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A Privative Derivational Source for Standard Negation in Lokono (Arawakan)

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Abstract

It has recently been argued that Arawakan languages of South America provide evidence for a novel historical source for standard negation, a privative derivational affix. This hypothesis posits that the prefixal standard negation found in some languages of the family developed from a privative prefix, *ma-*, present in Proto-

Arawakan, that originally derived privative stative verbs from nouns. According to this account, the function of this prefix extended, in many languages of the family, to negating nominalized verbs in subordinate clauses, and then, via insubordination, to standard main clause negation, in a smaller subset of languages. The purpose of this paper is to substantiate this hypothetical trajectory in detail in a particular Arawakan language: Lokono, a highly endangered language of the Guianas. On the basis of modern linguistic fieldwork and colonial-era language materials, we show that 18th-century Lokono exhibited a standard negation construction based on the privative, and that this construction exhibits clear signs of its subordinate clause origin. We show that Lokono also exhibits the full range of functions for the privative *ma-* that are predicted to be historical precursors to the standard negation function, substantiating the historical trajectory from privative derivation to standard negation. We conclude by observing that the prefixal standard negation strategy has lost ground since the 18th century to a standard negation particle that originally expressed constituent negation, possibly due to contact with colonial languages that employ similar strategies.

Keywords: privative, negation, insubordination, Lokono, Arawakan

1. Introduction

The study of sources of standard negation (SN; Miestamo 2005) has been a central topic in diachronic morphosyntax since the early 20th century (Meillet 1912). Identified sources for SN include emphatic or reinforcing negation elements that come to replace former negation elements in the famous Jespersen Cycle (Jespersen 1917), negative existentials (Croft 1991), and lexical items with negative or privative semantics (e.g. ‘lack’; Givón 1978). In a typological survey of negation in Arawakan languages, Michael (2014a) hypothesizes that certain Arawakan languages provide evidence for a previously unidentified source for SN: an originally derivational prefix that derived stative privative verbs from nouns, commonly called the *privative* by Arawakanists (Michael 2014a). Michael (2014a) provides suggestive evidence for a diachronic trajectory from privative to SN in the Arawakan family in the form of implicational hierarchies of negation functions and argues that insubordination played a critical role in the ultimate extension of the functions of the privative to SN. Michael (2014a) did not, however, provide details regarding the insubordination process that took place, leaving important aspects of the development of SN from privatives unclear.

The purpose of this article is to trace the development of SN from the privative in one particular Arawakan language, Lokono, and show that this resulted from the insubordination of nominalized verb forms, which were negated using the privative

prefix. At first co-existing with historically prior negation particle, the expression of negation was subsequently leveled in favor of the privative negation construction, resulting in the latter becoming the principal means to express SN in 18th-century Lokono. We conclude that the Lokono facts support Michael's (2014a) proposed trajectory for the development of SN from the privative via insubordination, and that the ground of the debate regarding the diachrony of the privative in Arawakan thus shifts to how many languages in the family this proposed trajectory is applicable to.

A brief remark is in order regarding the phenomenon of insubordination, defined synchronically by Evans (2007) as "the conventionalized main clause use of what, on *prima facie* grounds, appear to be formally subordinate clauses." Diachronically, this entails the re-analysis of a subordinate clause structure as a main clause structure, with a number of processes having been suggested for how this comes about (Cristofaro 2017). As Evans & Watanabe (2017) observe, a significant literature on insubordination and its diachronic basis has accumulated in a relatively short time.

This paper draws on original fieldwork by one of the authors (Rybka) and several historical descriptions of the language dating back to the 18th century, which allow us to trace certain grammatical changes in the language that are relevant to our historical account of negation in the language. In the remainder of the paper, we first provide background information on the Arawakan family in general, Lokono in particular, the relevant historical sources on the language, and a summary of the hypothesized trajectory of the development of SN from the privative in the Arawakan family more generally (Section 1.1). Next, we introduce the readers to grammatical aspects of Lokono relevant to our account of the development of SN from the privative in Lokono (Section 2), and the SN constructions found in 18th- and 21st-century Lokono (Section 3). We then detail our account of the diachronic trajectory from the privative to SN in Lokono, drawing on our analysis of Lokono negation strategies and SN data from closely related Arawakan languages, emphasizing the critical role of insubordination (Section 4). Finally, we evaluate and reject an alternative hypothesis based not on insubordination, but on the extension of the privative directly to stative verbs in main clauses. The concluding section summarizes the findings of the paper (Section 6).

1.1 Lokono *ma-* evolution in broader Arawakan context

The Arawakan family is one of the largest in the Americas, both in terms of the number of members and geographical distribution (Aikhenvald 1999, Campbell 1997). Among the widespread characteristics of this family is a prefix *ma-*, which exhibits a range of negation-related functions across the family. There is unanimity among Arawakanists that this morpheme reconstructs to Proto-Arawakan (Michael 2014a), but there is some question regarding the function of the Proto-Arawakan (PA) **ma-* due the wide range of functions that its reflexes exhibit in the modern daughter languages.

Lokono is a highly endangered Northern Arawakan language, the last speakers of which are scattered through the coastal areas of Suriname, Guyana, and French Guiana (Rybka 2015). Spoken throughout a vast area, Lokono has been in contact with different indigenous and non-indigenous languages throughout the last centuries (Rybka 2017). Contact with Spanish started in the 16th century, resulting in a layer of Spanish borrowings, while borrowings from Dutch and English go back to the 17th century. In the second half of the 18th century, Moravian missionaries operated in the Guianas, producing the first comprehensive descriptions of the language. In the 19th century, creole languages became the *lingua francas* of the area, and have been used by the Lokono in contacts with the colonizers ever since. Finally, the progressing shift to creoles and colonial languages gained momentum in the 20th century, with the establishment of Roman Catholic missions, national educational systems, and the slow integration of the Lokono into the modern nation-states of the Guianas.

This paper draws on both first-hand fieldwork by the first author, a modern description of Lokono (Patte 2011), and several historical sources. For the early 20th century, we have a Lokono grammar and texts by de Goeje (1928), while for the 18th century, we have a Lokono grammar written by T.S. Schumann from around 1760 and a dictionary by C.L. Schumann completed at around the same time, both of which were published more than a century later (T.S. Schumann 1882, C.L. Schumann 1882), and a biblical translation by T. Schultz (1850) written around 1802 (see van Baarle 1999 for the discussion of the 18th-century linguistic descriptions).

2. Lokono grammatical background

In order to understand the trajectory by which the PA privative *ma-* developed into a SN prefix in Lokono, it is essential to understand a number of features of both 18th- and 21st-century Lokono grammar. These include verbal person marking alignment (Section 2.1); features of the grammar of *copular*, *stative*, and *active* clauses (Section 2.2); subordinate clause constructions featuring nominalized verbs (Section 2.3); main clause constructions featuring nominalized verbs, found in 18th-century Lokono but not in modern Lokono (Section 2.4); and the empty-verb construction (Section 2.5). We then turn to two negation constructions, one involving the derivational negation function of the privative *ma-* (Section 2.6), and the other the constituent negation function of the particle *k^horo* (Section 2.7), which set the stage for the discussion of SN in the 18th and 21st centuries (Section 3).

2.1 Alignment in verbal person marking

The historical account we present here requires carefully distinguishing between two classes of Lokono verbs, the so-called *stative* and *active* verbs, and particularly how

person is morphologically expressed on these two classes of verbs. As we shall see, Lokono active and stative verb classes are in part defined by their lexical aspect, but are ultimately defined by the forms of person marking that they bear.

The Lokono stative verb class consists exclusively of intransitive verbs that denote states, or non-dynamic eventualities, concepts often expressed in languages such as English by adjectives (e.g. *jokon* ‘be small’).¹ The Lokono active verb class, in contrast, consists of intransitive verbs that denote dynamic eventualities (e.g. *andin* ‘arrive’) and all transitive verbs, irrespective of their dynamicity (e.g. *marik^hoton* ‘teach’, but also *i:^hin* ‘know’). Crucially, membership in these classes conditions the form of bound verbal person marking, which includes both prefixal and enclitic markers, as summarized in Table 1.

Table 1. Lokono person marking: pronouns, prefixes, and enclitics

Person and gender	Pronoun		Prefix		Enclitic	
	SG	PL	SG	PL	SG	PL
1st	<i>dei</i>	<i>wei</i>	<i>da-</i>	<i>wa-</i>	<i>=de</i>	<i>=we</i>
2nd	<i>bi:</i>	<i>hi:</i>	<i>bi-</i>	<i>hi-</i>	<i>=bo</i>	<i>=hi</i>
3rd masculine	<i>li</i>		<i>li-</i>		<i>=i</i>	
3rd feminine	<i>to</i>		<i>t^hi-</i>		<i>=no</i>	
3rd human PL		<i>nei</i>		<i>na-</i>		<i>=je</i>

Members of the active verb class express subject person agreement with the prefix set, and when transitive, object person agreement with the enclitic set, as in (1). Members of the stative verb class, which are exclusively intransitive, express subject agreement via the enclitic set, as in (2). Note that stative verbs typically require an overt tense-aspect-mood suffix, the default one being the perfective *-ka*, found in most examples in the paper.

1. *Linika no.*
li-nika=no
3M.S_A-take=3F.O

¹ Modern Lokono data come from the first author’s corpus (examples without a reference) supplemented with data from other contemporary sources. These data are given in phonemic transcription. 18th-century data are given as in the original spelling, with the original translations, even where those differ from modern German spelling. Original translations are not always available since T.S. Schumann (1882) describes grammatical features of the language, listing numerous verbal paradigms to illustrate them, without providing a translation for each individual form (hence the absence of German glosses for some examples). Examples from other languages are adapted to the glossing convention used here.

'He took it.'

2. *Kidika no.*

kidi-ka=no

be.heavy-PFV=3F.S_O

'It is heavy.'

In (1), we see an active verb, *nikin* 'take', bearing both the third-person masculine subject prefix *li-* and the feminine object enclitic *=no*.² The same enclitic expresses the subject of the stative verb *kidin* 'be heavy' in (2). As we see, Lokono bound person markers exhibit split-intransitive alignment. Note that apart from the bound forms, there is also a set of free pronouns, which exhibit neutral alignment; they encode the subject of both active and stative verbs and the object of transitive active verbs. Neither type of bound person markers (i.e., prefix or enclitic) co-occur with co-referential free pronouns or noun phrases, unless: (1) these free elements stand in apposition to the clause; or (2) in the case of enclitics, the co-referential pronoun or noun has been fronted for information structural reasons.

Note that person prefixes not only express the subjects of active verbs, but also the possessors of nouns, and the complements of postpositions, as in (3), which exemplifies the 3rd person masculine *li-* encoding the subject of *nikin* 'take', the possessor on the object of the verb, the noun *wajaŕi* 'knapsack', and the object of the postposition *diako* 'top'. These different morphosyntactic functions of person markers are reflected in the glossing of the examples in order to make the clause structure clearer to the reader. The 3rd person prefix *li-*, for instance, is glossed as 3M.A or 3M.S_A on verbs, 3M.POSS on nouns, and 3M on postpositions, as in (3).

3. *Linika liwajaŕiawa lidiakwa.*

li-nika

li-wajaŕi-a-wa

li-diako-wa

3M.A-take

3M.POSS-knapsack-POSS-REFL

3M-top-REFL

'He took his knapsack on his (back).'

2.2 Main clause types

In this section we discuss the three major main clause types relevant to the diachronic account of negation we provide in this paper: *stative*, *active*, and *copular* clauses. Crucially, these clause types are defined by how arguments may be expressed in them,

² The citation form of the verb is its nominalized form in *-n*, e.g. *nikin* 'take'. Notice that the last vowel of the finite active verb may differ from that of the nominalized form depending on mood and aspect, as in (1), where *li/* changes to *la/*.

and in the case of stative and active clauses, take their names from how the arguments of stative and active verbs, respectively, are typically expressed. It is important to note, however, that stative and active *clauses*, so called, need not exhibit stative and active *verbs*. Rather, they exhibit patterns of argument marking typical of clauses with stative and active verbs. This distinction is important because in the 18th century, active verbs negated with the privative prefix could form stative clauses. This construction, not available in modern Lokono, is discussed in Section 3.2.2.

2.2.1 Stative main clauses

Stative clauses are characterized by their ability to encode subjects of predicates with person enclitics, rather than person prefixes. Stative clauses prototypically exhibit stative verbs as their main predicates, such as *firon* ‘be big’ in (4), but nouns and postpositions, such as *loko* ‘inside’, seen in (5), can also form stative clauses. We will later see that active verbs can appear in certain constructions that exhibit this same argument-marking pattern, leading us to characterize the relevant clauses as stative ones, despite the verbs involved having non-stative lexical aspect (Section 3.2.2).

4. *Firoka no.*

firo-ka=no

be.big-PFV=3F.S₀

‘It is big.’

5. *Tholokoka to khali.*

thi-loko-ka to khali

3F-inside-PFV DEM:F cassava

‘The cassava is inside it.’

In (4), the subject of the stative verb *firon* ‘be big’ is expressed by the enclitic =*no*. In (5), the postposition *loko* ‘inside’ functions as a stative predicate, with its person prefix *thi-* expressing the postpositional complement, and not the subject of the predicate (as one would find in active clauses; see Section 2.2.2). The subject of the predicate is expressed by the noun phrase *khali* ‘cassava’, and not a person enclitic, since person enclitics are in complementary distribution with co-referential noun phrases, except under particular conditions (Section 2.1). Were the subject noun phrase omitted, the verbal subject would be expressed by the enclitic =*no*.

2.2.2 Active main clauses

Active clauses are characterized by the ability to encode their subjects with person prefixes, and exhibit active verbs as their main predicates, as in (6) and (7).

6. *Danda.*

da-anda
1SG.S_A-arrive
'I arrived.'

7. *Li wadili dik^hama no.*

li wadili dikha-ma=no
DEM:M man see-ABIL=3F.O
'The man can see her.'

In (6), the subject of the intransitive verb *andin* 'arrive' is expressed with the prefix *da-*. In (7), on the other hand, the subject is expressed by the noun phrase *li wadili* 'the man', which precedes the verb. Since person markers are in complementary distribution with coreferential NPs, the verb in (7) does not bear a subject prefix. When the NP in question is omitted, however, the 3rd person prefix *li-* appears, which identifies it as an active clause.

2.2.3 Copular main clauses

Lokono copular clauses consist of a nominal predicate, a nominal argument, and optionally, the copula *to*, as in (8), with the order of the elements reflecting information structural considerations. Free pronouns may be used in copular clauses, but neither person prefixes nor person enclitics appear in them. The copula grammaticalized from the feminine demonstrative *to*, and is invariant, not agreeing in gender with either the predicate or the argument. In (8), the pronoun *dei* is the argument of the predicate *semethi* 'medicine man'.

8. *Dei to semethi.*

dei to semethi
1SG COP medicine.man
'I [am] the medicine man.'

2.3 Nominalized verbs in subordinate clauses

We now turn from main clause morphosyntax to relevant issues in the morphosyntax of subordinate clauses, focusing on the nominalizer *-n*, which appears in adverbial and complement clauses, and which played pivotal role in development of SN from the privative. Other subordinate clause types, such as conditional and relative clauses, exhibit other types of subordinators, which we do not discuss here.

A minimal nominalized subordinate clause contains a nominalized active or stative verb, with its subject encoded as it would be for a main clause active or stative

verb, respectively, as in (9), which exhibits an adverbial subordinate clause with a nominalized active verb.

9. *To linikinda no, libitada no.*

to	li-niki-n=da=no	li-bitada=no
DEM:F	3M.A-take-NMLZ=DIRECT=3F.O	3M.A-burn=DIRECT=3F.O

'Having taken [her skin], he burned it.'

The subordinate clause in (9) includes the nominalization *linikin* 'his taking', preceded by the demonstrative, which attests to its nominal character, and followed by the object enclitic, which speaks to its verbal character. Nominalizations can also bear several verbal tense, mood, and aspect markers. Nominalized verbs of this type are also used as the citation form of verbs, and surface in complement clauses of some verbs of speech and perception, such as *i:th'in* 'know', as in (10), *a:dakoton* 'ask', *k'ojabin* 'beg', *a:kan* 'tell', *dikh'in* 'see', and *onabin* 'answer'.

10. *Liki deit^ha dik^hinima dasa k^hona.*

li-ki	da-i:t ^h a	dikh ^h i-n-i-ma	da-sa	k ^h ona
3M-SPEC	1SG.A-know	look-NMLZ-EPEN-ABIL	1SG.POSS-child	after

'He, whom I just described, I know [he] can take care of my child.'

In (10), the main active clause contains the transitive verb *i:th'in* 'know', which takes as its complement the nominalization *dikh'inima* 'can look', which includes the nominalizer *-n* and the abilitative suffix *-(ko)ma*.

2.4 Nominalized verbs in main clauses in the 18th century

Having briefly described subordinate clause nominalizations, we now describe a construction attested in 18th-century Lokono, where nominalized verbs functioned as main clause predicates, which played a pivotal role in the development SN prefix from privative (Section 4). This construction is ungrammatical in modern Lokono, and may even have disappeared by the early 20th century, since it does not appear in de Goeje's (1928) materials. Examples with 18th-century main clause nominalized verbs are marked with a dagger '†', signaling their ungrammaticality in modern Lokono.

In 18th-century Lokono, nominalizations were formed in much the same way as in modern Lokono, i.e. by affixing the nominalizer *-n(i)*, the 18th-century form of the modern nominalizer *-n*, to either stative or active verbs. The nominal character of the nominalizations in *-n(i)* is evidenced by the fact that, like their modern counterparts in *-n*, such forms functioned as citation forms of the verb, predicates in subordinate clauses, and objects of postpositions, as in (11), where the nominalized verb *lándinni* 'his

arriving' (modern Lokono *landun*) is followed by the postposition *benna* 'after' (modern Lokono *bená*), forming a temporal subordinate clause.

11. *Lándinni benna*

l-ándi-nni benna
3M.S_A-arrive-NMLZ after
'after arriving' (C.L. Schumann 1882: 106)

In contrast with modern Lokono, however, nominalized verbs could also function as predicates in main clauses, resulting in pairs of clauses differing in whether the verb they exhibited was nominalized or not. Importantly, the semantics of these different clause types differed in certain cases, depending on clausal polarity. Specifically, positive polarity clauses with nominalized verbs, as in (13), contrasted semantically with those exhibiting non-nominalized ones, as in (12), while this contrast was neutralized in the negative polarity case.

12. *Hadubuttikade.*

hadubutti-ka=de
be.sweaty-PFV=1SG.S_O
'I am sweaty.' (T.S. Schumann 1882: 218)

13. *†Hadubuttinnikade.*

hadubutti-nni-ka=de
be.sweaty-NMLZ-PFV=1SG.S_O
'I would like to be sweaty.' (T.S. Schumann 1882: 218)

T.S. Schumann (1882) also illustrates main clause non-nominalized and nominalized active verbs, such as the intransitive verb *ijahaddín* 'wander' in (14) and (15), respectively.

14. *Daijahada.*

da-ijahadda
1SG.S_A-wander
'I wander.' [Ich wandle] (T.S. Schumann 1882: 229)

15. *†Daijahaddínnika.*

da-ijahaddí-nni-ka
1SG.S_A-wander-NMLZ-PFV
'I would like to wander.' (T.S. Schumann 1882: 229)

The precise semantic difference between the positive polarity main clauses with nominalized and non-nominalized verbs is somewhat unclear. T.S. Schumann (1882: 199) characterizes the contrast between non-nominalized and nominalized forms as *indicativus* and *optativus*, respectively, and gives free translations for the latter category consistent with optative construals. However, the fact that he makes the distinction between these two clause types one of the major organizing principles of his grammatical description of Lokono suggests that the semantics of the nominalized verb construction may have been broader, perhaps a more general *irrealis* category, as found in other Arawakan languages (Danielsen & Terhart 2015, Michael 2014b, Rose 2014). Since we cannot be certain about the latter point, however, we simply refer to the two types of verb forms as *indicativus* and *optativus*, adopting T.S. Schumann's labels for these two clause types. Note that modern Lokono requires that the semantic equivalents of (13) and (15) exhibit specific suffixes (e.g. desiderative, abilitative) attached to the non-nominalized form of the verb.

Turning to the negative polarity case, T.S. Schumann (1882) makes no explicit statement about the semantic contrast between the relevant non-nominalized and nominalized forms. However, the negative verb paradigms he provides indicate an *indicativus* interpretation for both nominalized and non-nominalized verbs, suggesting that the *indicativus*–*optativus* contrast was neutralized in negative clauses. It appears the *optativus* sense in such clauses required the additional use of the abilitative - (*ko*)*ma*. The neutralization in question is illustrated with the stative verb *haburün* ‘be ashamed’ in (16) and (17), given by T.S. Schumann as synonymous.

16. *Mahaburükade.*

ma-haburü-ka=de

PRV-be.ashamed-PFV=1SG.S_O.

‘I am not ashamed.’ (T.S. Schumann 1882: 228)

17. †*Mahaburünnikade.*

ma-haburü-nni-ka=de

PRV-be.ashamed-NMLZ-PFV=1SG.S_O.

‘I am not ashamed.’ (T.S. Schumann 1882: 228)

Numerous equivalent constructions with non-nominalized and nominalized active verbs are also illustrated in the source, similarly exhibiting no semantic contrast. We remain agnostic as to whether there was in fact no semantic distinction between such negated clauses. Note that in negative clauses such as (16) and (17), *ma*- functions as a SN, a central topic in Section 3.

2.5 The empty verb construction

Lokono exhibits a verbal auxiliary, which we here call an *empty verb* (EV),³ that serves as a host for bound verbal person markers, and which played a central role in extension of the SN function of the privative to all verb classes. The EV is employed when a predicate is morphologically incapable of bearing the person marking required by the argument structure of the verb and the syntactic context in which it appears. In this section, we restrict our attention to the EV construction in positive polarity clauses, since we examine the role of EV constructions in negative clauses in the 18th and 21st century in detail in Sections 3.1.3 and 3.2.3, respectively.

In positive polarity clauses, the EV construction is used for adverbial focus. The EV construction contains the semantically empty verb *man*, which exhibits the morphosyntactic properties of an active verb, such as bearing subject prefixes. The EV has two allomorphs: a ‘full form’ with the initial consonant and a ‘reduced form’ without it. The full form appears when the EV bears no subject prefix, that is, when the subject is expressed by a noun phrase preceding the EV, as in (18). If there is no subject noun phrase preceding the EV, the EV bears a person prefix expressing the subject, replacing the initial *m-*, as in (19). Notice that throughout the paper, the full form of the EV is given on the morphological segmentation line of the interlinearizations.

18. *Aba mafat^hi bala:ko ma.*

aba	ma-afa- ^h i	bala:-ko	ma
INDF	PRV-sight-SBJ.REL:M	sitting.posture-CONT	EV

‘A blind man was sitting.’

19. *Dik^ha:ko da.*

dik ^h a:-ko	da-ma
look-CONT	1SG.SA-EV

‘I kept staring (or ‘I [stood] staring’).’

In both (18) and (19), the EV is the central part of the predicate, the only difference being the person marking on the EV, which is present in (19), conditioning the reduced form of the EV. In both examples, the semantic content of the predicate is contributed by an adverb derived with the continuative suffix *-ko*. In (18), the suffix appears on the bound positional root *bala* ‘in a sitting position’. In (19), the suffix appears on the verb *dik^ha* ‘look’, deriving an adverb that could be translated as “staringly”.

In positive polarity EV adverbial focus constructions, the adverbials are fronted, forming a complex predicate with the EV. The adverbial contributing the semantic content of the predicate cannot bear person marking, which is instead borne by the EV.

³ Some previous authors call it a *dummy verb* (e.g. [Pet 1987](#)).

In contrast, when such adverbs do not form part of a complex predicate with an EV, i.e., do not participate in an adverbial focus construction, they follow the main verb and require the nominalizer *-n*, as in (20). Notice that in this construction the allomorph *-kwa* of the continuative suffix is required.

20. *Dôsa dik^ha:kwan.*

d-o:sa	dik ^h a:-kwa-n
1SG.S _A -go	see-CONT-NMLZ
'I went staring.'	

Several types of expressions are typically fronted in positive polarity EV constructions, including quantifying adverbs, the litotes construction, phrases marked by similarity and approximation markers, question word *halika* 'how', direct speech, adverbs derived with emphasis-related suffixes, and the continuative suffix, all of which have an adverbial character in Lokono and thus cannot bear person marking (Table 2). For our purposes, it is especially important that the EV also forms part of the active verb SN construction. As we discuss below, use of the EV construction made it possible to express via bound person markers the core arguments of transitive verbs bearing *ma-*, which renders verbs incapable of bearing person prefixes.

Table 2. Grammatical contexts triggering EV clauses

Quantifying adverbs	<i>abahan</i> 'once', <i>sak^hanin</i> 'all', <i>jokanin</i> 'little', <i>meran</i> 'fast'
Adverbs in	<i>-ro</i> 'only', <i>-re</i> 'exactly', <i>-noma</i> 'always', <i>-ko</i> 'continuative'
Litotes construction:	<i>min... k^ho</i> 'little...not'
frustrative marker	<i>baṛin</i>
Similarity marker	<i>din</i>
Approximation marker	<i>t^hin</i>
Question word	<i>halika</i> 'how'
Direct speech	

2.6 Privative denominal stative verbs

The prefix *ma-* is reconstructed to Proto-Arawakan as a denominal stative verbalizer, deriving verbs that indicate that the subject of the verb lacks the entity denoted by the nominal root (Michael 2014a). Here we show that this reconstructed function is attested in Lokono, where the privative attaches to both alienable and inalienable nouns. The resulting verb bears the nominal possessive morphology associated with the nominal root: zero-marking on inalienable nouns, such as *it^{hi}* ‘father’ in (21), a 21st-century example, or a possessive suffix on alienable nouns, such as *ijahú* ‘cotton’ in (22), an 18th-century example.

21. *Mat^{hi}ikada de.*
 ma-it^{hi}-ka=da=de.
 PRV-father-PFV=DIRECT=1SG.S₀
 ‘I have no father.’

22. *majahúnnî*
 ma-ijahú-nn-î-n
 PRV-cotton-POSS-EPEN-NMLZ
 ‘not to have cotton.’ [keinen kattun haben] (C.L. Schumann 1882: 141)

Notice that in (22), the privative stative verb appears in its citation form, the nominalized form of the verb, and that the nominalizer *-n* is homophonous with the most common possessive marker *-n*, a detail of Lokono grammar we will return to in Section 4.

2.7 Constituent negation

In both the 18th and 21st century, constituent negation is expressed with the element *k^horo* (*kurru* in 18th-century sources), which negated noun and postpositional phrases, among other constituents. In this function, *k^horo* follows the negated element, as in (23) from the 18th-century data, where it negates the postposition *duma* ‘reason’, marked for first person. In modern Lokono, *k^horo* often appears in its reduced form *k^ho*. In (24), *k^ho* negates the pronoun *dei*, itself an object of the dative *min*.

23. *daduma kurru*
 da-duma kurru
 1SG-reason NEG
 ‘not because of me.’ (Schultz 1850: 77)

24. *dei k^ho min*
 dei k^ho min
 1SG NEG DAT
 ‘not for me.’

In sum, both in the 18th and 21st century, constituent negation is achieved by postposing the particle *kʰoro* to the negated constituent. As we shall see, however, *kʰoro* also functions as the sole SN of copular clauses in both 18th-century and modern Lokono, and as an alternative, and increasingly more common, SN strategy of active and stative clauses.

3. Standard negation in 18th- and 21st-century Lokono

In this section, we describe SN strategies in 18th- and 21st-century Lokono, providing the background necessary for our account of how *ma-* developed into a SN element in Lokono. The negation constructions we describe in this section involve either the SN prefix *ma-* or the SN particle *kʰoro*, with the distribution and function of these two SN elements showing both continuities and differences across the two time periods. In particular, SN constructions employing *kʰoro* appear to have increased considerably in frequency, while the distribution and frequency of *ma-* has decreased. The constructions with *ma-* and *kʰoro* that are the topic of the following sections are represented schematically in Table 3, which includes constituent negation (CN) for comprehensiveness. (Parentheses indicate constructions that are rare or can only be used under restricted conditions discussed in the following sections.) Note that this table classifies negation strategies by clause type, and not verb type. The reason for doing so is that in the 18th century, active verbs, when combined with the privative, could form stative clauses, resulting in a mismatch between verb and clause type that is not found in 21st-century Lokono. Below, we first describe the state of affairs in the 18th century and then trace the changes that affected the system by the 21st century.

Table 3. Negation in different clause types in the 18th- and 21st-century Lokono

Schematic representation	18th century				21st century			
	CN	copular	stative	active	CN	copular	stative	active
<i>kʰoro</i>	+	+	(+)	(+)	+	+	+	+
<i>ma-V-n=S₀</i>			+					
<i>ma-V=S₀</i>			+				+	
<i>ma-V-n</i> S _A /A-EV(=O)			(+)	+			(+)	+
<i>ma-V</i> S _A /A-EV(=O)			(+)	+			(+)	(+)

3.1 Negation in 18th-century Lokono

In the 18th century, negation was realized by several different constructions, some involving the SN prefix *ma-*, and others the particle *k^horo*. The particle functioned mainly as the SN of copular clauses (Section 3.1.1), but is also attested as SN of stative and active clauses (Sections 3.1.2–3.1.3). The prefix *ma-* functioned as SN for stative clauses, which could include both stative and active verbs (Section 3.1.2). Both types of verbs could also be negated with *ma-* using an EV construction, a *de facto* active clause limited to certain contexts only (Section 3.1.3).

3.1.1 Copular clauses

In the 18th century, copular sentences were negated with *k^horo* (*kurru* in the primary sources), as in (25). In (25), the order of the main constituents is reversed for focus, the nominal predicate is followed by the negative particle and the nominal argument, and the copula *to* is absent.

25. *Christus kurru dai.*

Christus	kurru	dai
Christ	NEG	1SG
'I am not Christ.'		

(Schultz 1850: 57)

The use of the particle *k^horo* as the SN of copular clauses falls within its broader function as CN of nominal expressions. In copular clauses, *k^horo* negates either the nominal predicate, as in (25), or the nominal argument, depending on which appears first in the clause.

i. Negative stative clauses

In the 18th century, negative stative clauses were mainly formed with the SN prefix *ma-*, with negation via the particle *k^horo* apparently being a relatively marginal strategy, as discussed below. Negative stative clauses with *ma-* could contain either nominalized or non-nominalized verbs, as might be expected on the basis of the more general existence of stative clauses exhibiting both nominalized and non-nominalized verbs in the 18th century. As discussed in Section 2.4, in positive polarity clauses, these two clause types were distinguished in terms of their modal status (*indicativus* vs. *optativus*), but their negative polarity counterparts appear to have neutralized this distinction. In Table 3, the two clause types are represented schematically as *ma-V-n=S₀*, for nominalized, and *ma-V=S₀* for non-nominalized verbs. For stative verbs, T.S. Schumann (1882: 228) observes that the construction with non-nominalized forms is

more common, and that only some statives appear nominalized, as in (15) and (16), repeated here as (26) and (27).

26. *Mahaburükade.*

ma-haburü-ka=de

PRV-be.ashamed-PFV=1SG.S_O.

'I am not ashamed.' (T.S. Schumann 1882: 228)

27. †*Mahaburünnikade.*

ma-haburü-nni-ka=de

PRV-be.ashamed-NMLZ-PFV=1SG.S_O.

'I am not ashamed.' (T.S. Schumann 1882: 228)

Significantly, in the 18th century, an additional negated stative clause type construction was attested, namely stative negative clauses formed with either active non-nominalized or active nominalized verbs bearing the privative, as in (28) and (29), respectively, which illustrate this construction with intransitive active verbs. This construction type is not attested in modern Lokono, irrespective of whether the nominalized or non-nominalized form is used.

28. †*Mabudîssiade.*

ma-budîssia=de

PRV-catch.fish=1SG.S_O

'I haven't caught any fish.' [Ich habe nichts gefangen.] (C.L. Schumann 1882: 71)

29. †*Maijahaddinnikade.*

ma-ijahaddi-nni-ka=de

PRV-wander-NMLZ-PFV=1SG.S_O

'I do not wander.' [Ich wandle nicht.] (T.S. Schumann 1882: 219)

Since the SN prefix occupies the prefix position, such active verbs were unable to bear person prefixes, and as a result, their subjects were encoded with person enclitics, making such clauses stative. Both examples should be contrasted with their positive polarity counterparts, such as (14) and (15) above, in which the subject is encoded with a person prefix. This negative polarity stative clause construction is also attested with transitive active verbs, but in these cases the object of the verb could not be expressed with bound morphology, since the one available enclitic position was employed to encode the subject, as in (30) and (31), which show non-nominalized and a nominalized verbs, respectively. This effectively limited the use of this construction for transitive verbs to situations in which the object could be recovered from the context, allowing its omission (T.S. Schumann 1882: 219).

30. †*Mattahittikade*.

ma-utta-hitti-ka=de

PRV-drink-DESI-PFV=1SG.S₀

'I don't want to drink (it).' [Ich mag nicht trinken.] (T.S. Schumann 1882: 219)

31. †*Maddikinnikade*.

ma-ddiki-nni-ka=de

PRV-see-NMLZ-PFV=1SG.S₀

'I don't see (it). [Ich sehe nicht.]' (T.S. Schumann 1882: 219)

In (30) and (31), the subject of the transitive verbs *uttan* 'drink' and *ddikin* 'see', respectively, are expressed by the enclitic =*de*, and there is no object in the clause. Such stative clauses with active verbs are ungrammatical today and can be contrasted with (7) above, in which the latter verb employs a prefix to encode the subject and an enclitic to encode the object.

T.S. Schumann (1882: 227) also indicates that *k^horo* could negate stative verbs, a marginal strategy that receives only a single mention in his grammar. He points out, however, that certain verbs were always negated with *k^horo*, namely *jibarran* 'remain', *üttüan* 'bloody', *emélian* 'new', and *jadaddian* 'near' (T.S. Schumann 1882: 227). Interestingly, the first three are derived from nouns (*jibarra* 'remains', which differs from the verb in that it does not bear the nominalizer, *üttü* 'blood', and *eme* 'smell'), while the last one also functions as a locative adverb. The origins of these verbs suggest that *k^horo* might have still exhibited a proclivity for non-verbal constituents, even in this verbal construction. Two stative clauses negated with *k^horo* are illustrated in (32) and (33).

32. *Jibarra kúrrude*.

jibarra kúrru=de

remain NEG=1SG.S₀

'I am not staying behind.' [Ich bleibe nicht zurück.] (T.S. Schumann 1882: 227)

33. †*Háiaerúni kurrudè*.

háiaerú-ni kurru=dè

be.a.slave-NMLZ NEG=1SG.S₀

'I am not a slave.' [Ich bin kein Slave.] (C.L. Schumann 1882: 114)

In (32), the predicate is formed by the stative verb *jibarra* 'remain'. Crucially, while related to the inalienable noun *jibarra* 'remains', the verbal character of *jibarra* in (32) is evidenced by the lack of possessor marking, obligatory on inalienable nouns but not on stative verbs derived from them, since stative verbs do not combine with person prefixes. In (33), in turn, the stative verb, derived from the corresponding noun *háiaerú*

‘slave’, bears the nominalizer, demonstrating that both non-nominalized and nominalized stative verbs could be negated with *k^horo* in the 18th century. In modern Lokono, only the former construction is available (Section 3.2.1).

ii. Negative active clauses

18th-century Lokono exhibited two types of negative active clauses: those formed with the prefix *ma-* and the empty verb (EV), and those formed with the negation particle *k^horo* without an EV. We discuss each of these constructions in turn, beginning with the negative EV construction.

For clauses in which verbs are negated with the SN *ma-*, the only way they can manifest as active clauses, i.e., exhibit prefixal verbal person marking, is if they also exhibit the EV, since the prefix position of the active verb, occupied by the subject prefix in their positive polarity counterparts, is occupied by the SN prefix *ma-* in negative polarity clauses. The EV can bear both subject-encoding prefixes and object-encoding enclitics, rendering such clauses active. Pragmatically, this active clause EV construction is particularly important when both the subject and object need to be expressed via bound morphology. Recall that active verbs with a single overt core argument, i.e., intransitive verbs and transitive verbs with an omittable object, could form stative clauses, as described above (Section 3.1.2).

In the 18th century, both nominalized and non-nominalized active verbs could surface in EV-exhibiting negated active clauses, represented in Table 3 as *ma-V-n S_A/A-EV(=O)* and *ma-V S_A/A-EV(=O)*, respectively. As in the case of negated stative clauses (Section 3.1.2), there was apparently no semantic difference between negated active clauses with nominalized and non-nominalized verbs. Stative verbs, whether nominalized or not, could also be used in this construction, represented as *ma-V-n S_A/A-EV* and *ma-V S_A/A-EV*, though under certain restrictions. We discuss the more restricted construction with stative verbs first, and subsequently the equivalent construction with active verbs.

Stative verbs were negated via the EV construction only when bearing one of a number of adverbializing suffixes that render them incapable of bearing person markers (see discussion in Section 2.5), such as the continuative *-koa* in (34) and (35). In the 18th century, both nominalized and non-nominalized forms of stative verbs are attested participating in this construction.

34. *Mehébbíkoata*.

ma-hébbí-koa ta-ma

PRV-be.ripe-CONT 3F.S_A-EV

‘It is not yet ripe.’ [Es ist noch nicht fertig.]

(C.L. Schumann 1882: 117)

35. *Maráníkoata.*

ma-ará-ní-koa ta-ma
 PRV-be.whole-NMLZ-CONT 3F.S_A-EV
 'It is still not all.' [Es ist noch niet alle.] (C.L. Schumann 1882: 116)

Intransitive active verbs also appeared in these active clause EV constructions in both non-nominalized and nominalized forms, as in (36) and (37), respectively, though the latter form appears more common. However, in contrast to negative EV clauses with statives, those with active verbs did not require EV-triggering elements, as in (37).

36. *ʃHamma udumma tuhu adda maebessukuttukoama?*

hamma u-dumma tu-hu adda ma-ebessu-kuttu-koa ma
 what EXPL-reason DEM:F-PRX tree PRV-change.REFL-CAUS-CONT EV
 'Why doesn't this tree blossom yet?' [Warum blühet der Baum noch nicht?] (C.L. Schumann 1882: 76)

37. *Maijahaddinida.*

ma-ijahaddi-ni da-ma
 PRV-wander-NMLZ 1SG.S_A-EV
 'I do not wander.' [Ich wandle nicht.] (T.S. Schumann 1882: 219)

As a result, negative clauses with intransitives could either appear without an EV (as stative clauses with subjects marked by enclitics on the verb), or with an EV (as active clauses with the subjects marked by prefixes on the EV). At this vantage point it is unclear if there was any semantic or pragmatic difference associated with these two constructions.

Transitive verbs likewise appeared in these negative active clause EV constructions in both their non-nominalized and nominalized forms, as in (38) and (39), respectively. Like intransitives, transitive verbs did not require EV-triggers in this construction, as in (38) and (39). T.S. Schumann (1882: 219) remarks that the negative EV construction with transitive verbs is used when object of the verb cannot be omitted.

38. *ʃMattahittidân.*

ma-tta-hitti da-mâ-n
 PRV-drink-DESI 1SG.A=EV=3F.O
 'I do not want to drink it.' [Ich mag es nicht trinken.] (T.S. Schumann 1882: 232)

39. *Maddikinnidábu*

ma-ddiki-nni da-má-bu
 PRV-see-NMLZ 1SG.A=EV=2sg.O
 'I don't see you.' [Ich sehe dich nicht.] (T.S. Schumann 1882: 219)

For purposes of completeness, it is worth mentioning that an alternative to the EV construction is attested sporadically in the 18th century for transitive verbs. This involved the use of overt noun phrases, which obviated the need for bound person markers of the verbs, since arguments so expressed are normally not cross-referenced on the verb with bound person markers. This construction is compatible with *ma*-negated verb forms of active verbs, as illustrated in (40), since it does not require the bound expression of the subject.⁴

40. †*Dakia majahaddanikuman bukkalle.*

dakia	ma-ijahadda-ni-kuma=n	bu-kkalle
1SG.A	PRV-harvest-NMLZ-ABIL=3f.O	2SG.POSS-cassava.POSS

'I could have not harvested your cassava.' [Ich möchte, würde deinen Cassabi nich trecken.] (T.S. Schumann 1882: 222)

In (40), the subject of *jahaddan* 'harvest' is expressed with a full noun phrase, preceding the nominalization, while the object by a full noun phrase following it. Such constructions are rarely attested, probably due to the fact that the use of overt noun phrase subjects and objects is conditioned by information structural factors.

The second construction type we describe in this section is that in which the particle *khoro* negates transitive verbs in active clauses without an EV, as in (41) and (42). This construction is not attested with intransitive active verbs, but it is unclear if this represents a systematic property of the construction, or merely a data gap, since the 18th-century frequency of *khoro* is generally low. As for statives, T.S. Schumann (1882) only mentions this function of *kurru* in passing.

41. *Dansika kurru.*

da-ansi-ka	kurru
1SG.S _A -like-PFV	NEG

'I don't like (it).' [Ich liebe es nicht]. (T.S. Schumann 1882: 227)

42. *Lui kurru apukuda wauria je.*

lui	kurru	a-pukuda	wa-auria=je
3M	NEG	CRF-separate	1PL-SRC=3HUM.PL.O

'[God] did not separate us from them.' (Schultz 1850: 64)

In (41), the transitive verb *ansin* 'like' bears the subject prefix and is followed by *kurru*; there is no explicit object of the transitive verb, and it is unclear whether the object is omitted or whether *kurru* functions as a type of negative pronoun. In (42), *kurru* negates

⁴ The pronoun *dakia* in (40) does not appear in modern data; etymologically it appears to be a combination of the anaphoric pronoun *kia* and the first-person prefix *da*-.

the transitive verb with all its arguments expressed; notice that in the 18th century the subject noun phrase was cross-referenced on the verb with a co-referential prefix.⁵

3.2 Negation in 21st-century Lokono

The morphosyntax of negation changed significantly between 18th- and 21st-century Lokono. Most significantly, the main clause *indicativus–optativus* contrast, present in the 18th century, has disappeared in modern Lokono, with two significant consequences for the possible forms of main clause stative and active verbs, and their negation. First, while in the 18th century, both positive and negative polarity stative and active clauses exhibited both nominalized (*optativus*) and non-nominalized (*indicativus*) verbs, in modern Lokono, positive polarity main clauses do not exhibit nominalized verbs as main predicates, and in negative polarity main clauses with active verbs, *only* nominalized forms are retained. In short, when the *indicativus–optativus* contrast disappeared, positive and negative polarity clauses leveled in opposite directions in terms of their possibility to exhibit nominalized and non-nominalized verbs as main predicates. Second, active verbs no longer appear in negative stative clauses in modern Lokono, only participating in the active clause EV construction. In addition, the particle *kʰoro*, formerly a fairly marginal strategy in all but copular clauses, has increased in frequency as a competing SN strategy in all clause types, with a corresponding reduction in the frequency of the SN prefix *ma-*.

3.2.1 Negative copular clauses

Copular clauses are negated in the same way in the 21st century as in the 18th century: with the particle *kʰoro*, today often realized as *kʰo*, as in (43), where it negates the argument of the nominal predicate, the pronoun *dei*.

43. *Dei kʰo li yokʰa:ɾin.*
 dei kʰo li yokʰa:ɾin
 1SG NEG DEM:M hunt-AGENT.NMLZ
 'I am not a hunter.'

⁵ The surface structure of (42) can also be analyzed as CN, with *kurru* negating the preceding pronoun. However, the meaning intended by Schultz (1850) in (42), a translation *Acts of the Apostles* 14:9, implies the SN function of *kurru*. Given that *kurru* is postposed to the constituents it negates in its CN function, its SN function likely originates in clauses like (42), where it first negated the subject of the clause. This is further evidenced by the fact that it always appears in sentence second position, that is, following the subject noun phrase if there is one. Only if the subject is marked on the verb, does *kurru* follow it. The CN/SN ambiguity is thus inherent in clauses such as (42) with full noun phrase subjects even in modern Lokono.

3.2.2 Negative stative clauses

The prefix *ma-* is still used as SN of stative clauses in modern Lokono, but its distribution and frequency have shrunk significantly in comparison to the 18th century. In particular, active verbs can no longer form the stative clauses described above in Section 3.1.2.⁶ Nominalized stative verbs likewise no longer appear as main predicates in modern Lokono main clauses, and in particular do not appear in negative polarity clauses. Non-nominalized stative verbs can, however, still be negated with *ma-*, as in (44), the negative equivalent of (2). Recall that non-nominalized forms were already more common in the 18th century for stative verbs in negative stative clauses than their nominalized equivalents (Section 3.1.2).

44. *Makidika no*

ma-kidi-ka=no
PRV-be.heavy-PFV=3F.S_O
'It is not heavy.'

The use of *ma-* in stative clauses is, however, less productive than in the 18th century. Today, stative verbs are more commonly negated with *k^ho(ro)*. This applies even to the denominal privative stative verbs, such as *mak^hitan* 'not thorny', the possible negative equivalent of *kak^hitan* 'thorny' in (45).

45. *Kak^hitaka k^ho to t^hok^hondi.*

ka-k^hita-ka k^ho to t^ho-k^hondi
ATR-thorn-PFV NEG DEM:F 3F-body
'Its body does not have thorns.'

3.2.3 Negative active clauses

The negation of active clauses has also undergone substantial changes in modern Lokono. The negation of active clauses with the SN *ma-* survives, but its distribution is more restricted, and less frequent. In negative active clauses, the non-nominalized forms of active verbs were lost as part of the leveling process associated with the loss of the *indicativus–optativus* contrast, such that all *ma-*negated active clauses with active verbs exhibit nominalized verbs with the EV, regardless of the transitivity of the verb, as in (46) and (47), respectively.⁷

⁶ One lexicalized remnant of this construction survives, namely, the conventionalized single-word response *mei^hinka* '[I] don't know', corresponding to verb *i:th^hin* 'know', which can only be predicated of first person subject, even though the subject is not explicit.

⁷ The atelic suffix in (46), attached to postpositions, signals that the goal has not been reached and should not be confused with the telic-atelic lexical aspect found in other languages.

46. *Mo:sin lama nek^hebonro.*

ma-o:si-n li-ma-ma nek^hebo-n-ro
 PRV-go-NMLZ 3M.S_A-EV-ABIL work-LOC-ATL
 'He cannot go to work.'

47. *Meit^hin da dayono.*

ma-i:t^hi-n da-ma da-oyo-no
 PRV-know-NMLZ 1SG.A-EV 1SG.POSS-mother-HUM.PL
 'I do not know my family.'

Stative verbs, on the other hand, retained both the nominalized and non-nominalized forms in the active negative clauses EV construction. These cases remain limited to those that exhibit EV-triggering morphology. There is no clear semantic difference between the nominalized and non-nominalized versions of such clauses, illustrated in (48) and (49).

48. *Maboṛa:kwa t^ha baha.*

ma-boṛa:-kwa t^hi-ma baha
 PRV-be.fermented-CONT 3F.S_A-EV maybe
 'Maybe it is not fermented yet.' [Peut être n'est-elle pas encore fermentée.]
 (Patte 2011: 127)

49. *Mebenko t^ha beke:kere, dayo?*

ma-ebe-n-ko t^hi-ma bi-ke:ke-re da-oyo
 PRV-be.full-NMLZ-CONT 3F.S_A-EV 2SG.POSS-crab.basket-POSS 1SG.POSS-
 mother
 'Your crab basket is not full yet, mother?' [Ton panier n'est-il pas encore plein,
 Mère] (Patte 2011: 124)

Apart from the loss of non-nominalized verbs in *ma*-negated active clauses, the other major development in the negation of active clauses is the increasing frequency of *k^ho(ro)* in this function. The particle appears with all active verbs, including the EV, as in (50), (51), and (52).

50. *Do:sa jonro baṛin ma danda k^ho jaha.*

da-o:sa jo-n-ro baṛi-n ma da-anda k^ho ja-ha
 1SG.S_A-go LOC.ANPH-LOC-ATL FRUST-NMLZ but 1SG.S_A-arrive NEG here-PRX
 'I went towards there [the place we talked about] but I did not arrive here.'

51. *T^hoborota k^horoda we.*

t^hi-borota k^horo=da=we

3F.A-help NEG=DIRECT=1PL.O
 '[The medicine] did not help us.'

52. *To di tʰa kʰo firon to Wajabo.*

to	di	tʰi-a	kʰo	firo-n	to	wajabo
DEM:F	SMLR	3F.SA-EV	NEG	be.big-NMLZ	DEM:F	Washabo

'Washabo was not big like this.'

Such examples are commonplace in modern Lokono, reflecting the recent spread of the particle *kʰo(ro)* at the expense of *ma-*.

4. Diachronic trajectory of the privative *ma-*

In this section, we present an account of how the privative prefix *ma-* went from being a purely denominal prefix deriving privative stative verbs to functioning as SN in Lokono. While our focus is on Lokono, we make observations about other languages of the Caribbean Northern Arawakan (CNA) subgroup to which Lokono belongs to support certain aspects of this account: Añun, Garífuna, Wayuu, and two extinct members of this subgroup, Island Carib and Taíno. As observed by Michael (2014a), the distribution of languages within the Arawakan family for which *ma-* has an SN function makes it clear that the SN function of *ma-* is an innovation. The languages of the family overwhelmingly employ pre-verbal SN elements, with SN *ma-* restricted to the CNA subgroup, and the geographically and genealogically distant language Tariana, which has been heavily influenced by contact with Tukanoan languages (Aikhenvald 2002), most members of which exhibit a morphological negation suffix with the coincidentally similar phonological form *-ma* (Gomez-Imbert & Stenzel *to appear*). It is not possible at this stage to reconstruct the SN particles in either CNA or Proto-Arawakan, since the formal diversity of these particles is considerable, both among subgroups, and even within subgroups, suggesting considerable renovation of these elements, possibly due to the operation of Jespersen Cycles, as suggested by van der Auwera & Vossen (2016).

In brief, our account is as follows. Prior to the establishment of *ma-* as SN, in an ancestor of Lokono, SN was expressed by a preverbal particle (Section 4.1). The prefix *ma-* was first solely a denominal privative, and nominalized verbs appeared as subordinate clause predicates, which subsequently insubordinated, introducing an *indicativus–optativus* contrast in main clauses (Section 4.3). It is to these nominalizations that *ma-* extended next, though it remains unclear whether this happened before or after insubordination (Section 4.4). Regardless of the order, the outcome was *ma-*'s initial functional extension to SN.

SN *ma-*, which occupies the prefix slot on active verbs, initially required that the subject be expressed by an enclitic, thereby restricting the distribution of *ma-* in the case of active (nominalized) verbs to those without an overtly marked object on the verb, i.e., to stative clauses. The distribution of *ma-* broadened to constructions in which both subject and object were expressed by bound morphology, when the EV was recruited to host subject and object person markers (Section 4.5).

Once *ma-* came to negate main clause nominalized verbs, it came to compete with the older preverbal particle SN strategy, which continued negating non-nominalized verbs. The two SN constructions then leveled in favor of the *ma-* construction (Section 4.6). This leveling was facilitated by the fact the preverbal particle became the minority SN strategy, since both nominalized verbs in main clauses and all subordinate clauses exhibited the prefixal strategy. Consequently, it would only have been non-insubordinated verbs that would have been negated with the negation particle, in comparison with the larger set of verbs that were negated with *ma-*. Moreover, the denominal privative construction, which remained fully productive, turns out to be surface-string identical to *ma-*-negated stative clauses, with nominalized and non-nominalized verbs, when the noun is alienable and inalienable, respectively. Despite the construction being different in its precise morphological composition, it provided an additional template for this final extension to non-nominalized verbs.

This brings us to the state of affairs attested for late 18th-century Lokono. Thereafter, Lokono lost the constructional contrast between non-nominalized (*indicativus*) and nominalized (*optativus*) verbs. Positive polarity clauses levelled towards the non-nominalized construction while negative polarity clauses partly retained the nominalizations (Section 4.7). This is the situation attested roughly a century later in de Goeje's (1928) description of the language. By the end of the 20th century, the distribution of the SN *ma-* has diminished due to the spread of particle *k^horo*, a possible influence of contact languages that exhibit structurally similar SN strategies (Section 4.8).

4.1 SN before the development of *ma-* as SN

In the process sketched above, *ma-* extends from a denominal privative function to SN, eventually entirely displacing the previous SN strategy. Since that previous strategy has apparently not survived in any form in modern Lokono, we cannot be sure about its nature. However, given that Arawakan languages overwhelmingly exhibit a preverbal negation particle strategy in SN (Michael 2014a: 238), we will assume in our exposition below that the SN strategy replaced by *ma-* was of this type. At this time, we cannot specify at what point in the diversification of CNA *ma-* came to encroach upon the preverbal particle SN strategy. All of the CNA languages other than Añun exhibit the *ma-* SN strategy, suggesting that this process may have begun at a relatively early point

in the diversification of CNA. However, there are in fact significant differences among the *ma-* SN constructions in the different languages of the branch, raising the possibility that roughly similar constructions may have developed in parallel. It is beyond the scope of this paper to address these differences, but they lead us to be cautious about to what points in the diversification of CNA we attribute particular stages of the development of the *ma-* SN strategy. We will thus speak about a series of developments prior to the 18th century, the earliest stage for which we have Lokono data, without clearly specifying whether the development in question should be attributed to, say, Proto-Lokono-Añun-Wayuu, Proto-CNA, or some other point in the diversification of CNA. As we shall see, such specification is not germane to the account we present here, although there will be much to learn from extending our analysis of the diachrony of SN to the entire CNA subgroup. That remains a task for future research.

4.2 Nominalized active verbs appear in subordinate and insubordinated main clauses

In accord with the hypothesis articulated above, in the relevant ancestor of Lokono, both main and subordinate clauses were negated with a SN preverbal particle (Section 4.1). However, at a certain stage in the history of the language, nominalized verbs came to function as main predicates of subordinate clauses, as evidenced by the presence of nominalizations in subordinate clauses in both 18th-century and modern Lokono (Section 2.3). This process also occurred in other CNA languages, where we find similar subordinate clauses with reflexes of the PCNA nominalizer **-ni*: Wayuu *-in* (Álvarez 2017: 118), Añun *-i* (Patte 1989: 53), Garífuna *-n(i)* (Quesada 2017: 143), and Island Carib *-ni* (Taylor 1956: 7–8).⁸ We illustrate such subordinate clauses with examples from Añun (53) and Garífuna (54), highlighting the nominalizer.⁹

53. *Pikima agiiriiga tiri mpi wakiati.*

pī-kīma	agiiri-kari	tī-rī mpi	hī-pī	wa-ka-ía-tī-i
2SG.A-prepare	food-DEF:F	DEIC-PRX	3F-FNL	1PL.A-eat-ASP-F-NMLZ

‘Prepare this food so that we eat it.’ [Prepara esta comida para que la comamos.]
(Patte 1989: 85)

54. *Tachûlürün lun tágawa tachágaha músun éygini lún.*

⁸ While Quesada (2017) straightforwardly identifies the suffix in question as nominalizer, Haurholm-Larsen (2016: 151) calls Garífuna *-n(i)* an “underspecified tense marker,” distinct from the nominalizer *-ni*, but recognizes their likely common source. For Taíno, no subordinate clauses are documented, hence no conclusions can be drawn about their morphology.

⁹ Both Álvarez (2017) for Wayuu & Taylor (1956) for Island Carib repeatedly name the subordinating function of the nominalizers. However, most Wayuu data available in the existing sources are not glossed, while Taylor generally does not give examples of complex clauses.

t-achûlürü-n l-un t-ágawa t-achágaha músun éygini l-ún
 3F.S_A-arrive-NMLZ 3M-to 3F.S_A-bathe 3F.A-throw a.bit food 3M-to
 ‘When she arrives to bathe, she throws a bit of food to him.’
 (Haurholm-Larsen 2016: 269)

Lokono subordinate clauses with nominalized verbs then underwent insubordination, resulting in main clause *indicativus–optativus* contrast between clauses with non-nominalized and nominalized verbs respectively, as attested in 18th-century Lokono (Section 2.4). As we discuss in the next section, whether insubordination preceded or followed the extension of *ma-* to nominalized verbs is unclear, but in either case, insubordination played a pivotal role in *ma-* taking on main clause negation functions.

4.3 Denominal *ma-* extends to SN of nominalized intransitive verbs (*ma-V-n=S_O*)

The other major component in our account of the functional extension of *ma-* towards SN is the distributional extension of the prefix from nouns to nominalized intransitive verbs. The nominal character of these nominalized verbs presumably facilitated their becoming the first verb forms to take the denominal *ma-*, while at the same time possibly making them problematic for the preverbal SN strategy. Moreover, for stative verbs, which do not have a prefix slot, the nominalized form likely made them more susceptible to opening such a position, by analogy to other nouns, allowing the attachment of *ma-*. We do not have conclusive evidence regarding the relative ordering of insubordination and the extension of *ma-* to nominalizations, but given that the Lokono main clause construction which exhibits nominalized verbs developed from a subordinate clause via insubordination, we expect *ma-* to have appeared in subordinate clauses first, and then extended to main clauses as part of the insubordination process. Nothing crucial in our account hinges on this ordering, however.

In both 21st- and 18th-century Lokono, *ma-* serves to negate both nominalized and non-nominalized verbs, but comparative evidence supports the claim that the initial extension of *ma-* to the verbal domain was to nominalized verbs. In particular, in the other CNA languages, the only verbs that can take *ma-* are nominalized ones, suggesting that the appearance of *ma-* with non-nominalized verbs is a later extension in Lokono. The restriction of *ma-*-negation to nominalized verbs is reported for Wayuu, Garífuna, and Island Carib (Álvarez 2017: 169; Quesada 2017: 143; Breton 1877: xxi), as illustrated with Wayuu (55) and Garífuna examples (56), respectively.¹⁰ While the

¹⁰ Haurholm-Larsen (2016) identifies the negation circumfix *ma-...-un* but does not link *-un* to the underspecified tense marker/nominalizer *-n(i)*. Quesada (2017), recognizing the unity of all three, parses it as *-(u)ni*. Garífuna morphophonological rules imply, however, that *-n(i)* changes the preceding /a/ to /u/. Given that all regular verbs end in /a/, /u/ is expected before *-n(i)* (Haurholm-Larsen 2016: 25).

sources do not provide negative examples attesting to the ungrammaticality of this construction with non-nominalized verbs, they are explicit about the restriction of *ma-* to nominalized verbs only.

55. *Ma'yataainsai Kamiirü tepialu'u.*

ma-'yataa-in-sai Kamiirü te-pia-lu'u
 PRV-work-NMLZ-3M.S_O Camilo 1SG-house-in

'Camilo does not work in my house.' [Camilo no trabaja en mi casa.] (Álvarez 2017: 169)

56. *Máharu:nti ównli.*

m-áharu:-n-t-i ównli
 PRV-white-NMLZ-ASP-3M.S_O dog

'The dog is not white.' (Haurholm-Larsen 2016: 202)

We find that in Taíno, the nominalizer *-ni* appears on active verbs negated with *ma-*, as well (Granberry & Vesceius 2004: 97).¹¹ Añun is the only CNA language where *ma-* never extended beyond nouns, and consequently, does not exhibit nominalized verbs negated with *ma-*. Crucially, once *ma-* appears in main clauses, after insubordination, it begins to function as SN.

4.4 SN *ma-* extends to nominalized transitive verbs (*ma-V-n A-EV-O*)

When *ma-* extended to nominalized verbs, it is likely that there were certain constructional limitations on its distribution, which we will describe shortly. Subsequent developments, and in particular, the development of the empty verb (EV) construction, overcame these restrictions, allowing *ma-* to appear with essentially all types of nominalized verbs.

When *ma-* first extended to nominalizations, the resulting construction was the so-called 'stative clause' construction, which lacks an EV, and in which bound verbal subjects are expressed by verbal enclitics, even when the nominalized verb is active (and one would otherwise expect bound subjects to be expressed by person prefixes).

Accordingly, we analyze the suffix as *-n(i)* and observe that Haurholm-Larsen (2016) in fact parses the /u/ in his work as part of the stem, consistent with our analysis. Quesada (2017) treats /u/ as part of the suffix, possibly to limit stem allomorphy. This allomorphy is crucial in the variety studied by Munro & Gallagher (2014), where *-n(i)* is lost in most negative clauses, but its historical presence is visible in, and explains, the otherwise unexplained occurrence of *u*-final stems in the negative clauses, and *a*-final stems in the positive ones.

¹¹ Due to the highly fragmentary nature of Taíno documentation, there is no explicit evidence, one way or the other, that this nominalized verb was used in subordinate clauses, or that they were negated with *ma-* in such cases.

The reason that the stative clause construction resulted even when active verbs were negated by *ma-* is that that negation prefix occupies the sole prefixal slot of the active verb, blocking the use of person prefixes, and therefore limiting the bound expression of subjects to person enclitics. This simultaneously blocks the bound expression of objects, i.e. via enclitics, as there is no open enclitic position in which to express them once the subject is marked by an enclitic. The construction that results, where the only bound verbal marking of arguments is the marking of subjects via enclitics, is precisely the stative clause construction.

The negated stative clause construction presented no restrictions for nominalized stative verbs, which encode their subjects with enclitics even in positive polarity clauses. Nominalized active verbs bearing *ma-* would, however, likely first have been limited to clauses in which an object did not need to be expressed via verbal bound morphology, i.e., clauses with intransitive verbs, and clauses with transitive verbs in which either the object was expressed by an overt NP (and hence need not be expressed by bound morphology), or in which the object could be omitted for pragmatic reasons. Examples of this construction are attested for 18th-century Lokono active nominalized intransitive, transitive verbs with elided objects, and transitive verbs with full noun phrases encoding both subject and object as in (29), (31), and (40), respectively.

This same basic (stative) construction is still found in other modern CNA languages, such as Wayuu, where *ma-* can only be used to negate active intransitive, passivized transitive, and transitive verbs with generic objects expressed by full noun phrases, since specific objects must be morphologically marked on the verb (Álvarez 2017). Likewise, in Garífuna nominalized active verbs are allowed in this construction only if they are intransitive or if the object of the transitive verb is indefinite, as definite objects must be marked on the verb (Haurholm-Larsen 2016: 103). In Lokono, however, a new construction developed that allowed all types of verbs to both bear *ma-* and express up to two arguments via bound morphology: the EV construction, described in Section 3.1.3. In this construction, the EV has positions for both subject and object bound person markers, allowing nominalized verbs to be negated with *ma-*, regardless of the need to express object via bound person markers. This development never took place in Wayuu, which continues to use *ma-* only for nominalized active verbs with a single argument or a generic object. In contrast, like Lokono, Garífuna and Island Carib each developed constructions that allow for the morphologically bound marking of both the subject and object. The Garífuna construction with an auxiliary is used specifically when the object is definite and hence must be marked on the verb (Haurholm-Larsen 2016: 103).¹² This development was probably independent of the Lokono development of the construction, though presumably due to the similar communicative pressures to

¹² The relevant construction in Island Carib is used when both subject and object need to be marked on the active verb, but as in 18th-century Lokono, the exact conditions under which this occurs are unclear.

morphologically encode the object of the transitive verb. In any event, documentation of 18th-century Lokono shows the co-existence of both the original construction, lacking the EV, and the EV construction. By the 20th century, the former all but disappeared from the language.

4.5 SN *ma-* extends to non-nominalized verbs

In the next stage of the distributional extension of *ma-*, the prefix went from appearing solely on nominalized verbs to appearing on both nominalized and non-nominalized verbs, as attested in 18th-century Lokono (Section 3). We argue here that this resulted from leveling that was facilitated by the fact that by this point, negation by means of the preverbal negation particle had become a minority strategy. In particular, by this point, both main clause nominalized verbs, nominalized verbs in subordinate clauses, and main clause denominal stative verbs would have all been negated by *ma-*, leaving only non-nominalized, non-denominal main clause verbs to be negated by the preverbal negation particle. This asymmetry was resolved by leveling towards the majority *ma-* negation strategy, resulting in the use of *ma-* to negate non-nominalized verbs. Moreover, not only was the preverbal particle a minority strategy, but the denominal construction with *ma-*, which remained fully productive, additionally provided a template for the extension to non-nominalized verbs. Notice that, when the noun is alienable, the denominal construction is surface-string identical to the basic *ma-*-negated nominalized verb construction, i.e., the one without the EV. However, when the noun is inalienable, the denominal construction is surface-string identical to the *ma-*-negated non-nominalized verb construction without the EV. This is due to the fact the nominalizer *-n*, found in the former construction, is homophonous with the most common possessive suffix *-n* used with inalienable nouns, while alienable nouns appear without any possessive morphology in the denominal construction with *ma-*.

4.6 Further changes in the general architecture of the language affecting SN *ma-*

The functional extensions described through Section 4.6 bring us to the state of affairs attested in the 18th-century materials: *ma-* appears as the SN element for both non-nominalized and nominalized main verbs, whether denominal or not. However, the Lokono negation system subsequently underwent further changes, altering aspects of the SN system and resulting in the system observed in modern Lokono. The two main changes were: 1) the disappearance of the ‘stative clause’ construction for clauses with active verbs; and 2) the loss of the *indicativus–optativus* contrast.

By the early 20th century, negated active verbs, whether nominalized or not, are no longer found in ‘stative clause’ construction attested in the 18th century, i.e., where the subject is marked as an enclitic, and the object is not expressed by bound

morphology (see Section 3.1.2). Instead, the EV construction, described in Section 2.5, and whose development is described in Sections 3.1.3–3.2.3, entirely displaced the ‘stative clause’ construction. This encroachment was likely the result of fact that the EV construction allowed the bound expression of both arguments of a transitive verb, rendering it functionally much more flexible than the ‘stative clause’ construction. As described in Section 3.1.3, the EV construction was also extended to stative verbs, but with these verbs it remains a marked construction, triggered not by negation alone but by additional EV-triggering morphology, typically adverbializing suffixes. Presumably this asymmetry is due to the fact that stative verbs are exclusively intransitive, making the ‘stative clause’ construction perfectly adequate for such verbs.

By the early 20th century, we also observe the loss of the constructional contrast, present in the 18th-century materials, between nominalized (*optativus*) and non-nominalized (*indicativus*) verbs in both positive and negative polarity main clauses (see Section 2.4). With the loss of this constructional contrast, main clauses leveled in opposite ways. Positive polarity main clauses leveled to the construction with non-nominalized verbs. Negative polarity clauses leveled to the construction with nominalized verbs (active clauses) and non-nominalized verbs (stative clauses). Neither Positive polarity nominalized forms nor negative polarity non-nominalized forms with active verbs are attested in either de Goeje’s (1928) description of the language or the more modern data. Stative predicates typically show no nominalizer in main clauses when negated, but stative predicates with the nominalizer are occasionally attested, as well. Finally, the distribution of the prefix *ma-* has also been affected by the recent expansion of negative particle *kʰo(ro)* described below.

4.7 The expansion of *kʰo(ro)*

In modern Lokono, the negative particle *kʰo(ro)* functions as an all-purpose negator. The particle *kʰo(ro)* functioned in the 18th century mostly as a CN, which only appeared consistently as SN in copular clauses. In active and stative clauses, it was attested only rarely and often with predicates that appear to be nominal in nature. Today *kʰo(ro)* functions both as a CN and SN of all types of clauses. These changes must have taken place over the last 100 years and may be the result of the influence of the *lingua franca*, Sranantongo, which has intensified in this period (Section 1.1). It is perhaps not a coincidence that the Sranantongo preverbal negator *no* is equally multifunctional (CN and SN).

5. Counter-arguments against the stative extension route

In this section, we examine and ultimately discard an alternative account for the extension of the privative to SN in Lokono: the stative extension route. Under this

account, the path towards SN led not through nominalized verbs in subordinate clauses, but through main clause stative verbs. In brief, this route does not at any point require reference to verbs in subordinate clauses, but instead starts with an initial extension in the distribution of *ma-* to main clause stative verbs followed by an extension to main clause active verbs. As we show, the evidence for this route is considerably less compelling than for that sketched in the above section.

As with the route argued for in Section 4, the stative extension route begins with the denominal privative. The first step in the extension is the broadening of the distribution of *ma-* from nouns to stative verb roots. Such an extension could plausibly be motivated by a reanalysis of *ma-* as a negative element that derives stative verbs to an element that (additionally) simply negates stative verbs, as depicted in (57).

$$57. [ma-N-n]_{V.STAT} \Rightarrow [ma-V_{STAT-n}]_{V.STAT}$$

This proposed extension runs into an immediate difficulty, however: stative verbs in Lokono do not take prefixes of any kind. As discussed in Section 2.1, for example, while active verbs can take person prefixes, statives do not take them, instead taking person enclitics. It is thus difficult to see how stative verbs could have taken the *ma-* prefix as the putative reanalysis presupposes. One potential way around this objection is to suggest that the reanalysis was somewhat more elaborate, with the possessive suffix *-n* having been reanalyzed as the homophonous *-n* nominalizer, such that *ma-* attached to a nominalized stative root, as suggested by the bracketing in (58).

$$58. [ma-N-n]_{V.STAT} \Rightarrow [ma-[V_{STAT-n}]N]_{V.STAT}$$

Two objections can be raised to this alternative account. First, if the *-n* adjacent to the verb root were reanalyzed as a nominalizer, and V_{STAT-n} was, consequently, treated as a noun, then we would expect this constituent to bear an additional possessive suffix, as required by the basic denominal privative construction, as in (59). This is not the attested form of negated main clause stative verbs, however, as they only bear one *-n* suffix.¹³

$$59. [ma-N-n]_{V.STAT} \Rightarrow [ma-[V_{STAT-n}]N-n]_{V.STAT}$$

A second objection is that this alternative entails that *ma-* attaches to a nominalized verb and is thus effectively a reversion to the nominalization route discussed in detail in Section 4, and not really stative extension at all. At this point this analysis merges with the analysis in Section 4. Note that the account presented in (57) through (59) assumes the nouns are alienable, but the same obstacles apply to the

¹³ Note that there is no general restriction in Lokono against verb bearing two *-n* suffixes; see (22).

expansion based on the template with inalienable nouns, which do not combine with the possessive *-n*. On the other hand, the account in Section 4 avoids the above prefix-slot obstacle, since nominalized stative verbs, like other nominal forms, were able to take the negative prefix, an extension perhaps facilitated by the fact that *ma*-negated nominalized active verbs, which are perfectly compatible with prefixes, formed stative clauses.

Although we have argued that the first step of the stative extension is beset by difficulties that already make it a less attractive analysis than the nominalization route proposed in Section 4, we can, for the sake of argument, grant that despite these difficulties, the initial extension to stative verbs took place as depicted in (57). As we shall argue now, however, when we do so, other difficulties arise. In the next putative step, the set of verbs that could participate in this construction would broaden from stative verbs to include active verbs, as in (60).

60. [ma-V_{STAT-n}]V_{.STAT} ⇒ [ma-V_{ACT-n}]V_{.STAT}

However, problems arise for this proposed trajectory with respect to the main clause contrast between nominalized and non-nominalized verbs in 18th-century Lokono (see Section 2.4). Recall that this distinction corresponded to some type of modal distinction, *optativus* vs. *indicativus*, with nominalized forms expressing the former modal meaning, and non-nominalized ones the latter. If, as the stative extension route supposes, it was not insubordination of nominalized forms that led to main clause use of *ma*- with nominalized verbs, then we appear to be led to the conclusion that main clause nominalized forms in positive polarity clauses were the result of *ma*- being stripped off of nominalized forms. If this is the case, however, it is difficult to see how such a stripping process could be responsible for the modal contrast in positive polarity clauses. In particular, negative polarity clauses neutralized the modal distinction in question, with both nominalized and non-nominalized negative clauses behaving as *indicativus* (see Section 2.4). It is then unclear how stripping negation off of an *indicativus* form could result in an *optativus* form, as the 18th-century descriptive facts require.

In short, the stative extension route appears to be beset by difficulties at almost every step of the trajectory. None are necessarily fatal, but in their sum, they certainly render the stative extension route less plausible than the subordinate clause nominalization route argued for in Section 4.

6. Conclusion

This paper has argued in detail that the modern Lokono standard negation prefix *ma*- developed from a denominal privative derivational suffix, supporting Michael's (2014a)

more general proposal that this same basic diachronic trajectory is manifest in a number of Arawakan languages. As such, this paper both buttresses the general claim that private derivational morphemes can serve as the source of standard negation elements and presents in detail the processes by which the privative developed into standard negation in one particular language. The latter point is significant not only because of the insight it gives into what mechanisms may be more generally responsible for the development of standard negation from privative derivations, but also because it accounts for the unique form of the standard negation construction in Lokono, which involves the use of a particular auxiliary verb. It is worth observing that the Lokono standard negation construction both shares features of the standard negation constructions of the other CNA languages, and differs from them in important ways. The obvious next step in the study of the privative-to-standard-negation trajectory is to extend the analysis of this trajectory to the other members of the family.

Abbreviations

A	subject of a transitive active clause	FNL	final
ABIL	abilitative	FRUST	frustrative
AGENT.NMLZ	agent nominalizer	HUM	human
ANPH	anaphoric	LOC	locative
ASP	aspectual marker	LOC.ANPH	locative anaphora
ATL	atelic	M	masculine
ATR	attributive	NEG	negative
CAUS	causative	NMLZ	nominalizer
CONT	continuative	O	object
COP	copula	PFV	perfective
CRF	coreferential	PL	plural
DAT	dative	POSS	possessive
DEF	definite	PRS	prospective
DEIC	deictic	PRV	privative
DESI	desiderative	PRX	proximal
DEM	demonstrative	REFL	reflexive
DIRECT	direct evidential	S _A	subject of an intransitive active clause
EPEN	epenthetic	S _O	subject of a stative clause
EV	empty verb	SBJ.REL	subject relativizer
EXPL	expletive	SG	singular
INDF	indefinite	SMLR	similarity
F	feminine	SPEC	specific

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