GERUNDIVE NOMINALS IN MALAGASY

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1

In this paper I provide a novel syntactic analysis of Malagasy (Austronesian, Western Malayo-Polynesian) nominalizations. Malagasy has a nominalizing prefix *f-* which derives action and abstract nominalizations when attached to the circumstantial voice form of the verb. These derived nominals exhibit mixed verbal and nominal properties and their interpretation is often ambiguous between an eventive or a circumstantial (instrumental, manner, or locative) meaning. This has led to the assumption that these nominals are formed in the lexicon or a "lexical" syntactic component ('l-syntax', Paul 1996), in agreement to the more general treatment of action nominals as lexical items (Chomsky 1970). I show that this is not the complete picture. In fact, *f*-nominalizations in Malagasy can be divided into a class of nominals that do exhibit nominal properties ('result nominals' in Grimshaw's (1990) terminology) and a second, more productive class of gerundive *f*-nominals that exhibit internal verbal properties, including adverbial modification, accusative-marked internal arguments, linked external arguments and eventive interpretation, very much like their corresponding gerundive nominals in English. In order to capture these properties I propose that gerundive *f*-nominals are formed in the syntactic component with the nominalizer *f-* projecting a nominal inflection phrase replacing the tense inflection that appears in finite clauses (c.f. also Baker 2005). The analysis maintains the intuition in traditional Malagasy grammars that the nominalizer *f-* replaces the tense (Dez 1980:102; Fugier 1999:43) and predicts that all properties associated with verbal functional projections below tense should be present in gerundive *f*-nominals, while all clausal projections above tense should be absent. For result gerundive nominals I assume a lower site of attachment for the nominalizer and thus the fact that these nominals exhibit less verbal and more nominal properties is attributed to the lack of the relevant verbal functional projections within the internal structure of the derived nominal.

1. INTRODUCTION[1]. Since the seventies there have been two main approaches to the derivation of nominalizations traced back to Lees (1960) and Chomsky (1970). In Lees (1960) the intuition was that nominalizations were derived by some underlying representation that contained a sentential component. The approach has reemerged in a number of different forms that more or less assume that action nominals (and gerunds) are derived from a verbal string (Lebaux 1986; Baker 1988; Murasugi 1990; Hazout 1991; Valois 1991; Borer 1999, 2003; Fu 1994; Borsley and Kornfilt 2000; Fu et al 2001; Alexiadou 2001; Picallo 1991; and others). Chomsky (1970) reacts to the explosion of the transformational component of the grammar. He proposes that gerundive nominals are derived in the syntactic component while action nominals of the '*destruction'* type are lexical. He supports the lexical nature of the latter by listing a number of 'idiosyncratic' properties that they exhibit: low productivity; semantic opacity; internal structure identical to that of common noun phrases. Chomsky's (1970) lexicalist approach to nominalizations leads to extreme lexicalist approaches, which appear under different names in the relevant literature: the 'Lexical Integrity Hypothesis' (Lapointe 1979; Bresnan & Mchombo 1995), the 'Atomicity Thesis' (DiSciullo and Williams 1987), 'A-morphous Morphology' (Anderson 1992), and others. The basic theme adhered to in all of these approaches is that the inventory of syntactic operations fails to explain morphological processes such as nominalization.

The question then becomes an empirical one: to what extent can syntactic approaches explain the data without resource to construction-specific syntactic operations and to what extent can 'lexical' approaches explain the 'mixed' categorical behavior of most nominalizations cross-linguistically? Malagasy (Western Austronesian, Madagascar) provides an excellent case for the study of nominalizations. It has a rich morphological system in the verbal domain, with voice alternations that are typical of Malayo-Polynesian languages, and it has an extensive series of nominalizations that range from small-domain result nominals to clausal nominalizations that contain most clausal projections up to and including tense (see Paul 1996; Ntelitheos 2006 for a detailed discussion).

While nominalizations in Austronesian have been discussed to some extend (see for example the collection of papers in Zeitoun (2002)), the specific type of nominalizations discussed here has not received much attention in the relevant literature. I discuss a class of Malagasy nominals which I term gerundive nominals, and which exhibit mixed nominal and verbal behavior, very much like gerundive nominals in English. In addition, these nominals come in two flavors: an "eventive type" which has a range of verbal properties, and a "result" type which is more nominal in nature and morphosyntactic behavior. Contrary to previous accounts (e.g. Paul 1999, Travis 2000), I show that both of these nominals can be derived in the syntactic component by assuming a simple process of variable attachment height for the nominalizer: attachment of the nominalizer as high as tense results in eventive/action gerundive nominals with numerous verbal properties; attachment in a low position, above voice morphology, results in result nominals with very limited verbal properties and nominal behavior[2]. Such an analysis

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[2] The analysis presented here does not exclude additional attachment heights for the nominalizer, resulting in nominalizations with different syntactic properties and different interpretations. For a more detailed discussion see Ntelitheos (2006).

provides a straightforward explanation not only for the morphological make-up of the derived nominals of this type, i.e. the linear order of verbal functional morphology, but also for their morphosyntactic behavior and semantic interpretation. Thus, Malagasy provides empirical support for a purely syntactic analysis of gerundive nominalizations and indicates that a separate morphological component may not be required, at least for this type of derivational process.

The paper is divided as follows: In Section 1, I provide a very brief overview of some of the structural properties of Malagasy and of the different nominalization processes that are available in the language. Section 2 moves to a detailed description of the different types of Malagasy gerundive nominals that form the empirical base for the analysis proposed here. Different subsections discuss the internal structural make-up and external syntactic distribution of gerundive nominals. The last subsection provides the syntactic model on which the analysis is based, showing a step-by-step derivation, and explaining how the mixed behavior of these nominals can be captured by the proposal. Section 3 provides a discussion of the second subtype of result gerundive nominals while section 4 lists some concluding remarks.

2. THE CONTRIBUTION OF MALAGASY NOMINALS TO THE DISCUSSION.
Malagasy is traditionally characterized as a VOS language, and thus the clause-final noun phrase is considered a subject in traditional grammars and in later approaches (Guilfoyle et al 1992; Paul 1999). In other approaches it is a left-dislocated topic (Pearson 2001, 2005; Ntelitheos 2006), the right-most position derived by additional movement of the predicate to the specifier of a higher left-peripheral projection. The language has a complex voicing system that promotes verbal arguments (agent, theme, instrument, etc.) to the predicate-external position. Following the terminology adopted in Pearson (2001; 2005) and Ntelitheos (2006), I will call this rightmost noun phrase the "trigger". The promotion of arguments affects word order and is also reflected in distinctive verb morphology (Keenan & Polinsky, 1998; Pearson, 2001, 2005; Paul, 1999; and others)[3]:

(1)   n.i.vídy   boky   ho an'ny   mpianatra   ny   mpampianatra.
      PST.PFX.buy   books   for' DET   student   DET   teacher
      'The teacher bought books for the student.'

(2)   no.vid.in'   ny   mpampianatra   ho   an'ny   mpianatra ny boky.
      PST.buy.TT/LNK'   DET   teacher   for ' DET   student   D books
      'The books were bought by the teacher for the student.'

(3)   n.i.vidi.ana.n'   ny   mpampianatra boky   ny   mpianatra.
      PST. PFX.buy.CT / LNK'   DET   teacher   books   DET student
      'The student was bought books for by the teacher.'

In (1) the precategorial root *vidy* "buy" is prefixed by a verbalizing prefix *–i*, which in turn allows the prefixation of tense morphology (the past tense prefix *n-*). This is the so-called active

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[3] Transcription conventions follow the Leipzig Glossing Rules. Since a hyphen is an orthographic device in Malagasy, we opted for using the period as a morpheme-separator. Some additional abbreviations used here include: NML, nominalizer; PFX, the verbalizing prefixes *an-* and *i-*; TT, Theme Trigger voice morphology on the verb; CT, Circumstantial Trigger voice morphology on the verb; LNK, linker; ABIL, abilitive morpheme.

form of the verb, termed here the actor-trigger (AT) because this form licenses the agent *ny mpampianatra* to the rightmost prominent trigger position. In (2) the precategorial root is suffixed by *–in*, while no overt verbalizing prefix appears. The verbal complex is then prefixed by the allomorph *no-* of the past tense prefix. The rightmost element in this case is the theme of the verb *ny mpianatra* and the structure is called the theme-trigger (TT) voice. Finally, in (3) the precategorial root is once again prefixed by the verbalizing morpheme *–i*, and subsequently suffixed with the morpheme *–an* and additional tense morphology. In this case the benefactor role is promoted to trigger position and the structure is termed the circumstantial trigger (CT) voice.

Apart from the basic verbalizing, voice and tense morphology illustrated above, additional verbal morphology can appear between the verbalizing prefix (*i-* or *an-*) and tense morphology (*m-*, *n-*, *h-*). This includes the causative prefix (*amp-*), the reciprocal (*if-*), and others. We will consider some of this morphology later on, when it becomes relevant to the discussion.

Malagasy exhibits a wide range of nominalizations, from simple nominals that resemble common noun phrases in their behavior, to full-fledged clausal nominalizations that contain tense morphology. Some examples are provided in (4)-(6):

(4)   n.a.hita   [f.an.ala.hidy]   aho
        PST.PFX.see NML.PFX.remove.lock   1SG/NOM
        'I found a key.' (Lit. thing used to remove lock with)

(5)   ny   f.an.doah.an-dRabe   ny   rindrina dia   ilay fantsika
        DET   NML.PFX.drill.CT/LNK -Rabe   DET   wall   TOP   DEM nail
        'The (instrument for) Rabe's drilling the walls is this nail.'

(6)   ny n.an.doah.an-dRabe   rindrina omaly   dia   ilay fantsika
        D PST.PFX.drill.CT/LNK -Rabe wall   yesterday   TOP   DEM nail
        'The (instrument for) Rabe's drilling walls yesterday is this nail.'

Examples (4)-(6) exhibit a continuum of nominalizations, starting with (4), where the nominal *fanalahidy* seems to have the distribution and morphosyntactic behavior of an underived common noun[4]. Example (5) is an intermediate case where the instrumental nominal *fandoahana* (drill, instrument for drilling) has mixed verbal/nominal properties. Finally, example (6) corresponds to a full clausal headless relative clause, including tense morphology and temporal modification. In the following sections we will focus on the intermediate case of nominals prefixed by the nominalizing prefix *f-* but the other two cases may be referred to for comparison.

Following the diagnostic properties proposed in Chomsky (1970), and ideas in Travis (2000), Paul (1996) assumes that Malagasy derived nominals of the sort in (4) are formed in the lexicon while nominals of the type in (5) are formed in a syntactic level that has a lexical flavor, called l-syntax. The arguments that are put forward to support her approach relate to the fact that most Malagasy derived nominals exhibit:

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[4] But see Ntelitheos (2006) for a syntactic analysis of these nominals, in which the nominalizer *f-* attaches at a very low level, just above the verbalizing prefix (vP).

- *idiosyncratic meaning*: for example, *f-* prefixed to the AT form of the verb can derive instrumental, manner, and very rarely agentive nominals while *f-* attaching to the CT form of the verb derives action, manner, and locative nominals. Thus, in (7), the *f-*AT nominalization *fanjaitra* could be interpreted either as an instrumental nominal meaning "needle" or as a manner nominal meaning "way or style of sewing". Similarly, *fandoahana* in (5), is interpreted as an instrumental nominal, but in different contexts it can be interpreted as a manner, or an action nominal.
- *limited productivity*: thus, while the instrumental nominalization is possible in (7), it's not possible in (8).

(7)   f-an-zaitra (fanjaitra)
        NML.PFX.sewing
        "needle; manner of sewing"

(8)   f.an.ondraka
        NML.AT.water
        '*moisturizer' (lit. 'N that waters/moisturizes'; OK "way of watering")

The second argument concerns mostly nominals derived by prefixing *f-* to the active AT form of certain verbs to form instrumental nominals. It is true that these nominals are very limited in productivity (around 30-40 forms attested in the language, see Ntelitheos 2006) and that very often they have unpredictable meanings. Furthermore, other types of *f-*AT nominals are extremely rare (for example agentive or subjective nominals formed on the AT form of the verb are not productive at all with only a couple of forms attested in the language). Finally, some forms of *f-*nominals are completely unattested. An interesting case is the fact that *f-* prefixed to TT forms of the verb, derived by attaching the suffix *–ina* to the verbal root (c.f. (2)) do not exist in the language[5]. In the following section I will concentrate on the type of nominals exemplified in (5), which I call a gerundive nominal because it seems to exhibit similar properties to the English gerundive, I will examine the arguments of productivity and semantic opacity or vagueness more carefully in light of additional data and I will show that they do not provide the complete picture of *f-*nominals in Malagasy.

2. GERUNDIVE NOMINALS IN MALAGASY. The most productive type of *f-*nominalization in Malagasy is formed by attaching the general nominalizer *f-* to the CT form of the verb, which as we have seen is formed by prefixing the verb root with one of the verbalizers and possibly additional morphemes, and subsequently suffixing the stem with *–an* (c.f. (1)(3)). The nominalizer seems to substitute linearly for tense morphology, as in the following morphological template:

(9) Morphological Template
    [f-   [[an-/i- [VROOT]] -an]
    NML   PFX   VROOT   CT

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[5] See Ntelitheos (2006) for a detailed discussion of all these nominals and the possible reasons of why certain forms are unattested.

Some examples of f-CT nominalizations are given in (10):

(10)

	Root	Gloss	CT-form	f-nominal	Gloss
a.	hita	'vision'	ahitana	fahitana	'sight; a vision'
b.	valy	'revenge'	amaliana	famaliana	'response, revenge''
c.	ahy*	(worry)	anahiana	fanahiana	'worry, anxiety'
d.	foy	'abandoned'	amoizana	famoizana	'rejection, abandonment'
e.	vely	'strike'	amelezana	famelezana	'the act of striking'
f.	anatra	'advice'	ampianarana	fampianarana	'teaching'
g.	tsiaro*	(memory)	ahatsiarovana	fahatsiarovana	'remembering; souvenir'
h.	fay	sickened	amaizana	famaizana	'punishment'

The process of forming *f*-nominals of this sort is one of the most productive morphosyntactic processes in Malagasy. All verbal roots that can form a CT verbal form can also form an *f*-nominal. This includes not only the base roots but also stems augmented by preverbal affixes such as the causative (*amp-*) c.f. (8f), the abilitive (*aha-*) c.f. (8g), or the reciprocal (*if-*). In most accounts on Malagasy syntax (e.g. Guilfoyle et al 1992; Pearson, 2001, 2005; Paul, 2000) the formation of CT voice is assumed to be a syntactic process. In addition, processes such as causativization are also assumed to be syntactic in nature (see for example Andrianierenana 1996). If these approaches are on the right track, then nominalization must also be a syntactic process since voice-derivation and causativization feed nominalization. In any case, there is no issue of productivity arising in the derivation of these nominals as their formation is fully productive for all available verbal forms.

Turning now to the semantics of the nominals under investigation, there are two cases of semantic opacity that arise. We show that the first case of semantic opacity is not real but the direct result of syntactic ambiguity, while the second case of semantic opacity is "real" i.e. "lexical" in the traditional terminology, but again this is a direct syntactic effect in the sense that semantic idiosyncrasies are restricted to the root domain (Marantz 2001). Let us examine all the possible cases more carefully.

In the default case, the meaning of a gerundive nominal is compositionally derived from the meaning of the root plus the semantic contribution of any additional functional verbal morphology, if any is present. For example, from *anatra* (advice; study) we derive the verbal stem ianatra and by adding the causative prefix *amp-* we derive the causative stem *ampianatra* (cause to study = teach). CT voice produces *ampianarana* and the nominalizer derives the nominal *fampianarana* (the act of teaching).

Paul (1996), following Travis (2000), suggests that *f*-nominals are derived in a lower part of the syntactic structure, which is subject to lexical idiosyncrasies (including semantic opacity) called *l*-syntax. This suggestion is based on the fact that *f*-nominals can additionally get manner, instrumental, or locative interpretations, depending on the context (examples from Rasoloson & Rubino (2005:483)):

(11) n.an.ditry   ny   adiny telo [ny f.an.doah.an-dRabe   ridrina]
      PST. PFX.last   DET   hour three   D NML.PFX.drill.CT / LNK-Rabe   wall
      'Rabe's drilling wall(s) lasted for three hours'

(12)   [ny   f.an.doah.an-dRabe   ridrina] dia   ny   fantsika
                DET   NML.PFX.drill.CT / LNK-Rabe wall   TOP   DET nail
                'Rabe's (instrument for) drilling walls is a nail.'

(13)   n.an.ditry   ny adiny telo [ny f.i.amben.an'   ny miaramila
                PST. PFX.last DET hour three Det NML.PFX.watch.CT/LNK' DET soldier
                ny   fahavalo]
                DET   enemy
                'The soldiers' watching of the enemy lasted for three hours'

(14)   [ny   f.i.amben.an'   ny   miaramila] dia   ny   vahavady
                DET   NML.PFX.watch.CT / LNK' DET soldier   TOP   DET gate
                'The soldiers' (place for) watching is the gate.'

But this is also a property of gerundive –*ing* nominals in English, which in most accounts are derived in the syntactic component (see Chomsky 1970):

(15)   John's fixing of the broken TV lasted for three hours.
(16)   John's fixing of the broken TV surprised everyone.
(17)   John's fixing of the broken TV was very skillful.

In (15) the durative prepositional phrase forces an eventive reading (the event of fixing the broken TV lasted for three hours). In (16) the nominal is interpreted as factive (the fact that John fixed the TV surprised everyone), while in (17) the gerundive nominal is interpreted as a manner nominalization (the way that John fixed the TV was very skillful). The question that arises then is how all these different interpretations come about[6].

      Ntelitheos (2006) proposes a simple syntactic ambiguity account of this phenomenon: different interpretations arise because different structures are involved. The nominals involved have a reduced relative clause structural configuration in which covert nominals (represented with small capital letters following the practice in Kayne (2005)), move from different specifiers

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[6] Two anonymous reviewers note that an alternative account here would be to observe simply that a complex event can have many simultaneous properties, i.e. the nominals are not really syntactic ambiguous but simply vague or underspecified like underived nominals can sometimes be. The following example is provided:
    i) The concert lasted three hours/pleased most people in attendance/was skillfully performed.
In the example above we do not need to say that 'concert' is three-way ambiguous. This is true to the extent that in (i) the eventive interpretation is enriched by the presence of additional verbs. Thus, the third manner interpretation only arises because the verb 'performed' is introduced:
    ii) ?*The concert was skillful.
However, in the examples in (15)-(17), the additional interpretations arise directly from the derived gerundive nominal structures and no additional predicates are involved. This has to be accounted for somehow and the analysis proposed here captures this in a straightforward way. In addition, there is a hierarchical constraint applied to the perceived vagueness of these nominals. As Ntelitheos (2006) shows, the part of the syntactic spine that is enclosed below the nominalizer allows for specific readings to emerge and excludes others. For example, manner readings and eventive readings are possible because as we will see later the levels where these elements project in a cartographic approach are available inside the nominalized structure. On the other hand, a temporal interpretation is not available because the tense projection is not there: *John's fixing of the TV was 3 o'clock. (c.f. the grammatical "John's fixing of the TV was at 3 o/clock.")

within the clausal spine to the specifier of a reduced relative CP and are subsequently selected by the definite determiner to form a reduced relative clause of the form proposed in Kayne (1994):

(18)   [DP [DET [CP   [C [… [FP [PARTICIPANT [F […………]]]]]]]]]

In (18) the term participant refers to any circumstantial dependent of the predicate, including instrument, manner, location, time, duration, and so on. Following the cartographic approach to syntactic structure (Cinque 1999), these projections are hierarchically ordered and can be filled with silent nominals (Kayne 2005). Given these assumptions about the clausal structure, Ntelitheos (2006) proposes that an instrumental *f*-CT nominal is formed by moving a null generic noun INSTRUMENT from the specifier of InstrP or ApplP to the specifier of the nominal CP. A manner nominal on the other hand, is formed by moving a null generic NP MANNER, from MannerP (the projection above VoiceP where manner adverbials attach) to the specifier of CP. Thus, the different interpretations associated with gerundive *f*-nominals correspond to different syntactic structures and semantic ambiguity reduces to syntactic ambiguity in the usual manner.

Neither semantic opacity nor productivity arguments then hold for this type of Malagasy nominals. However, as can be seen from the list of these nominals repeated here from (10), there is a major difference in interpretation between some of them:

(19)   Root   Gloss   CT-form   f-nominal   Gloss
    a. hita   'vision'   ahitana   fahitana   'sight; a vision'
    b. valy   'revenge'   amaliana   famaliana   'revenge, punishment'
    c. ahy*   (worry)   anahiana   fanahiana   'worry, anxiety'
    d. foy   'abandoned' amoizana   famoizana   'rejection, abandonment'
    e. vely   'strike'   amelezana   famelezana   'the act of striking'
    f. anatra 'advice'   ampianarana fampianarana 'teaching'
    g. tsiaro* (memory)   ahatsiarovana fahatsiarovana 'remembering'
    h. fay   sickened   amaizana   famaizana   'punishment'

While some nominals seem to have a clear eventive interpretation (for example (17e), (17f), (17g), others seem to have more of an abstract noun interpretation (c.f. (17a-17c). In the discussion that follows it is assumed that most of the discussed nominals are ambiguous between the two readings discussed above. In principle, there is no reason of why this ambiguity would not arise. However, productivity may play a role here in the sense that verbs that prototypically denote actions may derive nominals that are prototypically interpreted as action nominals (e.g. "strike"; "kick"; "walk"), while others may derive nominals that are prototypically interpreted as abstract or result nouns. Before we tease apart the properties of these two types of *f*-CT nominals let us examine in more detail their morphosyntactic behavior in terms of the morphosyntactic properties and clausal distribution that they exhibit.

4. INTERNAL STRUCTURE AND EXTERNAL DISTRIBUTION. Malagasy gerundive nominals have complex morphological forms that contain a number of affixes associated with verbal functional properties. For example, verbal stems are mainly created by adding one of two available verbalizers to the pre-categorial root. The available verbalizers are the prefixes *an-* and *i-*. Whether these two prefixes encode additional information is still being debated in the

relevant literature (see for example Keenan and Polinsky 1998; Pearson 2001). One of the possible types of verbal subcategories that the affixes may encode is transitivity. It seems that in the majority of cases, stems with the an- prefix have higher valency than verbs with the *i-* prefix. This is by no means an absolute categorization as intransitive stems prefixed with an- and transitive stems prefixed with *i-* do exist. But in most cases, when the same root can be prefixed with both *an-* and *i-* , the *an-* stem has greater valency than the *i-* stem. This division carries on to the derived nominals as well:

(20) n.aha.ritra   ora   roa   ny   f.i.sasa.n'dRabe
      PST.CAUS.last hour two   DET   NML.PFX.wash.CT/ LNK-Rabe
      'Rabe's washing (himself) lasted two hours.'

(21) n.aha.ritra   ora   roa   ny   f.an.asa.n'dRabe   ny   akanjo
      PST. CAUS.last hour two   DET   NML.PFX.wash.CT/LNK-Rabe DET   clothes
      'Rabe's washing the clothes lasted two hours.'

As we have already seen, the causative prefix *amp-* and the reciprocal prefix *if-* attach outside the basic verbalizing morphology. In most accounts (including Travis (2000) and Paul (1996)), causativization is a syntactic process that takes place in the purely syntactic domain of the grammar, i.e. outside the domain where low productivity and semantic opacity are attested whether this is the morphological component or a lower l-syntax (lexical syntax) domain, as in Hale and Kayser (1993); Travis (2000). The nominalizer *f-* in Malagasy gerundive nominals attaches outside causative and reciprocal morphology:

(22) ny   [f.amp.i.anara.n] '   i   Noro an-d Rabe ny   teny   gasy.
      DET NML.CAUS.PFX.study.CT   DET Noro LOC Rabe DET   language Malagasy
      'Noro's teaching of Malagasy to Rabe …'

(23) ny   [f.if.amp.i.anara.n] '   ny ankizy   ny   teny   gasy.
      DET NML.RECP. CAUS.PFX.study.CT/ LNK DET children DET   language Malagasy
      'The children's teaching of Malagasy to each other...'

A robust property of Malagasy verbal predicates is that they mark their internal arguments with accusative case. Case morphology is not marked on common noun phrases but proper names take an accusative prefix marker *an-* (see (24)), while personal pronouns appear with special accusative case forms (25). In contrast, common noun phrases in Malagasy mark their arguments with the genitive marker *–n*, which is a type of linking element (26)[7]:

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[7] One reviewer notes that there are a number of nouns that also mark arguments with accusative case. This can be seen in example (26), where the second argument of the noun *alahelo* (sadness) is marked with accusative case. Keenan and Polinsky (1998:615) mention that a specific class of nominals can take accusative case and provide the additional example *tahotra* (fear). Both available examples seem to be psychological predicates that exhibit a mixture of verbal and nominal properties in many Austronesian languages (see for example Georgopoulos (1987) for a discussion of nominal properties of verbal psychological predicates in Palauan). The majority of underived nouns in Malagasy are restricted to genitive case marked arguments while derived nominals with rich syntactic structure allow for accusative arguments freely. A very clear contrast can be seen in the availability of *ny fampianarana azy* "the teaching of him, and the unavailability of *ny anatra azy* "the advising of him" from the

(24) n.a.hita   an-dRasoa Rabe
     PST.PFX.see   ACC.Rasoa Rabe
     'Rabe saw Rasoa'.

(25) n.a.hita   azy   Rabe
     PST.PFX.see   3ACC   Rabe
     'Rabe saw him/her/them.'

(26) ny   alahelo.n-dRabe   an-drai.ny
     DET   sadness.LNK-Rabe   ACC-father.3
     'Rabe's sadness for his father…''

Malagasy gerundive *f*-nominals very productively maintain the accusative-marked arguments of their verbal source:

(27) n.aha.tezitra   an-dRasoa ny   f.an.galar.an'   i   Koto azy
     PST. CAUS.angry ACC-Rasoa DET   NML.PFX.steal.CT/ LNK' DET   Koto 3ACC
     'The stealing of it by Koto angered Rasoa.'

(28) … ny   f.amaiza.n'   ny   Tompo azy   ireo noho   ny
     … DET   NML.PFX.punish.CT/ LNK' DET   God   3ACC   DEM because DET and
     fahotany   sy   ny   fihodinany.
     sin   and   DET   breaking
     '… God's punishing them because of their sins and breakings'

In addition, Malagasy gerundive nominals maintain the adverbial modification that is present in the verbal source. In other words, if an adverbial phrase can modify a verbal structure, it can also modify the derived nominal structure without any modifications:

(29) ... dia tena ila.ina   ny   f.an.olo.ana   matetika ny   ambioka ampiasaina
     …TOP really need.TT   DET   NML.PFX.replace.CT often   DET seed   used
     '...we really need to change often the seeds used'

(30) Ora   fidirana   matetika ato   amin'ny FORUM
     hour NML.PFX.enter.CT often   there in' DET   FORUM
     'Hour of frequent entrance in the FORUM'

Malagasy gerundive nominals, which appear with an accusative-marked, unincorporated internal argument, always denote an event. Compare (31) to (32):

(31) hita.ko   ny   f.an.ala.hidin-dRabe
     see.1SG/GEN   DET   NML.PFX.remove.lock. LNK-Rabe
     'I found Rabe's (instrument for) opening locks/key.'

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underived nominal root. These facts indicate a generalization that any adequate analysis of these nominals needs to capture in a straightforward way.

(32)   nandritry ny adiny telo ny   f.an.al.an-dRabe   ny hidi.n-dRasoa
        lasted   DET hour three DET   NML.PFX.remove.CT/LNK-Rabe DET lock. LNK-Rabe
        'Rabe's opening Rasoa's locks lasted for three hours.'

With the instrumental synthetic compound of (31) no 'lock-opening' event is implied. On the other hand, the gerundive nominal of (32) obligatorily implies an 'opening' event (see van Hout & Roeper (1998) for a similar contrast in English agentive nominalizations).

Taking into account all the verbal properties discussed so far, it becomes clear that gerundive nominals in Malagasy resemble tensed nominal clauses which are also available in the language. In fact, the only difference between nominal clauses and gerundive nominals is the presence of tense morphology (and semantics) in clausal nominals. Clausal nominalizations are tensed clausal strings selected by the definite determiner *ny* and referring to events anchored in time with respect to the time of utterance. In contrast, gerundive nominals, as we have seen, lack tense morphology (i.e. tense has been replaced in terms of linear order by the nominalizer *f-*) and are semantically interpreted as habitual:

(33)   ny   Ø/n-/h.amp.i.anarana   teny   gasy   an-dRasoa
        DET PRS/PST /FUT.CAUS.PFX.study.CT language Malagasy ACC.Rasoa
        'The (current-past-future) teaching of Malagasy to Rasoa ….'

(34)   ny   f.amp.i.anar.ana   teny   gasy   an-dRasoa
        DET NML. CAUS.PFX.study.CT language Malagasy ACC.Rasoa
        'The (habitual) teaching of Malagasy to Rasoa….'

In (33) the tensed clausal nominal refers to the event of "teaching Malagasy to Rasoa". Choice of tense marking on the verbal string (zero for present tense or the prefixes *n-* for past tense and *h-* for future) determines whether the event of teaching is situated in a temporal domain that occurs simultaneously with the time of utterance, prior to it or subsequently to it correspondingly. In any case, the event of teaching is anchored in time without the need of further temporal modification, for example with a temporal adverbial. On the other hand, with the gerundive nominal of (34), there is no time anchoring and the event of teaching is interpreted as habitual. A temporal interpretation is possible but only if it is forced by the context, for example with the use of a temporal adverbial:

(35)   n.aha.tezitra   an-dRasoa ny   f.an.galar.an'   i   Koto azy
        PST.CAUS.angry   ACC-Rasoa DET NML.PFX.steal.CT/ LNK' DET   Koto 3ACC
        amin'   ny   zoma
        on. LNK'DET   Friday
        'The stealing of it by Koto on Friday angered Rasoa.'

In conclusion, Malagasy gerundive nominals exhibit the full scale of verbal functional properties as manifested in a hierarchical fashion on the clausal spine, up to and excluding the projection where tense is located. These properties provide sufficient support for the assumption that *f-* is syntactically in the head position of a phrase that projects at approximately the same height as tense in clausal strings (i.e. a nominal INFL as proposed in Baker (2005)).

Finally, in terms of syntactic distribution, gerundive nominals appear in all positions where noun phrases can appear, including the trigger position (36), as verbal arguments (37), or objects of prepositions (38):

(36)   mahagaga   ny   [f.aha.tongava.nao   anio]
        surprising   DET NML.ABIL.arrive.CT/2SG/GEN   today
        'Your arrival today is surprising.'

(37)   n.aha.tadidy   ny   [f.an.galar.an'   i   Koto]   aho
        PST. CAUS.remember DET NML. PFX.steal.CT / LNK DET   Koto   1SG/NOM
        'I remember Koto's stealing'.

(38)   Hendry hatrami.n'   ny   [f.aha.zaza.ny]]   izy
        wise   since. LNK'   DET NML. CAUS.child.CT /3GEN   3NOM
        'He is well-behaved since his childhood.'

Thus gerundive nominals behave externally like common noun phrases but retain most of their verbal architecture in terms of internal structure. In the following section we will try to tease apart their syntactic structure in more detail and examine the exceptional properties of the subtype of abstract nominals that in spite of resembling gerundive nominals in appearance lack eventive interpretations and exhibit a morphosyntactic behavior that is closer to that of common noun phrases.

5.   PROPOSED SYNTACTIC STRUCTURE. Given the data presented in the previous section and following Baker's (2005) analysis of gerundive structures (c.f. also Abney 1987; Schueler 2004 and others), I assume that in the case of *f*-nominals in Malagasy, the nominalizer *f-* attaches at the tense level, replacing the tense projection with a nominal inflection. In such an approach the height of attachment of the nominalizer determines the internal properties of the string. Derivational morphemes like nominalizers are assumed to be phase-determining heads (as in Marantz 2001 and subsequent work), which have a variable attachment height: they can attach as low as the root domain, taking as complements either the root itself or a slightly more complex structure to which no functional morphology has attached; or alternatively, they can be attached at a higher level, outside other functional or category-establishing morphology. Malagasy gerundive nominals follow the second option: they are derived by nominalizing morphology attaching outside verbal morphology, including the category-establishing verbalizing prefix and additional causative, abilitive, or reciprocal verbal morphology. As a result, the derived nominals exhibit rich productivity and transparent semantics (Marantz 2001).

The structure-building process for gerundive nominals starts with the pre-categorial root taking category-establishing morphology, which in this case is manifested most commonly as one of the two verbalizing prefixes *an-* or *i-*:

(39) [$_v$ i- [$_{ROOT}$ anatra]]

Subsequently, additional verbal morphology (if present) attaches outside the verbalizer. In our example, this is the causative prefix *amp-*:

(40) $[_{CAUS}$ amp- $[_V$ i- $[_{ROOT}$ anatra]]]

Voice morphology attaches next to create the CT form of the verb[8]. Voice morphology introduces specifiers in which verbal arguments are licensed (null for external argument (but see Pearson 2001; 2005 and Ntelitheos 2006 for treating the prefix *m-* as a voice morpheme that licenses the external argument); CT for non-core arguments and adjuncts; TT for the Theme).

(41) $[_{CTVOICE}$ $[_{CAUS}$ amp- $[_V$ i- $[_{ROOT}$ ana~~tra~~]]] –an]

In non-active voices the external argument is licensed by the linker (Keenan and Polinsky 1998; Pearson 2001, 2005; Ntelitheos 2006):

(42) $[[_{LNK}$ $[_{CTVOICE}$ $[_{CAUS}$ amp- $[_V$ i- $[_{ROOT}$ ana~~tra~~]]] –an] n] Rabe]

The case of the VP-internal argument is licensed outside the voice domain. We could assume an AspP (as in Travis (1994); c.f. also AGROP in earlier versions of Minimalism, as in Chomsky (1995)) where the internal argument moves to get accusative case in a local configuration (outside Voice morphology). The event interpretation is also achieved outside the voice domain and possibly above case licensing projections (remember that eventive interpretations are forced when the internal argument is fully licensed and quantified, in other words when it appears as a definite case-marked element within the nominalization (c.f. (32)). We could assume an EventP (as in Pearson (2001)) just below tense which licenses the event variable. This would be equivalent to Stowell's (1996) ZeitP projection. In the immediately dominating projection, Tense closes the domain by anchoring the event variable relative to some reference time, predominately the time of utterance (Stowell 1996). However, in gerundive nominals tense is replaced by the nominalizing affix:

(43) $[_{NML}$ f $[_{EVENT}$ $[_{Asp}$ $[_{LNK}$ $[_{CTVOICE}$ $[_{CAUS}$ amp- $[_V$ i- $[_{ROOT}$ ana~~tra~~]]] –an] n] Rabe]]]

Finally, adverbial modifiers adjoin at different levels in this structure depending on their semantic contribution (c.f. Cinque 1999).

The proposed structure explains the properties of Malagasy gerundive nominals as listed in the previous section, in a straightforward manner. The gerundive nominals are predicted to contain all verbal morphology present at the lower levels – including verbalizing, voice, causative, and reciprocal morphology with the external argument being licensed by the linker. The internal argument can appear with accusative morphology (licensed in some case position, possibly AspP (as in Travis 1994). The *f*-nominal is interpreted as eventive (since EventP is available in the structure). Adverbial modification is possible since all the functional projections up to TP are present, (29)-(30).

The fact that the highest head in the projection is the nominalizer which changes the extended projection (in the sense of Grimshaw 1991) from verbal to nominal, explains why the

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[8] A phonological process deletes the stem-final weak syllable [*tra*] from the string, before the voice suffix is added (see Keenan and Polinsky (1998) for a discussion of weak final syllables *–tra*, *-ka*, and *–na,* and syllable-drop processes associated with them.

external distribution of the whole string is nominal. The nominalizer acts as some kind of complementizer allowing the string to be selected by a determiner or other quanticizing element such as a demonstrative (examples (36)-(38)); c.f. the following example from Keenan (2000)[9]:

(44) Izany f.i.karakar.any   sy f.an.olokolo.a.ny an-dRazay   izany …
      DEM NML.PFX.care.RED.CT/3GEN and NML.PFX.care.RED. CT/LNK-Razay DEM
      "That care of theirs and treatement of theirs of Razay …"

6. RESULT NOMINALS. In this section I discuss the properties of gerundive nominals with abstract or result interpretations. As we have seen in section 2, while the majority of gerundive nominals have eventive meanings and/or circumstantial modifier meanings (instrumentals, manner, locatives), a portion of them appear with abstract meanings. In addition, there are nominals that seem to be ambiguous: carrying an eventive meaning, denoting the action of V-*ing* and a "result" meaning, which points to the outcome of an action. Consider for example the case of *fanomezana* which is compositionally derived from the source root *ome*, meaning "give" by adding the verbalizing prefix *an-*, the CT voice suffix *–(z)an(a)* and the nominalizer *f-*. The resulting gerundive nominal has two meanings: the eventive or action meaning of "giving" something to someone and the result meaning of "gift":

(45) ny   f.an.ome.zana   azy Vitamine A sy   pilokankana[10]
      DET NML.PFX.give.CT   3ACC Vitamin A and worm-tablets
      "… giving them Vitamin A and worm-tablets"

(46) M.i.araka   sy   m.if.a.meno ireo fanomezana roa ireo:
      PRS.PFX.accompany and PRS.RED.PFX.completer DEM gifts two DEM
      endrika sy   tarehy   ary fahefana[11]
      image   and appearance and power.
      "These two gifts accompany and complete each other: image and appearance and power"

In (45) the gerundive nominal *fanomezana* refers to the action of giving Vitamin A and worm-tablets to children, while in (46) the same gerund refers to gifts in a metaphoric way, the physical attribute of appearance and the power to make decisions at the level of government. Notice that the addition of a linked element to these two structures results to different interpretations for that element:

(47) ny   f.an.ome.zan' ny   dokotera azy Vitamine A sy   pilokankana
      DET NML.PFX.give.CT/LNK' DET   doctor   3ACC Vitamin A and worm-tablets
      "… the doctor's giving them Vitamin A and worm-tablets"

(48) M.i.araka   sy   m.if.a.meno   ireo fanomezan-dRabe roa ireo
      PRS.PFX.accompany and   PRS.RED.PFX.complete DEM gifts/LNK-Rabe   two DEM

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[9] Thanks to one anonymous reviewer for bringing this example to my attention.
[10] Retrieved from http://www.mandrosoa.org/dossier.php?id=14&lang=mg (09/06/2010)
[11] Retrieved from http://membres.multimania.fr/azal/azal_TORITENY.htm (13/06/2010).

"These two gifts of Rabe's accompany and complete each other"

While the linked DP *ny dokotera* in (47) is interpreted as an agent, ie the person who initiates the event of giving the tablets, in (48), *Rabe* is interpreted as a possessor. That is, the relation of *Rabe* to the gift can have any of the multiple interpretations that a possessor can have (*Rabe* has or owns or has received the gift). This points to a verbal behavior for the gerundive in (47) but a nominal one for the gerundive in (48).

The differences in morphosyntactic behavior between the nominals in (45) and (46) point towards similar differences attested in other language, including English, between so-called eventive and result nominals. The differences are not only exhibited within the class of action nominals but extend to gerundive nominals as well. Consider the difference in interpretation for the gerundive nominal *teaching* in the following examples:

(49)   Mary's casually teaching him French really helped him when he went to Paris.
(50)   I have read every book about Buddha's life and his teachings.

In (49) the gerundive nominal refers to the habitual action of Mary teaching someone French. In contrast, in (50) the gerundive *teachings* does not refer to actions/events of teaching but rather to the content of Buddha's attitude towards the world, i.e. the collection of thoughts that constitute his philosophy of life. Here then we have the same distinction between "action" nominals and "result" nominals. As in English and other languages, Malagasy gerundive nominals of the result type exhibit a number of properties that distinguish them from the action type. These properties have been discussed in detail in Grimshaw (1990) and subsequent literature. For example, while in genitive nominals the pronominal genitive argument is interpreted as the external argument of the verbal source, in result nominals it is interpreted as the possessor. We have already seen that this is also true for Malagasy (c.f. (47)-(48)). Additional properties of result nominals is that they can be pluralized in the same way that common noun phrases can. As we can see in example (46), the numeral *roa* "two" can follow the result nominal, and the DP boundaries are marked by two copies of the plural demonstrative *ireo* "those". However, no such modification is available with the action gerundive nominal of (45):

(51) * ireo f.an.ome.zana   azy Vitamine A sy   pilokankana   roa   ireo
        DEM NML.PFX.give.CT 3ACC Vitamin A and worm-tablets two   DEM
        "… those two offerings to them of Vitamin A and worm-tablets"

In addition, when an internal argument is present with a result nominal, it can only appear as an incorporated bare noun in synthetic compound form:

(52)   Ny   f.i.kamban.an'   ny Vavolombelo.n' i   Jehovah
        DET   NML.PFX.union.CT/LNK' DET witness.LNK '   DET Jehovah
        dia   m.an.drara   ny   f.an.omez.an-dra[12].
        TOP   PRS.PFX.prohibit   DET   NML.PFX.give.CT-blood
        "The Jehovah witnesses forbid blood donation."

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[12] Retrieved from http://www.irr.org/wit/four-dangers-malagasy.html (13/06/2010).

If an accusative-marked independent noun phrase is inserted instead, the result meaning is lost:

(53)　　ny　　f.an.omez.an-dRabe　　　　ny　　ra.ny
　　　　　DET　NML.PFX.give.CT/LNK-Rabe　DET　blood.3GEN
　　　　　"Rabe's giving his blood (but not "Rabe's blood donation)."

An additional difference between action and result nominals is their interpretation as eventive or not. In (53), the action gerundive nominal implies that an event of blood-giving has taken place. On the other hand, the result nominal of (52), does not necessarily imply any event of blood-donating, it just asserts that blood-donation is not allowed.

Finally, adverbial modification, for example with frequentative adverbs is not possible with result nominals:

(54) * ny　　f.an.omez.an-dRasoa　　　　　matetika　　dia　　any　ambon' ny　　latabatra
　　　　DET　NML.PFX.give.CT/LNK-Rasoa frequently　TOP　LOC　on. LNK' DET　table
　　　　'Rasoa's gift frequently is on the table.'

Following work in Borer (2005); Ntelitheos (2006); Alexiadou & al. (2007) among others, it is assumed that differences in the morphosyntactic behavior of nominalized strings are the direct result of a variable attachment height for the nominalizer: the nominalizer attaches at different heights changing the verbal projection to nominal. As a result, the derived nominal exhibits variable verbal properties: the higher the attachment site for the nominalizer the more verbal properties the resulting nominal exhibits. In the case of result gerundive nominals it is assumed that the nominalizer attaches quite low, and more specifically, just above the voice projection where circumstantial voice morphology merges:

(55) [~~TENSE~~ [~~EVENT~~ [~~ASP~~ [~~LNK~~　　[$_{NML}$ f- [$_{CTVOICE}$ [$_v$ an- [$_{ROOT}$ ome(z)]]] –an]　]]]]

As can be seen in the structure, since the nominalizer attaches above the CTvoice projection, all higher projections become unavailable as the extended projection becomes nominal. Thus, it is predicted that first, no case-marked theme arguments can appear with result nominals as the case projection AspP is not available (c.f. (53)); only incorporated internal arguments are allowed as they remain lower in the structure (within the vP domain) and are not quanticized; second, the external argument cannot be linked to the verbal stem since the LnkP projection that licenses the external argument is not available (48); the projection where frequentative adverbs project is also not available and therefore their insertion in the structure results in ungrammaticality (54); finally, the nominal cannot have an eventive interpretation since the EventP projection is not available (53). On the other hand, verbalizing, causative and voice morphology are still available and can be present on the derived nominal stem. The nominalizer defines the nominal domain and therefore higher projections will be nominal in nature. This means that the string can now be entered into a possessive relation and a possessor can be linked, acquiring all the interpretations that are possible in such cases (see Ntelitheos 2006:ch. 3, for a detailed discussion of the mechanisms involved in these cases).

CONCLUSION

I have shown that the notion of deriving Malagasy gerundive nominals in the lexicon (as proposed for example in Paul 1996) is not actually supported by the data. Malagasy gerundive *f-* nominals exhibit a number of verbal properties that include voice and other verbal morphology, accusative-marked objects, adverbial modification, and eventive interpretation. I have shown that these properties are explained if we assume that the nominalizer *f-* attaches at the tense head maintaining the complete lower verbal functional domain. In result interpretations the nominalizer attaches lower in the structure (above VoiceP) and therefore fewer verbal properties are available. The notion of a variable site for the attachment of derivational morphemes like nominalizers provides a well-supported analysis for the mixed morphosyntactic properties and external distribution of these nominals while simplifying the architecture of the grammar, by questioning the role of an independent module of morphology in these types of derivational processes.

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