Event nominals in Mẽbengokre and the theory of nominalizations

Andrés Pablo Salanova

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1 Introduction

The purpose of this paper is to describe and provide an analysis to the relative and eventive complement clauses of Mẽbengokre, a Jê language spoken by 10,000 individuals belonging to the Xikrin and Kayapó nations of central Brazil.

In Salanova (2011), we characterized relative clauses in the language as nominalizations, and claimed that there is no finite clausal embedding in relativization and complementation. In this paper, we would like to push our claim one notch further. We contend that the referential function normally associated with nominal expressions is basic in all open-class lexical items in the language, and the predicative function that these words have when heading main clauses is morphologically derived. That is, what look like nominalizations are underived, while finite verbs are derived through a morphological operation that can only apply to lexical roots which have the required meaning.

As a consequence of this, what look like embedded relative or eventive clauses in the language are claimed to be noun phrases like any other, even like those that are headed by underived nouns that denote concrete entities. We will provide a syntax and semantics of noun phrases that accounts for their properties.

Our view of nominalizations in Mẽbengokre contrasts with the commonly held view of nominalizations that stems from Abney (1987) and much subsequent work, where event nominals embed verbal projections. We will explore some consequences in more familiar languages of the system that we propose for dealing with Mẽbengokre.

2 Theoretical and terminological preliminaries

In formal semantics, it is commonplace to attribute a predicative structure to nouns (cf. Heim and Kratzer 1998, Larson and Segal 1995, Chierchia and McConnell-Ginet 2000):

(1) $[\![\text{dog}]\!] = \lambda x.x$ is a dog

The x argument in the formula above is called the *referential argument* (cf. Kamp and Reyle 1993) of a noun. Verbs, are often treated in a superficially similar way, i.e., as predicates:

(2) $[\![\text{run}]\!] = \lambda x.x$ runs

The nature of the verb's argument, however, is very different from that of the noun's. One can't say in any meaningful way that the verb refers to entities saturating this x argument, as one would say with those saturating a noun's referential argument. The argument is, in this case, an agent involved in the running event, rather than the event itself. That the denotations normally attributed to verbs hide the verb's meaning may just as well be the case, as finite verbs typically don't refer.

An alternative view of the meaning of action verbs is offered by Davidson (1967). To Davidson, verbs have their own referential argument, which he calls the *event argument*. Within Davidson's general approach, we could assign the following meaning to *run*:

(3) $[\![\text{run}]\!] = \lambda x.\lambda e.e$ is an event of running $\wedge$ Agent(x, e)

In other words, a verb's basic meaning is equivalent to what its gerundive form means when used in a noun phrase: *(some) running*. In addition, however, verbs seem to have some additional relationality: unlike most English nouns, they take arguments; in the case of *run*, an agent.

Relationality, of course, is not a property of verbs *per se*. In addition to the well-known existence of the impersonal, and thus non-relational, meteorological verbs such as *rain* and *snow*, there are many languages where there is a class of relational nouns, commonly called *inalienably possessed nouns*, that need to have a possessor expressed in the syntax.[1]

An illustration of this comes from Mẽbengokre. In the examples below, (4) exemplifies an inalienable noun, with first and third person possessor (which is zero with most stems). To create a non-relational expression, one needs to saturate the possessor position with a generic noun such as *mẽ* "people", as is shown in (4c). Example (5) illustrates an alienable noun, where the omission of the possessor does not imply a specific, anaphorically determined, third person possessor, but rather simply lack of a possessive relation:

(4)   a.   i-pa
              1-arm

              "my arm(s)"

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[1] Semantically, one could say that English nouns such as *mother*, *father* or *brother* are relational, but their relationality is not manifested syntactically. *Mother* without a possessor is interpreted as *mother* in relation to a conventionally defined group of individuals, in much the same way that certain transitive verbs such as *eat* may be used intransitively with a conventionally implied object. This is different from (obligatory) syntactic relationality.

Something similar goes for English nominalizations such as *destruction*, however much one has wished that their argument structure be comparable to the verbs from which they derive.

b. pa
   arm

   "his/her arm(s)" (can only have anaphoric reference)

c. mẽ   pa
   people arm

   "arm(s)" (as in "the arm is attached to the torso")

(5)   a. i-nhõ kà
         1-POSS canoe

         "my canoe"

      b. õ   kà
         POSS canoe

         "his/her canoe" (anaphoric)

      c. kà
         canoe

         "canoe" (no possessor is implied)

Thus, we might say that relationality beyond the referential argument cross-cuts grammatical categories, at least in Mẽbengokre. If we temporarily allow ourselves the liberty of basing the distinction between nouns and verbs solely on the nature of their referential argument, we have something like the following:[2]

(6)

	Verbs (ref. arg. is $e \in D_l$)	Nouns (ref. arg. is $x \in D_e$)
Non-relational	$\sqrt{}(e)$ (impers. and unerg. Vs)	$\sqrt{}(x)$ (al. Ns)
Relational	$\sqrt{}(e, x)$ (tr. and unacc. Vs)	$\sqrt{}(x, y)$ (inal. Ns)

This, of course, poses many problems, some of which we won't be able to address here. We do wish to answer one obvious objection, since it is important for our characterization of word classes in Mẽbengokre. It has to do with the classical argument presented to demolish any notional definition of lexical categories: surely both *to travel* and *trip* refer to events, so why would it be that one is a verb and the other a noun?

The answer to this is that, *precisely because it refers to an event*, the root $\sqrt{\text{TRAVEL}}$ may appear in both a verbal and a nominal guise without a shift in meaning. In the specific case of *trip*, the noun packs something extra, countability, which renders the argumentation here somewhat tricky. Yet it is the case in English that all verbs have in their paradigms, as it were, a nominal form that is a mass noun. The nominal form of *travel* is *travelling*.

This is not true for nouns. Underived nouns cannot appear in a verbal guise, even in languages with abundant zero-derivation such as English, without the
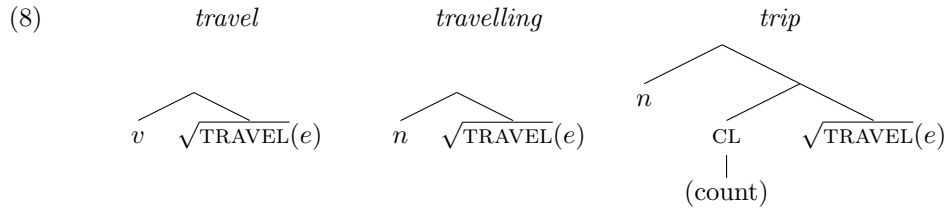
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[2]Following Marantz (1984) and Kratzer (1996), we will henceforth assume that the external argument is not part of a verb's argument structure.

addition of conventional meaning:[3]

(7)   a.   telephone, gps, google, nuke (USE $\sqrt{}$ ON)

   b.   saddle, cream, wax, clip (*locatum* verbs: PUT $\sqrt{}$ ON)

   c.   archive, table, book, canvas, mail (*location* verbs: PUT ... ON $\sqrt{}$)

   d.   foam, sketch, plan (verbs of creation: MAKE $\sqrt{}$)

   e.   mirror, bullshit, grandstand (miscellaneous)

Furthermore, certain nouns are only deverbalized with great difficulty, notably agent nominalizations such as *calculator*, *shaver*, etc.

In synthesis, we have the following:

(8)   *travel*   *travelling*   *trip*

          v $\sqrt{\text{TRAVEL}}(e)$ n $\sqrt{\text{TRAVEL}}(e)$ n
                                                                    CL $\sqrt{\text{TRAVEL}}(e)$
                                                                    |
                                                                (count)

Here, n and v are heads that determine some morphosyntactic properties of the constituent that they head. These heads are largely vacuous from a semantic point of view, though some clarifications need to be made on this topic below. On the other hand, denominal verbs will always pack a nonvacuous light verb which projects at least its own referential argument, so that nominalizing such a verb will yield an event noun whose meaning is quite distinct from the meaning of the nominal root from which the verb is formed.[4] Structures involving light verbs have been proposed for *location* and *locatum* verbs by Hale and Keyser (1993). Without the intent of turning this into a claim we wish to defend, we could propose structures for some of the denominal verbs that do not easily fall within Hale and Keyser's proposal:[5]

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[3]The exception to this seems to be unergative verbs, which are normally considered to be denominal (cf. Hale and Keyser 1993), but which are only derived from nouns that denote events or results of events, and as a consequence contain a category-forming head that approaches semantic vacuity:

(1*fn*)   dance, work, exercise (DO $\sqrt{}$)

   We will not pursue unergatives further in this paper.

[4]For this reason, i.e., the fact that there are deverbal nouns such as "bullshiting" and "nuking", we have separated v from the non-vacuous light verbs that are required to create denominal verbs, though in most literature these two positions are equated.

[5]In the following, we assume a "low applicative" head APPL to license the internal argument of the resulting denominal verb, inspired on Pylkkänen's (2002) proposal. One could also assume that the light verb is ditransitive, with one of the argument positions being saturated by the incorporated noun.

(9)

nuke

v   √ | USE(e)   √ | nuke   APPL   NP

bullshit

v   √ | TALK(e)   √ | bullshit   APPL   NP
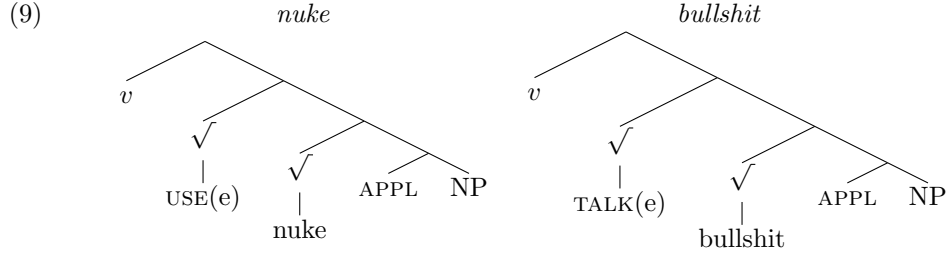
In summary, the claim that we wish to make about nouns and verbs is that the nature of a root's referential argument[6] does not determine whether it will be a noun or a verb, but it does determine whether it *can* become a verb without combining with any other root. While event-denoting roots have the possibility of combining with both n and v, entity-denoting ones can only combine with n. To become verbs they need to combine with a light verb that is itself a lexical root, i.e., it has its own referential argument.

This is the general framework that we wish to apply to our examination of Mẽbengokre action nominals. We will now move on to a description of lexical categories in the language, and then to a description of what we previously called nominalizations, to finally argue that noun phrases should all be treated in identical terms.

3   The noun/verb contrast in Mẽbengokre

In Mẽbengokre, predicates can be classified descriptively on the basis of the number of core arguments they take and the morphological case that they assign to them. The following table summarizes the different major predicate types found in Mẽbengokre matrix clauses:

(10)

	Type I	Type II	Type III	Type IV
Form A	ERG–ABS	ABS	ABS	DAT–ABS
Form B	NOM–ACC	NOM	—	—

The following are examples of predicates of types I and II. These have two distinct forms, each of which is associated with a different way of marking the core arguments. While with form A alignment is nominative-accusative, with form B alignment is ergative-absolutive:

(11)   Type I

a.   ba   ku-ma
    1NOM 3ACC-hear.V

"I heard it."

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[6]For the time being, we will not occupy ourselves with the question of avoiding circularity in identifying the different types of referential argument. The reader may assume that, for most cases, it is unproblematic to distinguish events from entities.

b. ije   mar   kêt
1ERG hear.N NEG

"I haven't heard it."

(12)   Type II

a. ba   kãm pry kôt   tẽ
1NOM then path along go.V

"I then went on the (animal's) path."

b. bà   kam i-tẽm kêt
forest in   1-go.N NEG

"I haven't gone into the woods."

Predicates of types III and IV have a single form, that patterns like the A form of predicates of types I and II, in that the first argument gets absolutive, while the external argument is expressed by means of an oblique:[7]

(13)   a. i-ngryk
1-angry

"I'm angry."

b. i-mã pi'ôk jã   kĩnh
1-DAT book this pleasant

"I like this book."

Clauses involving predicates of types III and IV are morphosyntactically similar to possessive sentences, in which the predicate slot is occupied by a lexical item that is unequivocally noun:

(14)   i-kra
1-child

"I have a son or daughter."

If the noun involved in the possessive sentence is "alienably possessed", its possessor is expressed by means of a postposition, rather than by an absolutive pronoun. These nouns may also be unpossessed, and in this case the interpretation is simply existential; a locative expression is often required for these sentences to be informative, as in the example given:

(15)   a. kubẽ   nhõ kà
barbarian POSS canoe

"The white man has a canoe."

b. mokà   kam katõk'y
backpack in   ammunition

"There are (some) bullets in the bag."

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[7]In this paper, we have said nothing about the fact that ergative is an inherent rather than a structural case, and thus, with dative, is considered to be oblique. For a discussion of this point we remit the reader to Salanova (2007)

In this paper, we will adopt the following terminology: predicates of types I and II, which oppose two forms ("A" and "B") in their paradigm, and concurrently exhibit two different patterns of case-marking of their arguments, will be called *verbs*. Predicates of types III and IV will be called *nouns*. We will gloss over the possibility of there being a separate class of *adjectives* in Mẽbengokre, but we remit the reader to Salanova (2007) for discussion of our position, and to Oliveira (2003) for an alternative view.

In some previous work (Reis Silva and Salanova 2000), we identified the opposition between the two forms of verbs as an opposition between "finite" (form B or the verbal form) and "non-finite" (form A or the nominal form) forms of the verb. Though the intuition behind these labels seems to us to be largely correct, in this paper we wish to highlight the parallel between the A forms of verbs and underived nouns. We will therefore call form A the *nominal* form of verbs, and form B the *verbal* form, and gloss them N and V, respectively.[8]

As far as form goes, verbal and nominal forms of verbs contrast in that the latter normally have an extra final consonant that is idiosyncratically determined by the root:

(16)   a.   tẽ, tẽm
            go.SG.V, go.SG.N

       b.   mõ, mõr
            go.PL.V, go.PL.N

       c.   rwỳ, rwỳk
            go.down.SG.V, go.down.SG.N

       d.   mrã, mrãnh
            walk.V, walk.N

There are some cases with complicated morphophonology, and also suppletion of the root (*ka-* is a class/number prefix compatible with both nominal and verbal forms of verbs):

(17)   a.   ka-te, ka-'êk
            CLASS-break.V, CLASS-break.N

       b.   ka-ba, ka-djàr
            CLASS-take.out.SG.V, CLASS-take.out.SG.N

       c.   ngõr, nhõt
            sleep.V, sleep.N

In Salanova (2001), it is suggested that the nominal form should be considered basic, since, excluding suppletion, the shape of the verbal form could

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[8]The only disadvantage to this terminology with respect to *non-finite* versus *finite* is that it might suggest that the relation between the two forms is derivational rather than inflectional. We wish to make it clear that we believe both nominal and verbal forms to be part of the verbal paradigm. Note that in this paper, if we ever talk about *nominalization*, it is only in a metaphorical sense.

be predicted from it but not vice-versa.[9] This fits in quite tightly with our assumption that nominal forms are basic also in a semantic sense.

Verbal forms of verbs always project finite clauses. Their referential argument cannot be bound, and neither can any of their other arguments. Partly contradicting our assumption about the vacuity of the category-forming heads v and n, we assume that v has at least the following semantics:[10]

(18) $\llbracket v \rrbracket = \lambda P_{st}.\exists e P(e)$

The rest of this paper is about the nominal forms of verbs and about underived nouns. The former are simply predicates of type $\langle s, t \rangle$ which have combined with a vacuous n rather than an event-binding v, while the latter are predicates of type $\langle e, t \rangle$ which can only combine with n.

As a final side note in this section, we point out that denominal verbs do exist in the language, and one even finds verbalization of complex noun phrases, such as (19d). Verbalization in Mẽbengokre is not indicated by any specific morphology, but rather is associated with certain types of applicative (i.e., affectedness datives, as in (19d), or instrumentals that introduce the undergoer of a transformation, as in (19a)), or of various oblique subjects (possessive in (19b), locative in equative sentences, as in (19c)). Verbal clauses, on the other hand, never have oblique subjects, and the applicatives, though sometimes present, are not obligatory (cf. (20)):

(19)   a. wajanga nẽ   amij-o   tep
            chaman NFUT SELF-INSTR fish

            "The chaman turned himself into a fish."

        b. Kajtire nẽ   õ   kàmrãnhtỳx
            Kajtire NFUT 3.POSS car

            "Kajtire has a car."

        c. Kajtire nẽ   ku-bê   ngokre
            Kajtire NFUT 3AC-LOC Mẽbengokre

            "Kajtire is a Mẽbengokre."

        d. ba   ami-m   'õkrẽn'ãnh nhõ kikre
            1NOM SELF-DAT chicken   POSS house

            "I built myself a chicken coop."

(20)   Kajtire nẽ   tẽ
        Kajtire NFUT go.V

        "Kajtire went."

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[9]We omit any detailed consideration of the morphology here; the interested reader may consult Salanova (2004).

[10]In addition, different flavors of v would have the required accoutriments to license agentive or experiencer subjects.

In Salanova (2007) we attempted to reduce all of these cases of denominal predication to existential constructions, something which seems implausible at least for (19d). These constructions will not be addressed further in this paper; for discussion, see Salanova (forthcoming).

4   Mẽbengokre relative clauses

We will now describe the constructions that are the functional equivalents of relative clauses in Mẽbengokre. This section is a highly condensed presentation of the description put forward in Salanova 2011.

(21) is a simple example of the construction that we are interested in:

(21)   amrẽ i-mã [a-je   tep bôr   ] kwỳ ngã
       hither 1-DAT   2-ERG fish roast.PL.N   some give.V

       'Give me some of the fish you roasted.'

Superficially, "relative clauses" are identical to eventive complement or adjunct clauses, such as those exemplified in (22), which will be the topic of section 6:

(22)   a.   [a-je   tep bôr   ] mỳrỳri dja ba   ngôj ku'õ
            2-ERG fish roast.PL.N   while   FUT 1NOM pot wash.V

            'I'll wash the pots while you roast the fish.'

       b.   ba   [àk   kàr   ] mar   o=nhỹ
            1NOM   hawk call.N   hear.N INSTR=sit.V

            "I'm (sitting) listening to the hawk calling."

Relative clauses are head-internal, and there is no special marking on the noun that serves as head. Consequently, if one compares the main clause in (23) with the relative clause in (24), the only observable differences are in the form that the verb takes (V in the main clause, N in the relative clause) and in the case marking of the subject participant.[11] In Salanova (2011), we argued at length that relative clauses are nominalizations, a view that has become standard in the literature on Jê languages (cf. Santos 1997, Alves 2004, a.o.).

(23)   ba   kubẽkà jadjà
       1NOM clothes put.on.V

       "I put on clothes."

(24)   i-je   kubẽkà jadjàr   jã
       1-ERG clothes put.on.N this

       'these clothes that I put on'

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[11] We consider the optional demonstrative *jã* to be external to the relative clause, as will be made clear below.

Word order in the relative clause is identical to order in the equivalent main clause. Relative clauses, like all other embedded clauses, display an ergative pattern, evident in pronominal agreement on the verb and in the marking of transitive subjects:

(25)   Ergative split

    a. Nominative pattern in main clauses:

       i. ba   a-pumũ   ii. ba   nõ
         1NOM 2-see.V   1NOM lie.V
          'I see you.'   'I lie down.'

    b. Ergative pattern in relative and other embedded clauses

       i. i-je   a-pumũnh   ii. i-nõr
         1-ERG 2-see.N   1-lie.N
          'me seeing you'   'me lying down'

Outside and to the right of the relative clause a classifying element may appear, as is exemplified in (26). At first blush, one would be tempted to talk about an instrument nominalizer *djà* and an agent nominalizer *djwỳnh*:

(26)   a. pi'ôk jarẽnh djwỳnh
           paper say.N   master

           'teacher, reader' (lit., 'master of reading papers [books]')

    b. pi'ôk no'ôk djà
          paper draw.N container

          'pencil' (lit., 'instrument for drawing on paper')

Though these classifying elements are particularly common with nominalizations, and in particular those that appear most lexical, such as the examples given above, they are not exclusive to event-denoting nouns:

(27)   a. màtkà djwỳnh
           airplane master

           'pilot'

    b. katõk 'y djà
          gun   nut container
          'bag for gun cartridges'

Furthermore, other than in the most common "lexical nominalizations" such as (26), *djà* and *djwỳnh* do not necessarily pick out instruments and agents:

(28)   a. ije   a-mã ipêx   djwỳnh
           1ERG 2-DAT 3-make.N master

           'precisely the one that I made for you', or 'the real one that I made for you'

b. i-tẽm djà
1-go.N container

'the day of my departure'

We will return to *djà* and *djwỳnh* in section 7.

Even further out in the noun phrase, there can be a demonstrative or quantifier, as exemplified in (29). We will not devote our attention to these here, as they are not exclusive of relative or eventive nominal clauses.

(29) a. ije   a-mã ãr   'õ
3ERG 2-DAT 3.give.N one

"one of the ones I gave you"

b. kute byr   kuni ja
3ERG grab.N all   this

"all this that he grabbed"

Relative clauses lack certain left-peripheral positions: the initial position of independent clauses, which can contain at most one dislocated phrase that receives a contrastive interpretation, a delimiting particle that indicates future versus nonfuture tense, and a position reserved for nominative subjects, which is further to the left than that of the ergative subject or of any verb phrase constituent. Compare the independent clause and the relative clause in the following examples:

(30) Focus, tense/mood, and a higher subject position in main clauses:

kukryt   nẽ   ba   arỳm ku-bĩ
tapir (FOC) NFUT 1NOM already 3ACC-kill.V

'I killed *tapir*.'

(31) Not available in relative clauses:

(*kukryt) (*nẽ) (*ije) arỳm   ije   bĩn
tapir (FOC) NFUT 1ERG already 1ERG 3.kill.N

We mentioned above that there is no special marking on the noun phrase that is to serve as the semantic head of the relative clause; further to this, any governed noun phrase present in a relative clause can in principle be its head, as is shown in the following examples:

(32) [kubẽ   ku-te mẽ i-mã mẽkrĩdjà nhõr] nẽ   jã
barbarian 3-ERG PL 1-DAT chair   give.N   NFUT this

'These are the chairs that a/the white man gave us', or
'This is the white man that gave us some/the chairs.'

Overt nominal heads may be replaced by third person pronouns, often null. This can happen in all the positions that are relativized by other means.

(33) Theme

[ajbir   a-je   a-nhõ pur   kurũm — kadjàr   ] wã i-m
  recently 2-ERG 2-POSS garden from   uproot.N that 1-DAT
a-ngã̃
2>3-give.V

'Give me what you just took out from your garden.'

(34) Proximate location

[— kuri mẽ   ãm   ] wã pumũ
    near people 3.stand.N   that look.V

'Look at the one near which people are standing.'

(35) Dative experiencer subject

[**ku**-m bàri'y djành] bit ku-te kur
  3-DAT pepper like   only 3-ERG eat.PL.N

'Only those that like pepper eat it.'

Given the freedom of interpretation that we have just described, it is nevertheless important to note that the a relative clause cannot mean just anything associated to the event described. Aside from the possibility of naming the event itself ('my going'), to be discussed in section 6, the possible interpretations of Mẽbengokre internally-headed relative clauses are strictly linked to relativizable positions that are represented in the structure by a governed noun phrase or null third person pronoun. Note the following contrast:

(36)   kôt i-tẽm jã̃
        with 1-go.N this

        'this one who I went with', 'me, the one that goes with him/her', 'my going with him/her'

(37)   *i-tẽm jã̃
         1-go.N this

        'me, the one that goes', 'my going', but not 'the way/time I go', 'the one I go with', etc.

We take this to mean that the heads of relative clauses in Mẽbengokre can only be noun phrases, i.e., there are no relative clauses headed by adverbs such as *how* and *when*, whether overt or implicit. Implicit nominal arguments cannot head the relative clause either.

All positions in the clause are relativized with the same strategy. We have noted no instances in which the accessibility hierarchy (Keenan and Comrie 1977) might be relevant to categorically rule out a particular construction in Mẽbengokre. The following elicited examples illustrate just a few of the possibilities:

(38) Theme (direct object)

[ajbir   a-je   a-nhõ   pur   kurũm **jàt** kadjàr   ] wã i-m
  recently 2-ERG 2-POSS garden from   yam uproot.N   that 1-DAT
a-ngã
2>3-give.V

'Give me the yam that you just took out from your garden.'

(39) Proximate location

[**kikre** kuri mẽ   ãm   ] wã nẽ   i-nhũnkwã
  house near people 3.stand.N   that NFUT 1-home

'That house near which people are standing is my home.'

(40) Dative experiencer subject

[**mẽ**   ku-m bàri'y djành] bit ku-te kur
  people 3-DAT pepper like   only 3-ERG eat.PL.N

'Only those people that enjoy pepper eat it.'

Finally, it has been noted in the literature on internally-headed relative clauses that internal heads are normally required to be indefinite (cf. Williamson 1987). We have noted no such restriction in Mẽbengokre, where demonstratives can occur on the nouns that head the relative clause, and even discourse participants can be heads (cf. 45).

(41) djãm nẽ   ga   [ku-te djudjê kênh   ] pumũ
    INT   NFUT 2NOM   3-ERG weapon carve.N   see.V
    'Did you see the one that carves bows?'

(42) djãm nẽ   ga   [me'õ   ku-te djudjê kênh   ] pumũ
    INT   NFUT 2NOM   someone 3-ERG weapon carve.N   see.V
    'Did you see someone who carves bows?'

(43) djãm nẽ   ga   [kubẽ   ku-te djudjê kênh   ] pumũ
    INT   NFUT 2NOM   barbarian 3-ERG weapon carve.N   see.V
    'Did you see the white man that carves bows?'

(44) djãm nẽ   ga   [kubẽ   jã ku-te djudjê kênh   ] pumũ
    INT   NFUT 2NOM   barbarian this 3-ERG weapon carve.N   see.V
    'Did you see this white man that carves bows?'

(45) djãm nẽ   ga   [i-je   djudjê kênh   ] pumũ
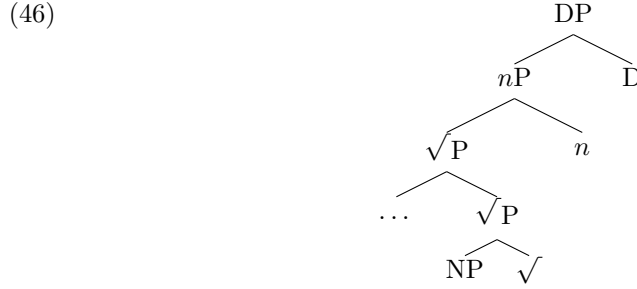   INT   NFUT 2NOM   1-ERG weapon carve.N   see.V
    'Did you see me, the bow carver?'
    (also: 'Did you see me carving bows?', and 'Did you see the bow I carved?')

We return to this problem in section 7.

5 The basic semantic analysis

We will assume that internally-headed relative clauses such as those discussed above consist of the following structure, where the ellipsis represents any peripheral arguments contained in the nominalization:

(46)

```
                              DP
                          ╱       ╲
                       nP          D
                     ╱    ╲
                  √P        n
                ╱    ╲
             …        √P
                    ╱    ╲
                 NP        √
```

That is: (a) the relative clause itself consists of a lexical root and all of its adjuncts and arguments; it's closed off by a category-assigning head n, but contains no verbal projections, TP, or CP; (b) this structure is selected directly by a determiner, and (c) arguments of $\sqrt{}$ can be plain NPs, though for now we won't exclude the possibility that they be DPs, and make this assumption for simplicity.

Let us work our way through one example.[12] Consider the following:

(47)   kubẽ   kute mẽ i-mã   mẽkrĩdjà nhãr   ja
       barbarian 3ERG PL 1-DAT chair   give.N this

    a.   'this white man that gave us the chair(s)'

    b.   'this/these chair(s) that the white man gave us'

The following denotations are straightforward, given the assumptions that we made in section 2:[13]

(48)   a. $[\![nh\tilde{a}r]\!] = \lambda e_s.\lambda x_e.e$ is an event of x being given

    b. $[\![m\tilde{e}kr\tilde{i}dj\grave{a}]\!] = \lambda x_e.x$ is a chair

    c. $[\![kub\tilde{e}]\!] = \lambda x_e.x$ is a barbarian

We need to show how these parts come together to give the correct denotation to the subconstituent *mẽkrĩdjà nhãr*. Clearly two predicates such as *mẽkrĩdjà* and *nhãr* cannot directly combine by Functional Application, unless a covert determiner turns one of them into an entity of the right type. Rather than following that path, we will consider noun phrases in Mẽbengokre to be determinerless NPs, of type $\langle e,t \rangle$, and follow Chung and Ladusaw (2004) in introducing a new compositional rule of Predicate Restriction:

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[12]The following formalization was presented, with somewhat different assumptions, in Salanova (2006).

[13]The semantic types used here are: individuals (e), eventualities (s), and truth-values (t).

(49) Predicate Restriction (op. cit., p. 5)
$$\lambda y.\lambda x.P(y,x) \wedge Q(x)$$

$$\lambda x.\lambda y.P(y,x) \qquad \lambda x.Q(x)$$

If we apply this composition rule to our example, we get $[\![\text{mẽkrĭdjà nhãr}]\!] = \lambda e.\lambda x.e$ is an event of x being given $\wedge\, x$ is a chair.

The head introducing all the peripheral arguments and adjuncts of the nominal clause is merged by means of Kratzer's (1996) rule of Event Identification (EI).

We will assume that *kute* is vacuous. So the denotation we get for the core of the relative clause (47) is:

(50) $[\![\text{kubẽ kute mẽ imã mẽkrĭdjà nhãr}]\!] =$

$\lambda e.\lambda y.\lambda x.e$ is an event of giving $x \wedge x$ is a chair $\wedge\, y$ is a barbarian $\wedge$
$\text{Agent}(e,y) \wedge \text{Recipient}(e,\text{we})$

What we claim is that whenever the syntactic arguments are indefinite (i.e., determinerless) noun phrases, a verbal projection is as unsaturated semantically as just a verb by itself. The denotation of such $\sqrt{\text{Ps}}$ is a property of individuals and events. This $\sqrt{\text{P}}$ combines with v to form matrix clauses, and with n to form relative clauses.

This approach has a straightforward extension to the free relatives, which in (33)–(35) were shown to differ minimally from regular headed relatives: if a predicate is not present in an argument position, restriction does not take place, but the $\sqrt{\text{P}}$ still has the semantics of an unsaturated predicate:

(51) $[\![\text{kubẽ kute mẽ imã ãr}]\!] =$

$\lambda e.\lambda y.\lambda x.e$ is an event of giving $x \wedge y$ is a barbarian $\wedge \text{Agent}(e,y) \wedge$
$\text{Recipient}(e,\text{we})$

Such a structure doesn't have a head. In fact, its ambiguity suggests that any of the variables left open in the structure can be bound by an element outside the relative clause to turn that position into the head of the relative clause. For the sake of argument, let's say that the demonstrative *ja* functions as a definite determiner. In that case, it would be a type of *unselective binder*, that binds any open variable in the structure to which it attaches. We assume that all other variables are bound by existential closure, but this is a technical issue that will not concern us here. This is how the ambiguity of the relative clause is derived:

(52) $[\![\text{ja}]\!] = \lambda P_{et}.\iota x P(x)$

(53) kubẽ   kute   mẽ imã   mẽkrĭdjà nhãr   ja
      barbarian 3ERG PL 1DAT chair   give.N this

    a. 'the chair that the white man gave us'
    $\iota x \exists e \exists y {:} e$ is an event of giving $x \wedge x$ is a chair $\wedge y$ is a barbarian $\wedge$
    $\mathrm{Agent}(e, y) \wedge \mathrm{Recipient}(e, \mathrm{we})$

    b. 'the white that gave us the chair'
    $\iota y \exists e \exists x {:} e$ is an event of giving $x \wedge x$ is a chair $\wedge y$ is a barbarian $\wedge$
    $\mathrm{Agent}(e, y) \wedge \mathrm{Recipient}(e, \mathrm{we})$

6   Eventive clauses

We mentioned in the introduction that complement clauses that were formally identical to internally-headed relative clauses could get eventive interpretations. This happens at least when these clauses are used in direct perception constructions, as in (60), and when they are complements of manner predicates, as in (54b), though there are various other contexts where an eventive reading is probably called for:

(54) a. ba   àk   kàr   ma
          1NOM hawk call.N hear

          'I heard the hawk calling.'

    b. a-djujarẽnh mex
          2-tell.a.story good

          'You spoke well.' (lit.: 'Your saying was good.')

In fact, the semantics that we have developed for relative clauses extends without significant modification to get the senses in (54). Remember that an event variable is free in the denotation of a nominalized clause, just as there are individual variables for each of the arguments. If it is this variable that gets bound by the unselective binder, the reading we get is eventive:[14]

(55) ba   bẽnjadjwỳr kute bẽn djir ma
      1NOM chief   3ERG speech put.N hear

    a. '[I heard] a chief reciting a ritual speech'
    $\iota e.\exists x.\exists y.e$ is an event of reciting $x \wedge \mathrm{Agent}(e, y) \wedge y$ is a chief $\wedge x$ is a speech

    b. '[I heard] the ritual speech that a chief recited'
    $\iota x.\exists e.\exists y.e$ is an event of reciting $x \wedge \mathrm{Agent}(e, y) \wedge y$ is a chief $\wedge x$ is a speech

When the demonstratives *ja* or *wa* are present, only relative clause interpretations are possible. We could stipulate that these demonstratives can only bind variables of type e, while in cases such (55), there being no determiner, any of the variables can be bound, giving either eventive or participant readings.

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[14]It's fair to ask what this means, but attempting to answer this would take us very far afield. For our present purposes, note that (54b) cannot mean 'It was good that you spoke', and more generally such complement clauses can be paraphrased as 'the event of...', but not as 'the fact that...' For further discussion, see Zucchi (1993) and Arregui and Matthewson (2001).

7 Underived nouns

Mẽbengokre noun phrases are head final, like clauses. The peripheral constituents may be different sorts of adpositional phrases, like in (56), or noun phrases directly governed by the head, in the case of inalienably possessed nouns such as those in (57). As a general rule, nouns belong to either the alienable or the inalienable class, as discussed in section 2, but there are some nouns that may belong to both classes with slightly different meanings, as is the case with *kà* below:

(56)   a. i-nhõ   kà
             1-POSS canoe

             'my canoe'

        b. krĩ   raj   kam kubẽ
             village large in   barbarian

             'city dwellers'

(57)   a. mry   kà
             animal skin

             'leather'

        b. Kajtire tàmdjwỳ
             Kajtire grandson

             'Kajtire's cross nephew/niece or grandson/daughter'

        c. i-tàmdjwỳ
             1-grandson

             'my cross nephew/niece or grandson/daughter'

Modification by adjectives seems to contradict the generalization that noun phrases are head-final. In the examples in (58), it appears to be the case that modifiers are on the right. However, we contend that what here seem to be modifiers are actually relational heads acting as predicates, taking their modifiees as complements.

(58)   a. idji   mex
             3.name beautiful

             'his/their beautiful name(s)'

        b. ngy bor
             clay bake.N

             'baked clay'

        c. mẽ   kra-re
             people son-DIM

             'people with children' (also 'people's children')

To argue for this, note first that words with nominal reference can also be modifiers. This is shown in example (58c), where *kra* is ambiguous between being the semantic head of the construction ('children'), or being a modifier to the word on the right ('with children').[15]

Our analysis rests on the contention that the ambiguity exists also in (58a) and (58b). The first of these examples would have the additional reading "the beauty of the names", while the second would, in addition to the meaning given, also mean "the baking of the clay". Depending on the semantics of the stem that serves as the syntactic head of the noun phrase, the meaning accorded to its referential argument may be more or less accessible to speakers' intuitions. However, just like in the case of the event nominals exemplified in (54), which bring out the eventive reading of structures comparable to (58b), we can find the contexts where such a reading is required for (58a):

(59) mẽ   idji   mex tire
       people 3.name good big

       'very beautiful personal names' (lit., 'names [whose] beauty is great'; not: 'big beautiful names')

We propose that this ambiguity is the same ambiguity discussed in (55). As we saw when discussing that example, complement and adjunct clauses that are formally identical to internally-headed relative clauses can get eventive, as opposed to participant, interpretations. This can be seen in complement clauses which may have a direct (event) perception interpretation:

(60) ba   àk   kàr   ma
       1NOM fowl coo.N hear

       'I heard the bird calling' or 'I heard the bird that calls/called.'

We dealt with this by allowing either of the argument positions projected in the structure to be externalized to be bound by a determiner, with all the other variables being bound by existential closure. Applying this to *bôr*, we have the following:

(61) ngy bor
       clay bake.N

       'baked clay', and 'baking of clay'

       a. $\lambda x.\exists e.e$ is an event of baking $x \wedge x$ is clay

       b. $\lambda e.\exists x.e$ is an event of baking $x \wedge x$ is clay

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[15]The "diminutive" suffix *-re* often functions as a classifier for age sets, so that if the diminutive is present, as in this case, the reading most readily understood is the one where *krare* is a modifier. Resources such as this may be used for disambiguation in constructions such as this one, but in the general case they are neither necessary nor sufficient to determine unequivocally which of the two nouns is to function as the head.

We have no reason to suppose that the ambiguity shoudn't be treated differently when dealing with underived nouns such as *kra*, or adjective-like stems such as *mex*. For *kra*, we can attempt the following formalization, along the same lines as that proposed for the example of eventive versus participant ambiguity:

(62) kubẽ   kra-re
      barbarian son-DIM

'white person with children', or 'white person's child(ren)'

a. $\lambda x.\exists y.y$ is the child of $x \wedge x$ is a barbarian

b. $\lambda y.\exists x.y$ is the child of $x \wedge x$ is a barbarian

8   Conclusions

In this paper, we have argued that nominal forms of verbs in Mẽbengokre behave no differently than any other type of noun. Noun phrases in this language are such that, even though hierarchical relations are fixed, reference is fluid, in the sense that the semantic head of the phrase is not syntactically determined. Rather than that, reference is infered pragmatically, or disambiguated only partially by means of classifiers. The lack of elements with determiner-like effects in Mẽbengokre is a fascinating question that needs to be pursued in future work.

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