

The Origins of the Voice System and Subject-Only Restriction in Austronesian

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Abstract

The Philippine-style Austronesian voice system (AVS), which serves to identify a single privileged argument leading to the Subject-Only Restriction, is well-known for its highly articulated nature. While the synchronic status of the AVS has been explored extensively, its diachronic development is less clear. This paper fills the gap in our understanding of the development of the AVS while simultaneously exploring the effectiveness of internal reconstruction as a tool of historical syntax. I argue that both voice marking and the nominalizing function of the AVS affixes were already present at the Proto-Austronesian stage. The analysis presented here capitalizes on simple and independently motivated syntactic phenomena: case marking, the shift from prepositions to preverbs, and reanalysis. Based on these features, I show that the AVS developed out of the reanalysis of reflexive markers into markers of intransitivity and out of prepositions incorporated into the verb complex; these two different sources of voice marking explain why the morphological exponents of different voices are differently positioned in the verb form. The proposed reconstruction straightforwardly accounts for a number of AVS properties, including the prominence of arguments promoted to subject position, the 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. The historical analysis also has implications beyond Austronesian, in allowing us to explain the cross-linguistic distribution of adpositions and preverbs and to capture the descriptive facts of a similar morphosyntactic system outside Austronesian: the voice system in Dinka.

Keywords: historical syntax, morphosyntax, Austronesian languages, voice, Subject-Only Restriction, internal reconstruction

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 a 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.” 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 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.' (Blust 2013:441-4)

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) is oftentimes 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:² 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 AVS 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) show location, beneficiary, and instrument DPs in subject position with respective voice markers.³

- (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.' (Blust 2013:441-4)

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 AVS, on the other

2. I use the term "by-phrase" to denote non-active-voice sentential agents that receive structural case marking. An anonymous reviewer notes that there are some differences in *by*-phrases between symmetrical and non-symmetrical voice systems — the main difference being that *by*-phrases are optional in asymmetrical voice systems and obligatory in symmetrical voice systems. However, for the purposes of this paper, there exist enough common features between the two to warrant a unified treatment. Most importantly, in both systems, *by*-phrases serve as agents in non-active-voice sentences and must be governed by a case marker.

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

hand, are very heterogeneous; among the treatments proposed in the literature are those relying on focus or topic marking, in other words, the marking of a constituent in a clause-external A-bar position, or case marking as encoded on the verbal head rather than on the dependent DP (Huang 2001).⁴ The motivations that drive scholars to analyze the AVS as a focus or topic 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). What all these proposals converge on is the conception that a constituent indexed by a particular voice marker somehow stands out, either discursively (pragmatically) or syntactically.

Much less work has been done on determining how the typologically unusual AVS developed historically. Some aspects of the historical development 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 (cf. Dahl 1973, 118ff.; Pawley and Reid 1979; Starosta et al. 1981, 1982; Blust 2002; Ross 2002; Aldridge 2016). 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. Two main lines of thought emerged in the literature:

- (3) a. The affixes originally had the nominalizing function, which led to the development of the voice system. (Starosta et al. 1981, 1982)
- b. The affixes originally functioned as voice markers; the nominalizing affixes emerged from this function. (Dahl 1973)

How did the AVS 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 in (3) 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. I show that its functions relate to the diachronic shift from prepositions to preverbs and from reflexives to voice markers. 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

4. 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 AVS in the syntactic literature, there has been almost no consensus reached so far on how to synchronically analyze this unusual phenomenon.

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.

This paper is structured as follows: in the first part, I present the reconstructed PAN voice system (from Wolff 1973). In section 3, I discuss previous accounts of the development of the AVS and point to their weaknesses. Section 4 discusses methodology, section 5 presents my new proposal on the origins of PAN voice system, section 6 shows that the Subject-Only Restriction automatically follows from my proposal, and section 7 outlines the synchronic implications of this new explanation. In section 8, I show that my analysis and reconstruction for AN finds an exact parallel. Section 9 concludes the paper.

2 Proto-Austronesian Voice System

Wolff (1973) reconstructs four morphologically distinct voices for Proto-Austronesian:

- (4) PAN featured a system with active, passive, locative, and instrumental voice.⁵

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). Below I discuss each of the four reconstructed voices as well as additional functions that voice-marking affixes served in PAN.

2.1 The Active Voice

In this section, I discuss three affixes that have been connected to active voice marking: **-um-*, **maŋ-*, and **mar-*. All three affixes feature additional functions besides the voice marking function; these functions provide crucial information about the affixes' pre-history.

2.1.1 **-um-*

In PAN, the active voice was marked on verbs by the infix **-um-*. The affix **-um-* differs from the other three voice-marking affixes (passive, locative, and instrumental voice) 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.

The affix **-um-*, beside active voice marking, also shows two other functions: intransitive marking and inchoative marking. Although these functions have been noted in the literature, 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

5. 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.

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, together with the fact that verbs with **-um-* are in PAN almost always intransitive, suggests that, at some stage of development, **-um-* had an intransitive-marking function.

The third function of **-um-* and its origins are even less discussed: data show that reflexes of **-um-* produce an inchoative reading. The infix is preserved as an inchoative marker in Western Malayo-Polynesian, for instance.⁶ The following examples illustrate this function: Bontok *btkas* ‘energetic’ vs. *b-um-ikas* ‘he is becoming energetic’; Tagalog *sakít* ‘pain’ vs. *s-um-akít* ‘become painful’; Tindal Dusun *gayo* ‘big’ vs. *g-um-ayo* ‘become big’; Mukah *gaduŋ* ‘green’ vs. *mə-gaduŋ* ‘become green; make something green’ (from Blust 2013:383).

The two additional functions of **-um-*, intransitive and inchoative marking, are likely related: inchoatives and intransitives often pattern together. For example, intransitives of certain causative verbs function as inchoatives across languages and the intransitive/inchoative morphology can be overt, related to reflexives or passives (Alexiadou and Anagnostopoulou 2004; Levin and Rappaport Hovav 1995).

2.1.2 **maŋ-*

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, Malayo-Polynesian 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. 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, **maŋ-* does preserve its transitivity-marking function. In such systems, **-um-* and **maŋ-* exhibit a pattern of complementary distribution according to verbal transitivity. One such system occurs in Kelabit, where the prefix **maŋ-* (which develops to Kelabit *ŋ-* and is reflected as nasalization of the root-initial stop through the process called “nasal substitution”; see Blust 2004) 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 *ŋ-* < **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 prefix *ŋ-* < **maŋ-* and epenthesis) ‘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,⁷ e.g. Kelabit *riər* ‘turn’ vs. *ŋə-riər* ‘make something turn’ → ‘turn something’. This distinction clearly

6. 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.

7. Beside the more usual **pa-*. For discussion, see section 5.1.

suggests that **maŋ-* once functioned as a transitivity/causative marker and later got incorporated into the voice-marking paradigm.

2.1.3 **mar-*

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* ‘to speak Tagalog’.⁸ 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 inchoatives⁹. 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.

2.2 The Passive Voice

The passive voice was marked in PAN by the suffix **-en*. Besides its voice-marking function, the suffix had another function: it served to form patient nominals from verbs. This double function — voice marking and nominalizing — is characteristic of non-active-voice affixes. Both of the other two non-active-voice affixes, locative **-an* and instrumental **Si-*, function as voice-marking and nominalizing affixes.

One example of the nominalizing function of the suffix **-en* 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

8. An anonymous reviewer pointed out to me that the 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.

9. For a discussion of the inchoative function, see 5.1.

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).

2.3 The Locative Voice

The reconstructed locative voice suffix is **-an*. The suffix requires promotion of the noun denoting location of the verbal action to the subject position. One illustrative example comes from Tagalog. When the agent is in subject position the verb is marked for active voice (5-a). When the location surfaces in the subject position, the verb is marked for locative voice (5-b).

- (5) a. *k-um-áin naŋ-dagà sa-piŋgan pára sa-áso aŋ-púsa*
 AV-eat GEN-rat OBL-plate for OBL-dog NOM-cat
 ‘The cat ate a rat on the plate for the dog.’
- b. *k-in-aín-an naŋ-púsa naŋ-dagà aŋ-piŋgan pára sa-áso*
 BEG-eat-LV GEN-cat GEN-rat NOM-plate for OBL-dog
 ‘The cat ate a rat on the plate for the dog.’ (Kaufman 2009a:3)

Beside the voice-marking function, the suffix also has nominalizing function: it 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. *títis-án* ‘ash tray’ or *hábi* ‘texture, woven pattern on fabric’ vs. *hábi-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 AN 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.

2.4 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 Paze, 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).¹⁰

10. 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-*.

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).

The example from Tagalog in (6) illustrates the voice-marking function of the *i-* prefix (< **Si-*). When the instrument/benefactive is in the subject position, the verb is marked for instrumental voice.

- (6) *i-k-in-áin naŋ-púsa naŋ-dagà sa-piŋgan aŋ-áso*
 IV-BEG-eat GEN-cat GEN-rat OBL-plate NOM-dog
 ‘The cat ate a rat on the plate for the dog.’ (Kaufman 2009a:3)

Like the **-en* and **-an* suffixes, **Si-* also probably had a nominalizing function: it formed 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.

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 function as deverbal and denominative nominalizers.

The table below summarizes the reconstructed PAN non-past-voice affixes (Blust 2013:438):¹¹

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

Table 1: PAN voice-marking affixes

2.5 Non-Past vs. Past

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 either perfective aspect or past tense.

11. 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.

The exact semantics is difficult to establish: reconstructions vary between reconstructing perfective and past-tense meaning; henceforth, I will term these forms past/perfective. The past/perfective affixes for the four reconstructed voices are:

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

Table 2: PAN past/perfective voice affixes

The pattern of marking past/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 past/perfective forms. For example, Tagalog *bili* ‘to buy’ forms the perfective benefactive voice form *i-b-in-ili* ‘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 deverbal (and occasionally denominal) 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 nouns denoting intended result of a given event. This function is consistent with the perfective reading of the stems because perfective is assessed with respect to the intended result. In other words, at some stage in the development **-in-* likely formed perfective 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-*.

2.6 Other paradigms

Beside non-past and past/perfective 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). Active and instrumental voice are lacking due to insufficient data that would allow the reconstruction.

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

Table 3: PAN future-general voice affixes

Nominalizations with the suffixes **-en* and **-an* can be formed both from non-past stems (see 2.2, 2.3, 2.4) and from future (reduplicated) stems. Examples of the nominalizing function within the future stem come from petrified derivatives such as Javanese *lə-lak-en* ‘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 voices 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

Table 4: PAN dependent voice affixes

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 function is quite striking (active vs. passive) and the homophony could be accidental, originating from two different suffixes. The suffix **-ay* is attested in the Formosan and Philippine languages as a future marker, e.g. Pazehe *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	?

Table 5: PAN subjunctive voice affixes

In what follows, I will discuss the voice systems of five attested AN languages that show different degrees of development from PAN. Four of these languages are presented as an illustrative sample and discussed already in Blust (2013): I follow his presentation and present the data from his presentation, as well as point to some facts and tendencies in these languages that will be crucial for our understanding of how the PAN voice system developed.

3 Previous Accounts

In this section I will briefly discuss previous accounts of the development of the AVS. There are basically two proposals in the literature, which differ crucially in their assumptions concerning which of the affixal functions presented above was original (see (3) above). 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 AVS 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.

3.2 Nominalizing Hypothesis

A much more thorough treatment of the origins of the AVS is presented in Starosta et al. (1981, 1982). The authors argue that the affixes discussed above (in Table 1) originally had only the nominalizing function, from which the voice system developed. They base their proposal on three descriptive facts about Austronesian:

- (7) a. The affixes show the nominalizing function across Austronesian languages, indicating that this function was original.
- b. The marker for genitive case/possessor 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.
- d. In addition, they note 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 (3-b) has serious disadvantages and is poorly motivated, but this does not mean that the opposite account (nominalization-first, (3-a)) 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. The fact that affixes can surface as prefixes (7-c), suffixes, and infixes implies, if anything, that the likely origins are heterogeneous, i.e. that they go back to multiple different sources rather than a single source (nominalizing affixes). The nominalization-first hypothesis provides no explanation for why affixes can have different placement.

The argument in (7-b) is not very convincing either. It is true that genitive/*by*-phrase/ergative syncretism is attested in languages that develop ergativity via nominalization (cf. Alexiadou 2001, Coon 2008) and the nominalization-first hypothesis connects ergativity with the development of the voice system. However, 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.

- (8) 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*-phrases are cross-linguistically "most usually an instrumental, locative, or genitive."

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: this voice-marking function is also attested across the family and is reconstructable for PAN. I will argue below that the voice and nominalizing function of the affix paradigm coexisted in PAN.

Despite these criticisms, my proposal for the development of the voice system is in some ways similar to what has been proposed in Starosta et al. (1981, 1982) and Pawley and Reid (1979). However, the similarities do not pertain to the development of the voice-marking affixes in Table 1. My proposal is in some ways similar to what Starosta et al. (1981, 1982) and Pawley and Reid (1979) reconstruct for the development of two other PAN suffixes: **-i* and **-aken*; however, my proposal also differs from these reconstructions in a number of ways. In the discussion below, I will claim that active-voice-marking affixes develop from reflexives and transitivity/intransitivity markers and that non-active-voice-marking affixes go back to prepositions that turn into preverbs. The voice system is reconstructed to arise through reanalysis: arguments previously governed by prepositions get reanalyzed as subjects.

Starting with similarities, Starosta et al. (1981, 1982) and Pawley and Reid (1979) claim that the affixes **-i* and **-aken*, which later incorporated into the dependent voice-marking paradigm, go back to prepositions. In fact, they probably still functioned as prepositions in the proto-language. The proposed development includes the major elements employed in my explanation of voice-marking affixes: prepositions get reanalyzed as verbal affixes and the corresponding argument gets expressed as a clausal argument — a direct object — not a PP.

The exact development of **-i* and **-aken* as reconstructed in Starosta et al. (1981, 1982) can be summarized as follows. PAN is reconstructed to be a verb-initial, ergative language. The prepositions **i* and **aken* initially governed DPs, but could be reanalyzed as verbal affixes due to proximity of the preposition to the verbal head. **i*, for example, had a locative function. In an ergative language, when “Locus actant, say, was reinterpreted as Patient and lost its **i* Preposition to the verb, it became the grammatical subject of the new verb, and the new **-i* suffix on the verb became a marker indicating that the subject of the sentence was situationally locational” (Starosta et al. 1981: 395). This is reconstructed to be the origin of the PAN “focus” system. According to Starosta et al. (1981, 1982), the original nominalizing affixes (in Table 1) developed their voice-marking function based on analogy with the focus system derived from **-i* and **-aken*.

Let me now turn to the ways in which the current proposal is different. Starosta et al. (1981, 1982) acknowledge that this system is something “very much like what is called ‘focus’ in Philippine linguistics,” but they do not envision such a trajectory for the development of the voice-marking affixes: “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 for subject reanalysis, propose different origins for the active-voice-marking affix, and provide an explanation for the Subject Only Restriction.

Several recent proposals have followed the nominalization hypothesis and tied voice system to the emergence of ergativity with some changes in the reconstruction of the PAN system itself (see Ross 2002, Ross 2009, Aldridge 2016). The main objections presented above pertain to these proposals as well. In the discussion below, I will also address specific aspects in which my proposal differs from the family of nominalization-first hypotheses and present argumentation in favor of my analysis.¹²

As already mentioned, Starosta et al. (1981, 1982) propose that only **-i* and **-aken* go back to prepositions, whereas other voice-marking affixes originated in nominalizers. Two recent proposals (Peterson 1997, 2007 and Kaufman, forthcoming), however, have argued that the voice-marking affixes in Table 1 go back to adpositions as well. Peterson’s (1997, 2007) proposal introduces an important contribution as 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*. The two proposals, however, lack an elaborate treatment of the development of voice system and face some similar problems to those faced by the nominalizing hypothesis. Peterson (1997, 2007), for example, 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.

12. Blust (2002) also discusses the origins of voice system by capitalizing on word order and the correlation between voice systems and verb-initiality. However, the proposal does not discuss the exact stages of the development. For yet another explanation, see Kikusawa (2012).

4 Methodology

Because the present paper relies heavily on internal evidence in the absence of comparative material, some clarifications on historical linguistic methodology are in order before we proceed.

Historical linguistics employs two methods for reconstructing non-existent previous stages of a language: the comparative method (Rankin 2003) and internal reconstruction (Ringe 2003). While the comparative method is more powerful and reliable, both methods have proven successful and are widely employed in historical linguistics. The process of reconstructing unattested stages of a proto-language usually starts with the comparative method, based on data from attested daughter languages. The comparative method is “a set of skills” that “involve comparison of cognate material from two or more related languages. Systematic comparison yields sets of regularly corresponding forms from which an antecedent form can often be deduced and its place in the proto-linguistic system determined” (Rankin 2003:183). The steps in the comparative method include (i) identifying cognates of two or more related languages, (ii) searching for recurring systematic correspondences in that set and (iii) reconstructing the linguistic content of the proto-language (cf. Rankin 2003).

The comparative method, however, has its limits. In particular, for successful application of the comparative method we need sufficient comparative data from at least two related languages. When this threshold cannot be reached and all we have are data from a single (perhaps already reconstructed) language, internal reconstruction is relied upon to fill in the gaps. Based on the reconstructed data of a single language (in our case, the reconstructed proto-language), we can further “recover” the language’s 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 success in internal reconstruction is thus the existence of a property in the reconstructed proto-language that has frequently been observed in attested linguistic data, has a well-known source, and has an established directionality of development.

An important question to raise is what makes internal reconstruction possible; and the answer lies precisely in the unidirectionality of language processes. Because language development usually follows well-established trajectories and change tends to operate consistently in a single direction for a given target and context, we can undo the change and reconstruct the proto-stage. The linguistic domain in which unidirectionality seems to be strongest is sound change; as a result, internal reconstruction has been most successfully employed in the domain of sound change.

To take a look at internal reconstruction in action, let’s assume that we have reconstructed a proto-language based on comparative data using the comparative method. We observe the following generalization: this language features two sounds, a voiceless velar stop [k] and a voiceless post-alveolar affricate [tʃ]. [k] surfaces before all vowels except 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, following which [tʃ] arose through palatalization: a very common sound change in which velars develop to post-alveolar affricates before front vowels. This reconstruction is justified 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 based solely 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 the tendency for [tʃ] to surface before front vowels was merely strong rather than categorical. Consider, for instance, a situation in which [tʃ] usually surfaces before [e] and [i], but a small number of exceptions to

this rule exist. In this case, the internal reconstruction of the palatalization rule would still be justified, as we know that borrowings and novel vocabulary can introduce new combinations of sounds that might not have been licit when the regular sound change (in our case, palatalization) was active. In fact, not only is internal reconstruction justified in this case, but it is actually *expected* when a process is typologically frequent and well-established.

We saw that internal reconstruction works well for uncovering typologically frequent phenomena. Can it prove equally useful for reconstructing typologically unusual morphosyntactic systems? The case study presented in this study seeks to answer just this question: I use internal reconstruction to deal with a morpho-syntactic phenomenon that is typologically rare and in doing so, suggest some guidelines for future attempts to apply internal reconstruction to cross-linguistically unusual data.

The methodological procedure I propose is based on the premise that all the functions of a system's affixes (or other morphological markers) should be identified and given due consideration. The most likely origin of all attested functions can then be reconstructed based on grammaticalization theory. More precisely, we know that morphological and morpho-syntactic change follows common trajectories and is unidirectional: the development "leads from less grammatical to more grammatical forms and constructions" (Heine and Kuteva 2002: 4). This means that we can reconstruct the most likely origin of a certain morpheme based precisely on this directionality (see also Haspelmath 2004). Success of internal reconstruction in historical syntax depends primarily on the number of functions a given affix serves: the more attested functions, the easier it will be to narrow potential origins and recover the most likely origin. Thus, while each individual function of a morpheme may have several possible origins, the range of potential origins narrows when multiple functions of a given morpheme are evaluated together. I propose the following principle:

- (9) The most likely origin of a morpheme is the one that is the common potential source to all its attested functions. Potential sources of morphemes are established by grammaticalization theory based on the unidirectionality of morphosyntactic change.

In section 5, I show that, by using the proposed methodological procedure, we can reconstruct the origins of typologically unusual morphosyntactic systems, too.

Internal reconstruction is often employed to reconstruct pre-stages of an already reconstructed proto-language; as mentioned above, internal reconstruction is chosen over the comparative method when comparative material is lacking. For pre-stages of reconstructed languages we usually have no comparative data, in which case the only available means for reconstructing the pre-stages is internal reconstruction.

It is crucial to distinguish the two temporal substrata within reconstructed languages. One, usually called the *proto-language* (e.g. Proto-Austronesian, Proto-Indo-European) is reconstructed using the comparative method and usually represents the last stage of the proto-language before a family splits up into daughter languages. An earlier stage of such a proto-language, usually called the *pre-proto-language* (e.g. Pre-Proto-Austronesian, Pre-Proto-Indo-European) is usually reconstructed using internal reconstruction and represents an earlier stage of the proto-language. This notion will be crucial in reconstructing the PAN voice system. Unlike the proposal so far, in what follows, I will not only reconstruct the proto-language, but also its pre-stages. For example, I will argue that in the proto-language, the suffix **-an* had both voice-marking and nominalizing functions, whereas in the proto-stages, it functioned as a preposition.

5 A New Proposal

In this section, I propose a new model for the development of the PAN voice system. Besides the two possibilities presented above (the nominalization- and voice-first hypotheses) another option exists:

- (10) Both the voice marking function and the nominalizing function of **-en*, **-an*, and **Si-* were present already in PAN.

The fact that across AN languages the affixes show either a productive or a vestigial nominalizing function speaks strongly in favor of the proposal that this function goes back to the proto-language. If the nominalizing function were a later development, occurring after the split of PAN, we would have to assume that it occurred independently in numerous branches. This is highly 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 voice-marking function too is attested across the PAN family. The fact that voice systems are attested across the AN family speaks in favor of the proposal that the affixes had a voice-marking function in the proto-language as well. Any assumption in the opposite direction, i.e. that voice marking was a later development, faces a crucial problem. If we assume the voice-marking function of the affixes to be a post-PAN development, it would have to occur independently in almost all daughter languages. Again, this is highly unlikely.

In sum, both voice-marking and nominalizing functions of the affixes **-en*, **-an*, and **Si-* had to be present already in the proto-language. In other words, at the stage before the proto-language split up into the daughter languages, the affixes already had to have the double function.

We do not need to stop our reconstruction there, however. We saw in section 4 that using internal reconstruction, we can reach earlier stages in a language's history: we can reconstruct the pre-PAN stage and speculate meaningfully concerning how the affixes developed the two functions: voice-marking and nominalizing.

In fact, precisely the assumption that both functions were present in PAN (10) offers a good deal of insight into the possible origins of the PAN voice and nominalization system. Because at this point comparative data is lacking, 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 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 of the PAN voice system and show that my new proposal explains most of the heterogeneous functions of the affixes across AN languages (see section 2).

5.1 Active voice

5.1.1 **-um-*

The only active voice affix that can be reconstructed to the PAN stage is **-um-*. Two main facts 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 across AN languages show that **-um-* had three different functions in PAN:

- (11) a. active voice marking
b. intransitivity marking
c. inchoative marking

This third function may actually be a later innovation; however, it is nevertheless informative for the reconstruction).

If we allow a further step in the reconstruction and follow the methodological procedure defined in section 4, the three functions can be reconciled into a single pre-PAN **-um-* that functioned as a reflexive marker. I argue below that, according to grammaticalization theory, the most likely source of an affix that develops inchoative- and intransitive-marking functions is a reflexive marker.

- (12) **-um-* goes back to a reflexive marker in Pre-PAN.

There are two further conceivable origins of **-um-*: (i) as a progressive/incompletive marker or (ii) as a detransitivizer. Before defending the assessment that the most likely origin of **-um-* is a reflexive marker, I will briefly discuss these other two alternatives.

First, if we posit a progressive/incompletive origin for **-um-*, we should expect verbal forms marked with this marker to be frequently atelic. The atelic function could in turn 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 knowledge, there is no evidence for an atelic function of the infix **-um-*, nor is there any typological evidence of such a historical 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.¹³

The second alternative is that **-um-* functioned as a detransitivizer. Such an origin would of course explain why the contemporary affix surfaces primarily on intransitive verbs. When the putative historical detransitivizer combined with transitive verbs, the result was intransitives; when it combined with causatives or ditransitives, a transitive verb remained. However, simple transitives are generally more common than causatives and ditransitives; thus, we should expect that **-um-* would appear most frequently on intransitives. The reflexive-versus-detransitivizer debate in this case is more a question of time depth than of actual origin: even if **-um-* at some point functioned as a detransitivizer, its most likely origin would still be a reflexive marker, since detransitivizers themselves ultimately go back to reflexives in many cases. This argument is strengthened by several typological parallels, e.g. in Kannada (Dravidian) *-ko||u* functions as a reflexive, detransitivizer, and inchoativity marker (Amritavalli 2000); in Mizo (Tibeto-Burman) *-in-* functions as reflexive/reciprocal and detransitivizer (Subbarao 2008); or in Turkish, where reflexive verb-form *-(ı)n* also functions as detransitivizer (Kornfilt 1997).

Next, I justify the conclusion that a reflexive marker is the most likely origin of **-um-* by showing that all three contemporary functions of the affix are easily derivable under this analysis. In other words, the most likely origin of all three functions is a reflexive precisely because the reflexive function offers a feasible origin for all three functions of **-um-* (see the principle in (9)).

First, let us look into the development reflexive → inchoative. We know that, cross-linguistically, reflexives frequently develop an inchoative-marking function. Consider the following examples from French, Spanish, and Polish, where SE functions as an inchoative morpheme.

13. This problem, however, is less critical: as noted above, the inchoative-marking function of **-um-* may be a secondary innovation.

- (13) a. *La porte s' est ouverte.*
the door REFL is open.FEM
'The door opened.'
- b. *El vaso se rompió.*
the vase REFL broke.MASC
'The vase broke.' (Déchaine and Wiltschko 2012:14)
- c. *Szklanka się rozbiła.*
glass REFL broke.FEM
'The glass broke.' (Rivero and Milojević Sheppard 2003: 100)

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 Halkomelem, *-θət* marks both reflexives and inchoatives (Gerds 1998): *laləm-θət* 'look after self'; *θi-θát* 'get big'. The following three examples illustrate how a reflexive marker on transitive verbs can start functioning as an inchoative:

- (14) *ʔəjáʔθ* 'sharp' *ʔəjáʔθ-θət* 'get sharp'
ʔijəs 'happy' *ʔijəs-θət* 'get happy' (Gerds 1998:152)
qaǰ 'be lots' *qaǰ-θət* 'get to be lots'

Even if we assume that the inchoative-marking function of **-um-* is a secondary innovation, we still need to explain its origins. After all, the fact that the inchoative function develops at all is in-and-of-itself informative. Because the most likely precursors of inchoative-marking affixes are precisely reflexives and intransitivity markers, the present of the inchoative function suggests strongly that **-um-* goes back to a reflexive/intransitivity marker, regardless of when in the development the inchoative function emerged.

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: 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 developed from the original reflexive marker and 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 in 5.2), this intransitivity marker simply continued to surface on intransitive verbs and got reanalyzed as an active voice marker under the pressure of other affixes of the new voice-marking paradigm.

We can also explain why the original intransitive marker **-um-* is restricted to active voice. Verbs that are marked for non-active voice (passive, locative, and instrumental) have to be transitive: beside the agent, the verbs need to have a least one other thematic role (patient, location, or instrument, respectively), which, under the voice system, gets promoted to subject position. As a consequence of the fact that verbs with non-active voice morphology are obligatorily transitive, the intransitivity marker **-um-* began to surface, by default, only in active voice. The only exception to the requirement that non-active verbs be transitive is unaccusative verbs: the only underlying internal argument of unaccusatives — patient — is promoted to the subject position with passive voice marking because of its thematic role. This pattern is illustrated in Kimaragang, where unaccusatives are marked with passive voice (Kroeger 1990).

The reason why **-um-* did not surface on unaccusatives is clear: as a reflexive and later an intransitivity marker, **-um-* would remove the internal argument.

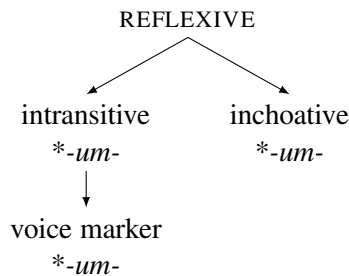
The fact that, at some point, **-um-* started marking transitive verbs as well poses no problems for the proposal above. Once the affix was reanalyzed as a voice marker, it could start surfacing on transitive verbs freely.

Any other trajectory of development for **-um-* would be very difficult to justify. For example, it would be very difficult to argue that the active voice marker developed into a intransitive or inchoative marker or that the inchoative marker developed into an active voice marker: it is not clear what would motivate such a change. To my knowledge, no examples exist of voice markers developing from inchoatives and intransitives. Likewise, shifts from intransitive or inchoative markers to voice markers are unattested. Finally, following the principle in (9), the reflexive function is, to my knowledge, the only function that is common to all three attested functions of the **-um-* infix.

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’; Rubino 2005: 337, 343; Kaufman 2009b: 7; see discussion in 5.1). The example from Ilokano thus provides an exact typological parallel for the reconstructed development of **-um-* in PAN.

The proposed development of **-um-* is summarized in (15).

(15)



There are yet 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.

5.1.2 **maŋ-* and **mar-*

**maŋ-* and **mar-* are active-voice prefixes that cannot be reconstructed to PAN, but are most likely a later, Malayo-Polynesian innovation. Beside their voice-marking function, both **maŋ-* and **mar-* appear to have additional functions: *maŋ-* marks transitivity and causativity, while **mar-* marks intransitivity. These functions are reconstructed based on the fact that the former prefix still has causative function in some languages (e.g. in Kelabit) and tends to surface on transitive verbs (see 2.1.2). Conversely, **mar-* tends to surface on intransitive verbs (see 2.1.3).

Because **maŋ-* and **mar-* are a later innovation, they likely originated as transitivity/causative and intransitivity markers, respectively, and got incorporated into the voice-marking paradigm at a later stage.

This process parallels the analysis I proposed for **-um-* at an earlier stage of development. The development of these two prefixes thus provides additional typological support for the proposal that **-um-* originated as a reflexive that later developed an intransitivity-marking function and got incorporated into the voice-marking paradigm.

In what follows, I will reconstruct the development of the two affixes according to the principle in (9). Beside transitivity/causative and intransitivity 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 2.1.3).¹⁴ Both prefixes also have “counterpart” prefixes without the initial nasal: **paŋ-* and **paR-*. These two prefixes had a nominalizing function: they 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). **paR-* is used as an innovative instrumental voice marker in Ilokano (e.g. instrumental voice *pag-íwa* ‘to slice with’; from Rubino 2005:336).

The prefixes **maŋ-*, **maR-*, **paŋ-*, and **paR-* thus show a wide variety of functions in the daughter languages. Table 6 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 nouns	<i>*paŋ-</i> , <i>*paR-</i>
instrumental voice	<i>*paR-</i>

Table 6: Prefixes **maŋ-*, **maR-*, **paŋ-*, and **paR-* and their functions

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 2009b, Blust 2013: 374). As Kaufman (2009b) 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 2009b).

The apparent heterogeneity of affixes in Table 6 can be accounted for if we assume that the **pa-* prefix goes back to a verbal element with the meaning **TAKE* in Pre-PAN: according to (9), the most likely origin that unites all attested functions is precisely a verbal element **TAKE*.

The development from a verbal form ‘to take’ to a causative or transitivity marker is common and is identified as a well-established grammaticalization trajectory with attestations from Chinese, Nupe, and Twi. In Twi, for example, *de* ‘to take’ develops into a transitivizer and causative marker.

- (16) *o-de gwañ a-ba.*
 he-TAKE sheep PFV-come
 ‘He has brought a sheep.’ (Heine and Kuteva 2002:286)

14. The fact that **-maR* shows traces of a verbalizing function would be another argument against the nominalizing origin of this suffix: it would be typologically rare to develop verbalizing function from nominalizing function.

The development of the causativizing prefix **pa-* from the verb **pa* ‘to take’ in PAN 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;¹⁵ 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 (17) shows that this construction is very reminiscent of SVC. In Cebuano, this function ceases to be productive, but it is still productive in Tagalog.

(17) 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 (17), 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 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.

(18) *o-de né nnípa fõro bépow.*
 he-TAKE his men ascend mountain
 ‘He ascends a mountain with his men.’ (Heine and Kuteva 2002:286)

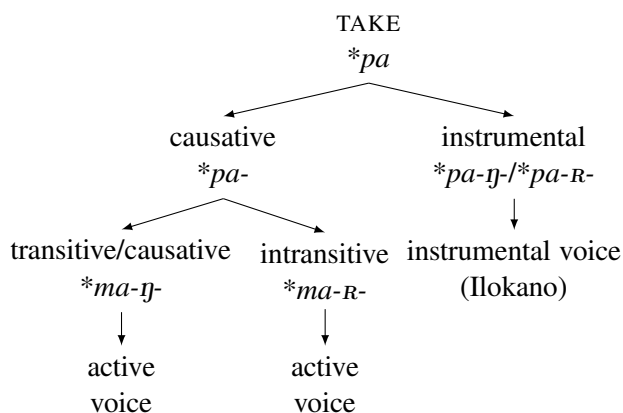
In Twi (18), the development resembles the PAN case even more closely: the verbal element with the meaning ‘to take’ developed to a transitivizer/causative marker on the one hand and an instrumental marker on the other hand (as reported in Lord 1989:237). In fact, this is not an isolated example. Lord (1989:237) also reports that in Chikasaw, the verb ‘to take’ marks both instrumentals and causatives (in Heine and Kuteva 2002:286). The two unrelated languages provide an exact parallel to the reconstructed PAN development.

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).

15. The serial verb construction is rare in Western Malayo-Polynesian, but is well attested in Melanesia (Blust 2013:158; Polinsky and Potsdam, forthcoming).

The development is illustrated in (19):

(19)



**maŋ-* and **mar-* thus functioned, at some stage of development, as transitivity and intransitivity markers. However, just as we saw with **-um-* above, such transitivity/intransitivity markers can lose this function and be reanalyzed simply as active voice markers. In Malagasy, for example, the reflex of **maŋ* (Malagasy *maN-*, now reanalyzed as (*m-*)*aN-*) functions only as an active voice marker; indeed, this morpheme has almost completely replaced reflexes of **-um-* (Malagasy *-om-*) in this function, with the latter preserved only in a small subset of verbs, e.g. *t-om-ány* ‘to cry’ (Blust 2013: 383,446). The trend for transitivity/intransitivity 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.

5.2 Non-active voices

5.2.1 Development of the nominalizing function

In 2.1.1 and 5.1.1, 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-* did not have the nominalization function in the proto-language.

Because the AVS is morphosyntactically rare, there are almost no typological data to point to the likely origins of the AN voice-marking affixes. Although the AN system is typologically uncommon, 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 (see (9)). Besides their voice-marking function, these affixes function as nominalizers, too. The nominalizing function of the affixes is attested across the AN family, including in Formosan, thus warranting the reconstruction of the nominalizing function in PAN. Likewise, the voice-marking function is attested across the family. In other words, the nominalizing and voice-marking functions coexisted in PAN at the last stage before PAN split up into daughter languages.

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)¹⁶ that the most likely origins of the voice-marking and nominalization functions are prepositions that mark direct object, location and instrument. This proposal is based on the principle in (9): as prepositions are the most likely source according to this principle, in the sense that they are common to all attested functions of these affixes.

(20) PAN non-active voice-marking affixes go back to prepositions in Pre-PAN.

The proposal that non-active-voice affixes go back to prepositions allows us to explain how the affixes developed into nominalizers, on the one hand, and voice markers, 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 — i.e. that the prepositions initially formed compounds and from there the nominalizing function emerged. Postulating a compound stage aligns this developmental shift with the usual trajectory of grammaticalization. One common way to form nouns with spatial, temporal, or instrumental semantics is to compound nouns with prepositions. We can assume that the meaning of such compounds in Pre-PAN was something like *‘having X₁ X₂’, where X₁ is the meaning of the first member of the compound and X₂ is the meaning of the second member. Under such an assumption, we get precisely the compounds that could serve as the basis for the development from prepositions to nominalizers, e.g. Tagalog *títis* ‘cigarette ash’ → *títis-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 the other two affixes as well.¹⁷

5.2.2 Development of voice system

Let’s assume that voice-marking affixes started out as prepositions in Pre-PAN (20). Reconstructing the development of the PAN voice system requires the reconstruction of a Pre-PAN surface sentence structure. For a sentence containing a subject and a direct object, we can reconstruct for Pre-PAN that *-*en*, a direct object marker or a preposition with this function, surfaced on the direct object. The subject is reconstructed as unmarked. If a sentence contained additional complements or adjuncts as well, we can posit that they too were marked overtly by prepositions: the preposition *-*an* for location (with the meaning ‘in, at’) and **Si-* for instrument (with the meaning ‘with’) or related thematic roles. A parallel system in which all arguments except the subject are overtly marked is attested, for example, in today’s Tondano and Saisiyat. All DPs are obligatorily governed by prepositions/case markers (cf. Blust 2013:445); however, they remain unmarked when promoted to focus (or subject) position. In example (21) 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.

- (21) 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.’ (Blust 2013:445)

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

17. 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 *títis-án* ‘ash tray’.

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 subjects, which are unmarked in active voice (22).

- (22) a. *korkoring k-om-i-kita' ka 'aehoe'*
 child AV-RED-look.at ACC dog
 'The child was looking at the dog.'
- b. *mari'-in noka ma'iaeh awpo'-on ila 'aehoe'*
 take-PV GEN person carry-PV PFV dog
 'The person took and carried the dog.'
- c. *korkoring si-Sebet ni 'oya' hi Kizaw.*
 child REFV-beat GEN mother ACC PERS.NAME
 'Mother beat Kizaw for the child.' (Hsieh and Huang 2006)

I argue that such a system should be reconstructed for PAN as well. The reconstructed surface sentence structure, with arguments, adjuncts, and corresponding prepositions, is schematized in (23). Each argument is governed by a preposition except for the subject, which is not overtly marked. Note that the SUBJECT position was always occupied by AGENT in Pre-PAN transitive sentences such as the one in (23), while DIRECT.OBJECT was occupied by PATIENT. For a structural analysis of SUBJECT and DIRECT.OBJECT positions, see section 7.

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

As already mentioned, the AVS is, descriptively speaking, simply a way of marking the “prominent” or “pivotal” role that one particular argument has in a clause. Depending on the thematic role of this argument, different markers surface. I will argue that this “prominent” role — and the voice system itself — developed through an interstage along with the development from prepositions to verbal affixes. Traditionally, such verbal affixes in other language families have been labeled as preverbs (see Booij and Van Kemenade 2003); I will follow this terminology henceforth.

Adpositions are cross-linguistically the common source of preverbs. In fact, the usual trajectory of grammaticalization goes from (a) adverbs to adpositions and preverbs or (b) adpositions to preverbs (Booij and Van Kemenade 2003, Helmbrecht 2008:139). When a preposition moves into the verbal domain and becomes a preverb, the semantics of the preposition get incorporated into the verbal semantics. More importantly, the corresponding argument or adjunct becomes the prominent argument in the clause. Its prominent role is the result of the fact that incorporation of prepositions into verbs causes the argument, previously governed by the preposition, to structurally function as a direct object. Starosta et al. (1981, 1982) propose that when **-i* and **-aken* get reanalyzed as verbal affixes, the argument previously governed by one of these prepositions starts functioning as a direct object (cf. also Peterson 1997). I extend this explanation to the Pre-PAN prepositions **en-*, **an-*, and **Si-*. The argument previously governed by these prepositions becomes a direct object. Because the prepositions get incorporated into verbal semantics as preverbs and the argument assumes the role of a patient, it starts functioning as the “perceptual center”. Starosta et al. (1981, 1982) call this process “recentralization”: “The derivational process which reinterprets a different case relation as Patient can be referred to as ‘recentralization’, since in effect it places a new situational role in the perceptual center of the stage.”

Instances of prepositions or adverbs becoming preverbs/applicatives that then surface on verbs are common cross-linguistically. When the preposition becomes a preverb, the argument previously governed by that preposition comes to function as a direct object (as is reconstructed for Pre-PAN above). An example from Kinyarwanda (Peterson 1997) exemplifies this process synchronically. The preposition

mú in (24-a) governs the noun *máazi* ‘water’. In (24-b), it becomes a preverb *-mo*. The argument previously governed by the preposition now functions morphologically and syntactically as a direct object (Peterson 1997).

- (24) 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 amáazi igitabo*
 child HE-PST-throw-ASP-APP water book
 ‘The child has thrown the book into the water.’ (Peterson 1997)

Applicative constructions arising from preposition incorporation are also reported in Garrett (1990) for a number of language families. 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 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, 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. 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. (25-a) represents a stage in which *á* surfaces as a preposition; (25-b) a stage in which it surfaces as a preverb sentence-initially; in Sanskrit (25-c) the preverb surfaces on the verb.

- (25) a. *índavaḥ ágmann 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.’ (Kulikov 2012:725)
 c. *evam víśvāsam ā-gaccha*
 thus faith.ACC to-go.IMP
 ‘Thus attain faith!’

I argue that the first stage in the development of the PAN voice system was precisely the change from prepositions to preverbs, as is the common trajectory of grammaticalization (see above). This change caused prepositions to be incorporated into the verbal domain semantically and syntactically. Like in Sanskrit above, (25-b) preverbs, unlike prepositions, are reconstructed to surface on the verb. Moreover, like in Kinyarwanda, the argument previously governed by the preposition, assumes the role of direct object and thus becomes the prominent argument.

For example, the preposition for location, **-an*, develops from a preposition via the standard grammaticalization trajectory and starts functioning as a preverb. As a preverb, it is suffixed to the verbal head. The argument LOCATION assumes the prominent role as it starts functioning as a direct object. The structure is in (26).

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

Parallels for the proposed development can be found within the AN family itself. In Chamorro and Malay, an adverbial locative marker **i* has become a locative voice marker: e.g. Malay *mə-nanam-kan*

‘to plant (object)’, and *mə-nanam-i* ‘to plant (in location) with object’ (Blust 2013:447). The example from Malay provides a typological parallel for prepositions that develop into voice-marking affixes.

We can reconstruct that PAN limited the number of preverbs to one per verb, based on the fact that in PAN only one of the affixes that later developed voice-marking function can surface on the verb. Restriction against multiple preverbs is attested crosslinguistically. For example, Kryts and English allow only a single preverb (Stifter 2006, Authier 2010). This restriction will be relevant for explaining the Subject Only Restriction (section 6).

The system that we have reconstructed so far for Pre-PAN, with prepositions developing to preverbs (26), is not yet the voice system of PAN. I turn next to explain why the promoted “prominent” 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 I rely on to explain the development of this voice system is reanalysis, the most common process in historical syntax.

We saw that active voice markers go back to reflexive/intransitivity (*-um-) and intransitivity/transitivity markers (**maŋ-* and **maR-*) (see 5.1). These affixes, however, most likely did not play any direct role in the development of the voice system; rather, they simply continued to mark intransitivity/transitivity — and then, once the voice system was established, assumed the role of active voice marking.

The driving force behind the development of the voice system was mentioned above: the process of incorporating prepositions into verbal heads resulting in the development of preverbs.

I crucially posit that in a typical Pre-PAN sentence, all arguments were overtly marked except for subjects. This situation is reflected in today’s Tondano and Saisiyat (see (21) and (22)), and there also exists comparative evidence for such a configuration: Ross (2006) reconstructs a “neutral” case category in PAN which (among its other functions) marked subjects. The reconstructed form is the zero morpheme, *-∅. It is possible to assume that **ka-* or **sa-* (Blust 2015), the standard nominative markers, were secondarily introduced in PAN (under pressure from other affixes). The presence of the null marker for nominative case thus indicates that subjects could have been unmarked in Pre-PAN. (27) illustrates a reconstructed surface structure of a sentence with an internal argument, external argument, and adjuncts in PAN (repeated from (23)). The characteristic indicator of subjects in this surface structure is the fact that they are not overtly marked.

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

As soon as the preposition became a preverb and started surfacing on the verb, the corresponding argument became unmarked too (unmarked arguments are underlined in the examples henceforth). Moreover, because of the operation preposition → preverb, the unmarked argument assumed a prominent role in the clause (see argumentation above).

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

The crucial development in the emergence of the PAN voice system happened when the argument previously governed by the preposition bearing the prominent role became reanalyzed as a subject. At the stage reconstructed in the example above (28), the only two unmarked arguments are the subject and the argument previously governed by the preposition (underlined in (28)). Reanalysis of the prominent argument as a subject is well motivated in this surface structure. The argument previously governed by the preposition is reanalyzed as a subject precisely *because* it is unmarked: recall that lack of an overt case marker was the main characteristic of subjects at this stage in the language’s development.

The reanalysis-to-subject was reinforced in cases with pro-drop. We can reconstruct pro-drop for that PAN based on the fact that several AN languages today allow pro-drop (Postdam and Polinsky, forthcoming). (29) shows surface sentence structure after the operation preposition → preverb with an

overt subject (with two arguments unmarked). (30) shows surface sentence structure after the operation preposition → preverb with pro-drop (with one argument unmarked).

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

This latter surface structure was the most likely origin of reanalysis, as at this point subjects were the only argument in the clause that were not overtly marked. The development preposition → preverb paired with pro-drop, caused the argument previously governed by a preposition to surface as the only argument not overtly marked/governed by a preposition; speakers reanalyzed this argument as a subject under this strong motivation. After this reanalysis, the PAN voice system arose with all its characteristics stemming from the development described above: an argument with a prominent role gets promoted to subject position and depending on the thematic role of the argument, different verbal affixes surface. The surface structure in (30) is in fact the structure that we have in today's voice system; the only difference is that, after the reanalysis, the agent, previously the subject, was reintroduced with oblique preposition/case marking.

The crucial steps reconstructed in the development of the PAN voice system are summarized below:

- (31) a. Prepositions develop to preverbs
 b. Preverbs surface on the verbal head
 c. The argument previously governed by the preposition functions as direct object, hence the prominent role
 d. Reanalysis: the prominent argument is reanalyzed as a subject because it is unmarked. Reanalysis is reinforced by pro-drop causing the argument previously governed by a preposition to be the only unmarked argument in the clause; this is main characteristic of subjects in Pre-PAN
 e. The PAN voice system emerges as a result

This analysis crucially unifies two prominent properties of the AVS: the fact that one argument assumes a prominent role and the promotion of that argument to subject. The prominent role is achieved through the operation preposition → preverb, and this operation also produces the condition that sparks the reanalysis of the newly unmarked argument as a subject (promotion to subject).

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 that this verbal origin is reflected in the fact that **Si-* surfaces as a prefix. The only other two prefixes in the voice-marking paradigm, **maŋ-* and **maR-*, are of verbal origin too (see above) and they too precede the verbal head. In other words, these affixes are reconstructed to go back to verbal heads (light verbs) that incorporate the main verb (notational verb). Because PAN is reconstructed to be head-initial, the affixes originating in light verbs precede the verb instead of following it. Later in its development, **Si-* joined the other affixes and became a preposition; however, its verbal origins are reflected in its placement as a prefix.

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

Origin	Affix
verbal	prefix
preposition	suffix
reflexive	infix

Table 7: Distribution of affixes according to their origins

To sum up, when a licenser of an argument with a particular thematic role is incorporated into the verbal head, that argument gets reanalyzed as the highest constituent of the clause precisely because it ceases to be overtly marked, and thus matches the expected characteristic of subjects; this process, in turn, gives rise to the peculiar morphosyntactic system which is the AVS. Argument reanalysis-to-subject is a crucial step in this development, because it explains how a system of prepositions and preverbs can become a typologically peculiar system of voice marking.

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.

- (32) 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’
- (33) Thao (Blust 2013:386)
- m-apa* ‘carry on the back’
 - m-in-apa* ‘carried on the back’
 - in-apa* ‘was carried on the back’

According to the principle in (9), we first identify all functions of an affix. In addition to its perfective or past-tense function, the infix **-in-* 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’. Starosta et al. (1981, 1982) assume the nominalizing function to be the original one. In this section, I argue that the nominalizing function is secondary, derived from what I will reconstruct was a perfect marker in Pre-PAN that ultimately goes back to a resultative marker.

Two further peculiarities about the infix **-in-* need to be noted. First, **-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 table 2). Second, Starosta et al. (1982) posits that **-in-* functioned as a nominalizer with a meaning reconstructed as ‘affected by’ or ‘result’ of verbal action.

Once all functions are identified, we can reconstruct origins of an affix: the most likely origin of an affix is the potential source, common to all its attested functions in (9). I propose that:

- (34) **-in-* goes back to a perfect marker in Pre-PAN that developed past-tense and perfective marking functions in PAN.

Both verbal functions of **-in-*, past tense and perfective aspect, are the common results of perfect markers according to the grammaticalization theory. Heine and Kuteva (2002: 231–2) identify both perfect → perfective and perfect → past tense as common grammaticalization trajectories. The development from perfect to past-tense marker and perfective is well motivated. Bybee et al. (1994) analyze this trajectory as a usual case of semantic generalization: “On the semantic level, the change is clearly a generalization of meaning, or the loss of a specific component of meaning: the anterior [i.e. perfect, added by author] signals a past action that is relevant to the current moment, while the past and perfective signal only a past action” (Bybee et al. 1994:86; also cited in Heine and Kuteva 2002:231).

We can take an even further step in the reconstruction of Pre-PAN **-in-*. We know that the most common source of perfects is resultative markers (Bybee et al. 1994). We also know that the PAN passive voice marker **-en* does not surface if the verb is marked with **-in-* (see table 2). In fact, as Blust (2013:388) argues, “when **-en* was realised as zero **-in-* inevitably took on both aspectual and ‘voice-marking’ functions.” Moreover, as Starosta et al. (1982) reconstruct, **-in-* in its nominalizing function had a resultative meaning component (see above). Based on these facts, we can reconstruct that the origin of the Pre-PAN perfect marker **-in-* was a resultative marker. If we assume that **-in-* goes back to a Pre-PAN resultative marker (as is the common trajectory of grammaticalization), we can explain this double function of **-in-* and the gap in the past/perfective paradigm, whereby **-en* does not surface in the presence of *-in-*. To my knowledge, this fact has so far been unexplained.

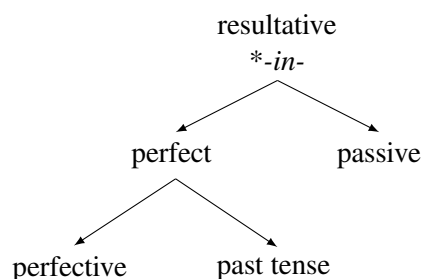
Resultatives are frequently the source of passive marking (Nedjalkov and Jaxontov 1988:45ff). As Bybee (1994) points out, resultatives and passives are very close in meaning — the difference being that “only resultative consistently signals that the state persists at reference time”. If, over the course of a language’s development, this meaning component is lost, and the agent gets overtly expressed, we get passive constructions. Consider the examples in (35). In (35-a) we have a resultative, in (35-b) a passive construction.

- (35) a. The door is closed.
b. The door is closed by the doorman. (Bybee 1994:63)

If the resultative Pre-PAN **-in-* developed a passive-marking function, in addition to its perfect and then perfective/past-tense marking, we can explain why the later, PAN **-en* passive voice marker does not surface in the presence of **-in-*: there is no need to additionally mark the passive voice. In other words, **-in-* developed passive- and perfective-marking functions, both according to common grammaticalization trajectories. At that point, PAN voice-marking affixes still functioned as prepositions. When the voice system arose according to the proposal above (31), **-en* started functioning as a passive voice marker. However, because **-in-* already developed the passive and perfective function from a resultative marker, there was no need to additionally mark the passive voice in with **-en* in the past/perfective paradigm.

The development of Pre-PAN **-in-* is illustrated in (36).

- (36)



Finally, there is a third, non-verbal function of **-in-*: it also functions as a nominalizer. I posit that **-in-* as perfect marker also formed adjectives/participles. The English suffix *-en* provides an almost exact parallel to PAN **-in-* in this capacity (Yeh 2011:579); *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* (Yeh 2011). 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’.¹⁸

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* (see table 4 and table 5). 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 AVS. I argued that the affixes that constitute this system displayed both the voice and nominalizing functions already in the proto-language (10), and that they originally developed from a system of prepositions in Pre-Proto-Austronesian (20). 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 (31); on the other hand, the prepositions grammaticalized into nominalizing affixes, probably via an inter-stage with compounds (section 5.2.1). 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 (section 5.1).

As already mentioned in section 3.2, my proposal differs from that of Starosta et al. (1981, 1982) in a number of ways. I provide a different explanation for the non-active voice markers **-um-*, **maj-*, **mar-*, and the perfective/past marker **-in-*. I extend Starosta et al.’s (1981, 1982) explanation of the development of **-i* and **-aken* to non-active-voice marking affixes and propose a different motivation for reanalysis. I claim that nominalization is not the original Pre-PAN function of these affixes, as proposed in Starosta et al. (1981, 1982) and a number of further proposals following their work. Instead, my proposal claims non-active voice markers go back to prepositions which developed to nominalizers, on the one hand, and voice markers, on the other hand. I also propose a new explanation for the development prepositions → nominalizers.

My proposal explains another peculiar syntactic property of PAN that is often connected to the voice system: Subject-Only restriction. A detailed account on why the Subject-Only Restriction automatically follows from my proposal is given in section 6. The proposed development also provide grounds for explaining why preverbs (and, later, non-active-voice markers) surface as suffixes in PAN and why in

18. 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.

languages like Vedic, preverbs precede the verbal head. A detailed argumentation for this distribution is given in section 7.

5.4 Outstanding issues

This paper has offered an account of the origins of AN voice-marking affixes for independent forms, for past/perfective forms and for future-general forms. The two paradigms that are not captured in this proposal are the dependent and imperative paradigms. I have set aside the history of these paradigms primarily because of a lack of sufficient comparative data. Problems in the analysis of these paradigms arise already at the reconstruction level. Some new proposals followed Wolff's (1973) reconstruction, 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. One possible 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 needed for more conclusive results.

Another aspect worthy of further research is the prepositional origin of the 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 direct evidence to the same effect 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 likely served as 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. Conversely, these facts are highly problematic for the nominalization hypothesis: if the affixes went back to nominalizers, why would they govern pronouns (a category that clearly does not need nominalization)? More research and new data in this direction have the potential to bring further evidence to strengthen the proposal above.

6 Subject-Only Restriction

Besides their voice system, Austronesian languages often show another typologically unusual syntactic property: the so-called Subject-Only Restriction (SOR). As discussed in Gärtner et al. (2006) and Chung and Polinsky (2009), SOR is a restriction that permits only subjects (or the sentence's most prominent argument) to extract. “Extraction” in this context encompasses *wh*-movement, topicalization, relativization, and focus constructions: in other words, *A'*-movement (Polinsky and Potsdam, forthcoming; for Malagasy, see Potsdam 2003, Pearson 2005). The SOR was first described on the basis of Malagasy by Keenan (1972) but it is wide-spread in the AN family, attested in Formosan, Philippine, Indonesian, and in many Polynesian languages (Pearson 2005, Polinsky and Potsdam, forthcoming). The robustness of the phenomenon, and especially its presence in Formosan languages allows us to posit with certainty that SOR was already present in PAN.

The Subject-Only Restriction is exemplified by the data from Tagalog in (37). For extraction or *wh*-movement of a location to take place, the verb has to be in locative voice. This change in voice causes the location to surface as a subject. Extraction of the location under other voices is ungrammatical.

- (37) 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?’ (Rackowski and Richards 2005:566)

As we saw for the AVS, theoretical accounts of this peculiar phenomenon are very heterogeneous. Proposals range from invoking the Phase Impenetrability Condition (in combination with the claim that vP is a phase) (Rackowski and Richards 2005) to positing that apparent SOR is simply a restriction against “promotion-to-trigger” and wh-movement occupying the same A’-position (Pearson 2005, see also Chung and Polinsky 2009 and the literature therein). For a detailed overview of proposals, see surveys in Gärtner (2006) and Chung and Polinsky (2009).

Most theoretical accounts, however, agree on one point: that the AVS and SOR are interrelated. The main argument for this relationship comes from the fact that a change in voice morphology that elevates an argument to subject position necessarily allows that argument to be extracted. In other words, for a patient, location, or instrument to be extracted, the verb must take on passive, locative, or instrumental voice, respectively. Any adequate explanation of the historical development of these two systems should thus ideally derive both typologically unusual phenomena from a single explanatory device.

If we assume, as the proposal laid out in the previous section does, that non-active voice-marking affixes go back to prepositions (20) while active voice-marking affixes go back to transitivity markers (15), the Subject-Only Restriction follows automatically:

- (38) SOR goes back to a restriction against extracting from PP, i.e. against preposition stranding.

In the following, I explain how SOR follows from my proposal on the development of the PAN voice system.

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: preposition stranding needed to extract DP from a PP is not available in PAN. for example, in Tagalog, preposition stranding is not allowed. This is illustrated in (39).

- (39) 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?’ (Sabbagh 2008)

If we assume that Proto-Austronesian, just like the Austronesian languages today, followed the typologically common path of restricting extraction from prepositions, i.e. restricting preposition stranding, the Subject-Only Restriction becomes a natural extension of the new proposal: SOR goes back to restriction against extraction from prepositions before the reanalysis to the AVS took place.

In (23), I reconstructed a surface structure for a Proto-Austronesian sentence with internal and external arguments as well as the adjuncts LOCATION and INSTRUMENT. All arguments in this structure except for the subject are marked and governed by a preposition, as is the case in today’s Tondano and

Saisiyat (see (21) and (22)). The structure is repeated in (40).

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

Following the assumed restriction against extraction from a PP, only the subject of this structure can be extracted, precisely because it is not governed by a P. However, when the operation preposition → preverb is employed to promote the argument to a prominent position, the prominent argument ceases to be governed by a preposition, and the restriction against extraction from a PP no longer applies. The prominent argument can now be extracted because it is not governed by a P. Because only one preverb is allowed to surface on the verbal head in PAN (see section 5.2.2), only one argument can be marked as prominent, unmarked on the surface — not governed by P — and therefore be available for extraction.

When the system of prepositions and preverbs gets reanalyzed as PAN voice system (see (31)), 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 subjects can be extracted, hence SOR.

It is also easy to see how reanalysis causes agents to be secondarily marked by P. Earlier, I reconstructed a surface sentence structure for 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 no longer surface in subject position. As such, they have to be marked with P under the requirement that all non-subject arguments be marked. The example below shows such marking in Saisiyat.

(41) *Korkoring si-Sebet ni 'oya' hi Kizaw.*
 child IV-beat GEN mother ACC Kizaw
 'Mother beat Kizaw for the child.' (Hsieh and Huang 2006:94)

The agent of the sentence in (41) is *'oya'* 'mother'. However, because the verb is in the instrumental (benefactive) voice and all non-subject arguments must be marked in Saisiyat, the agent (which is no longer the subject) receives a preposition/case marker *ni* (gen.) (comparable to a *by*-phrase in asymmetrical voice systems). This secondary marking of the subject in turn produces a restriction against agent extraction of agents as well.¹⁹

In sum, the new explanation of the origins of the PAN voice system is capable of deriving two unusual morphosyntactic and syntactic phenomena through the same common historical syntactic device: reanalysis. The Subject-Only Restriction automatically follows if we assume voice markers go back to prepositions (15): SOR developed from a restriction against extraction from PP following reanalysis of the prominent argument as a subject of the clause.

7 A Synchronic Analysis

The purpose of this section is to provide a structural analysis of the reconstructed development of the voice system from Pre-PAN to PAN. For each of the reconstructed stages in the development of active voice markers (section 5.1) and non-active voice markers (section 5.2), I propose a synchronic structural

19. This analysis holds regardless of whether we analyze PAN/AN languages as accusative or ergative. Traditionally, the AN case system has been analyzed as accusative and I adopt that standpoint for Pre-PAN. However, some scholars analyze AN and PAN as essentially ergative, claiming that the external argument of active verbs patterns together with the internal argument of non-active verbs (see Aldridge 2004, 2014, 2016 and recently Erlewine et al. forthcoming b for opposing views). The putative rise of ergativity in AN is also sometimes offered as an argument in favor of the nominalization hypothesis. The proposal developed here (31) derives PAN descriptive generalizations regardless of whether we analyze the synchronic PAN voice system as ergative or accusative: the only requirement is that we reconstruct Pre-PAN as having accusative alignment.

analysis. I also show that 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 also show how different Pre-PAN and PAN syntactic structures derived the AN system of high and low applicatives (for a detailed analysis of applicatives, see Pylkkänen 2000; McGinnis 2001). I argue that the placement of applicatives (specifically, the distinction between high and low applicatives) and the placement of voice-marking affixes in general in today’s system directly reflects the previous synchronic stages.

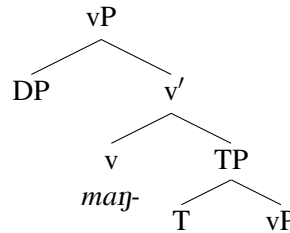
Based on the structural analysis, I also provide an explanation for the generalization which states that, in head-initial languages such as PAN, prepositions turn to preverbs that are suffixed to the verbal head, whereas in head-final languages such as Vedic Sanskrit, postpositions turn into preverbs prefixed to the verbal head.

7.1 Active voice

Let us first reconstruct a syntactic analysis for the active voice markers of PAN. I argued above that the active voice affix **-um-* functioned as an intransitivity marker in Pre-PAN that originated in a reflexive marker. Later, in the development to the Malayo-Polynesian subfamily, **maŋ-*, and **mar-* also marked active voice. The two prefixes too are argued to go back to transitivity or intransitivity markers and finally to a verbal element **TAKE*.

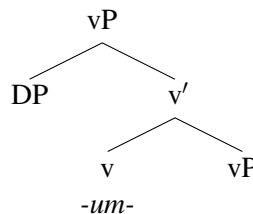
I propose that the light verb **maŋ-* (or **mar-*, in other words, the causative, transitive or intransitive affix) is base-generated in *v* and takes the whole CP or TP as its complement. Since the reconstruction developed above predicts that **maŋ-* and **mar-* go back to a verbal element **TAKE*, an analysis in which **maŋ-* takes CP or TP as a complement aligns very well with this historical analysis. We thus correctly predict the affix to precede the verb. The structure is given in (42).²⁰

(42)



On the other hand, I propose that the intransitive marker **-um-* originating in a reflexive takes only a *vP* as its complement.

(43)



This analysis incorporates the surface differences between the transitive and intransitive markers that go back to a verbal element and intransitive markers that goes back to a reflexive: the intransitivity-marking affix **-um-* surfaces closely to the verbal head, allowing it to straightforwardly surface as an infix through some morphosyntactic operation. The transitivity/intransitivity-marking affixes surface

20. In this paper, I use *vP* instead of the increasingly common *VoiceP*. For a discussion, see .

further from the verbal head and must therefore surface as prefixes.²¹

7.2 Non-active voice

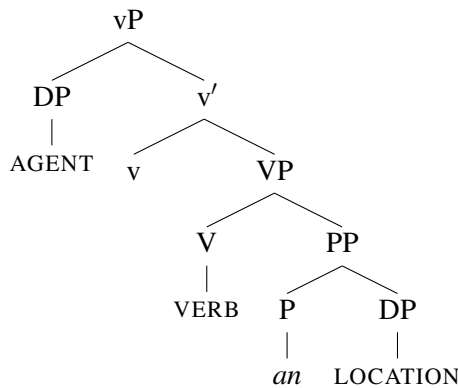
Implications of the historical approach are even more significant for the synchronic analysis of other voice-marking affixes. I proposed above that **-en*, **-an*, and **Si-* originated as prepositions (20). The inter-stages of the development from prepositions to the voice system were given in (31) and are repeated here:

- (44)
- a. Prepositions develop to preverbs
 - b. Preverbs surface on the verbal head
 - c. The argument previously governed by the preposition functions as direct object, hence the prominent role
 - d. Reanalysis: the prominent argument is reanalyzed as a subject because it is unmarked. Reanalysis is reinforced by pro-drop causing the argument previously governed by a preposition to be the only unmarked argument in the clause; this is main characteristic of subjects in Pre-PAN
 - e. The PAN voice system emerges as a result

Following the syntactic analysis in section 5.2, let us assume that prepositions in PP start out as complements or adjuncts to VP. The reconstructed surface structure is again given in (45). The vP in this surface structure is shown in (46).

(45) VERB *an*-LOCATION AGENT

(46)



The development from prepositions to preverbs in (44-a) can be analyzed as rebracketing:²²

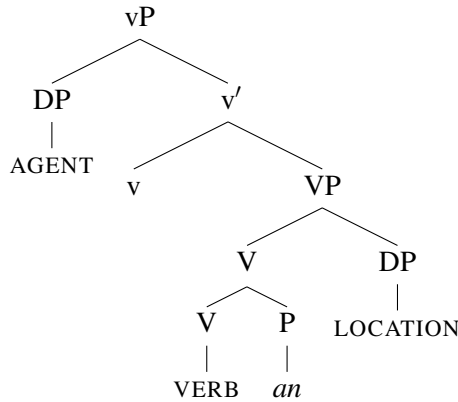
21. Beside transitivity and affix placement, further evidence in favor of the proposed structures for **-um-* (43) and *may-* (42) could be provided by negation or the range of adverbs the two affixes can cooccur with. However, because trees in (42) and (43) are reconstructed synchronic structures of past stages in the development, present-day languages might have lost direct evidence in favor of the proposed analysis. More research is needed on adverbs and negation in languages that feature reflexes of both **-um-* and **may-*.

22. Starosta et al. (1981, 1982) similarly assume that prepositions were reanalyzed as surfacing on the verbal head: preposition of a complement in verb-initial and head-initial languages surfaces next to the verbal head. However, they assume that such a reanalysis occurs with **-i* and **-aken*, not with voice-marking affixes. Moreover, their analysis requires ergative alignment for PAN. They derive the PAN “focus system” of **-i* and **-aken* through this reinterpretation based on PAN being reconstructed as ergative: “an ergative language is one in which the Patient is always the grammatical subject”. Thus, “when a Locus actant, say, was reinterpreted as Patient and lost its **i* preposition to the verb, it became the grammatical subject of the new verb, and the new **-i* suffix on the verb became a marker indicating that the subject of the sentence was situationally locational.”

(47) [VP [V VERB] [PP [P *an*] [DP LOCATION]] → [VP [V [V VERB] [P *an*]] [DP LOCATION]]

P surfaces next to the verbal head in head-initial languages. Rebracketing causes the P to be reanalyzed as part of the verbal head, i.e. a preverb. The structure after the rebracketing is given in (48).

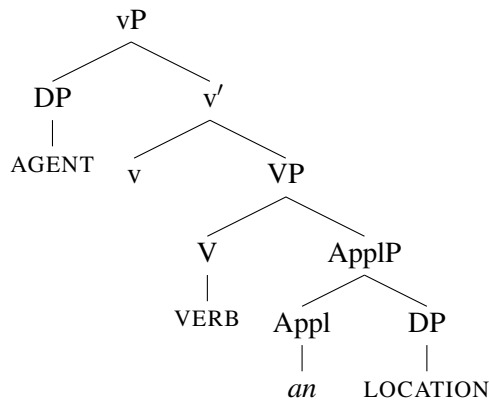
(48)



P now starts surfacing with the verb (44-b): when VP is moved higher up in the structure to derive the verb-initial word order of PAN, P moves together with the verbal head. Moreover, [DP LOCATION] now syntactically functions as a direct object (44-c).

The structure in (48) is then reanalyzed as a structure with applicative heads (for a general discussion of applicative heads, see Pykkänen 2000). McGinnis (2001) argues that applicative heads can be low or high (or I- and E-applicatives). Because PAN was a head-initial language and the development from prepositions to preverbs occurs via rebracketing, the applicative head follows the verbal head, which in turn means that the P in is reanalyzed as a low applicative. [DP LOCATION] still functions as a direct object.

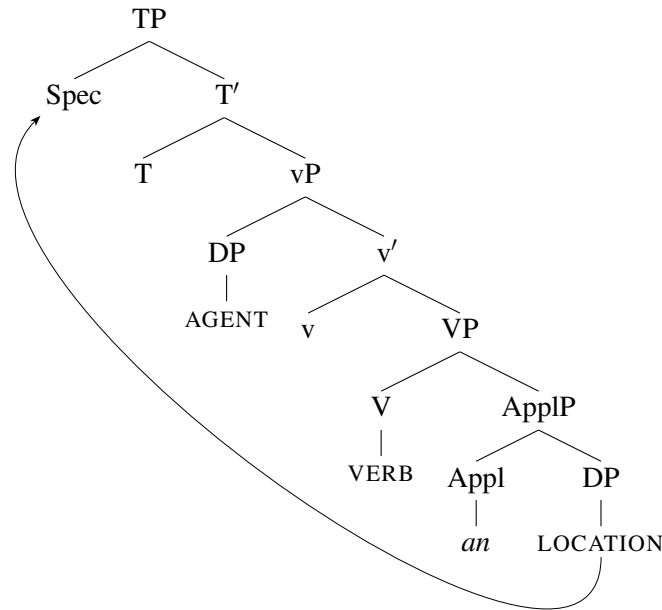
(49)



Crucially, at this point, reanalysis of the direct object to a subject position occurs under the pressure of case marking and pro-drop (44-d). Structurally, this reanalysis can be analyzed as A'-movement of [DP LOCATION] to the subject position. Analyses of AN subject position are heterogeneous. For Pre-PAN, i.e. stages prior to (44-d), we can assume that subjects are occupied by agents and base-generated in Spec vP. For PAN subject position, analyses vary (cf. Guilfoyle et al. 1992, Pearson 2005). We can assume, following Guilfoyle et al. (1992), that subjects in PAN occupy the Spec TP position. Following this analysis, [DP LOCATION] moves to Spec TP via A'-movement. This causes the system to start functioning as the PAN voice system as we know in today's AN languages. This is the final stage in the development (44-e). If Spec TP starts functioning as a subject position in PAN that assigns Case, the

Spec vP position (where the agent is base-generated) cannot receive Case anymore. At this point, [DP AGENT], base-generated in Spec vP, gets assigned the last-resort case — the genitive. The structure is given in (50).

(50)

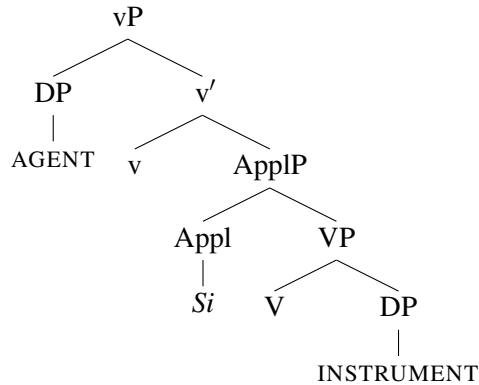


We have seen so far that this analysis works for all affixes except the instrumental prefix **Si-*. However, I have suggested above, following Ross (1995) and Peterson (2007), that **Si-* likely originated as a verbal element. I propose that it developed into a preposition only later, preserving traces 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 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 Blust 2013:445,447, Starosta 1995).²³ 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.

I posit that **Si-*, due to its verbal origin, gets reanalyzed as a high applicative, whereas the other voice-marking affixes (which go back to prepositions) surface as low applicatives. I thus 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 **Si-* (cf. McGinnis 2001).

23. For exmaple, *-i* was originally a “generic locative marker **i* ‘at, on’ which has been cliticized to the preceding verb stem” (Blust 2013:445,447, Starosta 1995). Similar replacements to the one in Chamorro 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*.

(51)



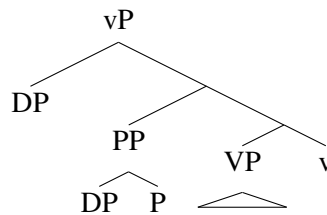
Crucially, the syntactic structure of the previous, Pre-PAN stages is preserved in the synchronic structure of PAN and later AN languages: Pre-PAN affixes that preceded the verbal head are now base-generated as high applicatives, whereas the ones that followed the verbal head are now base-generated as low applicatives.

7.3 Affix placement

The structural analysis of synchronic stages presented above has beside deriving PAN facts another advantage beyond the deriving of PAN facts: it derives placement of adpositions and preverbs cross-linguistically.

We saw that, in head-final languages, such as Sanskrit, postpositions are the source of preverbs that are *prefixed* to the verbal head. In PAN, on the other hand, prepositions are reconstructed to be the source of preverbs that are *suffixed* to the verbal head. The analysis in section 7.2 is capable of deriving these facts. In a head-initial language, prepositional heads necessarily follow verbal heads (46) at a stage when prepositions still surface in their base-generated position. In head-final languages, the prepositional head precedes the verbal head (52).

(52)



I argued above that the development from adpositions to preverbs occurs via rebracketing (47). If we adopt the same explanation for languages like Sanskrit, the affix placement follows automatically. When rebracketing occurs, the affix placement directly depends on the structure of the preceding stage, i.e. a stage where adpositions still govern the DP and surface where they are base-generated. Because in head-initial languages, prepositions necessarily follow the verbal head, the prepositional head will follow the verb after rebracketing. In head-final languages, on the other hand, the prepositional head precedes the verb and the preverb precedes the verb after rebracketing.

In sum, 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 **maŋ-* and intransitivity marker **mar-* take the whole

CP or TP as a complement and precede 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 PPs, which follow the verbal head in a head-initial language and continue to follow the verbal head after rebracketing occurs. *Si- precedes the verbal head and thus retains traces of its verbal origin. The system is then reanalyzed as a system with high and low applicatives: previous syntactic stages determine whether an affix will have the structure of a low or high applicative.

8 A Parallel: Dinka Voice System

The purpose of this section is to show that my analysis of the PAN voice system and Subject-Only Restriction received external support. The Dinka voice system, a rare morphosyntactic system highly reminiscent of the AVS, Dinka voice system, features the exact same properties and processes that were reconstructed for PAN in this paper.

Ideally, an adequate historical explanation of a phenomenon in one language will find parallels in the developments of other languages and language families. We saw that the AVS is a typologically highly unusual morphosyntactic system. However, recent work by Erlewine et al. (forthcoming) on Dinka, a Western Nilotic Language (Andersen 1991), has uncovered a morphosyntactic system highly reminiscent of the AVS. In the following paragraphs, I show that most of the crucial morphosyntactic properties are identical between the two voice systems.

Synchronically, the Dinka voice system functions much like the PAN voice system. Erlewine et al. (forthcoming) and Van Urk (2015) identify three voices for Dinka: actor (AV), patient (PV), and oblique voice (OV). The following examples illustrate the Dinka voice system. When the agent surfaces in subject position, the verb is marked for actor voice (53-a); when the patient is in the subject position, the verb is marked for patient voice (53-b). If an argument with an instrumental semantic role surfaces in the subject position, we get the oblique voice (53-c).

- (53) a. *Áyén à-cé cuḡin câam nè paäl.*
 Ayen 3SG-PERF.SV food eat.NF PREP knife
 ‘Ayen has eaten food with a knife.’
- b. *Cuḡin à-cḡi Áyèn câam nè paäl.*
 food 3SG-PRF.PV Ayen.GEN eat.NF PREP knife
 ‘Food, Ayen has eaten with a knife.’
- c. *Paäl à-cḡnè Áyèn cuḡin câam.*
 knife 3SG-PRF.OV Ayen.GEN food eat.NF
 ‘With a knife, Ayen has eaten food.’ (Van Urk 2015:69)

Oblique voice forms encode not only instrumental semantic relations, but also directional, temporal, possessive, and ‘aboutness’ relations, among others (Van Urk 2015:75). Examples in (54) illustrate the directional and temporal functions. For each function, two sentences are presented: one with the verb in the active voice and one with the verb in the oblique voice. Under active voice, the directional or temporal argument has to be marked by a preposition.

- (54) Directional
- a. *uḡk áa-kàt è jḡ.*
 cows 3PL-run.SV PREP dog
 ‘The cows are running from the dog.’

- b. *Jó à-kéet-è wòk*
 dog 3SG-run.OV cows.GEN
 ‘The dog, the cows are running from.’ (Van Urk 2015:75)

(55) Temporal

- a. *Bòl à-cé Àyén tiiŋ 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 tiiŋ*
 afternoon-inside 3S-PRF.OV Bol.GEN Ayen see.NF
 ‘At noon, Bol has seen Ayen.’ (Van Urk 2015:75)

In this section, I will present and discuss properties common to both systems that were identified in Erlewine et al. (forthcoming a) and Van Urk (2015). First, in both Dinka and AN we have one prominent argument that surfaces in the subject position. In Dinka’s case, this is the initial position. Depending on the thematic role of that argument, its special (prominent) status is marked on the verb or in non-present tense case on the auxiliary. Just like in AN, the agent under non-active voice receives genitive marker, which can be analyzed as equivalent to a *by*-phrase in asymmetrical voice systems. The genitive marking of agent under non-active voice is illustrated in (53) above, where the agent in the nominative under active voice, *Àyén*, turns into the genitive, *Áyèn*, under non-active patient and oblique voices.

Just like in AN, Dinka exhibits a Subject-Only Restrictions — or, more precisely, a restriction against A’-movement of non-subject arguments. Examples in (56) show that the voice marker on the verb has to agree with the thematic role of the extracted argument.

- (56) a. *Yeyà cé cuin cáam nè pàl?*
 who PRF.AV food eat.NF PREP knife
 ‘Who has eaten food with a knife?’
- b. *Yeyú cii Áyèn cáam nè pàl.*
 what PRF.PV Ayen.NOM eat.NF PREP knife
 ‘What has Ayen eaten with a knife?’
- c. *Yeyú cénnè Áyèn cuin cáam.*
 what PRF.OV Ayen.NOM food eatNF
 ‘What has Ayen eaten food with?’ (Erlewine et al. forthcoming a:5)

DPs in Dinka cannot be extracted out of a PP unless the extraction is overtly marked on the verb. The following examples illustrates this generalization (from Erlewine et al. forthcoming a:5). (57-a) features the preposition in situ, (57-b) extraction of the whole PP, and (57-c) extraction of the DP, in which case the extraction has to be marked on the verb by a non-subject extraction marker (NS in (57-c)) and the preposition does not surface.

- (57) a. *Wòk cé cuin cáam nè pàl.*
 we PRF food eat PREP knife
 ‘We ate food with a knife.’
- b. *Nè pàl, wòk cé cuin cáam.*
 PREP knife we PRF food eat
 ‘With a knife, we ate food.’
- c. *Pàl a-cí wòk cuin cáam.*
 knife DCL.SG-PRF.NS we food eat
 ‘With a knife, we ate food.’ (Van Urk 2014)

There exists another striking similarity between the AN and Dinka voice systems. Our reconstructed Pre-PAN system allowed only one preposition per sentence to become a preverb. In Dinka, the number of allowed preverbs per verbal head is also limited to one. Complex prepositions in Dinka, such as *kènè* ‘with’ (likely composed of *kè* and *nè*), cannot enter the voice-marking paradigm. Instead, complex prepositions such as *kènè* ‘with’ have to surface next to the DP that they govern (from Van Urk 2015:76).

- (58) a. *Bòl à-thàt kènè Àyén.*
 Bol 3s-cook.SV with Ayen
 ‘Bol is cooking with Ayen.’
 b. **Àyén à-théér-è Bòl.*
 Ayen 3SG-cook.OV Bol.GEN
 ‘Ayen, Bol is cooking with.’ (Van Urk 2015:76)

However, the most striking parallel between Dinka and PAN is the fact that the Dinka oblique voice marker is actually identical to the preposition. Both the preposition and the oblique voice marker in Dinka show up as *è* or *nè* — the only difference is that the voice marker surfaces as a suffix on the verbal head or the auxiliary, while the preposition governs a DP and surfaces next to it. Thus, the voice system in Dinka appears to be almost identical to what I have reconstructed for Pre-PAN (20). In both cases, prepositions turn into preverbs to mark one argument in a clause as prominent. The only difference between the two is that, in Dinka, the prepositions can still surface as such, whereas in PAN, they cease to function as prepositions. In other words, the origin of the oblique voice marker in Dinka is still preserved as a preposition in the synchronic language.

A very similar historical development as was proposed for Pre-PAN (31) is capable of deriving the development in Dinka. In Dinka, too, reanalysis probably occurred that led from a system of preposition-preverb marking to a voice-marking system. The locus of reanalysis in Dinka is probably slightly different from that of PAN: here, arguments, previously governed by a preposition, probably got focused and moved to the left periphery together with the preposition → preverb operation to additionally mark semantic prominence. Note that Dinka, too, allows pro-drop in initial position—the characteristic subject position in this language. 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): the argument previously governed by a preposition now becomes the only argument that surfaces in a position associated with subjects in Dinka. Based on 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 synchronic syntactic structure I proposed in section 7 based on AVS. Recall that I proposed that the preposition in AN is base-generated in PP as a complement to V and develops into a preverb via rebracketing. Note that, as a head-initial language, Dinka also conforms to the generalization that prepositions in head-initial languages turn into preverbs that follow the verb and surface as suffixes.

Finally, the two typologically rare voice systems both have another rare morphosyntactic feature: the Subject-Only Restriction. The proposal that voice-marking affixes go back to prepositions derives the connection between unusual voice systems and SOR automatically. SOR is simply a result of the restriction against preposition stranding after reanalysis to a voice system occurs (see section 6).

The properties in (59) are common to both typologically rare voice systems, Dinka and PAN. The fact that the only other voice system that is highly reminiscent to that of PAN shares so many so many properties with PAN considerably strengthens the reconstruction proposed in this paper.

- (59) Voice System: A prominent argument surfaces in subject position. Depending on the thematic role, different affixes surface on the verb. Common morphosyntactic properties:

- a. Subject-Only Restriction
- b. Restriction against extraction from PP
- c. Agent in non-active voice receives the genitive case
- d. Number of preverbs surfacing on the verbal head is limited to one
- e. Voice affixes go back to prepositions

In sum, the PAN voice system is typologically unusual, but not unique. The development and descriptive facts of both systems are highly parallel. I have shown that my explanation captures surface generalizations in both languages: the reconstructed AN pre-proto-stage with prepositions is still allowed in the synchronic structure of Dinka today. Both systems feature strong evidence suggesting they underwent almost identical developments: from prepositions to preverbs and voice markers. This parallel considerably strengthens the proposed reconstruction of the PAN voice system and captures other unusual features of the two system such as the Subject-Only Restriction.

9 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 intransitivity/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 with rebracketing, during which prepositions 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) and the argument, previously governed by the preposition, became analyzed as a direct object and thus assumed a prominent role. Once the DP that was originally governed by the preposition-come-preverb becomes morphologically unmarked, reanalysis occurs and the DP starts functioning as a 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 resultative and perfect marker and its nominalizing function can easily be derived from there.

Several aspects of the AVS 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 arguments to the subject position is understood as the result of reanalysis of the argument as a direct object (hence the prominent role) followed by reanalysis of that argument as a subject on the basis of case marking. Third, my analysis unifies two of most prominent aspects of the PAN voice system: promotion to subject and the prominent role that the argument receives. 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 a restriction against extraction from PP, i.e. restriction against preposition stranding. 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 (see section 5.1.1). I anticipate that future research will reveal even more such tendencies. Finally, I show that one of the rare voice systems similar to that of PAN, the voice system of Dinka, features almost identical morphosyntactic properties as the reconstructed Pre-PAN. Most of the crucial generalizations and reconstructions of the two systems agree and are easily derivable

under my explanation. This new, parallel evidence from an unrelated language significantly strengthens the proposal I put forward in this paper.

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 affixes follow the verb in a head-initial language as a result of surface structure followed by rebracketing 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.

Finally, I discussed the methodology of internal reconstruction as it is applied to the reconstruction of typologically unusual morphosyntactic phenomena. I described how all attested functions of a given morpheme should be examined, and potential origins for each function established based on grammaticalization theory. All functions of a single affix can then be taken together to determine the most likely origin: i.e., the one that is common to all attested functions.

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