

A method for mitigating the problem of borrowing in syntactic reconstruction

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Most scholars agree that grammatical borrowing is a serious obstacle to syntactic reconstruction, but to date there have been few proposed solutions to this methodological conundrum. In this paper I propose a method, couched in a constructional view of language, for mitigating the problem of borrowing in syntactic reconstruction. The method begins with the reconstruction of partially schematic constructions, whose phonological material can be tested for cognacy. Fully schematic reconstructions are then achieved via generalizations made over sets of reconstructed constructions. I exemplify the effectiveness of this method by applying it to two pieces of grammar from the Sogeram languages of Papua New Guinea: clause chain nominalization and the desiderative construction. The method allows the reconstruction of the former, but identifies the latter as a likely grammatical borrowing and therefore not reconstructable to Proto-Sogeram.

1. Introduction¹

Recently linguists have been exhibiting a renewed interest in syntactic reconstruction. With this attention has come, as in any area of linguistics, a good deal of disagreement about how to undertake the enterprise. Much of this disagreement is ultimately traceable to theoretical differences about the nature of language; thus generative approaches (such as Lightfoot 2002a, 2002b; Ferraresi & Goldbach 2008; Willis 2011; Walkden 2013, 2014) have in general emphasized a different set of problems, and therefore different solutions, than their more functionally minded colleagues (Campbell & Harris 2002; Barðdal 2013; Barðdal & Eythórsson 2012a, 2012b; Barðdal & Smitherman 2013; Barðdal et al. 2012, 2013; Ross 2015). One area in which generative criticism of functional approaches has been especially frequent—and, to my mind, especially appropriate—is with regard to grammatical borrowing. For example, Walkden observes that a comparison of patterns (as in Harris & Campbell 1995 or Harris 2008) or constructions (as advocated by Barðdal in her various works) “provides no clear basis for distinguishing structural similarity caused by language contact or parallel innovation from structural similarity caused by shared inheritance, as systematic correspondences in phonology are able to” (Walkden 2013: 106; see also Bowerman 2008a, Willis 2011: 414).

I am inclined to agree, so in this paper I propose a method for mitigating the problem of grammatical borrowing. In the remainder of the introduction I articulate the problem as I see it. I sketch out my proposed method in §2 and then provide two demonstrations: one which provides a positive result and allows for reconstruction (§3) and one which does not (§4). These are designed to show the effectiveness of the method, first in allowing us to reconstruct

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syntax, and second in spotting potential cases of contact-induced grammatical change. I discuss the results in §5 and conclude in §6.

The phenomenon of contact-induced language change has long been recognized by linguists, but in recent decades the contact literature has grown dramatically. New case studies are reported on almost constantly, exhibiting a staggering variety of borrowing pathways. The variety and complexity of the variables in play—donor language structure, recipient language structure, the social nature of the contact situation—make creating a comprehensive typology of grammatical borrowing extraordinarily difficult (although good efforts can be found in Heine & Kuteva 2005 and Thomason & Kaufman 1988). But it is enough for our purposes to understand some of the ways that grammatical borrowing takes place, and especially whether it is always accompanied by lexical borrowing.

Certainly it is true that grammatical borrowing sometimes follows on the heels of lexical borrowing. King (2000), for example, makes a convincing case that the French spoken on Prince Edward Island borrowed the English preposition stranding construction by borrowing English prepositions in this construction and then generalizing their properties to native French prepositions. Thus a sentence like (1a) was enabled by borrowing the lexeme *about* along with its syntactic properties. Sentences like (1b), containing the fully borrowed grammatical construction, were possible only after a generalization had been formed based on sentences like (1a).

- Prince Edward Island French
- (1) a. *Quoi ils avont parlé about?*
 ‘What did they talk about?’ (King 2000: 174)
- b. *Quelle heure qu’elle a arrivé à?*
 ‘What time did she arrive (at)?’ (King 2000: 174)

If this were how all grammatical borrowing took place, it would be relatively easy to spot since it would always be accompanied by loanwords. Some practitioners of syntactic reconstruction have, it seems, been operating with precisely this model of grammatical borrowing. For example, Barðdal & Smitherman (2013: 61), discussing the reconstruction of an oblique subject construction to Proto-Indo-European, say that “if the category had spread through borrowing, one would also expect to find a considerable amount of [lexical] cognates, which should be recognizable as borrowings through their phonological shape” (see similar statements in Barðdal et al. 2012: 524 and Barðdal & Eythórsson 2012a: 366). They assume that the kind of situation in (1b), in which we see a borrowed grammatical construction, will always be preceded by a situation like (1a), in which we see the borrowed lexemes that brought the borrowed construction with them.

Unfortunately, though, grammatical borrowing is not always accompanied by lexical borrowing. While situations like that in Prince Edward Island French certainly do occur, the literature on grammatical borrowing is rife with examples of grammatical constructions being borrowed from one language into another without any morphology. In other words, grammatical constructions can be calqued directly, without an intermediate stage like (1a). I give an example from Papua New Guinea to illustrate the point, but many more could be produced.

This example comes from Ross (2007; see also Ross 1996), who discusses contact between the Oceanic language Takia and the Madang language Waskia. It is quite clear based on lexical and morphological evidence that Takia and Waskia belong to their respective families and therefore that they are not related to each other at all. Nevertheless, they exhibit remarkable grammatical similarities. Takia clause structure, for example, is SOV (2a), as is Waskia’s (2b), even though Takia’s close relatives, such as Arop-Lokep, are SVO (2c).

Takia

- (2) a. *Tamol an ŋai i-fun-ag=da.*
 man DET me 3SG.SBJ-hit-1SG.OBJ=IPFV
 ‘The man is hitting me.’ (Ross 2007: 119)

Waskia

- b. *Kadi mu aga umo-so.*
 man DET me hit-3SG.PRS
 ‘The man is hitting me.’ (Ross 2007: 119)

Arop-Lokep

- c. *Au a-kan-a pur ata-leu.*
 I 1SG.SBJ-eat-3SG.OBJ banana one-only
 ‘I ate just one banana.’ (Ross 2007: 118)

Similarly, Takia and Waskia both have postpositions (3a–b), while Arop-Lokep and other Oceanic languages have prepositions (3c).

Takia

- (3) a. *Kai sa-n ab lo*
 Kai CLASS-his house in
 ‘in Kai’s house’ (Ross 2007: 120)

Waskia

- b. *Kai ko kawam te*
 Kai ABL house in
 ‘in Kai’s house’ (Ross 2007: 120)

Arop-Lokep

- c. *paŋ karam*
 GOAL bushland
 ‘to the bush’ (Ross 2007: 120)

Ross provides several other examples from these languages. The noun–determiner word order shown in (2a) is also a likely borrowing, as Oceanic languages usually have determiner–noun order and Takia’s closest relatives have no determiners. Similarly, the possessor–possessum order in (3a) is the reverse of the typical Oceanic pattern.

There is thus convincing evidence that Takia exhibits many non-Oceanic grammatical features because of contact with Waskia or a language related to it. Importantly, Ross points out that his data shows “no borrowing of phonological forms from Waskia into Takia. A replica language may retain much of its lexicon, and Takia certainly does so” (2007: 121). Many similar examples could be produced (e.g., Epps 2007, 2013; Heine & Kuteva 2003, 2005; Næss & Jenny 2011), including examples showing grammatical borrowing between close relatives (Ross 2008). The conclusion is inescapable: grammatical borrowing without concomitant lexical borrowing can, and often does, happen.

This fact has dire consequences for the project of grammatical reconstruction, which many authors have recognized (e.g. Bower 2008a, Willis 2011, Walkden 2013, Seržant 2015). The problems are particularly serious when one attempts to reconstruct grammatical patterns (Campbell & Harris 2002, Harris 2008) or constructions (Barðdal et al. 2012, Barðdal & Eythórsson 2012a, Barðdal & Smitherman 2013). Willis observes that “treating patterns as elements of a correspondence set in syntax means that we cannot eliminate the possibility that

a particular syntactic pattern was transferred from one language to another” (2011: 414; see also Walkden 2013: 106, quoted above). And he is right. Grammatical patterns can be borrowed, and the comparative method does not allow us to distinguish inherited patterns from borrowed ones.

How, then, can grammar be reconstructed? If we have no way of differentiating grammatical patterns that existed in the proto-language from those that were innovated later and spread through contact, our reconstructions must be plagued by doubt. I propose, however, that there is a way forward and that grammar can be reconstructed with confidence.

2. The method

In this section I propose a method for reducing the chances that the grammar we reconstruct to a proto-language is actually only a later innovation that spread through contact. Before introducing the method, though, I must introduce the theoretical perspective which it assumes.

2.1 Theoretical preliminaries

There is convincing evidence that the basic units of human language are CONSTRUCTIONS, in the technical, construction-grammatical sense. Constructions are “pairings of form and meaning that are at least partially arbitrary” (Croft 2001: 18; see also Goldberg 1995)—essentially, Saussurean signs. They can be lexical, like *cheeseburger* or *Carlos*, or schematic. Schematic constructions include things like the English ditransitive construction [S V O O], which adds the semantics of transfer to a sentence like *I’ll bake you a cake* (Goldberg 1995), or the English right-headed noun compound construction [N N], which licenses words like *windmill* (Booij 2013: 258–259).

Importantly for our purposes, constructions can also be somewhere between lexical and schematic: they can be partially schematic, specifying some phonological material and some schematic material. Examples include [*the X-er the Y-er*], as in *The more you read, the less you understand* (Fillmore, Kay & O’Connor 1988: 506–508) or [*what’s X doing Y?*], as in *What am I doing reading this paper?* (Kay & Fillmore 1999). But partially schematic constructions are not limited to this kind of idiomatic language: they also include morphology (for example, [*V-able*]; Booij 2013: 257–258) and things like the English passive [S *be*-TNS V-*en* by OBL] (Croft 2001: 17). One of the crucial insights of construction grammar is thus that grammar and the lexicon are not discrete entities but rather exist at opposite ends of a continuum of schematicity.

The different constructions that populate this continuum in the speaker’s lexicon are not distributed randomly. Rather, they come in “families” structured in a DEFAULT INHERITANCE HIERARCHY (Langacker 1987, Goldberg & van der Auwera 2012). For example, English has a simple phrasal construction, the prepositional phrase construction [P NP]. This construction has a daughter, the [P N] construction, which is exemplified by constructs like *at work*, *in prison*, or *to church*. The [P N] construction inherits most of the formal and semantic properties of its parent, but specifies a number of exceptions. Most importantly it takes a noun complement, not a whole noun phrase, and it has idiosyncratic meaning which can be expressed as “stereotypical activity associated with N” (Goldberg 2013: 21). This can be seen by comparing (4a) with (4b) and picturing the sorts of scenarios where each would be appropriate. If a plumber were heading to a church to fix the pipes, she would say (4a); if she said (4b) that would be a joke, because the more felicitous reading of (4b) is that she was going to the church to worship (to perform the “stereotypical activity associated with N”), not to fix pipes.

- (4) a. *I'm going to the church.*
 b. *I'm going to church.*

In turn, each of the daughters of [P N] inherits the properties of the [P N] construction but also specifies its own idiosyncratic material—notably the phonological form and the lexical semantics of the P and the N. They can also specify other material as well: for example, while *at home* is a daughter of [P N], it does not have the semantic sense of performing a stereotypical N-related activity in the way that *to church* does. So we see that constructions occur in the lexicon in a default inheritance hierarchy, with daughter constructions inheriting their parents' properties by default but usually specifying some exceptions.

2.2 How syntax can be reconstructed

Reconstructing grammar, on the view of language articulated above, is not all that different from reconstructing lexicon since they exist along the same continuum. We must thus rephrase the question “How can we reconstruct grammar?” as “How can we reconstruct fully schematic constructions?” Seen in this light, the way forward becomes quite plain. Fully schematic constructions, for the reasons described above, cannot be directly reconstructed because of the risk that we might reconstruct something that was actually innovated after the breakup of the proto-language and that then spread via contact. Partially schematic constructions, however, contain phonological material that can be tested for cognacy and they can therefore be reconstructed. This point has been made before, by various people in various ways (the most direct formulations can be found in Ross 2015 and Seržant 2015).

What has not yet been recognized is that this fact does not preclude the reconstruction of fully schematic grammatical constructions. Although we must begin by reconstructing partially schematic constructions, we can expect that they will, at least sometimes, occur in families. When they do, we can generalize over a set of reconstructed sister constructions to arrive at their more schematic parent.² Thus we are, in effect, performing synchronic analysis on the reconstructed set of partially schematic proto-language constructions. Just as we can generalize over the various English collocations like *to church*, *at home*, and *in prison* to arrive at the schematic [P N] construction, so we can generalize over a set of reconstructed proto-language constructions to arrive at their schematic parent, provided of course that the individual daughter constructions are reconstructable and were related to each other in the right way in the proto-language.

It is important to be clear about what qualifies as a partially schematic construction. The criterion exists so that phonological correspondences between constructional material in cognate constructions can serve as a diagnostic for identifying potential borrowings. This means the phonological material can come from a small, closed set of options like a subject agreement paradigm, even though such material will appear schematic in a constructional representation (i.e., it will be represented by capital letters).

It is also important to note that the kind of morphological material associated with grammatical constructions often behaves irregularly with respect to sound changes. Phonological material in grammatical constructions often undergoes irregular erosion (Traugott & Trousdale 2013), especially if it is acquiring its own grammatical meaning

² Note that the family tree metaphor is now being used in two senses: the lexical sense and the diachronic sense. In the lexical sense, a construction is another construction's daughter if it is an instance of its parent construction. This is a synchronic relationship between two entries in a speaker's lexicon. A construction is another construction's daughter in the diachronic sense if it is descended from that construction over time. It will be important to keep these two senses of relatedness distinct.

(Hopper & Traugott 2003). This means that in our evaluation of sound correspondences we cannot expect to see the same level of regularity that we would expect to find in the lexicon. Instead we must evaluate whether the sound correspondences we see are more compatible with a scenario of inheritance or one of borrowing. In cases of inheritance we can expect to see regular sound changes, especially if they are lenition changes, plus additional evidence of phonological erosion. To identify cases of borrowing we must make reference to the expected sound changes for both the suspected donor and the recipient language and use our judgment in deciding which changes are reflected in the phonological material we are examining. The comparison of phonological material in grammatical reconstruction, as in morphological reconstruction, is thus somewhat subjective, but that doesn't mean it can't be rigorous. The analyst must simply be aware of all the forces that are potentially at work—regular sound change, erosion, analogy, etc.—and discern which have most likely affected the phonological material at hand, and in what ways.

Following the establishment of correspondence sets and the reconstruction of partially schematic constructions, we can look for families of constructions in the proto-language and posit parent constructions for them. Note that this process does not necessarily produce fully schematic reconstructions right away, but rather produces some number of new schematic constructional slots, generalized over the phonologically specified slots of the daughter constructions. Thus if we reconstruct a family of constructions with two phonologically specified slots and only generalize over one of them, we still have a partially schematic construction on our hands, although it is more schematic than what we started with. This is in fact what I do in §3 below, and that is the point of this method. We are aiming to produce increased schematicity in our reconstructions, which may or may not reach the level of full schematicity.

3. The first application: clause chain nominalization

I now present two applications of the method I am advocating. Both concern the Sogeram family, a group of ten Papuan languages spoken in Madang Province, Papua New Guinea. The Sogeram languages belong to the large Trans New Guinea family (Pawley 2005, 2012; Ross 2005), within which they belong to the Madang branch (Z'graggen 1975a, 1975b; Pawley 2006), and within that to the South Adelbert branch (Z'graggen 1980). I have discussed the internal relationships of the Sogeram languages in my previous work (Daniels 2010, 2015, 2016), and I propose the family tree given in Figure 1.

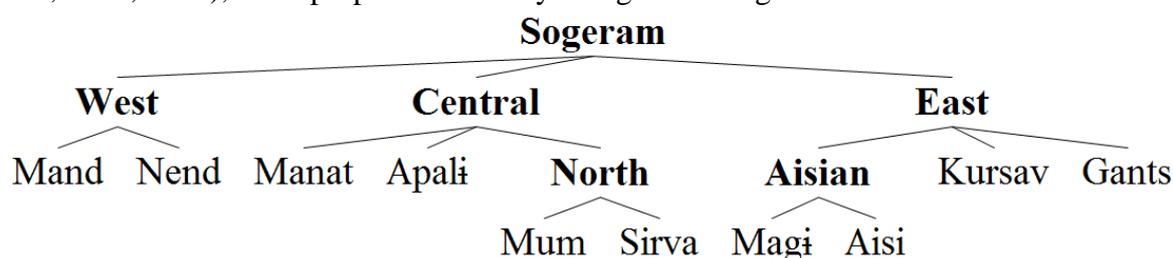


Figure 1. The Sogeram language family

The first application concerns a subordination construction that I call **CLAUSE CHAIN NOMINALIZATION**. This is a particularly Papuan kind of subordination in which a subordinate clause functions as a noun phrase in its matrix clause (Foley 1986, 2010; Reesink 1994, 2014). The subordinator is a demonstrative, and the case marking on the demonstrative indicates the function of the subordinate clause chain in the matrix clause. In the Sogeram languages the subordinate chain is fully finite—it has no morphological or syntactic properties that differentiate it from main clauses. The subordinate chain, as it is a noun phrase,

refers to something, and what it refers to is pragmatically determined. Most commonly it refers to one of its own participants (in which case it resembles an internally headed relative clause), to the location of its event, or to the event itself. A few examples of this construction will help to clarify these facts before I begin reconstruction.

Example (5) is typical. Here the subordinate clause is *arum kab kirmid* ‘the ancestor used to act like that’. It is subordinated by the accusative demonstrative *kan* and functions as the object of the verb *ηareihin* ‘I follow’. In this case the subordinate clause refers to its own event.

- Manat³
- (5) [Arum ka-b ki-r-m-id] ka-n ηareih-in.
big MD-NOM do.thus-HAB-PST-3SG.HIS MD-ACC follow-1SG.IPST
‘I follow what the ancestor used to do.’

Examples (6) and (7) illustrate the principle that interpretation of these subordinate clauses is governed by pragmatics. In (6) the subordinate clause is *nimi kisa* ‘his mother was (there)’, which is subordinated by the setting demonstrative *ki* (a kind of locative). The subordinate clause functions as an adjunct of the verb *tamasa* ‘he put’ and refers to the location of its event.

- Sirva
- (6) [Ni-mi ki-s-a] k-i tama-s-a.
3.POSS-mother stay-FPST-3SG MD-SET put-FPST-3SG
‘He put it where his mother was.’

Example (7) is structurally identical to (6): a clause (*abasa* ‘he spoke’) is subordinated by the setting demonstrative *ki*. Again the *ki* clause functions as an adjunct of the matrix verb, in this case *taguramasa* ‘she stood’. But the sentence does not mean ‘she stood in the place where he spoke’; rather, given the context in which (7) was said, a more reasonable interpretation was ‘she stood in the place he had talked about’, and that is what it meant in context.

- Sirva
- (7) [Aba-s-a] k-i tagu-rama-s-a.
talk-FPST-3SG MD-SET step-put-FPST-3SG
‘She stood in the place he had talked about.’

Finally, I refer to this construction as clause chain nominalization, not clause nominalization, because it is possible to subordinate a chain of more than one clause. Many Papuan languages, including the Sogeram languages, make use of a construction called CLAUSE CHAINING (Roberts 1997). In this construction a number of medial clauses, in which the verb bears medial morphology, are chained together behind a final clause, where the verb bears final morphology. Final verbs are marked for TAM and subject agreement. Medial verbs are not marked for TAM but receive their TAM specification from the final verb in their clause chain. Medial verbs are instead marked for switch reference, meaning they index the identity or non-identity of their own subject with the subject of the next clause in the chain. They also sometimes distinguish other categories, such as the nature of the temporal sequence

³ Data for Manat, Mand, Sirva, Magi, Aisi, Kursav, and Gants come from my own fieldwork. I have tried to take examples from natural speech wherever possible, but sometimes it has been necessary to use elicited examples. These are marked as such.

between clauses or the realis status of the clause chain. In (8), for example, the suffix *-eke* ‘3SG.DS’ indicates that the subject of its verb is different from the subject of the following verb, *veda*. The suffix *-da* ‘SS’ on that verb, meanwhile, indicates that its subject is the same as the subject of the following (serialized) verb, *ita ine* ‘hold duratively’. The nonfuture tense on this final verb has scope over the whole chain.

- Kursav
 (8) *Ni-naba iv-eke, kim nu-kuna ve-da ita in-e.*
 3SG.POSS-wife hit-3SG.DS bow 3SG.POSS-father come-SS hold stay-3SG.NFUT
 ‘He hit his wife, and the policeman (lit. ‘bow’s father’) came and is holding him.’

It is possible for multiple chained clauses to be subordinated by one demonstrative. This is not the norm—most subordinate chains consist of a single clause—but as (9) illustrates, a subordinate chain can contain multiple clauses, so I use the term clause chain nominalization rather than clause nominalization.

- Aisi
 (9) [*Kr-i kr-i na kwi pa ur=ej wa-s-uj] ga-kiniŋ,*
 walk-SS walk-SS and back only house=LOC come-FPST-3PL MD-PL
ab-am.
 talk-2SG.IMP
 ‘Talk about how they wandered around and just came back home.’

In what follows, I reconstruct three subordination constructions of this type: one involving the topic/object suffix **-n*, one involving the locative enclitic **=ñ*, and one involving the unaffixed demonstrative **ka*. First, though, it is necessary to discuss the structure of demonstratives in Proto-Sogeram.

3.1 Proto-Sogeram demonstratives

It will be important, for the following arguments, to reconstruct in detail the Proto-Sogeram demonstrative system. Demonstratives in the Sogeram languages are, in general, fairly complex, and several diachronic processes (notably regular sound change, irregular phonological attrition, and analogy) have affected the system in daughter languages. This means that successful reconstruction requires careful attention to detail, but unfortunately there is not space here to provide all the relevant details. This section, then, presents the most relevant data with appropriate commentary, but a more complete discussion with more detailed argumentation can be found in Daniels (2015:272–308).

Proto-Sogeram demonstratives were composed of two parts: a root and a suffix. The root indicated deictic distance, and there were three forms: **in* ‘near deictic distance (ND)’, **ka* ‘middle deictic distance (MD)’, and **antu* ‘far deictic distance (FD)’. Middle forms are the most frequent by far in every Sogeram language that preserves the deixis distinction, suggesting they were the unmarked form in Proto-Sogeram. These roots could also be reduplicated, which gave them contrastive meaning. **Error! Reference source not found.** presents the demonstrative roots from every Sogeram language which retains the paradigm. It also presents the roots that are reduplicated for contrast, although those are only reflected in four languages. Non-cognate material is presented in [square brackets].

Table 1. Proto-Sogeram demonstrative roots

	Mand	Nend	Manat	Apali	Mum	Sirva	Aisian	Kursav	PSOG
ND	<i>na-</i>	[<i>mba-</i>]	<i>ini-</i>	<i>na-</i>	<i>ni-</i>	<i>ni-</i>	<i>na-</i>	<i>i-</i>	* <i>ini-</i>
MD	<i>ka-</i>	<i>ha-</i>	<i>ka-</i>	<i>ha-</i>	<i>ka-, ha-</i>	<i>ka-</i>	<i>ka-, ga-</i>	<i>ka-</i>	* <i>ka-</i>
FD		[<i>ke-</i>]	<i>itu-</i>	<i>ada-</i>	<i>da-</i>	<i>ada-</i>	<i>ara-</i>	<i>do-</i>	* <i>antu-</i>
ND~CTR		[<i>mba-</i>]	<i>na-</i>	<i>na-na</i>		<i>n-udu</i>		<i>i-ka(-)</i>	* <i>in~in</i>
MD~CTR		<i>ha-na-</i>		<i>ha-na</i>		<i>k-udu</i>		<i>ka-ka(-)</i>	* <i>ka~ka</i>
FD~CTR		[<i>ke-</i>]	<i>ha-</i>	<i>ada-na</i>		<i>ad-udu</i>		<i>do-ka(-)</i>	* <i>antu~ntu</i>

A few comments are in order. Mand has lost the far demonstrative. In Nend the lenition to *h* (a voiced velar fricative) is unexpected word-initially but more common word-medially. Similarly, in Manat, word-initial **k* normally lenites to *h* but word-medial **k* does not. Thus in both cases **k* behaves more like a medial consonant than an initial one, suggesting that the demonstrative was tightly integrated prosodically with what preceded it. I do not know what conditions the variation in the Mum middle forms. The Aisian roots are *ka-* for Magi and *ga-* for Aisi. Loss of word-initial **i* in the near form is expected in Mum, Sirva, and Aisian, but unexpected elsewhere. Root-final vowels in near and far forms often become **a*, presumably on analogy with the more frequent middle form. Because of this, the non-**a* vowel is reconstructed in those cases.

The contrastive forms, in general, are more difficult. It seems that in every language that retains them, one reduplicant has been generalized at the expense of the other two: the near one in Nend and Apali, the far one in Sirva, and the middle one in Kursav. Nevertheless, the fact that every modern suffix is cognate with one of the three Proto-Sogeram demonstrative roots strongly suggests that the original forms were reduplicative, as indicated in the reconstructions.

Demonstratives normally took a suffix, but they could also occur in a bare, unaffixed form, in which case they had topic meaning. For our purposes we need only concern ourselves with the bare middle demonstrative, which had a somewhat wider range of functions than its near and far counterparts. **Error! Reference source not found.** shows the relevant forms, and the reconstruction here is fairly straightforward. Regular phonological reflexes are found in Apali, Mum, Sirva, and Kursav—a wide enough distribution to justify reconstruction. The Mand form is poorly understood and somewhat idiosyncratic in its syntactic behavior, so it is uncertain whether it is cognate. Manat would normally lenite initial **k* > *h*, but, as described above, it does not do so with the middle demonstrative. The Aisi form lenites **k* > *g*, which is unexpected, as is Gants **a* > *o*.

Table 2. The Proto-Sogeram bare middle demonstrative

Mand	Manat	Apali	Mum	Sirva	Aisi	Kursav	Gants	PSOG
<i>ki?</i>	<i>ka</i>	<i>ha</i>	<i>ka, ha</i>	<i>ka</i>	<i>ga</i>	<i>ka</i>	<i>ko</i>	* <i>ka</i>

In addition to the root, demonstratives also usually took a suffix which indicated their function. Essentially, they were case-marked, although some suffixes, like **-kw* ‘FOC’, marked information structure rather than case. Some of the suffixes that occurred in this position, like **-kw*, only occurred on demonstratives. But others, like **=ñ* ‘LOC’ and **=nt* ‘OBL’, had a wider distribution: the locative **=ñ* could occur on noun phrases that did not contain a demonstrative; the oblique **=nt* could occur on pronouns. Forms like these, which could occur on demonstratives but could also occur elsewhere, are analyzed as clitics, not as suffixes. But they occupied the same position in the paradigm of Proto-Sogeram demonstrative forms as the true suffixes like **-kw* ‘FOC’. **Error! Reference source not found.** shows the demonstrative suffixes which are reconstructed for Proto-Sogeram.

Table 3. Proto-Sogeram demonstrative suffixes

	Mand	Nend	Manat	Apali	Mum	Sirva	Magi	Aisi	Kursav	Gants	PSOG
OBL	<i>-d</i>	<i>-nd</i>	<i>[ka]d</i>	<i>-di</i>	<i>-d</i>		<i>-d[iŋ]</i>			<i>-d[iŋ]</i>	*=nt
TOP/OBJ	<i>-n</i>	<i>-n</i>	<i>-n</i>	<i>-n</i>				<i>-oŋ</i>			*-n
LOC			<i>-i</i>	<i>-eŋ</i> , <i>-niŋ</i>	<i>=ñ</i> , <i>=i</i>	<i>-i</i> , <i>=ñ</i>	<i>=iŋ</i>	<i>=iŋ</i>	<i>=(n)i</i>		*=ñ/i
FOC	<i>-hw</i>						<i>-ku</i>	<i>-ku(ŋ)</i>			*-kw

The oblique enclitic *=nt is reflected as a demonstrative suffix only in Mand and Nend; in Manat the middle oblique form *ka=nt [MD=OBL] has become a benefactive postposition and in the other languages it marks a pronominal paradigm.

The nasal in the topic/object suffix *-n is reflected as *ŋ* in Aisi, which is expected, but the preceding vowel has irregularly become *o* and has thereby become part of the suffix instead of the root. Otherwise reflexes of *-n are quite regular.

The locative forms are more difficult to evaluate because of the allomorphy this morpheme apparently exhibited. But Apali, Mum, Sirva, Magi, and Aisi show fairly regular reflexes of final *ñ. The Manat reflex may be descended from the *=i allomorph or it may be a lenited form of the *=ñ allomorph. I consider the latter possibility more likely as the Manat locative suffix *-i* does not elide preceding vowels, as other vocalic suffixes in Manat do. The Kursav reflex is *=ni* after vowels and *=i* after consonants, which may reflect the original distribution of the two reconstructed allomorphs. While the particular change of word-final *ñ > *ni* is not attested elsewhere, the sound change *ñ > *n* is regular in Kursav and is usually accompanied by raising surrounding vowels.

Finally, the focus suffix is reconstructed on the basis of reflexes in Mand and the Aisian languages. Proto-Sogeram *kw was not a common consonant word-finally, so it is difficult to evaluate the phonological correspondences, although a reconstruction of *kw is certainly the most plausible. The semantic match is also imperfect (Mand *-hw* marks ‘FOCUS’ while Magi and Aisi *-ku* mark ‘NOMINATIVE’ and Aisi *-kuŋ* marks ‘ACCUSATIVE’), so this reconstruction is less secure than others.

The full set of reconstructed Proto-Sogeram demonstrative forms is given in Table 4. Recall that the reduplicated contrastive forms could also take suffixes, although it may have been a limited set of suffixes—the limited reflexes of contrastive forms make it difficult to know.

Table 4. Proto-Sogeram demonstratives

	near (ND)	mid (MD)	far (FD)
bare (TOP)	*in	*ka	*antu
CONTRAST	*in~in	*ka~ka	*antu~ntu
TOPIC/OBJECT	*ini-n	*ka-n	*antu-n
OBLIQUE	*ini=nt	*ka=nt	*antu=nt
LOCATIVE	*ini=ñ	*ka=ñ	*antu=ñ
FOCUS	*ini-kw	*ka-kw	*antu-kw

I now turn to a discussion of the clause chain subordination construction, first involving the topic/object suffix (§3.2), then the locative suffix (§3.3), and finally the bare middle form (§3.4).

3.2 Topic/object *-n

The suffix *-n, as discussed above, can be securely reconstructed to Proto-Sogeram based on reflexes in Mand, Nend, Manat, Apali, and Aisi. It had two primary functions: to mark topic-

fronted constituents and to mark objects. Papuan languages often have an extra-clausal topic position which has its own structural and morphological properties (Donohue 2005). Proto-Sogeram was one such language, and constituents in topic position were marked with *-n. But there was an added wrinkle in the Proto-Sogeram system in that *-n also marked objects.

The topic-marking function of reflexes of *-n can be most clearly seen in nonverbal predicates, in which the subject is, structurally speaking, in topic position. The Mand example in (10) and the Apali example in (11) illustrate this. Reflexes of *-n in topic position are found in Mand, Nend, Manat, and Apali, and in a limited way in Aisi. This combination of form and function thus has a wide enough distribution in the family that it can be reconstructed to the proto-language.

- Mand
 (10) *Na-n ikisopih.*
 ND-ACC head
 ‘This is a head.’

- Apali
 (11) *Na-n sibili u-i.*
 ND-LOC bad say-3SG.IPST
 ‘‘This one here is bad,’’ he said.’ (Wade 1989: 129)

The object-marking function of *-n⁴ is found in Mand (12), Nend, Manat, and Aisi (13), and can thus also be reconstructed.

- Mand
 (12) *Kuram-iñ na-g, iwañ ka-n am kw-e ateri-rd.*
 man-DIM ND-NOM footprint FD-ACC just see-SS leave-FPST
 ‘The boy just saw the footprints and left.’

- Aisi
 (13) *Ya dibir g-oŋ, kwi miŋat-ibyaŋ.*
 1SG cucumber MD-TOP back get-1SG.FUT
 ‘I’ll get the cucumber back.’

Demonstratives in *-n can function as subordinators in every language where they are found, with the exception of Apali. The subordinate clause chains exhibit the same range of functions as other noun phrases in *-n. For example, in Manat they can function as both topics (14) and objects (15).

- Manat
 (14) [*Azi=k ini-n ram-in*] *ini-n, arum hava ka-barad.*
 decoration=ACC ND-ACC put-1SG.IPST ND-ACC big group MD-POSS.PL
 ‘This decoration that I’m wearing here is our ancestors’.

⁴ Rather than the cumbersome wording ‘‘reflexes of X,’’ I often refer to the reflexes of a proto-form collectively by that proto-form. In addition, those reflexes may have rather different glosses. For example, reflexes of the topic/object suffix *-n are variously glossed ‘ACCUSATIVE’, ‘LOCATIVE’, and ‘TOPIC’, for language-specific reasons which I do not get into here. Interested readers can consult Daniels (2015).

Manat

- (15) [Dar-in] **ka-n** miŋatama-nad ag?
 speak-1SG.IPST MD-ACC hear-2SG.IPST FOC
 ‘Did you hear what I said?’

The topic-marking function of subordinators in *-n is also found in Mand (16), Nend (17), and Aisi (18).

Mand

- (16) [P=ahw p-id] **na-n**, p=ahw uci pi-ŋarid?
 3=FOC write-IPST ND-ACC 3=FOC what take-FUT
 ‘What’s he going to do with what he wrote?’

Nend

- (17) [Ar ha-n ereri-mandi-riŋ] **ha-n**, ohira ka mah ñ-i.
 1PL MD-ACC leave-HPST-1PL MD-ACC large big NEG stay-3SG.IPST
 ‘Because we abandoned this, it is not very big.’ (Harris n.d.)

Aisi

- (18) [Ya iti w-ir-iŋ] **g-oŋ**, maket tam-er-iŋ ma.
 1SG get.SS come-HAB-1SG MD-TOP market put-HAB-1SG NEG
 ‘I bring them, but I don’t put them in the market (i.e., sell them).’

The object-marking function of subordinators in *-n is also found in Mand (19), Nend (20) and Aisi (21). The last of these examples is somewhat difficult to render into English because both the subject and the object of the clause are subordinate and because the subordinate clauses are nonverbal clauses. A very literal translation might be ‘the [she’s from Banam] married the [my father’s from here]’.

Mand

- (19) [Uki iveri-ŋ=an] **ka-n** ku-n?
 drum hit-PURP=very FD-ACC see-2SG.IPST
 ‘Do you see me beating the drum?’ Elicited

Nend

- (20) [Awaz ŋg-ami~ndam-in] **ha-n** kir-in.
 betelnut descend-put~TPST-1SG MD-ACC look.for-1SG.IPST
 ‘I am looking for the betelnut I put (here).’ (Harris 1990: 148)

Aisi

- (21) [Nu Banam=iŋ gisiŋ] ga-ku, [ika yaka na-niŋ gisiŋ]
 3SG Banam=LOC from MD-NOM father.1.POSS 1SG.POSS ND-LOC from
g-oŋ i-s-i.
 MD-TOP get-FPST-3SG
 ‘She’s from Banam, but she married (lit. ‘got’) my father from here.’

We thus find that reflexes of the Proto-Sogeram topic/object demonstrative suffix *-n can serve as a subordinator in every language but Apali. In every one of these languages, the subordinate clause functions as a noun phrase in the matrix clause and has the same distribution as other noun phrases marked with this case: it can occur in topic position or object position. We also observe that the semantic properties of this construction are similar

- Aisi
 (25) *Am=ij im-i n-is-i.*
 bamboo=LOC put.in-SS eat-FPST-3SG
 ‘She put it in bamboo and ate it.’
- Kursav
 (26) *Mata-da, vuruva=ni v-ia.*
 leave-SS village=LOC come-1SG.NFUT
 ‘I left and came to the village.’

All of these examples show reflexes of the $*=\tilde{n}$ allomorph. The $*=i$ allomorph attaching to a noun phrase with no demonstrative is only found in Mum (27) and Kursav (28), but this distribution, combined with the reflexes of $*=i$ on demonstratives, suggest it should be reconstructed. The exact pattern of allomorphy that existed in Proto-Sogeram is difficult to reconstruct since there is no description of Mum grammar, but based on the examples in Sweeney (n.d.) and the Kursav reflex it is possible that the enclitic was $*=\tilde{n}$ after vowels and $*=i$ after consonants.

- Mum
 (27) *Puhu=i ma-u-m-i.*
 village=LI NEG-go-HPST-3SG
 ‘He did not go to his village.’ (Sweeney n.d.)

- Kursav
 (28) *Kopra-da mo-da suhuv=i akun-e waka.*
 run-SS go-SS forest=LOC sleep-3SG.NFUT maybe
 ‘Maybe he ran away and went to sleep in the forest.’

Reflexes of $*=\tilde{n}$ are found on demonstratives in Mum, Sirva, Magi, Aisi, and Kursav—that is, on every language that retains $*=\tilde{n}$ as a noun phrase enclitic—and also in Manat and Apali. An example from each of these languages is given below; the reflexes are fairly straightforward except in the Aisian languages, where an unexpected suffix-initial *n* is found. Nevertheless, the formal and semantic similarities, combined with the broad distribution through the family, suggest that the combination of a demonstrative root and the locative enclitic is quite a secure reconstruction.

- Manat
 (29) *Hup tak tu-i vu-n, var siva-md ara-ma-g.*
 place only FD-SET go-2/3.SS indeed mow-2SG.IMP say-PST-3SG.FAR
 ‘“Go clear a place (for a house) over there,” she said.’
- Apali
 (30) *Ig-imili halu h-ey iah-avi-de-ci iaaha-m-ilu.*
 see-1PL.DS mountain MD-LOC go.up-PL-CONT-3.DS go.up-HPST-1PL
 ‘We looked and they went up the mountain there and we went up.’ (Wade n.d.)
- Mum
 (31) *Ahutiv ha-ñ mizi-ta ...*
 firewood MD-LI sit-SS
 ‘They sat down at this firewood, but ...’ (Sweeney n.d.)

- Sirva
 (32) *Amge suku niŋ tuku k-i aku-s-a.*
 woman true 3SG.POSS sleeping.area MD-SET sleep-FPST-3SG
 ‘She slept in the real woman’s place.’

- Aisi
 (33) *Pini garaŋ ga-niŋ yok-e.*
 palm.sp long MD-LOC go.up-3SG.IPST
 ‘She went up a tall *pini* palm.’

- Kursav
 (34) *Ni do-n m-e.*
 3SG FD-LOC go-3SG.NFUT
 ‘He went over there.’

Elicited

The reflexes of *=ñ that are hosted by a demonstrative can function as subordinators in Apali (35), Mum (36), Sirva (37), Magi (38), Aisi (39), and Kursav (40). I have no data on whether the cognate Manat form *-i* ‘SET’ can be used in this function.

- Apali
 (35) *Viaŋ [haca mav-av-i] n-eŋ ala ve-iem-in.*
 1SG.NOM hole dig-PL-3.IPST ND-LOC FOC come-TPST-1SG
 ‘It was here where they dug a hole that I came.’ (Wade 1989: 21)

- Mum
 (36) *Yahu-m-i da-ñ [pina mu kaha-m-i] da-ñ.*
 go.up-HPST-3SG FD-LI platform another fasten-HPST-3SG FD-LI
 ‘He went up over there to where he had fastened the platform.’ (Sweeney n.d.)

- Sirva
 (37) *[Aba-s-a] k-i tagu-rama-s-a.*
 talk-FPST-3SG MD-SET step-put-FPST-3SG
 ‘She stood in the place he had talked about.’

- Magi
 (38) *Nangari, yi asad mu uku-byaŋ, [mandi yabi ki-t-eŋ]*
 now 1SG story SPEC tell-1SG.FUT before 1SG.EMPH stay-HAB-1SG
ka-niŋ.
 MD-LOC
 ‘Now, I’ll tell a story, (about) where I used to live.’

- Aisi
 (39) *[Gwandam waŋi tam-is-i] ga-niŋ iŋgat-oŋ.*
 old.man bag put-FPST-3SG MD-LOC go.in-3PL.IPST
 ‘They went inside the bag the old man had put (there).’

- Kursav
 (40) *[Nan vuruva in-uara] ka-ka-n, ya ramira-da ve-md-ua.*
 2PL village stay-2PL.NFUT MD-TOP-LOC 1SG return-SS come-FUT-1SG
 ‘I’ll come back to the village you guys live in.’ Elicited

ig-imir.

give-2PL.PROH

‘As for dogs, the elders say, “Don’t give them sago.”’

Apali

- (44) *Saba ha, ua na-vila cihu ala ve-vihe-m-i.*
 pig MD.TOP go eat-SS again FOC come-do.quickly-HPST-3SG
 ‘As for that pig, it went and ate and again came back quickly.’ (Wade 1989: 131)

Mum

- (45) *Kibi ka yahu-ta Usahri=η naga Pahari=η tara-h-u ...*
 response MD go.up-SS usahri=OBJ with Pahari=OBJ shoot-DS-3PL
 ‘For this revenge they went up and shot Usahri and Pahari ...’ (Sweeney 1994: 31)

Sirva

- (46) *Na uhusiv ka, be kava niriη wari.*
 and village MD.TOP 3SG bird 3PL.POSS village
 ‘And the village, it was the birds’ village.’

Aisi

- (47) *Sani ga dibi dibi pa tam-is-i.*
 pig TOP skin skin only put-FPST-3SG
 ‘As for the pigs, she only left their skins.’

In Kursav and Gants this form has become much more integrated into the clause. In Kursav it now is a deixis-marking demonstrative that usually occurs on definite nouns (48) and in Gants it has become a marker of definiteness (49).

Kursav

- (48) *Mot gapira, sarua ka vu kevi-d-o.*
 day all work MD get throw-HAB-3PL
 ‘Every day, they do the work.’

Gants

- (49) *Node ko, miraη kip ko ga tama-da ...*
 woman DEF mushroom top DEF perceive put-SS
 ‘The woman looked at the top of the mushroom and ...’

This form can be used as a subordinator in every one of these languages, as examples (50)–(56) show.

Manat

- (50) [*Ña-r-ma-gir*] *ka, atas am=avan=a.*
 eat-HAB-PST-1PL.MID MD.TOP enough 2.NOM=very=EXCL
 ‘As for how we used to eat, it was you (that ruined it for us).’

Apali

- (51) [*Aba lama-vila li-la-li*] *ha cihu via-vila ...*
 talk show-SS do-HAB-3SG.FPST MD.TOP again get-SS
 ‘After showing it as it habitually does, then it gets it again and ...’ (Wade n.d.)

- Mum
- (52) [*Nu mubu sih miŋa-h-u~hu yivuraha-ta*
 3SG tanget.leaf design take-DS-3PL~SIM arrive-SS
nagwinagwi-ti-m-i] ka va-ta-ti-h-u miŋamiŋarama-ta ...
 motion.with.head-do-HPST-3SG MD say-SS-do-DS-3PL follow-SS
 ‘They thought back to when they were working with the tanget leaves and the men
 motioned to them. They were following this line of talk and ...’ (Sweeney n.d.)
- Sirva
- (53) [*U-rubi-s-a] ka, kine k-i hasa kizidi-s-a.*
 go-PL-FPST-3 MD.TOP near MD-SET FOC evening-FPST-3SG
 ‘They went, and very soon (lit. ‘in a near place’) it was evening.’
- Aisi
- (54) [*Ya gi ika yaka kin-i aki] ga, ga-rib*
 1SG FOC father.1.POSS 1SG.POSS stay-3SG.IPST maybe TOP MD-ADJZ
kr-ibiŋ.
 walk-1SG.CTRF
 ‘If my father were alive, I’d walk around like that (too).’
- Kursav
- (55) [*Rainim d-ua] ka ruk-uana?*
 line.up do-1SG.NFUT MD see-2SG.NFUT
 ‘Do you see the ones I’ve lined up?’
- Gants
- (56) [*Ped miŋi-da yig adi-m-ek] ko, kada ci-m-ek.*
 paint take-SS festival do-FPST-3SG DEF thus stay-FPST-3SG
 ‘The paint he had taken and decorated himself with was right there.’

In Kursav and Gants the noun-phrase-like character of the subordinate clause chain is immediately apparent, but in every other language the subordinate clause is not obviously nominal. However, the semantic relationship between the *ka-marked subordinate clause and the matrix clause, in each case, does match the relationship between a *ka-marked nominal and its clause core: these subordinate clauses set the scene for the interpretation of the main clause. This scene-setting can take a wide variety of guises, from temporal sequence (51) to conditionality (54), but in each case the semantic relationship between the subordinate clause and the matrix clause is a topic–comment relationship, just as it is when *ka marks a nominal. Thus the subordinating function of *ka parallels its noun-marking function semantically, just as the subordinating functions of *-n and *=ñ parallel their noun-marking functions. Thus considering the *ka-subordination constructions exemplified in (50)–(54) a kind of nominalization is the most economical analysis for three reasons: (i) they resemble noun phrases formally in their use of *ka; (ii) they resemble them semantically in the relationship they have to the matrix clause; and (iii) in each language there is already an established grammatical pattern of this kind of clause chain nominalization. The fact that this construction changed in Kursav and Gants to allow the subordinate clauses to be core arguments of the clause lends more credence to this analysis, since integrating a topicalized nominal into the clause core involves less overall change than creating a new nominal and then integrating it into the clause core.

The phonological material specified by these constructions is the reflex of *ka. These all appear cognate, although as discussed above they do not reflect regular sound changes in all

4. The second application: the desiderative construction

Several Sogeram languages possess what I call the DESIDERATIVE CONSTRUCTION. This construction uses the morphology of quoted speech to express someone's desires or intentions; the expression for 'X wants to Y' translates literally to 'X says, "I will Y."' A few details differ from language to language, as I discuss below.

In Manat the construction is formed with the 1SG imperative suffix *-itij* and the post-quote verb *ara-* 'say' (60).

- Manat
 (60) *Amid kai avih-itij ar-ura-ma-g.*
 axe LI chop-1SG.IMP say-PL-PST-3.FAR
 'They wanted to chop (him) with an axe'

In Sirva the construction is formed with a first person irrealis suffix and the verb *va-* 'say' (61).

- Sirva
 (61) *Itu wi-ra, yakiv-ra u-dagra va-bi-s-a ka-ga mana.*
 tobacco smoke-SS get.up-SS go-1PL.IRR say-PL-FPST-3 MD-TOP no
 'He smoked a cigarette, and they wanted to get up and go, but alas.'

In Aisi it is formed with a verb in the future tense and the post-quote particle *aba* (62).

- Aisi
 (62) *Kris=iŋ ir-ibyan aba yoku-s-iŋ.*
 Chris=ACC perceive-1SG.FUT QUOT go.up-FPST-1SG
 'I went up to see Chris (lit. 'I said, "I'll see Chris," and went up').'

And in Kursav the construction takes a verb in the imperative and the post-quote verb *va-* 'say' (63).

- Kursav
 (63) *Sake bin ini-n va-da v-e.*
 three LOC stay-1SG.IMP say-SS come-3SG.NFUT
 'She wanted to be in (grade) three (lit. 'said, "Let me be in three"') and she came.'

The four constructions illustrated in (60)–(63) can be represented as in (64).

- (64) a. Manat [V-IMP *ara*-TNS] 'Subject of *ara-* wants to V'
 b. Sirva [V-IRR *va*-TNS] 'Subject of *va-* wants to V'
 c. Aisi [V-FUT *aba*] 'Subject of this clause wants to V'
 d. Kursav [V-IMP *va*-TNS] 'Subject of *va-* wants to V'

These constructions exhibit striking formal and semantic similarities. In each language the desired action is expressed by a verb in a semantically irrealis verb form, either imperative, future, or irrealis. That verb is followed by a quotative morpheme, either a post-quote verb (*ara-* or *va-*) or a particle. In each case the semantic interpretation is the same: the subject of the verb of saying (or in the case of Aisi, the subject of the clause that contains the *aba* particle) wants to perform the action expressed by the irrealis verb.

The verbs of saying in Sirva and Kursav are even cognate, being descended from Proto-Sogeram *wa ‘say’, which might lead someone to believe that this construction can be reconstructed to Proto-Sogeram as shown in (65).

- (65) †[V-TNS_{IRR} wa-TNS] ‘Subject of *wa wants to V’

However, this reconstruction is unwarranted: the correspondence set in (64) actually contains no cognate phonological material. To see this, it is important to distinguish parent constructions from daughter constructions and to be clear about what material is specified where.

The desiderative construction, in each language that has it, is a daughter (in the synchronic sense) of the quoted speech construction. That is, it possesses many of the same formal and semantic properties as the quoted speech construction but it also specifies some of its own idiosyncratic properties. The quoted speech construction can be securely reconstructed to Proto-Sogeram based on reflexes in Apali (66), Sirva (67), Kursav (68), and Gants (69).

- Apali
 (66) *Ia-di iamigali sivi ahila ve-d-i u-in.*
 1SG-OBL woman after on.own come-3SG.FUT **say-1SG.IPST**
 ‘‘My wife will come afterwords on her own,’’ I said.’ (Wade n.d.)

- Sirva
 (67) *Aku-dagra v-ii, aku-dagra va-bi-s-a.*
 sleep-1PL.IRR **say-3SG.DS** sleep-1PL.IRR **say-PL-FPST-3**
 ‘‘Let’s sleep,’’ she said, and they said, ‘‘Let’s sleep.’’

- Kursav
 (68) *Kisar v-e va-da ripa-da mo-da ...*
 fight come-3SG.NFUT **say-SS** fear-SS go-SS
 ‘‘A fight’s coming,’’ they said and they fled and ...’

- Gants
 (69) *Ya ga-da, bilip adi-paŋ-niŋ wa-m-ek.*
 1SG perceive-SS believe do-FUT-1SG **say-FPST-3SG**
 ‘‘I’ll see and believe,’’ she said.’

In each of these languages the quoted speech is followed by a reflex of *wa ‘say’ bearing verbal morphology. This construction can be reconstructed to Proto-Sogeram as shown in (70).

- (70) *[X wa-TNS] ‘The subject of *wa says X’

So we have a quoted speech construction, shown in (66)–(69), which can be reconstructed as shown in (70). In several languages the quoted speech construction has a (synchronic) daughter, the desiderative construction. The question is whether this construction can be reconstructed, and to settle this matter we must distinguish the material specified by the desiderative construction from the material specified by its (synchronic) parent, the quoted speech construction.

Formally, the desiderative construction stipulates that the X of (70) must be a verbal clause in which the verb is marked for an irrealis tense. Semantically, it stipulates that the

construction does not refer to an event of speaking but to an event of wanting. Once this distinction is made clear, we examine the phonological material that is specified by the desiderative construction to see whether it is cognate, and here we see why (65) is an invalid reconstruction. None of the tense morphology in (64) is cognate (cf. Daniels 2015). Manat uses imperative forms (descended from the Proto-Sogeram irrealis), Sirva uses irrealis forms (of uncertain etymology, but probably not related to the Manat imperative forms), Aisi uses future forms (descended from the Proto-Sogeram future), and Kursav uses imperative forms (descended from the Proto-Sogeram imperative). Thus the only possible connection is a speculative one between Manat and Sirva, which could not support a reconstruction because they belong to the same subgroup.

These constructions are thus similar in both form and meaning, but contain non-cognate morphology. This is precisely what happens as a result of grammatical calquing, as so many of the authors cited above have demonstrated. For this reason the desiderative construction cannot be reconstructed to Proto-Sogeram.

This goes against the methodology espoused by, for example, Barðdal et al. (2012), who reconstruct a dative subject construction to Proto-Indo-European based on semantic similarity in the types of verbs that instantiate such a construction in various Indo-European branches, not based on cognacy among individual instantiating verbs. Similarly, Barðdal & Eythórsson (2012a) reconstruct to Proto-Germanic a raising-to-subject construction, a raising-to-object construction, and a subject control construction, all with no cognate phonological material or very limited and problematic cognate material. As I have shown with the desiderative construction in the Sogeram languages, the absence of cognate phonological material casts serious doubt on the antiquity of a given construction since it is possible that it spread through contact after the relevant proto-language split up.

I should point out that the presence of non-cognate morphology in similar constructions does not *demonstrate* that grammatical borrowing has occurred. It is entirely possible that the desiderative construction did exist in Proto-Sogeram and that the morphology has been replaced in some daughter languages. The point is only that, given the data at hand, we cannot know whether this construction existed in Proto-Sogeram or whether it spread via contact at a later stage.

5. Discussion

There are a number of implications of the method I propose in this paper, some of which I explore in this section. First I discuss the parallels of this method with morphological reconstruction and also draw some contrasts. I then discuss the question of how much productivity we can impute to reconstructions arrived at by this reasoning. Finally, I outline the limitations of the method, making clear what it can and cannot do.

5.1 Parallels with morphological reconstruction

The method I propose bears some significant resemblances to morphological reconstruction. Most importantly it involves reconstructing not just meaning and phonological form, but also a linguistic context for the phonological material. This is seldom emphasized in morphological reconstruction, but I doubt many historical linguists would endorse reconstructing an affix—say, the Proto-Indo-European dative suffix *-mus (Mallory & Adams 2006: 57)—but remain agnostic as to its placement in the grammar of spoken Proto-Indo-European. The fact is that reconstruction of *-mus entails positing the preceding noun (that is, after all, why the hyphen is there!) and is thus actually the reconstruction of a

construction, *[N-*mus*], which specifies a phonological form (**mus*), a meaning ('DATIVE'), and a context for the phonological form (it came after a noun). In the same way the locative subordination construction from §3.3, for example, entails the reconstruction of phonological form (**DEM=ñ*), an associated meaning ('pragmatically salient aspect of a subordinate clause chain'), and a context for the phonological form (it came after the clause chain).

The context that is reconstructed in morphological reconstruction, however, is typically only the morpheme's immediate phonological host, while in syntactic reconstruction the context can be much broader. Morphological reconstruction is also often limited to the reconstruction of the host even when the meaning of the morpheme that is reconstructed strongly implies a broader syntactic context in which the morpheme occurred. For example, the reconstruction of Proto-Indo-European **-mus* implies that Proto-Indo-European made use of dative case in some constructions, but what constructions those were and how they worked is not traditionally addressed in morphological reconstruction (but see Barðdal 2013 and Barðdal et al. 2013 for an instructive case study on the 'DATIVE-is-woe' construction). In syntactic reconstruction, however, the broader syntactic context is a necessary part of the cognate set that is examined.

Another difference is that in morphological reconstruction the presence of the phonological host is predictable from the presence of the phonological material—that is, Proto-Indo-European **-mus* never occurred except on a noun. The same is not necessarily true in syntactic reconstruction. In our case, for example, Proto-Sogeram demonstratives occurred in several contexts besides the subordination construction—they could, for example, occur in noun phrases or serve as demonstrative pronouns. So the existence of a subordination construction cannot be inferred from the existence of demonstratives in Proto-Sogeram in the same way that the existence of dative-marked nouns can be inferred from the existence of a dative case suffix in Proto-Indo-European. Rather, the subordination construction has to be reconstructed as a whole, including both the phonological material (the demonstrative) and its context (the preceding subordinate clause chain).

A final parallel to morphological reconstruction is the irregularity of sound change. Koch points out that "there is no analogue in morphological change to regular sound change" (1996: 222), and the same is true of constructional reconstruction. Constructional changes are often associated with irregular phonological reduction (Traugott & Trousdale 2013: 27–28), which means that in reconstructing grammatical constructions we cannot rely on regular sound correspondences to ensure cognacy. This is not as serious an obstacle as some have suggested (e.g. Willis 2011: 413), and we are not set totally adrift on a sea of uncertainty. But we do need to take care in our evaluation of the phonology involved in our grammatical constructions, as I have described above.

5.2 The question of productivity

An additional issue that needs to be addressed is the question of how productive we can assume our reconstructed grammatical constructions were. This issue is best discussed with an example. I have argued that Proto-Sogeram had a subordination construction, *[S DEM=CASE], which used a case-marked demonstrative to subordinate a clause chain. Proto-Sogeram also had a focus suffix **-kw* that went on demonstratives. Can we say that these two forms could be combined in Proto-Sogeram as a focus-marked subordination construction †[S DEM-*kw*]? At present we do not have enough reflexes of such a construction to reconstruct it independently, but there is one. In Aisi **-kw* has become a nominative suffix and can function as a subordinator (71).

- Aisi
 (71) [Na tam-*an*] ga-ku mugram-*e*.
 2SG put-2SG.IPST MD-NOM fit-3SG.IPST
 ‘What you put on fits.’

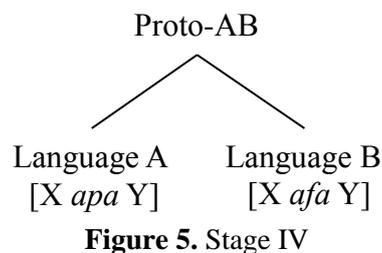
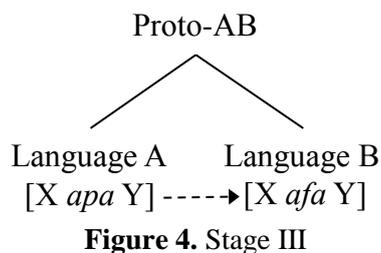
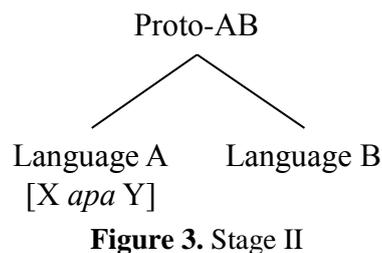
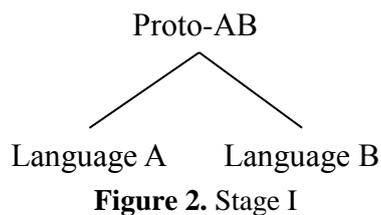
In spite of this the reconstruction †[S DEM-*kw*] is not warranted. Reconstructing it essentially entails assuming that every construction we reconstruct was maximally productive, and that obviously was not the case. The two reconstructions of *[S DEM=CASE] and *-*kw* ‘FOCUS’ are suggestive and raise the possibility of the existence of a Proto-Sogeram construction †[S DEM-*kw*], but in the absence of direct evidence in support of such a reconstruction we cannot claim that it existed in the proto-language.

Note that this is a difference between syntactic reconstruction and morphological reconstruction. Morphology, especially inflectional morphology, is often assumed to be highly productive. For example, the Proto-Sogeram recent past tense suffix *-*ŋki* is reconstructed on the basis of reflexes in Manat and Gants (Daniels 2015: 162). The verb **kikra* ‘watch’ is reconstructed on the basis of reflexes in Mand, Nend, and Mum (Daniels 2015: 369). Even though there is not, and cannot be, a reflex of the combination **kikra-ŋki-n* ‘watch-RPST-1SG’ in any modern language (unless, of course, more fieldwork uncovers more reflexes), it is still relatively safe to assume that the combination was permissible in Proto-Sogeram. But we cannot assume the same level of productivity for reconstructed syntax.

5.3 Limitations of the method

Finally, it is important to be forthcoming about the limitations of this method, since it is no panacea for all the problems with syntactic reconstruction. A significant limitation is that this method requires fairly strict cooperation from the data. Historical linguists are always, of course, at the mercy of their data, but in this case the requirements are particularly stringent: (i) the proto-language must have contained a partially schematic construction which is inherited into daughter languages in such a way that it can be reconstructed; (ii) the phonological material in this construction has to be diagnostic—that is, it has to provide a reasonable safeguard against the possibility that the construction was borrowed; (iii) this construction must also possess sister constructions such that the linguist can posit a parent construction to account for them all; and (iv) these sister constructions must also meet criteria (i) and (ii). However, these requirements are not impossible to satisfy, as I illustrated in §3.

Another limitation is that this method fails when a language calques a sister language’s innovative construction with cognate morphology. The scenario I am envisioning is the following, illustrated in Figures 2–5: Proto-AB splits into Language A and Language B (Stage I). Then Language A innovates a new construction [X *apa* Y], using its word for ‘come’, *apa* (Stage II). Language B calques this construction using its own word for ‘come’, *afa*, which happens to be cognate with *apa* in Language A (Stage III). In this scenario the linguist is confronted with two partially schematic constructions which correspond in both meaning and form, including phonological form (Stage IV), and erroneously reconstructs the construction to Proto-AB. I can think of no safeguard against this eventuality and I think we must simply acknowledge this shortcoming. Of course, had Language B calqued Language A’s construction with any other piece of morphology the method would spot the borrowing, but that is not always what happens.



6. Conclusion

I have proposed a method for reconstructing syntax that reduces the odds that what we reconstruct is the result of contact-induced change rather than shared retention. The method is summarized in (72).

- (72) a. Establish correspondence sets for partially schematic grammatical constructions.
 b. Ensure that the phonological material reflects inheritance, not contact.
 c. Reconstruct the constructions.
 d. Where a set of similar constructions has been reconstructed, posit a generalization over those constructions that accounts for the variation.

I am not the first person to suggest that grammatical reconstruction ought to rely in some way on morphological reconstruction. Ross (2015) and Kikusawa (2003) make similar arguments about clause structure in Austronesian, which are grounded in the morphological form of the pronouns associated with various clause types. Ross even states that “cognate constructions need to be identified by cognate morphology as well as similar syntax” (Ross 2015: 276). Seržant (2015: 125) advocates focusing on the “morphological profile” of a construction, by which he means its associated morphological material, as a means to increase the odds that what we reconstruct actually existed in the proto-language. Bowerman (2008b, 2014) reaches a negative conclusion similar to the one I reach in §4 when she declines to reconstruct Nyulnyulan complex predication because, even though there is broad structural similarity throughout the family, there is a lack of morphological cognates.

I agree with all these authors that cognate phonological material is essential in syntactic reconstruction (indeed, in any kind of reconstruction) because it helps us identify cases of borrowing that a comparison of purely schematic material cannot show us. But if we insist on reconstructing only partially schematic constructions, we may suppose that all our reconstructions will be partially schematic. What I have shown in this paper is that that does not have to be the case. Even though we do, for methodological reasons, have to limit ourselves initially to the reconstruction of partially schematic constructions, the structure of the mental lexicon allows us to generalize over sets of such constructions to posit their schematic parent constructions. So it is possible to reconstruct fully schematic grammatical constructions—just not directly.

Abbreviations

Grammatical abbreviations here largely follow the Leipzig Glossing Rules, including the use of a tilde ~ to indicate that a morpheme is formed by reduplication. The following abbreviations are used.

ABL	ablative	LI	locative/instrumental
ACC	accusative	LOC	locative
ADJZ	adjectivizer	MD	middle deictic distance
CLASS	classifier	MID	middle tense
CONT	continuous	ND	near deictic distance
CTRF	counterfactual	NEG	negative
DEF	definite	NFUT	non-future tense
DET	determiner	NOM	nominative
DIM	diminutive	OBJ	object
DS	different subject	OBL	oblique
EMPH	emphatic	POSS	possessive
EXCL	exclamative	PRAG	pragmatically salient
EXST	existential	PROH	prohibitive
FAR	far tense	PRS	present tense
FD	far deictic distance	PST	past tense
FOC	focus	PURP	purposive
FPST	far past tense	QUOT	quotative
FUT	future tense	RPST	recent past tense
HAB	habitual	SBJ	subject
HIS	historic tense	SET	setting
HPST	historic past tense	SIM	simultaneous
IMP	imperative	SPEC	specific
IPFV	imperfective	SS	same subject
IPST	immediate past tense	TOP	topic
IRR	irrealis mood	TPST	today past tense

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