Restructuring evidentials in Mbya Guarani

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Abstract: This paper discusses a closed class of Mbya Guarani predicates known as 'postposed roots', which are realized as uninflected roots that follow an inflected predicate. I argue that postposed roots are restructuring predicates akin to a subset of verbs that select non-finite complements in Romance and Germanic languages. I then focus on the two postposed roots *nhendu* and *jekuaa*, which express non-visual and visual perception respectively. I show that these roots are sensory evidential markers. As such, they provide a counter-example to the generalization that predicates that encode sources of evidence fail to restructure across languages (Grano 2012, 2015). I argue that their exceptional status is due to their diachronic origin from a process of lexicalization and grammaticalization of passivized perception predicates. Following Grano (2017), I conclude that restructuring is not an entirely synchronic process, and that some predicates are restructuring as a result of grammaticalization.

Keywords: restructuring, evidentiality, perception reports, Mbya Guarani

1. Introduction

In Romance and Germanic languages, some infinitival constructions are known to lack a clausal boundary between the matrix verb and its non-finite complement. This phenomenon is known as restructuring (or clause union, see Aissen & Perlmutter 1976, Rizzi 1978, Cinque 1997, Wurmbrand 2001 among others), and is illustrated by example (1) from Italian, where the position of the clitic *lo* indicates a lack of clausal boundary between the two verbs:

(1)   Lo   vole-vo   vedere   subito.
      him   want-PST.IMPF.1SG   see.INF   immediately
      'I wanted to see him immediately.' (Wurmbrand 2004: 991; glosses GT)

While the concept of restructuring originated from the study of Romance and Germanic languages, it has been applied to the analysis of complex structures in genetically and typologically diverse languages, such as Basque (Arregi & Molina-Azaola 2004), Chamoro (Chung 2004), Kannada (Agbayani & Shekar 2008), Kimaragang Dusun (Kroeger 2014), Japanese (Miyagawa 1986), Mandarin Chinese (Grano 2015) or Wolof (Torrence 2013). In this paper, I will argue that the concept of restructuring can be fruitfully applied to the analysis of certain complex predicates in Mbya Guarani, even in the absence of a finiteness contrast. More precisely, I will argue that the predicates known as 'postposed roots' (Dooley 2015:63-64) are restructuring. Sentence (2) illustrates the relevant construction with the postposed root *kuaa* ('know how'):[1]

(2)   A-roayvu   kuaa.
      A1.SG-read know.how
      'I know how to read.' (Dooley 2016: 39; glosses GT)

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[1] 'A1' stands for '1st person, active.' The active-inactive inflection system of Mbya is introduced in section 3.

Unlike in languages such as Italian and German, restructuring predicates in Mbya do not select infinitival complements and lack inflection. I will argue that this is consistent with analyses of restructuring predicates as auxiliaries or functional heads (Napoli 1981, Cinque 1997, 2001, 2006, Grano 2012, 2015, 2017).

Having established that postposed roots are restructuring in Mbya, I will investigate the properties of the predicates *nhendu* and *jekuaa* in more detail:[2]

(3) O-jae'o nhendu.
A3-cry NVIS.EVID
'He is crying [audibly].' (Dooley 2016: 129)

(4) O-u jekuaa.
A3-come VIS.EVID
'He is coming [visibly].' (Dooley 2016: 67)

Nhendu and *jekuaa* mark non-visual sensory and visual sensory sources of evidence respectively. The fact that they are used as postposed roots in Mbya is typologically significant, since it has been argued that predicates that encode sources of evidence generally fail to restructure (Grano 2012, 2015, 2017). This raises the question how *nhendu* and *jekuaa* came to be used as restructuring predicates in Mbya, and how they differ from predicates with similar meanings in languages discussed in the existing literature on restructuring.

I argue that restructuring uses of *nhendu* and *jekuaa* are the product of a diachronic process of lexicalization and grammaticalization of passivized perception predicates (such as *be heard* and *be seen* in English). This contrasts with Grano's (2012, 2015) analysis of restructuring as a synchronic process of syntactic reanalysis.[3] I argue that the diachronic origin of the restructuring uses of *nhendu* and *jekuaa* explains their exceptionality, and I conclude that one must recognize two sources of restructuring, one diachronic and one synchronic.

Mbya Guarani data in the paper were elicited with two native speakers of Mbya from the Misiones province, Argentina. Informed consent was obtained from the consultants for their participation in the study. The paper also relies on Dooley's (2015, 2016) lexicon and grammar of Mbya. Examples from Dooley (2015, 2016) are referenced as such.

The paper is structured as follows. In Section 2, I introduce the concept of restructuring. I sketch relevant aspects of the grammar of Mbya in Section 3. In Section 4, I argue that postposed roots are restructuring predicates and I present evidence in favor of their analysis as auxiliary-like functional heads. In Section 5, I introduce restructuring uses of the predicates *nhendu* and *jekuaa*, and I argue that they are interpreted as sensory evidential markers. In Section 6, I discuss the apparent exceptionality of *nhendu* and *jekuaa*. I argue for a diachronic analysis of their restructuring uses, and I show that this analysis reconciles Grano's (2012, 2015) analysis of failed restructuring with the facts of Mbya, in line with Grano's (2017) more recent proposal that grammaticalization modulates the availability of restructuring. Section 7 concludes.

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[2] Glosses for all examples from Dooley (2015, 2016) are mine. The English free translation has been retranslated into English from the original Brazilian Portuguese.
[3] Grano (2017) argues that restructuring can be modulated by grammaticalization. The relation of the present analysis of *nhendu* and *jekuaa* to Grano's (2017) proposal will be discussed in section 6.

2. Restructuring

2.1 Characteristics of restructuring constructions

Restructuring constructions are sentential complementation constructions that lack a clausal boundary between the complement taking predicate and its complement. This lack of clausal boundary has been referred to as monoclausality, and has been diagnosed using language specific tests, such as clitic climbing in Italian and Spanish, and long distance passivization in German. Here, I review evidence from clitic climbing in Italian. In examples (5a) and (5b), the pronoun *lo* cliticizes onto the non-finite verb that selects it as an argument. In examples (6a) and (6b), the pronoun is found in the matrix clause. This is acceptable with the verb *cominciare* in (6a), but it is ungrammatical with the verb *detestare* in (6b). The unacceptability of (6b) and similar examples has been taken to show that clitic climbing cannot generally cross a clausal boundary. Non-finite constructions in which clitic climbing is acceptable are argued to lack a clausal boundary between the matrix verb and its non-finite complement. Restructuring predicates are verbs that can head such constructions.

(5) a. Gianni   cominciava   a   veder=lo.
         Gianni   begin.PST.IMPF.3SG   to   see.INF=it
         'Gianni was beginning to see it.' (Grano 2015: 31; glosses GT)

     b. Gianni   detestava   a   verder=lo.
         Gianni   hate-PST.IMPF.3SG   to   see.INF=it
         'Gianni hated to see it.' (Grano 2015: 31; glosses GT)

(6) a. Gianni   lo   cominciava   a   vedere.
         Gianni   it   begin.PST.IMPF.3SG   to   see.INF
         'Gianni was beginning to see it.' (Grano 2015: 32; glosses GT)

     b. *Gianni   lo   detestava   a   vedere.
         Gianni   it   hate.PST.IMPF.3SG   to   see.INF
         Intended: 'Gianni hated to see it.' (Grano 2015: 32; glosses GT)

Although the set of restructuring predicates varies across languages, it has been argued that there is a core set of predicative meanings that tend to be expressed as restructuring predicates cross-linguistically (see Rizzi 1976, Wurmbrand 2001, Cinque 2006, Grano 2012, 2015, 2017 among others). Table 1 from Wurmbrand (2001) summarizes the restructuring status of different semantic classes of predicates in German, Dutch, Italian, Spanish and Japanese. Restructuring predicates are marked as "+" and non restructuring predicates are marked as "-". Predicates that do not combine with infinitives in these languages are marked as "N/A". Predicates marked as "±" exhibit inter-speaker variation or are expressed by multiple verbs, only some of which are restructuring. The core set of restructuring predicates in these five languages consists of (semi)modal predicates, aspectual predicates and movement predicates. There is also a set of predicates such as *try* and *manage* that show variation in their restructuring status. Finally, two sets of predicates that systematically fail to restructure are propositional predicates and factive predicates (cf. Grano 2017: 34). The former set consists of verbs that ascribe truth or falsity to their complements, such as *claim* or *believe*. The second set consists of factive verbs that presuppose the truth of their complements, such as *regret*.

Table 1 *Restructuring predicates in five languages (Wurmbrand 2001: 342)*

Predicates	German	Dutch	Italian	Spanish	Japanese
can, may	+	+	+	+	+
must, need	+	+	+	+	+
want	+	+	+	+	+
other (semi) modals	+	+	+	+	+
causatives	+	+	+	+	+
begin	+	+	+	+	+
come, go	+	+	+	+	+
(be) used to	+	+	+	+	N/A
easy	+	N/A	+	+	+
continue	N/A	N/A	+	+	+
start	N/A	N/A	+	+	+
finish, stop	N/A	N/A	+	+	+
be about to	N/A	N/A	+	+	+
re-do	N/A	N/A	N/A	+	+
know how	N/A	+	+	+	N/A
return	N/A	N/A	±	+	±
intend (≈want, mean)	+	+	±	±	N/A
forget	+	+	±	±	+
try	+	+	±	±	±
manage/succeed	+	+	±	±	+
fail	+	N/A	N/A	N/A	+
dare	+	+	±	-	N/A
seem	+	+	±	-	-
promise, threaten	+	-	-	-	-
allow, permit	+	-	-	±	-
forbid	+	-	-	-	-
recommend	+	-	-	-	-
refuse, reject	-	+	-	-	-
appear	N/A	+	-	-	-
order	-	-	-	±	-
decide, choose	-	-	-	-	-
plan	-	-	-	-	-
prefer	-	-	-	-	-
whish	-	-	-	-	-
offer	-	-	-	-	-
propose	-	-	-	-	-
propositional	-	-	-	-	-
factive	-	-	-	-	-

2.2 Formal analyses of restructuring constructions

Wurmbrand (2001, 2004) identifies two main types of monoclausal analyses of restructuring constructions in formal syntax. In lexical analyses, restructuring predicates are lexical verbs that select a complement without the full functional structure of a clause, such as a bare Verb Phrase, as illustrated in (7), where RV stands for "Restructuring Verb". The lack of clausal boundary follows from the lack of clausal projections in the syntactic structure of the complement. In functional analyses, the restructuring predicate is a functional head, as

illustrated in (8). Using a more traditional grammatical concept, one may characterize it as a (semi)auxiliary verb. Monoclausality follows directly from this type of analysis, since the restructuring predicate realizes a functional category of the lexical verb and does not project its own clause:

(7)   [TP [T′ T [vP SUBJ [v′ v [vP IO [v′ [v *lexical RV*] [vP *infinitive*]]]]]]]]

(8)   [FP [F′ [F *functional RV*] [vP SUBJ [v′ v [vP DP [v′ [v *lexical verb*] DP]]]]]]]

Note that Wurmbrand (2004) argues that both lexical and functional restructuring are attested across languages. The reader is referred to Wurmbrand (2004) for detailed discussion of the distinctive properties of lexical and functional restructuring predicates. In section 4, I will argue that Mbya Guarani postposed roots are auxiliary-like functional heads, using language specific evidence.

3. Language background

Mbya Guarani is a Tupi-Guarani language spoken in Argentina, Brazil and Paraguay by approximately 30,000 people (Ladeira 2018). In this section, we review some properties of Mbya grammar that are relevant to the study of restructuring: active-inactive cross-referencing, the absence of tense inflection on predicates, and strategies of subordination.

Mbya is an active-inactive language: the class of intransitive predicates is split into an active class, whose members cross-reference their subjects with the same set of markers as subjects of transitive verbs, and an inactive class, whose members cross-reference their subjects with the same set of markers as objects of transitive verbs. In glosses, we refer to these two classes as class A (active) and class B (inactive) respectively, as illustrated in examples (9) and (10):

(9) A-nha.
A1.SG-run
'I ran/was running/am running.'

(10) Xe-kane'o.
B1.SG-tired
'I was/am tired.'

Transitive verbs only cross-reference one of their arguments, either the subject, as illustrated in (11), or the object, as in (12). The choice of argument to be cross-referenced is determined by the person hierarchy $1 < 2 < 3$:[4]

(11) Ava   a-exa.
Man   A1.SG-see
'I saw/see a/the man.'

(12) Xe-r-exa.
B1.SG-R-see
'They/she/he/it saw/see(s) me.'

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[4] A portmanteau cross-reference marker *ro-* is used when the subject is 1st person (singular or plural exclusive) and the object is 2nd person. In addition, a subset of transitive verbs bear an object marking prefix i- when the subject is cross-reference, see e.g. example (13).

Active-inactive cross-reference markers are the only pieces of inflectional morphology that is attested on Mbya verbs. Consequently, I will refer to predicates that bear cross-reference markers as 'inflected predicates' in contrast with 'uninflected' postposed roots.[5]

As the previous examples illustrate, there is no tense inflection on predicates. In the absence of future-oriented aspect or modality markers, predicates receive a non-future interpretation in most contexts. In the rest of the manuscript, only one temporal interpretation is shown in the free translation.[6] The lack of tense inflection in the language raises the question whether Tense is syntactically represented as a functional head, and whether clauses contrast in finiteness. In her study of temporality in Paraguayan Guarani, a closely related Guarani language, Tonhauser (2011) argues that there is no covert tense in Guarani, and that the language is truly tenseless. Thomas (2014) concludes that Tonhauser's (2011) arguments apply to Mbya as well. A consequence of the absence of tense inflection on predicates is that either there is no finite/nonfinite distinction in the language, or if there is, the lack of tense inflection cannot be taken to be a sufficient condition of nonfiniteness.

Complement clauses in Mbya are formed by nominalizing the embedded predicate with the realis nominalizer -*a* or the irrealis nominalizer *aguã* (Dooley 2015: 124-125), as illustrated in (13) and (14). Note that both the matrix and the embedded predicates cross-reference their subject or object in these constructions.

(13) A-i-kuaa   re-vy'a-a.
      A1.SG-OBJ-know   B2.SG-happy-NMLZ.REAL
      'I know that you are happy.' (Dooley 2015: 124)

(14) N-a-rõ-i   ava   o-u   aguã.
      NEG-A1.SG-expect-NEG   man   A3-come   NMLZ.IRR
      'I didn't expect that the man would come.' (Dooley 2015: 125)

Adverbial subordinate clauses are introduced either by switch reference markers or by subordinators that express a specific semantic relation to the superordinate clause (Dooley 2015: 116-117), as illustrated in (15) and (16) respectively, with the Same Subject marker *vy* and the subordinating conjunction *jave*:

(15) Xe-r-yvy   o-o   vy   mboi   o-exa.
      B1.SG-R-younger.brother   A3-go   SS   snake   A3-see
      'When my brother went, he saw a snake.' (Dooley 2016: 210)

(16) Ndee   ere-mba'eapo   jave   xee   a-vaẽ.
      B1.SG   A2.SG-work   while   B1.SG   A1.SG-arrive
      'I arrived while you were working.' (Dooley 2016: 64)

It should be noted that both nominalized complement clauses and adverbial subordinate clauses display the same inflectional morphology and functional syntax as independent clauses. Furthermore, no Case Filter effect is observed in these clauses (i.e., these clauses license overt subjects). Consequently, they have been argued to be finite clauses (Dooley 2016: 124, Baranger 2022: 15).

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[5] This terminology is somewhat misleading since inactive markers have been argued to be (cliticized) pronouns rather than agreement prefixes in Tupi Guarani languages (see Jensen 1990). I will stick to this terminology regardless, as it is convenient in the present context.
[6] By default: past for dynamic predications, present for stative predications.

Finally, mention should be made of the construction that Dooley (2015: 69) calls "supplementary verbs", also know as "gerunds" in studies of Tupi-Guarani languages (Rodrigues 1953, Cabral & Rodrigues 2015). Supplementary verbs are a closed class of dependent intransitive predicates that specify the position, motion or number of the subject of the main verb. They are marked by a suffix -*vy* or one of its allomorphs (-*py*, -*my*, -*ngy*, -*ny*), as illustrated in example (17):

(17) O-japukai   o-u-vy.
     A3-shout   A3-come-SV
     'He came shouting' (Dooley 2015: 70)

Having introduced the concept of restructuring and having reviewed relevant aspects of the grammar of Mbya, let us now turn to the question whether postposed roots should be analyzed as restructuring predicates.

4. Postposed roots as restructuring predicates

4.1 Postposed roots are dependents of inflected predicates

Postposed roots are a closed class of uninflected roots that follow an inflected predicate. Dooley (2015: 63) recognizes six of these roots, which we list in table 2:

Table 2*: Postposed roots*

Root	Translation
jepe	'manage'
kuaa	'know how'
pota	'try'
regua	'be able to'
xe	'want'
pa	'finish'

The following examples illustrate the basic usage of these roots:

(18) a. A-i-pe'a   jepe   okẽ.
        A1.SG-OBJ-open   manage   door
        'I managed to open the door.'

     b. A-jeroky   kuaa.
        A1.SG-dance   know.how
        'I know how to dance'

     c. A-i-pe'a   pota   okẽ.
        A1.SG-OBJ-open   try   door
        'I tried to open the door.'

     d. A-i-pe'a   regua   okẽ.
        A1.SG-OBJ-open   be.able.to   door
        'I can open the door.'

     e. A-karu=xe.
        A1.SG-eat=want
        'I want to eat.'

    f.   A-karu=pa.
        A1.SG-eat-finish
        'I have finished eating.'

There is a high degree of syntactic integration of postposed roots with the inflected predicate. Postposed roots cannot be separated from the inflected predicate by an argument, as illustrated by the contrast between (19) and (20), although they can be separated from it by an adverb (Dooley 2015: 63-65):

(19) A-i-pe'a   pota   okẽ.
      A1.SG-OBJ-open   try   door
      'I tried to open the door.'

(20) *A-i-pe'a   okẽ   pota.
      A1.SG-OBJ-open   door   try
      Intended: 'I tried to open the door.'

Adverbs that occur between the inflected predicate and a postposed root are interpreted as modifiers of the main predicate rather than of the postposed root itself. Adverbs that modify a postposed root must follow it, as illustrated by the contrast between examples (21a) and (21b):

(21) a.   A-karu   vaipa=xe.
          A1.SG-eat   INT=want
          'I want to eat a lot [of food].'

      b.   A-karu=xe   vaipa.
          A1.SG-eat=want   INT
          'I really want to eat.'

In sum, the string consisting of the inflected predicate together with its postposed adverbs and roots appears to form a constituent that excludes arguments of the inflected predicate. Linear order of expressions within this constituent reflects their relative scope. Dooley (2015: 62) refers to this constituent as the predicative locution.

The lack of inflection on postposed roots and their tight syntactic integration with the inflected predicates contrast with the strategies of subordination reviewed in Section 3. Additional evidence suggests that postposed roots are syntactic dependents of inflected predicates, which act as their heads. Zwicky (2010) identifies five characteristic differences between heads and their dependents. At a syntactic level, heads are required rather than optional, words rather than phrases, determine the category of their phrase, and determine the external distribution of their phrase. At a morphological level, heads are the element that exhibits the morphosyntactic features of the phrase as a whole, such as agreement and tense inflection on Verb Phrases. Coming back to Mbya, we see that these properties identify the inflected predicate as the head of the predicative locution, and postposed roots as their dependents. Morphologically, the locus of inflection (cross-referencing) is the inflected predicate rather than the postposed root.[7] Syntactically, postposed roots are optional, unlike inflected verbs, as illustrated by the contrast between (22a) and (22b):

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[7] See Section 4.2.4 for an argument that it is the inflected predicate rather than the postposed root that governs cross-reference marking.

(22) a. A-i-pe'a   (jepe)   okẽ.
         A1.SG-OBJ-open   manage   door
         'I (managed to) open(ed) the door.'

    b. *Jepe   okẽ
        managed   door

Other syntactic tests of headedness are inconclusive, since they do not tease apart inflected predicates and postposed roots: both are words rather than phrases, and both are predicative and arguably verbal or auxiliary-like; hence, both could equally determine the category and the external distribution of the predicative locution. On balance then, tests of headedness identify the inflected predicate as the head and the postposed root as its dependent.

Finally, it should be noted that three of the roots listed in table 2 are also attested as inflected predicates: *kuaa*, *pota* and *pa* (Dooley 2015: 63). All three roots have a different interpretation or argument structure when used as inflected predicates. In this use, *kuaa* is interpreted as an epistemic propositional attitude verb ('know that') rather than as an ability modal ('know how'), and *pota* is interpreted as a desiderative predicate ('want') rather than as an implicative predicate ('try'). *Pa* is interpreted as an aspectual verb in both uses ('finish'), but in its use as an inflected predicate, it is intransitive (Dooley 2016: 139).

4.2 Postposed roots are restructuring predicates

In light of the previous subsection, the claim that postposed roots are restructuring predicates may surprise the reader. Restructuring constructions in Romance and Germanic are complementation constructions in which the restructuring predicate selects as an argument the predication headed by the non-restructuring predicate.[8] The situation seems to be reversed in Mbya: the restructuring predicate (the postposed root) is a dependent of the non-restructuring predicate (the inflected predicate) rather than the other way around. This may seem to rule out a restructuring analysis of postposed roots in Mbya. Yet, three properties identify postposed roots as restructuring predicates: (i) they stand in a relation of semantic complementation with the inflected predicate, (ii) they express a range of meanings that is characteristic of restructuring predicates cross-linguistically and (iii) there is no clausal boundary between the inflected predicate and its postposed roots. Let us examine these properties in turn.

4.2.1 Postposed roots and complement taking predicates

In his typological study of complementation, Noonan (2007) identifies fourteen semantic classes of predicates that select clausal complements:

(22) Semantic classes of complement taking predicates (Noonan 2007: 120-145)

      (i) utterance predicates (*say*, *tell*, *report*, *promise*, *ask*, etc)
      (ii) propositional attitude predicates (*believe*, *think*, *doubt*, *deny*, etc)
      (iii) pretence predicates (*imagine*, *fool (into thinking)*, *trick (into thinking)*, etc)

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[8] As pointed out by a reviewer, several restructuring predicates may co-occur, in which case the non-restructuring predicate heads the non-finite complement of the lowest restructuring predicate in the sequence. The following example illustrates:

(i)   Suole   provarle   a fare   da solo.
      He-uses to-try-themCL   to do   by self
      'He uses to try to do them by himself.' (Cinque 2001: 94; Wurmbrand 2004: 999)

(iv) commentative predicates/factives (*regret*, *be sorry*, *be sad*, etc)
(v) predicates of (acquisition of) knowledge (*know*, *discover*, *realize*, etc)
(vi) predicates of fearing (*be afraid*, *fear*, *worry*, etc)
(vii) desiderative predicates (*want*, *wish*, *desire*, etc)
(viii) manipulative predicates (*force*, *persuade*, *order*, etc)
(ix) modal predicates (*can*, *be able*, *ought*, *should*, etc)
(x) achievement predicates/implicatives (*manage*, *try*, *fail*, etc)
(xi) phasal predicates/aspectuals (*begin*, *start*, *finish*, etc)
(xii) immediate perception predicates (*see*, *hear*, *feel*, etc)
(xiii) negative predicates
(xiv) conjunctive predicates

All postposed roots listed in table 2 belong to one of these classes: =*xe* ('want') denotes a desiderative predicate, *kuaa* ('know how') and *regua* ('be able to') denote modal predicates, *jepe* ('manage') and *pota* ('try') denote implicative predicates and =*pa* ('finish') denotes an aspectual predicate. This shows that postposed roots have meanings that are characteristic of predicates that select clausal complements across-languages.

More generally, the meanings expressed by postposed roots suggest that these roots stand in a relation of semantic complementation with the inflected predicate. Consider for instance example (18e), repeated here as (23a). The meaning of this sentence suggests that it has the (simplified) logical form displayed in (23b), where the semantic predicate WANT takes the proposition $^\wedge\exists x.\text{EAT}(\text{speaker}, x)$[9] as an argument:

(23) a. A-karu=xe.
          A1.SG-eat=want
          'I want to eat.'

      b. WANT(speaker, $^\wedge\exists x.\text{EAT}(\text{speaker}, x)$)

Let us call the proposition that the speaker is eating something the *prejacent* of the semantic predicate WANT. Using this terminology, we can clarify in what sense postposed roots stand in a relation of semantic complementation with the inflected predicate: postposed roots denote semantic predicates that select as an argument the prejacent[10] denoted by the combination of the inflected predicate and its arguments.

This is not to say that postposed roots would qualify as clausal complementation predicates in a typology of complementation such as Noonan's. They would not, since Noonan defines clausal complementation[11] as "the syntactic situation that arises when a notional sentence predication is an argument of a predicate" (Noonan 2007: 52). This requires complements to be clausal arguments of the complement taking predicate.[12] By contrast, the semantic relation between a postposed root and an inflected predicate is expressed by a single

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[9] I.e., that the speaker is eating something.
[10] Note that I am not claiming that this prejacent is always a proposition. It is conceivable that the predicates denoted by different postposed root select prejacents of different types, such as a properties of events. What I claim is that the prejacent is denoted by a predication whose head is the inflected predicate.
[11] Noonan (2007) uses the term "sentential complementation" rather than "clausal complementation."
[12] Similarly, in her influential study of subordination constructions, Cristofaro (2003) restricts complementation to clause linkage constructions and excludes constructions in which two predicates form a single clause (see Cristofaro 2003: 101-102).

clause,[13] and the postposed root does not select the inflected predicate as a syntactic complement but relates to it as a dependent to its head. However, I take these properties of postposed root constructions to be syntactic manifestations of restructuring in Mbya. On a semantic level, postposed roots are complement taking predicates, just like their restructuring counterparts in Romance and Germanic languages.

4.2.2 Postposed roots and the meaning of restructuring predicates

The previous subsection established that postposed roots stand in a relation of semantic complementation with inflected predicates. It can also be shown that their meanings are characteristic of restructuring predicates across languages. Table 3 presents the restructuring status of the predicates denoted by postposed roots, in the five languages discussed in Wurmbrand's (2001) cross-linguistic study of restructuring. The postposed roots *regua* ('be able to'), *=xe* ('want'), *=pa* ('finish') and *kuaa* ('know how') denote predicates that are consistently realized as restructuring verbs in these languages, when they combine with a non-finite complement.[14] *Jepe* ('manage') and *pota* ('try') express predicates that are consistently realized as restructuring verbs in German and Dutch, and whose restructuring status is subject to variation in Italian, Spanish and Japanese.

Table 3 *Restructuring status of predicates expressed by postposed roots*

Predicates	German	Dutch	Italian	Spanish	Japanese	Mbya
semi-modals	+	+	+	+	+	*regua*
want	+	+	+	+	+	*=xe*
finish, stop	N/A	N/A	+	+	+	*=pa*
know how	N/A	+	+	+	N/A	*kuaa*
try	+	+	±	±	±	*pota*
manage/succeed	+	+	±	±	+	*jepe*

In sum, postposed roots have meanings that are typically expressed by restructuring predicates in languages where restructuring constructions are attested.

4.2.3 Monoclausality diagnostics

A criterial property of restructuring constructions is their lack of internal clausal boundary. In Mbya, monoclausality can be diagnosed by the scope of negation. When negating a complex sentence with a nominalized complement, the negative circumfix *nd-...-i* can surround the matrix predicate as illustrated in (24a), or the embedded predicate as illustrated in (24b). In the former case, the negation takes scope over the matrix predicate, and in the latter, it is interpreted in the scope of this predicate:

(24) a. N-o-mombe'u-i   o-u-a.
           NEG-A3-tell-NEG   A3-come-NMLZ
           'She didn't tell me she was coming.'

     b. O-mombe'u   nd-o-u-i-a.
           A3-tell   NEG-A3-come-NEG-NMLZ
           'She told me she wasn't coming.'

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[13] See arguments for monoclausality in Section 4.2.3.
[14] Remember that "N/A" means that the predicate does not combine with infinitives in the language.

Surrounding the two predicates with the negative circumfix is ungrammatical, as illustrated in (25):

(25) *N-o-mombe'u (o-u-i-a / o-u-a-i).
NEG-A3-tell A3-come-NEG-NMLZ A3-come-NMLZ-NEG
Intended: 'She didn't tell me she was coming.'

The reason for the unacceptability of (25) is not simply due to the fact that the negative circumfix attaches to separate words in this example, since the negative circumfix can straddle a predicate and an adverb when it takes scope over both, as shown in (26):

(26) Nd-a-exa porã-i.
NEG-A1.SG-see well-NEG
'I didn't see [it] well.'

I take these facts to show that the negative circumfix cannot attach to two predicates that belong to separate clauses.

Importantly, the negative circumfix can surround an inflected predicate and its postposed root, as illustrated in (27):

(27) a. Nd-a-i-pe'a jepe-i okẽ.
NEG-A1.SG-OBJ-open manage-NEG door
'I didn't manage to open the door.'

b. Nd-a-jeroky kuaa-i.
NEG-A1.SG-dance know.how-NEG
'I don't know how to dance'

c. Nd-a-i-pe'a pota-i okẽ.
NEG-A1.SG-OBJ-open-NEG try-NEG door
'I didn't try to open the door.'

d. Nd-a-i-pe'a regua-i okẽ.
NEG-A1.SG-OBJ-open be.able.to-NEG door
'I can't open the door.'

e. Nd-a-karu=xe-i.
NEG-A1.SG-eat=want-NEG
'I don't want to eat.'

f. Nd-a-karu=pa-i.
A1.SG-eat-finish
'I have not finished eating.'

This suggests that, unlike predicates in biclausal complementation constructions, an inflected predicate and its postposed root are not separated by a clausal boundary.

Another argument in favour of monoclausality is the distribution of negative polarity items such as *mava'eve* ('anyone'). *Mava'eve* is only licensed in the scope of a clause-mate negation, as illustrated by the contrast between (28a) and (28b):

(28) a. Nd-a-exa-i mavae'eve pe.
NEG-A1.SG-see-NEG anyone DOM
'I didn't see anyone.'

b. *A-exa   mavae'eve   pe.
   A1.SG-see   anyone   DOM
   Intended: 'I saw nobody.'

In a biclausal complementation construction, *mava'eve* is licensed in the complement clause only if its predicate is negated, as illustrated by the contrast between (29a) and (29b):

(29)   a.   Cirilo   o-mombe'u   Rosa   nd-o-exa-i-a   mava'eve   pe.
         Cirilo   A3-tell   Rosa   NEG-A3-see-NEG-NMLZ   anyone   DOM
         'Cirilo said that Rosa didn't see anyone.'

      b.   *Cirilo   n-o-mombe'u-i   Rosa   o-exa   mava'eve   pe
         Cirilo   NEG-A3-tell-NEG   Rosa   A3-see   anyone   DOM
         Intended: 'Cirilo didn't say that Rosa saw somebody/nobody.'

By contrast, when negation surrounds an inflected predicate and its postposed root, it licenses the use of *mava'eve* as an argument of the inflected predicate, as illustrated in (30):

(30)   Nd-a-exa   jepe-i   mava'eve   pe.
     NEG-A1.SG-see   manage-NEG   anyone   DOM
     'I didn't manage to see anyone.'

Since negation takes scope over both predicates, and since the inflected predicate is interpreted in the scope of the postposed root,[15] the presence of a clausal boundary between the postposed root and the inflected predicate should prevent negation from licensing *mava'eve* as an object of the inflected predicate, contrary to the facts. This suggests that there is no clausal boundary between the two predicates.

       I sum, the distribution of circumfixal negation and of negative polarity items shows that postposed root constructions are monoclausal.

4.2.4 Postposed roots and functional restructuring

I have argued that postposed roots stand in a relation of semantic complementation with inflected predicates and that their range of meanings is characteristic of restructuring predicates across languages. I have also argued that the combination of an inflected predicate with a postposed root forms a monoclausal construction. From these facts, I conclude that postposed roots are restructuring predicates. In this section, I will refine this conclusion and argue that postposed roots are best analyzed as functional heads.

       Support for a functional analysis comes from patterns of cross-reference marking. When a postposed root combines with an intransitive predicate, the choice of active vs. inactive cross-reference marker is governed by the inflected predicate rather than by the postposed root. This is illustrated in (31a) and (31b), where the postposed root is kept constant, and the cross-reference marker co-varies with the inflected predicate (active vs. inactive):

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[15] That the inflected predicate is interpreted in the scope of the postposed root follows from the fact that it heads the predication that denotes the prejacent of the postposed root's denotation, as was argued in section 4.2.1. The same conclusion is also supported by the fact that in the predicative locution, expressions take scope over other expressions that occur to their left; see Dooley (2015: 63) for a discussion and examples (21a) and (21b) for an illustration with the scope of adverbs.

(31) a. Alberto   ij-ayvu   pota.
       Alberto   B3-speek   try
       'Alberto tried to speak.'

    b. Alberto   o-japukai   pota
       Alberto   A3-shout   try
       'Alberto tried to shout.'

This observation is unexpected in an analysis of postposed roots as lexical restructuring heads. According to such an analysis, the postposed root *pota* in (31a) and (31b) would be a lexical head that embeds a predicative phrase headed by *ayvu*/*japukai* as a complement. Furthermore, *Alberto* would be the external argument of *pota*, and *ayvu*/*japukai* would lack an external argument. In this scenario, we would expect the choice of cross-reference marker to be governed by *pota*. The cross-reference marker could still be prefixed to *ayvu*/*japukai* due to morphosyntactic reorganization of the construction (e.g., by incorporation of the embedded predicate into *pota*), but since the subject *Alberto* would be an argument of *pota*, it is this predicate that should govern cross-reference marking, contrary to fact.

By contrast, a functional analysis of postposed roots derives the observed pattern of cross-reference marking straightforwardly. In this analysis, *Alberto* in (31a) and (31b) is the external argument of the inflected predicate *ayvu*/*japukai*, which is expected to govern cross-reference with its subject. Because the postposed root is an auxiliary-like functional head that lacks an external argument, it is not expected to govern cross-reference marking.[16]

If we adopt Cinque's (1999, 2006) assumption that there is a universal inventory of functional heads, analyzing postposed roots as such entails that their interpretation should match the semantics of heads in Cinque's hierarchy of functional projections, a subset of which is represented in (32). This is indeed the case, as shown in table 4.

(32) **Cinque's hierarchy**

$Mood_{speech\ act}$ > $Mood_{evaluative}$ > $Mood_{evidential}$ > $Mod_{epistemic}$ > Tense > $Mod_{volitional}$ > $Asp_{terminative}$ > $Asp_{continuative}$ > $Asp_{prospective}$ > $Asp_{inceptive}$ > $Mod_{obligation}$ > $Mod_{ability}$ > $Asp_{frustrative}$ > $Asp_{success}$ > $Mod_{permission}$ > $Asp_{conative}$ > $Asp_{completive}$

(Grano 2017: 35; abridged and synthesized from Cinque 1999, 2006)

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[16] A reviewer asks whether (31a) and (32b) could be analyzed as instances of subject Backward Control. In such an analysis, the overt subject (*Alberto*) would be an argument of the lower predicate (*ijayvu*/*ojapukai*) and would stand in a Backward Control relation to the covert subject of the higher predicate (*pota*). Person indexing on the lower predicate would express agreement between the verb and its overt subject. This type of Backward Control is notably attested in Tsez (Polinsky & Postdam 2002). A significant difference between (31a)/(32b) and Tsez-type Backward Control is that the higher predicate is uninflected in Mbya, whereas in Tsez it is finite, and the lower predicate is infinitive. Furthermore, agreement is still attested on the higher predicate in Tsez, although it is the lower predicate that agrees with the overt subject. Finally, Tsez Backward Control constructions are biclausal, as diagnosed by scrambling, and their overt subject belongs to the embedded clause. By contrast, we have shown that Mbya postposed root constructions are monoclausal. It is unclear how the analysis developed by Polinsky & Potsdam (2002) for Tsez would account for the monoclausality of Mbya postposed root constructions and the lack of inflection on postposed roots. Whether postposed root constructions can be analyzed as a different form of Backward Control is an open question that we leave to future research.

Table 4: Postposed roots in Cinque's Hierarchy

Root	Translation	Functional Projection
jepe	'manage'	$Asp_{success}$
kuaa	'know how'	$Mod_{ability}$
pota	'try'	$Asp_{conative}$
regua	'be able to'	$Mod_{ability}$
xe	'want'	$Mod_{volitional}$
pa	'finish'	$Asp_{terminative}$

Finally, note that proponents of functional analyses of restructuring like Cinque (2001, 2006) and Grano (2012, 2015) recognize that functional restructuring heads may share arguments with the lexical verb at a semantic level, although they do not take arguments in the syntax. In (31a) and (31b), *Alberto* is understood as an agent of *pota* ('try'), although *Alberto* is not syntactically an argument of the postposed root. See Cinque (2006: 29) for a brief discussion of this point, and Grano (2015: 47-59) for an extended discussion and formal analysis. We will come back to this issue in section 6.

4.2.5 Postposed roots and adverbs

An anonymous reviewer observes that postposed roots are very similar to adverbs in their distribution (they occur inside the predicative locution, following the elements that fall in their scope) and their morphological properties (lack of inflection). This raises the question whether postposed roots may be analyzed as adverbs.

It should be emphasized that there is no morphological class of adverbs in Mbya. That is to say, there is no class of words that function as modifiers of predicates and that can be distinguished from other parts of speech using morphological criteria. What we called adverbs are words like *vaipa* in sentence (21) or *porã* in sentence (26), which are uninflected and whose interpretation is amenable to a Davidsonian analysis as modifiers of properties of events. By contrast, postposed roots are interpreted as complement taking predicates, as discussed in section 4.2.1. In this respect, their interpretation is identical to that of restructuring predicates in better studied languages such as Italian or German. In a functional analysis of restructuring, such predicates are analyzed as functional heads (Cinque 2006, Grano 2012, 2015, 2017). Adverbs on the other hand are analyzed as specifiers of such heads. Since functional heads and their adverbial specifiers occupy the same position in the hierarchy of functional projections, their distribution with respect to other projections will be identical (at least in the absence of movement) and will not allows us to distinguish one from the other. In languages such as English or Italian, the presence of inflection on auxiliaries and semi-auxiliaries allows us to tease apart adverbs and functional heads. By contrast, verbal inflection in Mbya is realized on the lexical verb. This, together with the absence of morphological clues such as adverbial derivational morphology, makes it difficult to distinguish adverbs from functional heads using morphosyntactic criteria. We rely on semantic criteria instead and conclude that postposed roots are functional heads rather than adverbs because of their interpretation as complement-taking predicates.

5. Restructuring evidentials

5.1 The postposed roots *nhendu* and *jekuaa*

The inventory of postposed roots of Mbya includes two other predicates, *nhendu* and *jekuaa* which have been left out of our discussion up to this point:

(33) a. H-axẽ   nhendu
      A3-cry   NVIS.SENS
      'He cried [audibly].'

    b. I-kane'o   jekuaa
      B3-tired   VIS.SENS
      'He was tired [visibly].'

Like other postposed roots, *nhendu* and *jekuaa* exhibit characteristic properties of restructuring predicates. Firstly, they stand in a relation of semantic complementation with the inflected predicate. More precisely, as will be argued in more detail in Section 5.2, *nhendu* and *jekuaa* convey that the speaker witnessed the situation described by the prejacent proposition, through non-visual and visual senses respectively. Secondly, the distribution of negation shows that *nhendu* and *jekuaa* form a monoclausal construction with the inflected predicate, as illustrated by B's reply in examples (34) and (35):

(34) Context: it's night, the dog is barking.

    A: E-japyxaka,   jagua   o-nhe'ẽ!
       2.IMP-listen   dog   A3-bark
       'Listen, the dog is barking!'

    B: N-o-nhe'ẽ   nhendu-i.
       NEG-A3-bark   NVIS.SENS-NEG
       'I don't hear it barking.'

(35) Context: a jaguar is passing through the community.

    A: E-ma'ẽ   xivi!   O-axa   tekoa   r-upi!
       2.IMP-look.at   jaguar   A3-pass   community   R-through
       'Look at the jaguar! It's passing through the community!

    B: Nd-o-axa   jekuaa-i.
       NEG-A3-pass   VIS.SENS-NEG
       'I don't see it passing through.'

The distribution of negative polarity items confirms that these constructions are monoclausal:

(36) Context: two thieves are hiding in a street corner, waiting for a victim.

    a.   Mava'eve   nd-o-u   nhendu-i.
           anyone   NEG-A3-come   NVIS.SENS-NEG
           'I don't hear anyone coming.'

    b.   Mava'eve   nd-o-u   jekuaa-i.
           anyone   NEG-A3-come   VIS.SENS-NEG
           'I don't see anyone coming.'

    Nhendu and *jekuaa* differ from other postposed roots in one respect: unlike other postposed roots, their meaning is not characteristic of restructuring predicates cross-

linguistically. In particular, it can be shown that *nhendu* and *jekuaa* have properties that are characteristic of evidential markers. In Section 6, I will argue that this is unexpected of restructuring predicates, and I will defend a diachronic analysis of the exceptionality of *nhendu* and *jekuaa*. Before this however, the evidential status of these postposed roots must be established.

5.2 Evidential characteristics of *nhendu* and *jekuaa*

There has been much debate on the proper definition of evidentiality. In their critical review of theoretical and typological characterizations of evidentiality, Brugman & Macaulay (2015) argue that only two criterial properties can be assumed to hold of any evidential system: (i) marking of source of evidence and (ii) membership in a grammatical system. In addition, they identify a broader set of properties that are associated with evidentiality but that are subject to cross-linguistic variation. In this subsection, I argue that postposed *nhendu* and *jekuaa* exhibit Brugman & Macaulay's two criterial properties, along with some other associated properties.

That *nhendu* and *jekuaa* mark sources of evidence is straightforward: postposed *jekuaa* conveys that the event described by the prejacent was seen, and *nhendu* conveys that this event was heard or felt using non-visual senses. This is illustrated by the contrast in acceptability displayed in the following examples:

(37) Context: yesterday evening you saw a jaguar in the distance, crossing the field behind your house; this morning you tell me:

    a. Xivi   o-axa   jekuaa   xe-kokue   r-upi   kuee.
       jaguar   A3-pass VIS.SENS   B1.SG-field R-through yesterday
       'A jaguar passed through my field yesterday [visibly].'

    b. #Xivi   o-axa   nhendu   xe-kokue   r-upi   kuee.
       jaguar   A3-pass NVIS.SENS B1.SG-field R-through yesterday
       'A jaguar passed through my field yesterday [audibly].'

(38) Context: we are working outside your home, and you hear your daughter crying inside; you tell me:

    a. Xixi   h-axẽ   nhendu
       baby   A3-cry   NVIS.SENS
       'The baby is crying [audibly].'

    b. #Xixi   h-axẽ   jekuaa.
       baby   A3-cry   VIS.SENS
       'The baby is crying [visibly].'

Moving on to the second of Brugman & Macaulay's (2015) criterial properties, it can be argued that postposed *nhendu* and *jekuaa* are members of a grammatical system of evidentials. In Section 4.2.4, it was shown that postposed root form a closed class of expressions that are best analyzed as functional heads: they are grammatical expressions rather than members of an open class of lexical items. In addition, the set of evidential markers of Mbya is itself restricted to three expressions: besides *nhendu* and *jekuaa*, it also includes the reportative evidential particle *je* (Dooley 2016:66; Thomas 2018).[17] Therefore, the set of evidentials of Mbya forms a closed system of grammatical expressions. It should be noted that

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[17] Depending on one's view on the relation between mirativity and evidentiality, one should also include in this system the mirative particle *ra'e*, see Dooley (2016:172).

nhendu and *jekuaa* are not in paradigmatic opposition with *je* and belong to a different category: while *je* is a particle, *nhendu* and *jekuaa* are auxiliary-like functional heads. However, this heterogeneity is consistent with existing definitions of grammatical systems of evidentials. In particular, Aikhenvald (2004:80-82) notes that evidential markers can be 'scattered' across different grammatical categories in a language.

In addition to these two criterial properties, *nhendu* and *jekuaa* share one additional property that is commonly displayed by evidentials, and which is essential to the present study: they are speaker-oriented. All evidentials have an *origo*, which is the holder of the evidence tracked by the evidential marker (Garrett 2001). The origo of speaker-oriented evidential is the speaker. The contrast in the acceptability of examples (39) and (40) in contexts A and B shows that *nhendu* and *jekuaa* are speaker-oriented.[18] As these examples illustrate, the use of *nhendu* and *jekuaa* require that the speaker (as opposed to a third party, in these examples Luis) had sensory evidence of the event described by the prejacent:

(39)   Acceptability judgment task in two scenarios, A and B:

Rosa	o-jurupyte	jekuaa	Geraldo	pe.
Rosa	A3-kiss	VIS.SENS	Gerlado	DOM

'Rosa kissed Geraldo [visibly].'
A: ✓ Rosa kissed Geraldo and you saw it yourself.
B: # Luis told you that he saw Rosa kiss Geraldo, but you didn't see it yourself.

(40)   Acceptability judgment task in two scenarios, A and B:

Rosa	o-porai	nhendu	peteĩ	porai	porã
Rosa	A3-sing	NVIS.SENS	one	song	beautiful

'Rosa sang a beautiful song.'
A: ✓ Rosa was singing a beautiful song and you heard it yourself
B: # Luis told you he heard Rosa sing a beautiful song, but you didn't hear it yourself.

In sum, postposed *nhendu* and *jekuaa* instantiate the two criterial properties of evidentials: they mark sources of evidence, and they are members of a grammatical system of like expressions. In addition, they are speaker-oriented, another common (though variable) property of evidentials across languages. Having established the evidential status of *nhendu* and *jekuaa*, we now move on to a discussion of their exceptionality among restructuring predicates.[19]

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[18] Like many speaker-oriented evidential, *nhendu* and *jekuaa* can shift their origo to a different person, such as the protagonist in narrative or the addressee in questions. Due to lack of space, I do not discuss such cases here. See Brugman & Macaulay (2015: 216-222) for a discussion of origo shifting across languages.

[19] As indicated by the translation of examples (34), (35) and (36), there is evidence that *nhendu* and *jekuaa* can be interpreted in the scope of negation. This may come as a surprise to the reader, since evidentials have been argued to take wide scope with respect to sentential negation (de Haan 1997: 146-170). However, Korotkova (2016, 2020) argues that whether evidentials must take scope above negation is a matter of syntax and is subject to cross-linguistic variation. In languages where evidentials cannot occur in subordinate clauses, the wide scope of evidentials is a consequence of the fixed syntactic position of negation and the high position of evidentials in the hierarchy of functional heads. By contrast, in languages that allow evidentials to occur in subordinate clauses, external negation ('it is not the case that') can take scope over evidentials, as is the case in Japanese (McCready & Ogata 2007). In Mbya, the suffixal part of negation is mobile and acts as a scope marker. We surmise that negation does not have a syntactically fixed position in Mbya, and that it is this flexibility of circumfixal negation that allows evidentials to be interpreted in its scope.

6. The exceptionality of *nhendu* and *jekuaa*

6.1 Restructuring and evidentiality

In order to understand the exceptionality of *nhendu* and *jekuaa*, we must first discuss the status of evidentiality in theories of restructuring. As was discussed in section 2.1, Wurmbrand (2001) identifies two classes of verbs that fail to restructure across languages: propositional verbs and factive verbs. Grano (2012, 2015, 2017) revisits the issue of failed restructuring, under the assumption that restructuring verbs are functional heads. Following Cinque (1999), Grano assumes a cross-linguistically stable hierarchy of functional heads:

(41) **Cinque's hierarchy**

$\text{Mood}_{\text{speech act}} > \text{Mood}_{\text{evaluative}} > \text{Mood}_{\text{evidential}} > \text{Mod}_{\text{epistemic}} > \text{Tense} > \text{Mod}_{\text{volitional}} > \text{Asp}_{\text{terminative}} > \text{Asp}_{\text{continuative}} > \text{Asp}_{\text{prospective}} > \text{Asp}_{\text{inceptive}} > \text{Mod}_{\text{obligation}} > \text{Mod}_{\text{ability}} > \text{Asp}_{\text{frustrative}} > \text{Asp}_{\text{success}} > \text{Mod}_{\text{permission}} > \text{Asp}_{\text{conative}} > \text{Asp}_{\text{completive}}$

(Grano 2017: 35; abridged and synthesized from Cinque 1999, 2006)

Based on this hierarchy, Grano observes that verbs whose meaning matches the functional categories of heads that are ordered above Tense generally fail to restructure across languages. These are predicates such as "verbs of speech like *say* or *ask*, evaluative or emotive factive verbs like *regret*, verbs that name sources of evidence such as *see (that)* or *hear (that)*, and epistemic verbs like *believe* or *know*" (Grano 2017: 41). These verbs all fall in Wurmbrand's (2001) categories of propositional or factive verbs.[20]

Grano (2012, 2015) offers an account of this gap that builds on the conclusion that restructuring predicates, being functional heads, lack individual arguments in general, and external arguments in particular.[21] This proposal conflicts with the observation that restructuring predicates are generally subject-oriented: that is to say, restructuring predicates generally trigger thematic entailments about the subject of their clause. To illustrate, the verb *vuole* ('wants') in (42) entails that the subject is an animate entity that entertains a certain desire:

(42) Gianni lo vuole   fare
     Gianni it want.3SG.PRES.IND do
     'Gianni wants to do it.' (Grano 2015: 82)

In order to resolve this conflict, Grano proposes that although subject-oriented restructuring predicates like Italian *vuole* do not have external arguments at a syntactic level, their denotations still require the presence of an external argument at a semantic level. Furthermore, the identification of this semantic argument requires subject-oriented restructuring predicates to occur in the scope of the subject. Otherwise, the restructuring predicate's implicit external

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[20] Note that propositional and factive predicates correspond to the set of predicates that lack semantic integration with their complement's denotation in Cristofaro's typology of complementation constructions, see Cristofaro (2003: 122). In that sense, it might be possible to recast Wurmbrand's (2001, 2004) and Grano's (2012, 2015, 2017) generalization on failed restructuring in Cristofaro's functional typology of complementation as follows: restructuring entails some degree of semantic integration of the two "states of affairs" denoted by the restructuring predicate and its complements; predicates that involve no semantic integration between the linked States of Affairs fail to restructure.

[21] For an empirical defense of this claim, see Cinque (2006: 22-29) and Grano (2015: 44-45). See also Wurmbrand (2001: 993-998) for a different view in the analysis of German restructuring verbs.

argument is unidentifiable, and the restructuring construction is ungrammatical. Grano (2015: 53-58) represents these implicit arguments formally as 'dependent variables' that must be bound by some argument. A consequence of this analysis is that predicates whose meaning matches functional heads that occur higher than the subject are predicted to resist restructuring, unless they are not subject-oriented. In Cinque's hierarchy, these are functional heads that occur above Tense.

Note that as it stands, this analysis does not fully explain why high functional heads generally fail to restructure. It only predicts that if such heads restructure, they will not be subject-oriented. In particular, predicates whose meaning matches the functional categories of heads ordered above Tense are still predicted to be compatible with restructuring if they are speaker-oriented. However, Wurmbrand (2001) and Grano (2012, 2015) note that these categories of restructuring predicates are virtually unattested. In order to explain this gap, Grano (2012, 2015) proposes that restructuring predicates are stored in the lexicon as lexical heads and are mapped to functional heads by a synchronic process of syntactic and semantic reanalysis, which he calls the Restructuring Rule.

The Restructuring Rule states that every lexical predicate that matches the meaning of a functional head can be reanalyzed as such. As part of the reanalysis process, the denotation of the lexical predicate is adjusted so that individual argument slots are reinterpreted as dependent variables.[22] Since dependent variables must be bound by the subject, the Restructuring Rule cannot be felicitously applied to predicates that match the meaning of a high functional head, unless they lack any individual arguments. Indeed, such arguments would be converted into dependent variables, but since the functional head targeted by the rule is higher than the subject, the variables would remain unbound and uninterpretable. To the extent that the meanings of propositional or factive predicates such as *claim* or *regret* entail the presence of an agent or attitude holder in their argument structure, Grano's (2012, 2015) analysis predicts that predicates with such meanings will not restructure.

It is worth asking what the predictions of this analysis are for verbs of perception like *see* and *hear*. Wurmbrand (2001: 215-225) argues that the German verbs *sehen* ('see') and *hören* ('hear') have restructuring uses, as illustrated in example (43), where scrambling of the embedded object noun phrase *den Wagen* to the left of *den Peter* diagnoses restructuring ('%' indicates that not all consultants accept this example as grammatical):

(43) %dass Hans den Wagen den Peter reparieren sah.
      that John the car.ACC the Peter repair saw
      'that John saw Peter repair the car.' (Wurmbrand 2001: 223)

In such examples, the argument structure of *sehen* and *hören* includes an individual experiencer argument. However, the restructuring uses of *sehen* and *hören* that Wurmbrand discusses are clearly subject-oriented. Therefore, these examples are compatible with Grano's analysis, provided that the functional head instantiated by *sehen* and *hören* is lower than the subject. It

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[22] Grano (2015: 75) formulates the Restructuring Rule as follows, where x_{dep} is a dependent variable:

(i) **Restructuring Rule**: For all verbs V and inflectional-layer functional categories F, if $[[V]] \subseteq [[F]]$ and the complement to V is an extended verbal projection, replace V with V′ and realize V′ in F.
   a. If $[[V]] = \lambda \ldots \lambda x \lambda \ldots [\text{function} \ldots (x) \ldots]$, then $[[V']] = \lambda \ldots \lambda \ldots [\text{function} \ldots (x_{dep}) \ldots]$
   b. Otherwise, $[[V]] = [[V']]$

should be noted in this respect that Wurmbrand's examples of restructuring constructions with perception verbs are naked-infinitive reports, which are "epistemically neutral" (Barwise 1981): these reports entail that the experiencer perceived an event of the sort that is described by the non-finite clause, but they do not entail that the experiencer understood the event as such. That is to say, (43) is true if John saw the event described by the non-finite clause, even if John didn't realize that this was an event of Peter repairing the car (maybe he confused Peter for his friend Tobias). Epistemically neutral perception reports contrast with epistemically positive reports, which entail that the experiencer believes the proposition denoted by the complement of the perception predicate to be true, and which are formed with finite complements in German as in English. In Cinque's hierarchy, perception verbs in naked-infinitive reports are argued to instantiate functional heads that sit lower than the subject, between the functional layers occupied by voice and causation (Cinque 2006: 76). By contrast, epistemically positive perception verbs in Grano's analysis are argued to instantiate the functional category of evidentiality, which sits higher than subjects in Cinque's hierarchy. Consequently, examples such as (43) are not counter-examples to Grano's analysis. What this analysis rules out is the restructuring of perception predicates that (i) introduce an experiencer in their argument structure and (ii) instantiate the functional category of evidentiality.

At this point, the reader may wonder whether restructuring uses of *nhendu* and *jekuaa* are epistemically neutral, like restructuring uses of *sehen* and *hören* in German. Examples (44a) and (44b) show that this is not the case. When using a restructuring construction with *nhendu* or *jekuaa*, the speaker is asserting the prejacent (here, the proposition that a jaguar was passing through), which describes the content of the event of seeing or hearing to which the postposed root is anchored. By asserting this proposition, the speaker conveys that they believe it to be true.[23] Consequently, it is incoherent for the speaker to continue their utterance by correcting the description of the seeing or hearing event (in this case, by asserting that it was actually a dog that was passing through):

(44) a. Xivi   o-axa   nhendu,   (#jagua   rima   ra'e).
        jaguar   A3-pass   NVIS.SENS   dog   CORR   MIR
        'A jaguar was passing through [audibly], (#but it was a dog).'

     b. Xivi   o-axa   jekuaa,   (#jagua   rima   ra'e)
        jaguar   A3-pass   VIS.SENS   dog   CORR   MIR
        'A jaguar was passing through [visibly], (#but it was a dog)'

In other words, examples (44a) and (44b) show that restructuring uses of *nhendu* and *jekuaa* are epistemically positive: the prejacent describes the content of the seeing or hearing event, as it was understood by the speaker-experiencer.

We can now appreciate the typological significance of *nhendu* and *jekuaa* in light of Grano's (2012, 2015) analysis of restructuring. On the one hand, the concepts of seeing and hearing appear to entail the existence of an experiencer of perception, which leads us to expect that verbs of seeing and hearing like *nhendu* and *jekuaa* should be subject oriented and that their argument structure should include an experiencer argument. On the other hand, it was argued that restructuring constructions with *nhendu* and *jekuaa* are epistemically positive and that these postposed roots match the functional category of evidence. Consequently, Grano's theory predicts that, everything else being equal, these predicates should fail to restructure.

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[23] This is captured by the Gricean maxim of quality: do not say what you believe to be false (Grice 1975).

Surprisingly, this is not the case: as we argued in section 5.1, postposed uses of *nhendu* and *jekuaa* exhibit characteristic properties of restructuring predicates. Furthermore, we also established in section 5.2 that they are speaker-oriented rather than subject-oriented. More precisely, we showed that postposed uses of *nhendu* and *jekuaa* convey that the speaker has sensory evidence in support of the prejacent. Both the restructuring status of postposed *nhendu* and *jekuaa* and their speaker orientation are unexpected and need to be explained.

In the rest of this paper, we propose a diachronic analysis of the exceptionality of *nhendu* and *jekuaa*, which reconciles it with Grano's analysis of failed restructuring.

6.2 The diachronic origin of *nhendu* and *jekuaa*

Restructuring uses of *nhendu* and *jekuaa* raise the question why propositional, epistemically positive perception predicates fail to restructure in other languages. A clue to answering this question lies in the morphology of *nhendu* and *jekuaa*. These predicates appear to be derived by passivization of the roots *endu* ('hear', 'feel') and *kuaa* ('know', 'be acquainted with') with the prefix *j(e)-* and its nasal allomorph *nh(e)-*. *Endu* licenses individual-denoting complements as well as propositional complements, as illustrated in (45):

(45) a. A-endu   xivi   o-axa-a-gue.   tekoa   r-upi.
          A1.SG-hear   jaguar   A3-pass-NMLZ-PST   community   R-through
          'I heard that a jaguar passed through the community.'

      b. A-endu   xivi   pe.
          A1.SG-hear   jaguar   DOM
          'I heard the jaguar'

The root *kuaa* is used both as a propositional attitude predicate meaning 'know that' and as a predicate meaning 'be acquainted with', which selects individual-denoting complements:

(46) a. A-i-kuaa   Cirilo   o-vaẽ-a-gue.
          A1.SG-OBJ-know   Cirilo   A3-arrive-NMLZ-PST
          'I know that Cirilo has arrived.'

      b. A-i-kuaa   Cirilo   pe.
          A1.SG-OBJ-know   Cirilo   DOM
          'I know Cirilo.'

The passivization of *endu* and *kuaa* is attested as a pair of inflected predicates *nhendu* and *jekuaa*, which select individual denoting subjects. While *nhendu* is interpreted transparently as the passive of *endu*, the root *kuaa* is subject to a shift of meaning in *jekuaa*, which is interpreted as 'be seen' rather than 'be known' (cf. Dooley 2015: 77):

(47) a. Xivi   o-nh-endu
          jaguar   A3-PASS-hear
          'The jaguar was heard.'

      b. Cirilo   o-jekuaa.
          Cirilo   A3-PASS.see
          'Cirilo was seen.'

Importantly, passive morphology on postposed uses of *nhendu* and *jekuaa* is not interpreted compositionally. In the general case, external arguments of passivized predicates are interpreted existentially in Mbya (Thomas 2019: 8-9). This is also the case with inflected

uses of *nhendu* and *jekuaa*: the first clauses of (48a) and (48b) convey that the dog was heard or seen by someone, without reference to a specific experiencer. Consequently, the speaker can continue their utterance by denying that they have heard or seen the dog, without contradicting themselves:

(48) a. Jagua   o-nh-endu   va'eri,   xee   n-a-endu-i.
          dog   A3-PASS-hear   CONC   B1.SG   NEG-A1.SG-hear-NEG
          'The dog was heard, but I didn't hear it.'

      b. Jagua   o-jekuaa   va'eri,   xee   nd-a-exa-i.
          dog   A3-PASS.see   CONC   B1.SG   NEG-A1.SG-see-NEG
          'The dog was seen, but I didn't see it.'

By contrast, the experiencer argument of *nhendu* and *jekuaa* in their postposed uses is interpreted as the speaker. Consequently, the speaker cannot coherently deny that they have direct evidence of the prejacent. This shows that passive morphology is not interpreted compositionally as existential binding of the experiencer argument of the predicate:

(49) a. Jagua   o-nhe'ẽ   (#nhendu)   va'eri,   xee   n-a-endu-i.
          dog   A3-bark   NVIS.SENS   CONC   B1.SG   NEG-A1.SG-hear-NEG
          'The dog was barking, but I didn't hear it.'

      b. Jagua   o-ĩ   (#jekuaa)   va'eri,   xee   nd-a-exa-i.
          dog   A3-be   VIS.SENS   CONC   B1.SG   NEG-A1.SG-see-NEG
          'The dog was there, but I didn't see it.'

The interpretation of both the inflected and postposed uses of *jekuaa* also suggests that this expression is not interpreted compositionally. While it could be argued that the interpretation of *jekuaa* ('appear', 'be seen') is related to the passivization of *kuaa* ('know', 'be acquainted with'), there is clearly a shift in meaning between the two: being seen is not the same as being known.

In sum, there is evidence that passivization morphology in postposed uses of *nhendu* and *jekuaa*[24] is frozen: these expressions are not interpreted compositionally as the passivization of the roots *endu* and *kuaa*. Based on this evidence, I propose that these postposed roots are the results of a diachronic lexicalization process, which involves the demorphologization of passive prefixes and a reinterpretation of the resulting lexical items. In the case of *jekuaa*, this reinterpretation includes a semantic shift from the meaning 'be known' to the meaning 'be seen,' which is also attested in inflected uses. In both cases, it involves a reinterpretation of the lexical items as speaker-oriented predicates, rather predicates with an existentially bound experiencer argument.

The reader may think that this conclusion contradicts the proposal that postposed roots are functional heads, hence grammatical items (see Section 4). However, lexicalization of a passivized predicate into a root is compatible with its subsequent grammaticalization into an auxiliary-like functional head. As Lehmann (2002) argues, lexicalization is not the mirror image of grammaticalization, but an orthogonal process that can feed grammaticalization:

"While we may reasonably speak of lexicalization only with respect to complex units, grammaticalization concerns a complex unit and may simultaneously affect in

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[24] And to a lesser extent also on inflected uses of *jekuaa*.

particular one of its constituents. The latter then evolves into a (more) grammatical formative. Such a unitary constituent is created by lexicalization to begin with. Insofar, lexicalization plays a role as the first phase, or perhaps rather preparatory phase, of grammaticalization" (Lehmann 2002: 18).

The conclusion we have reached is that postposed uses of *nhendu* and *jekuaa* are not derived from lexical perception predicates through a synchronic reanalysis process like Grano's (2012, 2015) Restucturing Rule, but are the output of a diachronic process of lexicalization and grammaticalization. Consequently, we propose that postposed *nhendu* and *jekuaa* are listed in the lexicon of Mbya as speaker-oriented, evidential functional heads. As such, they are not inputs for the Restructuring Rule, but neither are they its outputs: being the products of a separate diachronic process, they neither falsify nor support the Restructuring Rule. In that sense, the restructuring status of *nhendu* and *jekuaa* is compatible with Grano's analysis of failed restructuring.

One should of course ask whether Grano's (2012, 2015) synchronic account of failed restructuring retains any explanatory power if restructuring can be achieved through separate diachronic processes. I believe that it does. If Grano's account is correct, we expect that in addition to the speaker-oriented evidential heads *nhendu* and *jekuaa*, the lexicon of Mbya might include subject-oriented, epistemically positive, propositional perception predicates. The Restructuring Rule predicts that such predicates will fail to restructure and will therefore be realized as inflected predicates. This prediction is borne out: in addition to the postposed root *jekuaa*, the lexicon of Mbya includes a visual perception predicate *exa* ('see'), which licenses propositional complements and does not restructure:

(50)　A-exa　　　kyxe　o-pẽ-a.
　　　A1.SG-see　knife　A3-break-NMLZ
　　　'I saw that the knife is broken.'

Furthermore, it was already observed in (45a) that the predicate *endu* ('hear', 'perceive') licenses propositional complements. Since this predicate is subject-oriented, the Restructuring Rule predicts correctly that it will fail to restructure: the root *endu* itself is not attested as a postposed root; only its passive form *nhendu* is, and only after its lexicalization and grammaticalization as a speaker oriented evidential predicate.

In sum, there is evidence that even Mbya conforms to the generalization that propositional and factive predicates generally fail to restructure, and Grano's Restructuring Rule provides a satisfying account of this generalization. The exceptional status of restructuring uses of *nhendu* and *jekuaa* can be given a diachronic explanation. These postposed roots are the product of the reanalysis of passivized perception predicates into auxiliary-like functional heads. It is expected that this class of restructuring predicates should be as common or as uncommon across languages as the reanalysis process that gives rise to it.

6.3 Grammaticalization and restructuring

The previous subsection contrasted Grano's (2012, 2015) analysis of restructuring as a synchronic process with our analysis of restructuring uses of *nhendu* and *jekuaa* as the outcome of a diachronic grammaticalization process. In more recent work, Grano (2017) has argued that grammaticalization is at play in restructuring. In this subsection, I clarify how my analysis of *nhendu* and *jekuaa* relates to Grano's (2017) account of restructuring.

A first point at which grammaticalization enters Grano's analysis is in his discussion of 'unstable' predicates, whose restructuring status varies both cross-linguistically and language internally (see discussion of table 1 in section 2.1). In order to account for this variation, Grano (2017) proposes that whether a verb's meaning matches the meaning of a functional head "depends in part on a diachronic process of semantic bleaching" (Grano 2017: 46). To illustrate, the verb *volere* ('want') restructures in Italian, but the verb *desiderare* ('desire') exhibits instability. Grano (2017) proposes that this is due to a diachronic process of grammaticalization that has bleached the meaning of *volere* to a point where this verb matches the meaning of the functional category Mod*volitional*. The verb *desiderare* on the other hand has a richer meaning that conflicts with the matching process. Consequently, while *volere* systematically restructures, the tendency of *desiderare* to restructure is less stable. In this extension of Grano's analysis, a diachronic process of bleaching modulates the availability of restructuring, through its effects on the meaning of lexical predicates that serve as inputs to the Restructuring Rule.

A second point at which grammaticalization enters Grano's theory of restructuring is in the analysis of Italian *sembrare* ('seem'). On first inspection, this verb appears to provide a counter-example to Grano's analysis of failed restructuring, since its interpretation matches the meaning of the functional category of evidentiality, but it is attested as a restructuring verb, as illustrated by the following example, where clitic climbing of *lo* across *sembrare* diagnoses restructuring:

(51) Lo   sembrano trovare troppo difficile.
      it   seem-3PL find   too   difficult
      'They seem to find it too difficult.' (Haegeman 2010: 302)

Grano observes that such restructuring uses of *sembrare* are speaker-oriented, hence are not actually ruled out by his generalization on failed restructuring. An apparent issue for this analysis is that *sembrare* optionally licenses an experiencer argument. Under Grano's analysis, this external argument should be turned into a dependent variable by the Restructuring Rule. Since the functional category of evidentiality is assumed to be realized higher than TP, this should prevent restructuring uses of *sembrare*. Crucially, Haegeman (2005, 2006, 2010) observed that restructuring effects are only attested with *sembrare* in the absence of an overt experiencer argument. Grano (2012, 2015) concludes from this observation that *sembrare* has two alternative denotations: one, where it takes an open experiencer argument, and another where the experiencer argument is saturated by a speaker-oriented variable. Only the second denotation is compatible with restructuring (Grano 2015: 78). In his more recent work, Grano (2017: 48) suggests that *sembrare* might be in a transitional stage of grammaticalization and that its speaker-oriented use could be the result of a diachronic process of bleaching.

My analysis accords with Grano's (2017) more recent work, insofar as I have argued that the availability of restructuring with *nhendu* and *jekuaa* depends on a diachronic process of lexicalization of a passive stem into a speaker-oriented root and grammaticalization into a functional head. I depart from Grano in arguing that this diachronic process bypasses the Restructuring Rule. By contrast, Grano (2017) proposes that predicates like *volere* and *sembrare*, whose meaning has been bleached diachronically, are still input to the Restructuring Rule in synchrony.

In other words, I propose that there are two routes to restructuring. One is synchronic and is captured by the Restructuring Rule. The other is a diachronic process of lexicalization and grammaticalization that is separate from synchronic applications of the Restructuring Rule.

7. Conclusion

I have argued that postposed roots in Mbya Guarani are restructuring predicates, which are comparable to restructuring verbs that select non-finite complements in Romance and Germanic languages. I have also argued that postposed roots are best analyzed as auxiliary-like functional heads. I established that two of these postposed roots, *nhendu* and *jekuaa,* are speaker-oriented sensory evidential markers, and that restructuring constructions formed with these postposed roots are epistemically positive perception reports. As such, *nhendu* and *jekuaa* appear to provide a counter-example to Wurmbrand's (2001) and Grano's (2012, 2015, 2017) generalization that propositional factive predicates fail to restructure across languages. I offered a diachronic explanation of the exceptionality of *nhendu* and *jekuaa*, which were analyzed as the product of a process of lexicalization and grammaticalization that mapped passivized perception predicates into functional heads. By contrast, following Grano (2012, 2015, 2017), most restructuring predicates can be analyzed as lexical predicates that are mapped to functional heads by a synchronic Restructuring Rule. Grano (2012, 2015, 2017) showed that the failure of propositional and factive predicates to restructure can be explained by appealing to constraints on successful applications of the Restructuring Rule to lexical predicates. In this perspective, *nhendu* and *jekuaa*'s exceptionality is explained by the fact that their restructuring status originates from a separate diachronic process.

In conclusion, this study shows that the concept of restructuring can be fruitfully applied to the analysis of complementation constructions in languages without finiteness-contrast, and it also suggests that restructuring is not an entirely synchronic process but that some predicates are restructuring as a result of grammaticalization.

Abbreviations

A1: first person active; ACC: accusative; B1: first person inactive; DS: different subject; CONC: concession; CORR: correction; DOM: differential object marker; IMP: imperative; IMPF: imperfective; IND: indicative; INF: infinitive; INT: intensifier; IRR: irrealis; MIR: mirative; NEG: negation; NMLZ: nominalizer; NVIS: non-visual; OBJ: object marker; PASS: passive; PL: plural; PRES: present; PST: past; R: relational morpheme (linker); REAL: realis; SENS: sensory evidential; SG: singular; SV: supplementary verb marker; SS: same subject; VIS: visual

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