantics of the nominalizing function corresponds to the semantics of the voices they mark: for example, **-an* forms locative nouns and marks locative voice (e.g. Makasarese *əntəŋ* ‘stand’ vs. *əntəŋ-aŋ* ‘place where one stands’, Blust 2013: 395). I argue (following, in part, Peterson 1997, 2007)¹⁴ that the most likely origins of the voice-marking and nominalization functions are prepositions that mark direct object, location and instrument.

The proposal that non-active-voice affixes go back to prepositions allows us to easily explain how the affixes developed into voice markers, on the one hand, and prepositions, on the other. For the development from prepositions to nominalizers, I propose a straightforward explanation: that this change occurred through an inter-stage with compounds. Postulating a compound stage aligns this developmental shift with the usual trajectory of grammaticalization. Prepositions frequently form compounds: under the assumption that the meaning of compounds in Pre-PAN was something like *‘having X Y’, we get precisely the compounds that could serve as the basis for the development from prepositions to nominalizers, e.g. Tagalog

13. One of the reasons that such systems appear rare is the fact that case relation (voice) is marked on the verb in AN, while head-marking of case is rare (Nichols 1986). In this paper, I show that voice-marking affixes go back to dependent-marked case, which follows the usual and expected distribution. The development to head-marking occurs when prepositions become preverbs. The shift from dependent marking to head marking is thus well motivated: we know that “instrumental, directional affixes on verbs” (in our case preverbs) are usually head-marked (Nichols 1986:64).

14. That voice-marking affixes for location and instrument go back to prepositions has been assumed in Peterson (1997, 2007).

titis ‘cigarette ash’ → *titis-án* *‘having ash in’ → ‘ash tray’. From there, the affix can have easily been reanalyzed as a locative nominalizer — precisely what we have attested in the daughter languages today. This analysis holds for other two affixes as well. Peterson (1997, 2007) assumes that the nominalizing function developed from a reanalysis of subordinated verbal forms with voice markers, which is not impossible. However, his account cannot explain why the affixes in question formed not only deverbatives, but also denominatives, as is clear from Tagalog *titis-án* ‘ash tray’.

I have established in this section that the source of the AN nominalizers was likely the prepositions. To explain the development from prepositions to voice-marking affixes, we have to invoke the broader verbal morphosyntactic system of PAN. Let’s assume that voice-marking affixes started out as prepositions in Pre-PAN. For a sentence containing one internal and one external argument, we can reconstruct that **-en* (a direct object marker, or a preposition with this function) surfaced on the internal argument, while the external argument was probably unmarked (as is the case, for example, in today’s Tondano and Saisiyat, and was most likely the case in PAN). If a sentence contained adjuncts as well, we can posit that they too were marked by the preposition **-an* for location (with the meaning ‘in, at’) and **Si-* for instrument (with the meaning ‘with’). The reconstructed surface sentence structure, with arguments, adjuncts, and corresponding prepositions, is schematized in (14).

(14) VERB *en*-DIRECT.OBJECT *Si*-INSTRUMENT *an*-LOCATION SUBJECT

As already mentioned, the AN voice system is, descriptively speaking, simply a way of marking the “prominent” or “pivotal” role that one argument has in the clause. Depending on the semantics of this pivotal role, different markers surface. We also know that adpositions are cross-linguistically the common source of preverbs.¹⁵ When a preposition moves into the verbal domain and becomes a preverb, the semantics of the preposition get incorporated into the verbal semantics and the corresponding argument or adjunct becomes semantically prominent. For example, if the preposition for location, **-an*, starts functioning as a preverb and incorporates its semantics into the verb, we get the surface structure in (15) (assuming that preverbs, unlike prepositions, get marked on the verb):

(15) VERB *en*-DIRECT.OBJECT *Si*-INSTRUMENT *an*-LOCATION SUBJECT
VERB-*an* *en*-DIRECT.OBJECT *Si*-INSTRUMENT LOCATION SUBJECT

Instances of prepositions or adverbs becoming preverbs/applicatives that then surface on verbs are very common cross-linguistically. An example from Kinyarwanda (from Peterson 1997) exemplifies this process synchronically. Applicative constructions arising from preposition incorporation are also reported in Garrett (1990) for a number of language families.

(16) a. *úmwáana y-a-taa-ye igitabo mú máazi*
child HE-PST-throw-ASP book in water
‘The child has thrown the book into the water.’
b. *úmwáana y-a-taa-ye-mo igitabo mú máazi*
child HE-PST-throw-ASP-APP book water
‘The child has thrown the book into the water.’

It is also common for adverbs and adpositions to surface either freely in the sentence or next to the DP that they modify, whereas preverbs/applicatives surface on the verb or in some other special position. The best typological example of such a system is found in Vedic and Classical Sanskrit (data from Kulikov

15. In fact, the usual trajectory of grammaticalization goes from (a) adverbs to adpositions and preverbs or (b) adpositions to preverbs (Helmbrecht 2008:139).

2012:725), where we can trace the development from prepositions to preverbs diachronically. In Vedic, *á* can function as a postposition, in which case it usually surfaces on the noun, or as a preverb, in which case it surfaces sentence-initially.

- (17) a. *índavaḥ ágmān ṛtásya yónim á*
 drops came of.order lap-ACC to
 “The drops have come upon the lap of the order.”
 b. *á yónim ványam asadat*
 to lap-ACC wooden-ACC sat.down
 “He sat down upon the wooden lap.”

In the development from Vedic to Sanskrit, adpositions continue to surface on the noun, but preverbs undergo innovation: they begin surfacing on the verb instead of sentence-initially. Something similar probably happened in PAN: when the prepositions were incorporated into the verbal semantics and became preverbs, they moved and began surfacing on the verb. This proposal also explains why they surface as suffixes in the daughter languages: Vedic, as a head-final language, moved its postpositions into preverbal position as prefixes preceding the verbal head, whereas PAN, as a head-initial language, turned its prepositions into postverbal suffixes. Synchronically, such movement can be described as head-to-head movement from the PP of an adjunct/internal argument to the verbal head.

Evidence in favor of the proposed analysis can be found within the AN family itself. In Chamorro and Malay, an adverbial locative marker **i* has become a locative voice marker: Malay *mə-nanam-kan* ‘to plant (object)’, and *mə-nanam-i* ‘to plant (in location) with object’ (Blust 2013:447). This development likely occurred precisely through the process of adverb-to-preverb conversion, causing the morpheme in question to enter the voice-marking paradigm. The example from Malay thus confirms that prepositions are the likely origins of voice-marking affixes.

In the following I explain why the promoted “pivotal” argument surfaces as a subject in AN. I also provide a detailed account of how a system of preverbs and prepositions becomes a typologically peculiar voice system. The only device used in explaining the development to voice system is reanalysis, the most common process in historical syntax.

We saw that active voice markers go back to (in)transitivity markers (and reflexives). These affixes, however, most likely did not play any role in the development of the voice system except that they continued to mark (in)transitivity — and, once the voice system was established, assumed the role of active voice marking. The driving force behind the development of the voice system was most likely the process of incorporating prepositions into the verbal heads (the development to preverbs).

Again, I crucially posit that in a typical PAN sentence all arguments were overtly marked except for subjects, a situation that is reflected in today’s Tondano and Saisiyat. There also exists comparative evidence for this configuration: Ross (2006) reconstructs “neutral” case category in PAN which among others marked subjects. The reconstructed form is zero morpheme **-∅*. It is possible to assume that **ka-* or **sa-* (Blust 2015), which were the standard nominative markers, were secondarily introduced (under the pressure of other affixes). The null marker for nominative case thus indicates that subjects could have been unmarked in PAN. (18) illustrates a reconstructed surface structure of a sentence with internal argument, external argument, and adjuncts in PAN.

- (18) VERB *en*-DIRECT.OBJECT *Si*-INSTRUMENT *an*-LOCATION SUBJECT

As soon as the preposition became a preverb and incorporated into the verbal semantics, the argument that corresponded to the incorporated semantics became unmarked, due to movement of the former preposition to the verbal head (unmarked arguments underlined).

(19) VERB-*an* *en*-DIRECT.OBJECT *Si*-INSTRUMENT LOCATION SUBJECT

The only two unmarked arguments now are the subject and the argument previously governed by the raised preposition (underlined in 18). From this position, the argument with the raised preposition comes naturally to be reanalyzed as a subject precisely because it is unmarked: lack of overt case marker was the main characteristic of subjects. The reanalysis was reinforced in cases with hypothetical pro-drop, as in (21). Several AN languages today allow pro-drop (Postdam and Polinsky, forthcoming) and PAN likely allowed pro-drop at least in some cases. (19) shows surface sentence structure after the operation preposition → preverb and before pro-drop. (20) shows surface sentence structure after pro-drop, which is the main locus for the reanalysis. This surface structure is in fact the structure that we have in today’s voice system, the only difference is that after the reanalysis the subject was reintroduced with oblique case marking and other case markers developed.

(20) VERB-*an* *en*-DIRECT.OBJECT *Si*-INSTRUMENT LOCATION SUBJECT

(21) VERB-*an* *en*-DIRECT.OBJECT *Si*-INSTRUMENT LOCATION

To sum up, when an argument’s semantic role becomes promoted and its former governing preposition is incorporated into the verbal head, that argument gets reanalyzed as the subject of the clause precisely because it ceases to be overtly marked (which was the characteristics of subjects); this process, in turn, gives rise to the peculiar morphosyntactic system called Austronesian voice system. This argument reanalysis is thus a crucial step in the development: it explains how a system of prepositions and preverbs becomes a typologically peculiar system of voice marking.

Moreover, this analysis crucially unifies two most prominent properties of AN voice system: semantic prominence and promotion to subjects. Semantic prominence is achieved by the operation preposition → preverb and this operation is also the condition for reanalysis of the newly unmarked argument as a subject (promotion to subjects).

This analysis holds not only for **-an* but also for the other two voice-marking affixes, **-en* and **Si-*. Note that the latter is a prefix, and thus does not conform directly to the pattern described above, by which prepositions give rise to preverbs that surface as suffixes. This discrepancy does not, however, pose a problem for our analysis: it is known that one of the standard trajectories of grammaticalization derives adverbials and prepositions from verbs. Peterson (2007:165) (following Ross 1995:758) argues that **Si-* goes back to a verbal element with the meaning ‘have, possess, wear’ (Ross 1995:758); I argue these verbal origins are reflected in the fact that **Si-* surfaces as a prefix. The only other two prefixes in the voice marking paradigm, **maj-* and **mar-*, are of verbal origin too (see above). Later in the development **Si-* joined other affixes and became a preposition; however, its verbal origins are continued in its placement as a prefix.

Accepting this explanation for **Si-* produces the following distributional pattern:

| Origin | Affix |
|-------------|--------|
| verbal | prefix |
| preposition | suffix |
| reflexive | infix |

5.3 Other Affixes

We have now arrived at a coherent explanation for the prehistory of the affixes that constitute the “core” voice-marking paradigm in AN. There are other affixes associated with this voice-marking paradigm as well, including the very commonly attested perfective or past tense marker **-in-*, e.g. Atayal *m-agal* ‘to take’ vs. *m-in-agal* ‘took’ (Blust 2013: 385); see the table below for illustration of the aspectual (perfective) function.

- (22) Kelabit (Blust 2013:386)
- bulat* ‘open the eyes wide’
 - a. *mulat* ‘look at someone or something’
 - b-in-ulat* ‘was looked at’
 - pətad* ‘separation’
 - b. *mətad* ‘separate from something’
 - p-i-tad* ‘was separated from something’
- (23) Thao (Blust 2013:386)
- m-apa* ‘carry on the back’
 - m-in-apa* ‘carried on the back’
 - in-apa* ‘was carried on the back’

The infix also had a nominalizing function, forming deverbative (and occasionally denominative) nouns, e.g. Ilokano *mátay* ‘to die’ vs. *m-in-átay* ‘corpse’ or Hoava *babana* ‘to tow’ vs. *b-in-abana* ‘towed object’.

The infix **-in-* surfaces on verbal forms in combination with voice markers. Curiously, in the passive voice in PAN, **-in-* surfaces on the verb without the passive voice marker **-en* (see section 2.1).

These facts suggest a straightforward prehistory for **-in-*. I propose that **-in-* marked perfective aspect in PAN, just as it does today in the daughter languages. The development from perfective to past tense marker is extremely common and needs no further explanation. This account also explains why **-en* does not surface on the verb in combination with **-in-*: perfectives/perfects and passives are very closely related in structure and in meaning. They are both patient oriented (for a discussion and overview, see Drinka 2003:115). It is likely that **-in-* moved towards the passive end of the passive-perfective continuum. This is most obvious from the examples in (21) and (22): ‘open the eyes wide’ vs. ‘was looked at’. When **-in-* surfaces on the verb, there is thus no need to additionally mark the passive voice.

I have argued that the nominalizing function of the PAN affixes is difficult to derive from voice marking. However, in the case of **-in-*, we see that the nominalization function actually did develop from the primary function, since **-in-* did not mark voice in PAN, but rather functioned as a perfective marker. From here, I posit that **-in-* (as perfective marker) also formed adjectives/participles. The English suffix *-en* provides an almost exact parallel to PAN **-in-* in this capacity; Yeh (2011) first made this parallel, correctly observing that *stolen* can function as perfective or passive. In addition, we can add that *stolen* can also function as a participle, for instance in *stolen bag*. From this point, nominalization to ‘the stolen one’ is trivial. This is directly exemplified in PAN by *mátay* ‘to die’ vs. *m-in-átay* ‘corpse’. *m-in-átay* first had simply a participial meaning ‘the dead (one)’ (like *b-in-abana* ‘towed object’), and then underwent a process of participial nominalization to yield ‘corpse’.¹⁶

Only two affixes remain to be accounted for in the voice-marking paradigm: the active subjunctive and passive dependent voice marker **-a* and the locative subjunctive voice marker **-ay*. As these items are quite obscure, it will be difficult to make any predictions about their origins. I therefore set them aside in the present account.

In this section, I have proposed a new explanation for the development of the Austronesian voice system. I argued that the affixes that constitute this system displayed both the voice and nominalizing functions already in the proto-language, and that they originally developed from a system of prepositions in Pre-Proto-Austronesian. Two different developmental paths were taken by these prepositions: on the one hand, they were morphosyntactically reanalyzed as preverbs, causing the concomitant reanalysis and promotion of their former arguments to subject position; on the other hand, the prepositions grammaticalized into

16. Yeh (2011) proposes a different account of the development from the perfective to nominalizing function of **-in-* through relative clauses: “as a grammaticalization of headless relative clause by the metonymic extension using the property of an entity to refer to the entity.” However, no such complications are necessary under my proposal: the derivation of adjectives/participles from a perfective marker with subsequent nominalization of participles is a common phenomenon.

nominalizing affixes, probably via an inter-stage with compounds. I also argued that the active voice prefix and infix probably originated in reflexive markers (and the verbal element *TAKE) that later developed into transitive-, intransitive-, or inchoative-marking morphemes.

6 Subject-Only Restriction

Beside the peculiar voice system, Austronesian languages often show another typologically unusual syntactic property: the so-called Subject-Only Restriction (SOR). As discussed in Polinsky and Potsdam (Forthcoming), SOR is a restriction whereby only subjects (or the prominent argument) can extract. Extraction encompasses *wh*-movement, topicalization, relativization, focus constructions, or in other words *A'*-movement (Potsdam). It was first described on the basis of Malagasy by Keenan (1972). The restriction is wide-spread and is attested in Formosan, Philippine, Indonesian, and in many Polynesian languages (Polinsky and Potsdam, forthcoming). As the phenomenon is so wide spread and well-attested, especially in Formosan, we can with certainty posit that it was already present in PAN and we are safe to reconstruct the restriction in the proto-language.

Theoretical accounts of this peculiar phenomenon are, just like for voice system, very heterogeneous. As per survey in Polinsky and Potsdam (Forthcoming) proposals range from invoking Phase Impenetrability Condition (Rackowski and Richards 2005) to assuming that in fact no SOR exists, but that what seems as a SOR is simply extraction that is marked on the verb (Paerson 2005, see also Polinsky and Potsdam, forthcoming and the literature therein). Some proposals analyze *wh*-movement and relativization as raising and therefore not even as an *A'*-movement, but as a *A*-movement (Gerassimova and Sells 2008, Polinsky and Potsdam, forthcoming).

Most theoretical accounts, however, agree on one point: that AN voice system and SOR are related. The main reason for such a claim comes from the fact that change of voice morphology and correspondingly change of the argument that surfaces in subject position allows that argument to be extracted. In other words, if we want to extract an patient, location, or instrument, we have to turn the verb into a passive, locative, and instrumental voice. Any adequate explanation of the historical development of these two systems would thus ideally derive both typologically unusual phenomena using a single explanatory device.

Subject-Only Restriction is exemplified in the data from Tagalog in (24) (from Rackowski and Richards 2005:566). For extraction or *wh*-movement of a location, the verb has to be in locative voice which causes the location to surface as a subject. Extraction under other voices is ungrammatical.

- (24) a. *Sino aŋ b-in-igy-an ŋ lalaki ŋ bulaklak?*
 who NOM ASP-give-LV GEN man GEN flower
 “Who did the man give the flower to?”
- b. **Sino aŋ i-b-in-igay ŋ lalaki aŋ bulaklak?*
 who NOM BV-ASP-give GEN man NOM flower
 “Who did the man give the flower to?”
- c. **Sino aŋ n-agbigay aŋ lalaki ŋ bulaklak?*
 who NOM AV-ASP-give NOM man GEN flower
 “Who did the man give the flower to?”

One of the advantages of the proposal on the development of AN voice system outlined above is precisely the fact that Subject-Only Restriction follows automatically if we assume that non-active voice marking affixes go back to preposition and that, on the other hand, active voice marking affixes originate in transitivity markers.

We know that restrictions against extraction from prepositional phrases are typologically very common. We also know that Austronesian languages exhibit robust restriction against extraction from prepositions:

for example in Tagalog preposition stranding is not allowed. This is illustrated in (25) (Tagalog data from Sabbagh).

- (25) a. *Para kanino b-um-ili si Pedro ng pagkain?*
 for who(OBL) AV.buy NOM Pedro GEN food
 “For who(m) did Pedro buy food?”
 b. **Kanino b-um-ili si Pedro ng pagkain para?*
 who(OBL) AV.buy NOM Pedro GEN food for
 “For who(m) did Pedro buy food?”

If we assume that Proto-Austronesian, just like Austronesian languages today and just as is typologically common cross-linguistically, exhibited restriction against extraction from preposition, the Subject-Only Restriction follows automatically from the new proposal: Subject-Only Restriction goes back to restriction against extraction from preposition before the reanalysis to voice system took place. We reconstructed in (17) a surface structure of a Proto-Austronesian sentence with an internal and external argument as well as with adjuncts LOCATION and INSTRUMENT. All arguments are marked and governed by a preposition, except for subject, as is the case in today’s Tondano and Saisiyat. The structure is repeated in (26).

- (26) VERB *en*-DIRECT.OBJECT *Si*-INSTRUMENT *an*-LOCATION SUBJECT

According to restriction against extraction from PP, only subject can get extracted, precisely because it is not governed by a P. However, when the operation preposition → preverb is employed to mark for semantic prominence, the prominent argument ceases to be governed by preposition, which means that restriction against extraction from PP does not apply anymore. The prominent argument can now be extracted because it is no longer governed by P. Because only one preverb is allowed to surface on the verbal head in PAN,¹⁷ only one argument can be marked as prominent, surface unmarked (not governed by P), and therefore be able to extract.

When the reanalysis occurs on the basis of unmarkedness for case of the prominent argument (as described in section above), the restriction against extraction from PP gets automatically reanalyzed as the Subject-Only Restriction. In other words, the ungoverned arguments which are the only ones that allow extraction get reanalyzed as subjects. As a consequence, only subject, or in other words, semantically prominent argument, can be extracted.

It is also easy to see how reanalysis causes agents to be marked by P. We reconstructed a surface sentence structure of PAN whereby only subjects (at that point agents) were not governed by a P. However, when reanalysis of unmarked prominent argument to subjects occurs, agents do not surface in subject position anymore. As such, they have to be marked with P under the requirement that all arguments be marked except for subjects. Example below shows such marking in Saisiyat (data from Hsieh and Huang 2006:94).

- (27) *Korkoring si-Sebet ni 'oya' hi Kizaw.*
 child IV-beat GEN mother ACC Kizaw
 “Mother beat Kizaw for the child.”

The agent of the sentence in (27) is *'oya'* ‘mother’. However, because the verb is in instrumental (benefactive) voice and all arguments but subjects must be marked in Saisiyat, the agent (which is not a subject anymore) receives a preposition/case marker *ni* (gen.) that marks its non-subject status and could be compared to a *by*-phrase in asymmetrical voice systems. This secondary marking of subject in turn led to restriction against extraction of agents as well: because they become governed by P under the pressure that all non-subject arguments be marked, they cannot be extracted.

17. The reason we can reconstruct only one preverb allowed on the verbal head is that voice affixes usually do not combine.

This analysis holds regardless of whether we analyze PAN or AN languages as accusative or ergative. Traditionally, AN case system is analyzed as accusative and I adopt this stand-point for the purposes of this paper. However, some scholars analyze AN as featuring ergative case marking system in which external argument of verbs in active voice patterns together and is marked identically as internal argument of verbs in non-active voice (see Aldridge 2004, 2014, 2016 and recently Mticho for opposing views). Proponents of nominalization hypothesis also argue that rise of ergativity is an argument in favor of the nominalization hypothesis. However, descriptive generalizations are easily derivable under the new proposal for the origin of PAN voice system regardless of which of the two options — accusative or ergative — we posit as a synchronic analysis. Historically, an agent under non-active voice gets governed by P under the generalization reconstructed for PAN that all non-subject arguments be overtly marked. This overt marking can be seen as an equivalent of a *by*-phrase in non-symmetrical voice systems and can be analyzed as an ergative or accusatives system.

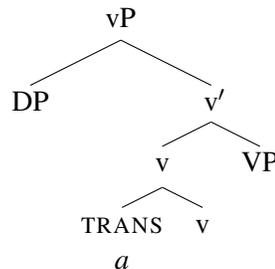
In sum, the new explanation of the origins of PAN voice system is capable of deriving two unusual morphosyntactic and syntactic phenomena with the same common historical syntactic device: reanalysis. Subject-Only Restriction automatically follows if we assume voice markers go back to prepositions: SOR developed from restriction against extraction from PP after the reanalysis took place and the semantically prominent argument (that ceases to be governed by P) was reanalyzed as a subject of the clause.

7 A Synchronic Analysis

The historical account outlined above bears consequences for the synchronic analysis of Austronesian voice as well. AN voice markers are analyzed in Peterson (2007) as applicatives. In this section, I show how different pre-PAN syntactic structures derived the PAN system of high and low applicatives (for a detailed analysis of applicatives, see Pylkkänen 2000; McGinnis 2001). The crucial element in this development was reanalysis. I argue that the placement of applicatives (specifically, the distinction between high and low applicatives) in today’s system directly reflects the previous synchronic stages.

Let us first reconstruct a syntactic analysis for the earliest stages of PAN. I argued above that the active voice affix **-um-* (and later **maŋ-*, and **mar-*) functioned as a transitivity marker. There are two ways to account for the structure of transitivity markers. One is outlined in Collins (2003:19ff.), who assumes that the transitive marker in Ju|’hoansi and †Hoan, *-a*, is base-generated as an adjunct to v^0 . Collins’ analysis is illustrated in (28).

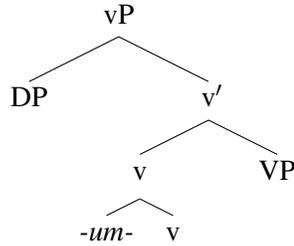
(28)



Since *-a* is a suffix, Collins (2003) has to assume movement and adjunction of the verbal head. If we adopt the same analysis for **-um-* (and **maŋ-*, and **mar-*), we get the three affixes adjoined within vP , which correctly predicts that they precede the verbal head (assuming, of course, that no additional movement occurs). The diachronic analysis thus matches well with the synchronic affix placement. The fact that the intransitive marker gets infixes via some morphosyntactic operation could be another indication that the transitivity marker is base-generated quite low, inside vP . Consider the structure in (29).¹⁸

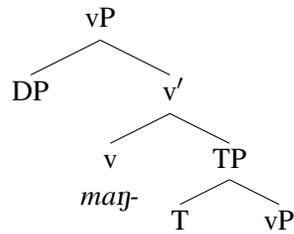
18. I follow a more traditional formalism for representing syntactic structure, but the trees can be easily adjusted to conform to

(29)



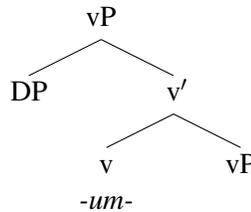
This analysis, however, fails to structurally explain the difference in affix placement between transitive and intransitive verbs. A related but slightly different analysis captures the affix ordering even better. On this analysis, we assume that the light verb **maj-* (in other words, the causative or transitive affix) takes the whole CP or TP as its complement. Since the reconstruction developed above predicts that **maj-* goes back to a verbal element **TAKE*, an analysis in which **maj-* takes CP or TP as a complement aligns very well with this historical analysis. We thus correctly predict the affix to precede the verb.

(30)



On the other hand, we could assume that the intransitive marker **-um-* takes only a vP as its complement.

(31)



This analysis incorporates the surface differences between the transitive and intransitive markers into the structure: the intransitivity-marking affix surfaces closely to the verbal head, allowing it to straightforwardly surface as an infix through some morphosyntactic operation, whereas the transitivity-marking affix surfaces further from verbal head and must therefore surface as a prefix. Regardless of which approach we assume, the historical analysis aligns perfectly with the synchronic syntactic theory and correctly predicts affix placement for voice-marking affixes.

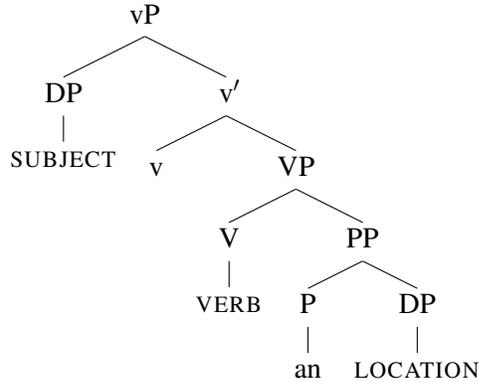
Implications of the historical approach are even more significant for the synchronic analysis of other voice-marking affixes. I proposed above that **-en*, **-an*, and **Si-* originated as prepositions. Following the syntactic analysis in section 4, let us assume that prepositions in PP start out as complements or adjuncts to VP.¹⁹ The reconstructed surface structure is again given in (32). The vP in this surface structure is shown in (33).

(32) VERB LOCATION-*an* SUBJECT

any theoretical framework.

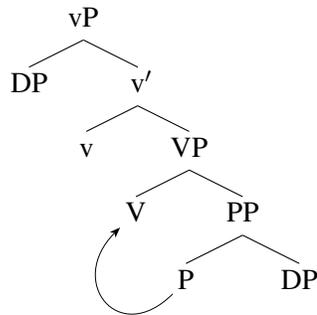
19. For a similar syntactic structure but a different set of affixes, see Starosta et al. (1981, 1982).

(33)



Semantic operation then movement of P closer to the verbal head (causing the promotion of the preposition to a preverb, discussed in section 3 above). This means that the P moves to the V through head-to-head movement.²⁰

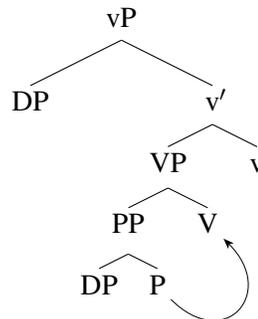
(34)



Crucially, the reconstruction of these historical syntactic structures correctly predicts that affixes that go back to prepositions follow the verbal head. Exactly the same analysis can be used to derive the fact that Sanskrit preverbs precede the verbal head once they move out of P: Sanskrit, unlike PAN, is a head-final language, which explains the different affix placement. That word-order influences placement of affixes was noted already in Starosta et al. (1981, 1982). My proposal offers a structural explanation for this typological phenomenon.

The structure in (35) shows that, in Sanskrit, the affixes precede the verbal head simply by virtue of (i) Sanskrit's status as a head-final language and (ii) the movement of P to V.

(35)



We have seen so far that this analysis works for all affixes except the instrumental prefix **Si-*. However, I have suggested above, following Ross (1995) and Peterson (2007), that **Si-* likely originated as a verbal element. I propose that it developed into a preposition only later, preserving a hint of its verbal nature in the fact that it precedes the verbal head. It would also be feasible to assume that **Si-* at some stage of

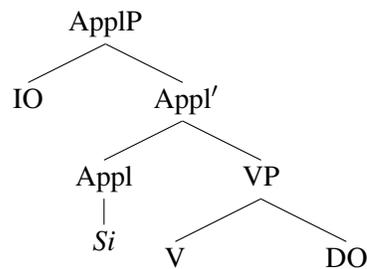
20. Alternatively, we could assume that verbs are adjoined in the VP when they get incorporated (for incorporation analyses, see Baker 1988; Garrett 1990), but such an account could not capture the difference between verb-initial and verb-final languages.

development functioned as an adverb and was therefore base-generated above V in the structure — this analysis would also explain why **Si-* precedes the verb. Note that, when **Si-* gets replaced by another affix, the innovative affix follows the verbal head (this occurs, for example, in Chamorro; see section 2.6). This, again, suggest that **Si-* was specially marked for preceding the verbal head; when innovation occurs, new markers follow our predictions and surface after the verbal head.

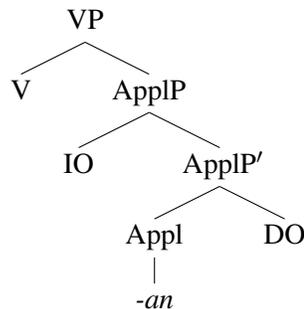
Historical analysis of the syntactic structures implicated in the development of the PAN voice system correctly predicts the placement of affixes in the daughter languages: the intransitivity marker **-um-* is base-generated within the vP (or takes vP as a complement) and becomes an infix through a morphosyntactic operation; the transitivity marker **man-* takes the whole CP or TP as a complement and precedes the verbal head; other affixes (except for **Si-*) follow the verbal head in a head-initial language because they are base-generated as heads of PP which get moved to V via head-movement.

Above, I outlined a syntactic analysis of the PAN verbal system before reanalysis of prepositions occurred. At this point, internal arguments and adjuncts were still base-generated in their corresponding positions. However, once the morphologically unmarked arguments of the former prepositions were reanalyzed as verbal subjects, the system developed into a system of applicative heads (for a general discussion of applicative heads, see Pylkkänen 2000). McGinnis (2001) argues that applicative heads can be low or high (or I- and E-applicatives). I assume that the variation between low and high applicatives is not only found across languages (like English vs. Chaga), but also within languages, and propose the following structure for AN voice affixes. The trees in (36) and (37) show the difference in structure between the two types (IO = indirect object and DO = direct object, based on McGinnis 2001).

(36)



(37)



Crucially, the deep syntactic structure of the previous stages is preserved: previous affixes that preceded the verbal head are now base-generated as high applicatives, whereas the ones that followed the verbal head (P heads that moved to V) are now base-generated as low applicatives.

8 Outstanding issues

This paper has offered an account of the origins of AN voice-marking affixes for independent forms, for perfective/past forms and for future-general forms (sections 2.1 and 4). The history and development of the dependent and imperative paradigms has been set aside, obscured by a lack of sufficient comparative data.

Problems in the analysis of these paradigms arise already at the reconstruction level. Some new proposals were put forward after the reconstruction in Wolff (1973), the most prominent being Ross (1995) and Ross (2009) (cf. also Starosta 1995, Aldridge 2015), but clearly more research is needed. Moreover, unlike the affixes discussed above, the affixes of the independent and imperative paradigms do not show multiple side functions, rendering their prehistory even more obscure. Perhaps the most plausible explanation is that these affixes, too, originated in prepositions, and that they underwent a similar development to the one described for their independent voice-marking counterparts. This stance is essentially argued for in Starosta et al. (1981, 1982). More data and research, however, is need for more conclusive results.

Another aspect worthy of further research is the prepositional origin of passive, instrumental, and locative voice markers. I have presented strong indirect evidence in this article for the prepositional origins of **-en*, **-an*, and **Si-*, but some direct evidence in this direction would strengthen this proposal further. Perhaps the most promising direct evidence in favor of the prepositional origins of the affixes comes from the observation that, in some languages, voice-marking affixes are reported to have a case-marking function. Kaufman (forthcoming) points out that in “Amis, Saisiyat, Seediq, and Rukai, among others, traces of either **-en* or **-an* (or even both) are found in a case-marking function on pronouns and animate nouns.” The fact that these two affixes govern pronouns and that they likely were case markers at some point speaks strongly in favor of their prepositional origin. From a grammaticalization perspective we know that the most common origins of case markers are prepositions. The fact that the affixes govern pronouns is also highly problematic for the nominalization hypothesis. If the affixes go back to nominalizers, it is hard to motivate why they would nominalize pronouns as well. More research and new data in this direction have the potential to bring further evidence to strengthen the proposal above.

9 A Parallel: Dinka

Ideally, an adequate historical explanation of a phenomenon has parallels in developments of other languages and language families. We saw that AN voice system is a typologically highly unusual morphosyntactic system. However, it has been discovered in the recent work by Yoshitaka Erlewine et al. (2014) that Dinka, a Western Nilotic Language (Andersen 1991) features a morphosyntactic system highly reminiscent of AN voice system. The authors show the crucial properties are identical in the two voice systems.

Yoshitaka Erlewine et al. (forthcoming) and Van Urk (2015) identify three voices for Dinka: actor (AV), patient (PV), and oblique voice (OV). The following examples from Van Urk (2015:69) illustrate Dinka voice system.²¹ When the agent surfaces in subject position, the verb is marked for actor voice (39a), when the patient is in the subject position, patient voice is marked on the verb (39b). If an argument with an instrumental semantic role surfaces in subject position, we get oblique voice (39c).

- (38) a. *Áyén à-cé cūin câam nè paäl.*
 Ayen 3SG-PERF.SV food eat.NF PREP knife
 “Ayen has eaten food with a knife.”
- b. *Cūin à-cī Áyèn câam nè paäl.*
 food 3SG-PRF.PV Ayen.GEN eat.NF PREP knife
 “Food, Ayen has eaten with a knife.”
- c. *Paäl à-cénè Áyèn cūin câam.*
 knife 3SG-PRF.OV Ayen.GEN food eat.NF
 “With a knife, Ayen has eaten food.”

Oblique voice forms encode not only instrumental semantic relations, but among others also directional, temporal, possessive, and relationship equivalent to English ‘about’ (Van Urk 2015:75). Examples in (39)

21. Marking of breathy and creaky voice have been omitted from the discussion.

illustrate two such functions: directional and temporal. For each of the two functions two sentences are presented: one with verb in active voice and one with verb in oblique voice. Under active voice, the directional or temporal argument has to be marked by a preposition.

(39) Directional

- a. *uʒək áa-kàt è jó.*
cows 3PL-run.SV PREP dog
'The cows are running from the dog.'
- b. *Jó à-kéet-è uʒək*
dog 3SG-run.OV cows.GEN
'The dog, the cows are running from.'

(40) Temporal

- a. *Bòl à-cé Àyén tíiη nè ákól-ìc.*
Bol 3SG-PRF.SV Ayen see.NF PREP afternoon-inside
'Bol has seen Ayen at noon.'
- b. *Ákól-ìc à-cé-nè Bòl Àyén tíiη*
afternoon-inside 3S-PRF.OV Bol.GEN Ayen see.NF
'At noon, Bol has seen Ayen.'

In the following I will discuss properties common to both systems that were identified in Yoshitaka Erlewine et al. (forthcoming) and Van Urk (2015). In both Dinka and AN we have one prominent argument that surfaces in the prominent or subject position. In Dinka's case this is the initial position. Depending on the semantic role of that argument, the special role is marked on the verb or in the case of non-present tense on the auxiliary. Just like in AN, the agent under non-active voice receives genitive marker which can be analyzed as an equivalent to a *by*-phrase in asymmetrical voice systems. The genitive marking of agent under non-active voice is illustrated in (38a) and (38b) above where the agent in nom. *Àyén* under active voice turns into gen. *Áyèn* under non-active patient and oblique voices.

Just like in AN, Dinka has a Subject-Only Restrictions or, in other words, restriction against A'-movement of non-subject argument. Examples in (41) (from Yoshitaka Erlewine et al. forthcoming) show that the voice marker on the verb has to agree with the semantic role of the extracted argument.

- (41) a. *Yeηà cé cuîn câam nè pàl?*
who PRF.AV food eat.NF PREP knife
'Who has eaten food with a knife?'
- b. *Yeηú cū Àyèn câam nè pàl.*
what PRF.PV Ayen.NOM eat.NF PREP knife
'What has Ayen eaten with a knife?'
- c. *Yeηú cénnè Àyèn cuîn câam.*
what PRF.OV Ayen.NOM food eatNF
'What has Ayen eaten food with?'

Similarly to what I reconstruct for PAN, DPs cannot be extracted out of a PP unless the extraction is overtly marked on the verb. The following examples illustrate this generalization (from Yoshitaka Erlewine et al. forthcoming:5). (42a) features the preposition in situ, (42b) extraction of the whole PP, and (42c) extraction of the argument, whereby the extraction is marked on the verb (as a oblique voice) and preposition does not surface. Extraction of DP from PP without such marking is not allowed (42d).

- (42) a. *Wòək cé cuîn cām ne pàl.*
we PRF food eat PREP knife

- “We ate food with a knife.”
- b. *Ne pàl, wòòk cé cuín cáam.*
 PREP knife we PRF food eat
 With a knife, we ate food.?
- c. *Pàl a-cí wòòk cuín cáam.*
 knife DCL.SG-PRF.NS we food eat
 “With a knife, we ate food.”
- d. **Pàl, wòòk cé cuín cáam.*
 knife we PRF food eat
 “With a knife, we ate food.”

Finally, another striking similarity exists between AN and Dinka voice systems. Our reconstructed PAN system allowed only one preposition turning into a preverb per sentence or, in other words, only one preverb per verbal head. Likewise, in Dinka complex prepositions, such as *kènè* ‘with’ (which is likely composed of *kè* and *nè*) cannot enter voice marking paradigm. Instead, arguments governed by P *kènè* ‘with’ have to be governed by the preposition (from Van Urk 2015:76).

- (43) a. *Bòl à-thàt kènè Àyén.*
 Bol 3s-cook.sv with Ayen
 “Bol is cooking with Ayen.”
- b. **Àyén à-théer-è Bòl.*
 Ayen 3SG-cook.OV Bol.GEN
 “Ayen, Bol is cooking with.”

The most striking parallel in which Dinka behaves exactly as I have reconstructed for PAN is the fact that the oblique voice marker is actually the same as the preposition. The preposition in Dinka is *è* or *nè* and the voice marker is likewise *-è* or *-nè*, only that it surfaces as a suffix. Voice system in Dinka is thus almost identical to what I reconstruct for PAN. Prepositions turn to preverbs to mark semantic prominence of an argument. The only difference between the two is that in Dinka the prepositions still surfaces whereas in PAN they cease to function as prepositions. In other words, the origin of oblique voice marker in Dinka in fact still functions as a preposition.

In Dinka too reanalysis probably occurred that lead from a system of preposition-preverb marking to a voice marking system. The locus of reanalysis in Dinka is slightly different: arguments probably got focused and moved to left periphery together with the preposition → preverb operation to mark semantic prominence. Note that Dinka too allows pro-drop in initial position. We know that initial position is characteristic of subjects in Dinka. The locus of reanalysis is easy to see, especially because Dinka just like PAN allows pro-drop in initial position (see Van Urk 2015:113). Based on the surface structure and argument placement, the prominent argument gets reanalyzed as a subject, at which point the agent gets marked by a structural case—the genitive.

Dinka also conforms to the proposed synchronic syntactic structure that was developed in section 8 based on AN voice system. The preposition *è/nè* is base generated in PP as a complement to V and moves to V via head-movement. Essentially such an analysis is given in Van Urk (2015). Note that as head initial language, Dinka conforms to the generalization whereby, prepositions in head-initial languages turn to preverbs that follow the verb and surface a suffixes.

In sum, PAN voice system typologically highly unusual, but not completely isolate. The only known voice system reminiscent of the Proto-Austronesian one is found in Dinka, a Western Nilotic Language. The development and descriptive facts of both systems are highly reminiscent. I have shown that my explanation captures surface generalizations in both languages. This parallel thus considerably strengthens the proposed reconstruction of PAN voice system.

10 Conclusion

In this paper, I propose a new explanation for the origins and development of the voice system in Austronesian. I show that this typologically highly unusual morphosyntactic system finds quite typical origins in a transitive-marking system and a series of prepositions. More specifically, I claim that active voice markers developed from reflexives and transitivity markers (which go back to the verbal element **take*). Other voice-marking affixes go back to prepositions. The development from prepositions to the voice system crucially passed through an intermediate phase where the prepositions moved to VP and were reanalyzed as markers on the verb (a similar process was proposed, in a different context and for different suffixes, in Starosta et al. 1981, 1982). Once the DP that was originally governed by the preposition-come-preverb becomes morphologically unmarked, reanalysis occurs and the DP starts functioning as an external argument (subject) to the verb. The development from preposition to nominalizing affix is even more straightforward: I argue that this transition took place via an intermediate stage at which prepositions formed compounds. The infix **-in-* is argued to go back to a perfective aspect marker and its nominalizing function can easily be derived from there.

Several aspects of the AN voice system that were previously difficult to explain follow straightforwardly from my proposal. First, my analysis accounts for asymmetries between the active voice and other voices in the paradigm. Second, promotion of focused arguments to the subject position is understood as the result of movement of prepositions to the verbal head (which was likely semantically motivated) followed by reanalysis on the basis of case marking. Third, my analysis unifies two of most prominent aspects of PAN voice system: promotion to subjects and semantic prominence. Fourth, other less prominent functions of the affixes are easily explained by this analysis: for example, inchoative- and intransitive-marking functions of **-um-* follow from the affix's earlier origin as a reflexive marker. Fifth, I show that Subject-Only Restriction follows automatically from my proposal: SOR goes back to restriction against extraction from PP. The system proposed above also predicts certain broader tendencies in the development of the voice-marking system. Several later developments are easily explained under my approach, including the replacement of **-an* with **-i*, the introduction of the prefixes **maŋ-* and **mar-*, and the introduction of reflexive marking into the active voice paradigm in Ilokano. I anticipate that future research will reveal even more such tendencies. Finally, I show that the new explanation captures descriptive facts of another Austronesian-like voice system: the voice system of Dinka. Most of the crucial generalizations and reconstructions of the two systems agree and are easily derivable under my explanation: an aspect that importantly strengthens the proposal.

One of the goals of this paper has been to show how a historical analysis offers insight into synchronic syntactic structure. Historical analysis makes the right predictions for affix placement: active voice markers precede the verb because they originated as light verbs and took CP/TP or *v*P as their complement. Voice-marking prepositions follow the verb in a head-initial language as a result of the movement of P to V and V to *v* in the development of PAN. This analysis also captures the typological differences between head-final and head-initial languages: in Sanskrit, preverbs precede the verbal head, while in Austronesian, they follow. After reanalysis, the system outlined above directly translates into a system with high and low applicatives, suggesting that the differences between high and low applicatives themselves project back to earlier stages of development of PAN.

Lastly, I discussed methodology of using internal reconstruction for reconstructing typologically unusual morphosyntactic phenomena. I propose that all attested functions of a given affix should be examined: potential origins of each function are established based on grammaticalization theory. All functions of a single affix are then taken together and the most likely origin is the one that explains the most functions of a given affix.

References

- Aldridge, Edith. 2004. *Ergativity and Word Order in Austronesian Languages*. Ph.D. dissertation, Cornell University.
- . 2014. Ergativity from Subjunctive in Austronesian Languages. *Proceedings of IsCLL-14*.
- . 2015. A Minimalist Approach to the Emergence of Ergativity in Austronesian Languages. *Linguistics Vanguard*. January 2015.
- . 2016. Ergativity from subjunctive in Austronesian languages. *Language and Linguistics* 17 (1): 27-62. doi: 10.1177/1606822X15613499
- Amritavalli, Raghavachari (2000). Lexical anaphors and pronouns in Kannada. In *Lexical Anaphors and Pronouns in Selected South Asian Languages: A Principled Typology*, edited by B. C. Lust, K. Wali, J. W. Gair, and K. V. Subbarao. Vol. 22. 49–112. Berlin: Walter de Gruyter.
- Andersen, Torben. 1991. Subject and Topic in Dinka. *Studies in Language* 15(2): 265-294. doi: 10.1075/sl.15.2.02and
- Antworth, Evan. 1979. *A Grammatical Sketch of Botolan Sambal*. Manila: Linguistic Society of the Philippines.
- Baker, Mark. 1988. *Incorporation: a theory of grammatical function changing*. Chicago: University of Chicago Press.
- . 1996. On the Structural Positions of Themes and Goals. In *Phrase Structure and the Lexicon. Studies in Natural Language and Linguistic Theory* 33, edited by Johan Rooryck and Laurie Zaring. 7-34. Dordrecht: Springer.
- Blust, Robert. 2002. Notes on the History of ‘Focus’ in Austronesian. In *The History and Typology of Western Austronesian Voice Systems*, edited by Fay Wouk and Malcolm Ross, 63–80. Canberra: Pacific Linguistics, Research School of Pacific and Asian Studies, The Australian National University.
- . 2013. *The Austronesian Languages*. Canberra: Pacific Linguistics, Research School of Pacific and Asian Studies, The Australian National University.
- . 2015. The Case-Markers of Proto-Austronesian. *Oceanic Linguistics*, 54(2), 436-491. doi: 10.1353/ol.2015.0024
- Bril, Isabelle. 2005. Semantic and functional diversification of reciprocal and middle prefixes in New Caledonian and other Austronesian languages. *Linguistic Typology* 9: 25-76. doi: 10.1515/lity.2005.9.1.25
- Chung, Sandra and Maria Polinsky. 2009. Introduction. *Natural Language and Linguistic Theory* 27(4): 659-73.
- Collins, Chris. 2003. The Internal Structure of vP in Ju|’hoan and †Hoan. *Studia Linguistica* 57:1-25.
- Dahl, Otto Ch. 1973. *Proto-Austronesian*. Scandinavian Institute of Asian Studies Monograph Series 15. Lund: Studentlitteratur.
- . 1986. Focus in Malagasy and Proto-Austronesian. In *FOCAL I: Papers from the Fourth International Conference on Austronesian Linguistics*. Pacific Linguistics series C-93, edited by Paul Geraghty, Lois Carrington, S. A. Wurm. 21-42. Canberra: Australian National University.
- Déchaine, Rose-Marie and Martina Wiltschko. 2012. *The Heterogeneity of Reflexives*. Ms.
- Donohue, Cathryn and Mark Donohue. 2004. On the Special Status of Instrumentals. In *Proceedings of the LFG04 Conference*, edited by Miriam Butt and Tracy Holloway King. 209-225.
- Drinka, Bridget. 2003. *Historical Linguistics 2001: Selected papers from the 15th International Conference on Historical Linguistics, Melbourne, 13–17 August 2001*, edited by Barry J. Blake, and Kate Burridge. Vol. 237. 105–128. Amsterdam: John Benjamins.
- Foley, William A. 1976. *Comparative Syntax in Austronesian*. PhD diss., Department of Linguistics, University of California, Berkeley.
- Garrett, Andrew. 1990. Applicatives and preposition incorporation. In *Grammatical relations: A cross-theoretical perspective*, edited by Katarzyna Dziwirek, Patrick Farrell, and Errapel Mejías-Bikandi. 183-198. Stanford: Center for the Study of Language and Information.

- Gerassimova, Veronica, and Peter Sells. 2008. Long-distance dependencies in Tagalog: The case for raising. In *Proceedings of the 26th West Coast Conference on Formal Linguistics*, edited by Charles B. Chang and Hannah J. Haynie. 190-198. Somerville, MA: Cascadilla.
- Gerdt, Donna B. 1998. The Double Life of Halkomelem Reflexive Suffixes. *Proceedings of the First Workshop on American Indigenous Languages, Santa Barbara Working Papers in Linguistics* 8: 70-83.
- Heine, Bernd, and Tania Kuteva 2002. *World Lexicon of Grammaticalization*. Cambridge: Cambridge University Press.
- Helmbrecht, Johannes. 2008. Decay and loss of applicatives in Siouan languages: A grammaticalization perspective. In *Studies on Grammaticalization*, edited by Elisabeth Verhoeven, Stavros Skopeteas, Yong-Min Shin, Yoko Nishina, and Johannes Helmbrecht. 135-156. Berlin: Mouton de Gruyter.
- Himmelman, Nikolaus P. 2005a. The Austronesian languages of Asia and Madagascar: typological characteristics. In *The Austronesian Languages of Asia and Madagascar*, edited by K. Alexander Adelaar and Nikolaus P. Himmelman. 110-181. London: Routledge.
- . 2005b. Tagalog. In *The Austronesian Languages of Asia and Madagascar*, edited by K. Alexander Adelaar and Nikolaus P. Himmelman. 350-376. London: Routledge.
- Hsieh, Fuhui and Xuanfan Huang. 2006. The Pragmatics of Case Marking in Saisiyat. *Oceanic Linguistics* 45(1): 91-109.
- Huang, Lillian M. 2000. Verb classification in Mayrinax Atayal. *Oceanic Linguistics* 39(2):364-390.
- . 2001. Focus System of Mayrinax Atayal: a Syntactic, Semantic and Pragmatic Perspective. *Journal of Taiwan Normal University* 46:51-69.
- Huang, Shuanfan. 2002. The Pragmatics of Focus in Tsou and Seediq *Language and Linguistics* 3(4): 665-94.
- Janic, Katarzyna 2013. The Slavonic Languages and the Development of the Antipassive Marker. In *Current Studies in Slavic Linguistics*, edited by Irina Kor Chahine. 61-74. Amsterdam: John Benjamins.
- Kaufman, Daniel. 2009. On *pa-, *pa⟨R⟩- and *pa⟨ŋ⟩-. Handout at the 9th *International Conference on Austronesian Linguistics*, Aussois.
- . Forthcoming. On Proto Austronesian *-en and *-an. Abstract at the 13th *International Conference on Austronesian Linguistics*, Taipei.
- Keenan, Edward L. 1972. Relative clause formation in Malagasy. In *The Chicago which hunt: Papers from the relative clause festival*, edited by Paul M. Peranteau, Judith N. Levi, and Gloria C. Pharees. 169–189. Chicago Linguistic Society.
- Keenan, Edward L. and Matthew S. Dryer. 2007. Passive in the World's Languages. In *Clause Structure, Language Typology and Syntactic Description*, Vol. 1, edited by Timothy Shopen. 325-61. Cambridge: Cambridge University Press.
- Kikusawa, Ritsuko. 2012. On the Development of Applicative Construction in Austronesian Languages. *Bulletin of the National Museum of Ethnology* 36(4): 413-455.
- Kulikov, Leonid. Vedic preverbs as markers of valency-changing derivations. *Studies in Language* 36(4): 721-46.
- Lord, Carol D. 1989. *Syntactic Reanalysis in the Historical Development of Serial Verb Constructions in Languages of West Africa*. PhD dissertation, University of Southern California.
- McGinnis, Martha. 2001. Phases and the Syntax of Applicatives. In *NELS*, vol. 31.
- Nichols, Johanna. 1986. Head-Marking and Dependent-Marking Grammar. *Language* 62(1): 56-119.
- Pearson, Matthew. 2005. The Malagasy subject/topic as an A'-element. *Natural Language and Linguistic Theory* 23(2): 381-457.
- Pawley, Andrew, and Lawrence A. Reid. 1979. The evolution of transitive constructions in Austronesian. In *Austronesian Studies: Papers from the Second Eastern Conference on Austronesian Languages*.

- Michigan Papers on South and Southeast Asia, No. 15, edited by Paz Buenaventura Naylor. 103-130. Ann Arbor: Center for South and Southeast Asian Studies, University of Michigan.
- Peterson, David A. 1997. The Evolution of Applicative Constructions and Proto-Austronesian Morphosyntax. *Proceedings of the Twenty-Third Annual Meeting of the Berkeley Linguistics Society: General Session and Parasession on Pragmatics and Grammatical Structure*. 278-89.
- . 2007. *Applicative Constructions*. New York: Oxford University Press.
- Pittman, Richard. 1966. Tagalog *-um-* and *mag-*: An interim report. *Papers in Philippine linguistics* 1. 9-20. Canberra: The Australian National University.
- Polinsky, Maria and Eric Potsdam. Forthcoming. Austronesian syntax. In *Oceania*, edited by Bill Palmer. Berlin: Mouton de Gruyter.
- Pylkänen, Liina. 2000. What Applicative Heads Apply to. *Proceedings of the 24th Annual Penn Linguistics Colloquium. U. Penn Working Papers in Linguistics* 6(4).
- Rackowski, Andrea, and Norvin Richards 2005. Phase edge and extraction: A Tagalog case study. *Linguistic Inquiry*, 36(4), 565-599.
- Rankin, Robert L. 2003. The Comparative Method. In *The handbook of historical linguistics*, edited by Brian D. Joseph and Richard D. Janda. 183-212. Malden, MA: Blackwell.
- Ringe, Don. Internal Reconstruction. In *The handbook of historical linguistics*, edited by Brian D. Joseph and Richard D. Janda. 244-261. Malden, MA: Blackwell.
- Reid, Lawrence A. and Hsiu-chuan Liao. 2004. A brief syntactic typology of Philippine languages. *Language and Linguistics* 5: 433-90.
- Rivero, María Luisa. 2001. On impersonal reflexives in Romance and Slavic and semantic variation. In *Romance syntax, semantics and L2 acquisition*, edited by J. Camps and C. R. Wiltshire. 169–195. Amsterdam: John Benjamins.
- Rivero, María Luisa and Milena Milojević Sheppard. 2003. Indefinite Reflexive Clitics in Slavic: Polish and Slovenian. *Natural Language & Linguistic Theory* 21(1): 89-155.
- Robinson, Laura C. 2005. A grammatical sketch of Tindal Dusun. *University of Hawai'i Working Papers in Linguistics* 36(5):1-31.
- Ross, Malcolm D. 1995. Reconstructing Proto-Austronesian verbal morphology: evidence from Taiwan. In *Austronesian Studies Relating to Taiwan. Symposium Series of the Institute of History and Philology* 3, edited by Li, Jen-kuei, Cheng-hwa Tsang, Ying-kuei Huang, Dah-an Ho, and Chiu-yu Tseng. 727-91. Taipei: Academia Sinica.
- . 2002. The History and Transitivity of Western Austronesian Voice and Voice-Marking. In *The History and Typology of Western Austronesian Voice Systems*, edited by Fay Wouk and Malcolm Ross, 17-62. Canberra: Pacific Linguistics, Research School of Pacific and Asian Studies, The Australian National University.
- . 2006. Reconstructing the case-marking and personal pronoun systems of Proto Austronesian. In *Streams Converging into an Ocean: Festschrift in Honor of Professor Paul Jen-kuei Li on His 70th Birthday*, edited by Henry Y. Chang, Lillian M. Huang and Dah-an Ho. 521-564. Taipei: Institute of Linguistics, Academia Sinica.
- . 2009. Proto Austronesian verbal morphology: A reappraisal. In *Austronesian historical linguistics and culture history: A festschrift for Robert Blust*. Pacific Linguistics 601, edited by K. Alexander Adelaar and Andrew Pauley. Canberra: Research School of Pacific and Asian Studies, Australian National University. 295–326.
- Rubino, Carl. 2005. Iloko. In *The Austronesian Languages of Asia and Madagascar*, edited by Nilokaus P. Himmelmann and K. A. Adelaar. 326-349. London: Routledge.
- Rude, Noel. 1991. Verbs to promotional suffixes in Sahaptian and Klamath. In *Approaches to Grammaticalization*. Typological Studies in Language 19, edited by Elizabeth C. Traugott and Bernd Heine. 185-199. Amsterdam: John Benjamins.

- Sabbagh, Joseph. 2008. Right node raising and extraction in Tagalog. *Linguistic Inquiry* 39(3): 502-511.
- Sneddon, James N. 1970. The Languages of Minahasa, North Celebes. *Oceanic Linguistics* 9(1): 11-36.
- Starosta, Stanley. 1982. The evolution of focus in Austronesian. In *Papers from the Third International Conference on Austronesian Linguistics*, vol. 2, edited by Halim Amran, Lois Carrington, and S.A. Wurm. 145-170. Canberra: Pacific Linguistics.
- . 1995. A Grammatical Subgrouping of Formosan Languages. In *Austronesian Studies Relating to Taiwan. Symposium Series of the Institute of History and Philology* 3, edited by Li, Jen-kuei, Cheng-hwa Tsang, Ying-kuei Huang, Dah-an Ho, and Chiu-yu Tseng. 727-91. Taipei: Academia Sinica.
- Starosta, Stanley, Andrew Pawley, and Lawrence A. Reid. 1981. The Evolution of Focus in Austronesian. In *Third International Conference on Austronesian Linguistics*. 329-481.
- . 1982. The evolution of focus in Austronesian. In *Papers from the Third International Conference on Austronesian Linguistics*, vol. 2, edited by Halim Amran, Lois Carrington, and S.A. Wurm. 145-170. Canberra: Pacific Linguistics.
- Tsunoda, Tasaku. 1981. Split case-marking in verb types and tense/aspect/mood. *Linguistics* 19: 389-438.
- Van Urk, Coppe. 2015. *A uniform syntax for phrasal movement: A case study of Dinka Bor*. Ph.D. thesis, MIT.
- Wagner, Laura. 2012. Primary Language Acquisition. In *The Oxford Handbook of Tense and Aspect*, edited by R. Binnick. 458-480. Oxford: Oxford University Press.
- Wolff, John. 1973. Verbal inflection in Proto-Austronesian. In *Parangal Kay Cecilio Lopez (Essays in Honor of Cecilio Lopez on his Seventy-fifth Birthday)*, edited by Andrew Gonzalez. 71-94. Quezon City: Linguistic Society of the Philippines.
- . 1995. The position of the Austronesian languages of Taiwan within the Austronesian group. In *Austronesian Studies Relating to Taiwan. Symposium Series of the Institute of Linguistics, Academia Sinica* 1, edited by P.J.-K. Li, D.-A. Ho, Y.-K. Huang, C.-H. Tsang, and C.-Y. Tseng. 521-83. Taipei: Institute of History and Philology, Academia Sinica.
- Wouk, Fay and Malcolm Ross (eds.). 2002. *The history and typology of Western Austronesian voice systems*. Canberra: Pacific Linguistics.
- Yeh, Marie Meili. 2011. Nominalization in Saisiyat. In *Nominalization in Asian Languages*, edited by Foong Ha Yap, Karen Grunow-Hårsta, and Janick Wrona, 561-88. Amsterdam: John Benjamins.
- Yoshitaka Erlewine, Michael, Theodore Levin, and Coppe van Urk. 2014. What makes a voice system? On the relationship between voice marking and case. To appear in *Proceedings of the 21st meeting of Austronesian Formal Linguistics Association (AFLA 21)*. Submitted August 2014.