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1. Introduction*

Malagasy, an Austronesian language with rather fixed word order, has traditionally been described as a VOS (or Predicate-Topic) language, based on examples such as (1):[1]

(1) Namono ny akoho tamin'ny antsy ny vehivavy
     Pst-kill:ST Det chicken Pst-with-Det knife Det woman
     "The woman killed the chicken(s) with the knife"

In Guilfoyle, Hung, and Travis (1992), and much subsequent work, this order is captured by positing a tree like the one in (2), where the verb undergoes head movement to I°, and the Topic raises to a specifier position above and to the right of I°.
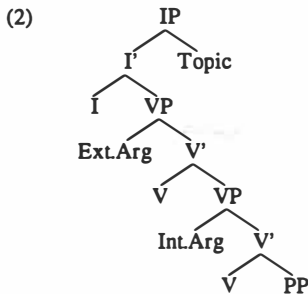
(2)

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[1] The following abbreviations are used in the examples: Asp = aspect, Cleft = cleft particle, Comp = complementizer, Decl = declarative, Deic = deictic element, Det = determiner, Excl = exclamatory particle, Imp = imperative, Neg = negation, Nom = nominative, Obl = oblique prefix, ObT = Oblique-Topic form, OT = Object-Topic form, Pred = Predicate, Pst = past tense, Qu = question particle, ST = Subject-Topic form, Sub = subordinator morpheme, Top = Topic, TT = Theme-Topic form.

Based on the position of Topics, Guilfoyle et al. stipulate that in Malagasy, lexical projections such as VP have their specifiers on the left, while functional projections such as IP have their specifiers on the right. In this paper, I would like to present an alternative analysis which avoids this directionality stipulation. Under my analysis, Predicate-Topic order is derived through pied-piping of the Predicate to the specifier of a functional category in COMP, located above the surface position of the Topic.[2] By positing movement of the Predicate over the Topic, I claim, a descriptively adequate account of Malagasy word order can be obtained within a highly restrictive theory of projection and movement.

This analysis takes advantage of two recent ideas in the literature. The first of these is that cross-linguistic word order variation can be accounted for without assuming a directionality parameter on phrase structure, if we assume that large XP constituents can undergo 'heavy' pied-piping to the specifiers of functional projections (Nkemnji 1996 offers a recent example of this approach to word order).

The second idea which I exploit in my analysis is that COMP, much like INFL, is not a single projection, but rather a highly structured series of projections, which includes complementizer and clause-type categories, as well as operator(-like) positions associated with features such as Topic, Focus, and Wh. Two proposals for 'expanded' COMP which I discuss below are Bhatt and Yoon (1991) and Rizzi (1995).

In the discussion which follows, I will assume a number of restrictions on phrase structure and movement: Following Kayne (1994), I will assume that there is no directionality parameter, and that phrase markers conform universally to a specifier-head-complement order, where precedence is derived from asymmetric c-command. Given this, in combination with the assumption that a moved element must c-command its trace, it follows that movement must always be to the left. I will also adopt the Minimalist assumption that elements move solely in order to enter into a checking relation with a feature of a higher head X, either through head adjunction to $X°$ or through movement of a maximal projection to SpecXP. Finally, following Rizzi (1995) and others, I assume that there is no free adjunction to XP (or, in Kayne's terms, where specifiers are a kind of adjunct, only one XP adjunct is allowed per projection).

The structure of the rest of this paper is as follows: In section 2 I review Topic-Predicate structure and morphological case in Malagasy. In section 3 I present some word order facts, focussing on elements which arguably occur above TP as part of the COMP system. These include complementizers, question particles, negation, and sentential adverbials. I then lay out my pied-piping analysis in section 4, and consider briefly how to implement it within a Minimalist theory of movement. Finally in section 5, I present some evidence for my analysis based on word order in certain kinds of embedded clauses.

2.   Topic, Predicate, and morphological çase

As several authors have noted (Keenan 1994; Pearson 1995, 1996; Pensalfini 1995; etc.), there is evidence from prosody, as well as the placement of certain particles, that clauses in Malagasy have a bipartite structure, consisting of a Predicate constituent, and what I will call the 'Topic field', which includes various positions outside the Predicate. In most cases the Topic field contains a Topic DP, which forms a chain with a gap inside the Predicate. This structure is illustrated in (4), where *e* indicates the gap. (I tentatively assume that Topics in Malagasy are base-generated in their surface position and coindexed with a null operator. However, nothing in my present proposal hinges on this.)

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[2] Note that this is similar to an analysis of Malagasy discussed in Pensalfini (1995).

(4)   [$_{Pred}$ e$_i$ namono   ny akoho   tamin'ny   antsy] [$_{Top}$ ny vehivavy]$_i$
              Pst-kill:ST   Det chicken Pst-with-Det knife   Det woman
       "The woman killed the chicken(s) with the knife"

The thematic role of the Topic - or, more accurately, the position of the Topic argu-
ment within the theta role hierarchy - is indicated by the morphological form of the verb. A
given verb may have up to four 'thematic agreement' (or 'voice') forms, allowing any
argument of the verb to be topicalized. For instance, the four forms of the ditransitive verb
root *roso* "serve" are illustrated in (5)-(8), where the Predicate is indicated by bracketing.

ST (Subject-Topic): Topic = Actor, Experiencer

(5)   [Nandroso   vary ny ankizy   tamin'ny   lovia vaovao] Rabe
              Pst-serve:ST   rice Det children Pst-on-Det dish new   Rabe
       "Rabe served the children rice on the new dishes"

OT (Object-Topic): Topic = Recipient, Patient, Theme

(6)   [Norosoan-dRabe   vary tamin'ny   lovia vaovao] ny ankizy
              Pst-serve:OT Rabe   rice Pst-on-Det dish new   Det children
       "The children were served rice by Rabe on the new dishes"

TT (Theme-Topic): Topic = Theme, Instrument

(7)   [Naroson-dRabe   ny ankizy   tamin'ny   lovia vaovao] ny vary
              Pst-serve:TT Rabe   Det children Pst-on-Det dish new   Det rice
       "The rice was served to the children on the new dishes by Rabe"

ObT (Oblique-Topic): Topic = Oblique

(8)   [Nandrosoan-dRabe vary ny ankizy   ] ny lovia vaovao
              Pst-serve:ObT Rabe rice Det children   Det dish new
       "The new dishes were used by Rabe to serve rice to the children"

These sentences all have roughly the same propositional content, but differ in how
they present the information: Intuitively speaking, sentence (5) presents some property of
the Actor *Rabe* (namely, that he served rice to the children), while (6) presents some
property of the recipient "the children", (7) presents a property of the Theme "the rice", and
(8) presents a property of the Locative "the new dishes". (Thus for instance, sentence (5)
might be used in answer to the question "What did Rabe do?", but if the question were
"What happened to the rice?", sentence (7) would be used.)

In studies of Malagasy (and Western Austronesian generally), the syntactic, seman-
tic, and functional status of what I am calling the Topic has been the subject of much
debate. An important property of Topics is that they must be specific (in the sense of Enç
1991). I give some examples in (9) and (10), where the Topic in (9) may have either a
definite or specific indefinite (partitive) interpretation, while the Topic in (10) has a definite
or generic interpretation (note that number is not marked on nouns or on the determiner
ny). In both cases, a non-specific indefinite (or existential) reading is ruled out.

(9)   [Niditra   tao   amin'ny efitrano] ny ankizivavy maro
              Pst-enter Pst-Deic in-Det   room   Det girl   many
       "The many girls entered the room"
       OR "Many (of the) girls entered the room"

(10)   [Mihinana   ahitra] ny omby
         eat:ST   grass Det cow
       "The cow(s) is/are eating the grass"
       OR "Cows eat grass"

Also, note that overt (non-Actor) Topics can - and frequently do - occur in impera-
tives, as shown in (11). This suggests that Topics are not the same as subjects in languag-
es like English, which are generally disallowed in imperatives.

(11)   [Sasao   ] ny lamba
         wash:OT:Imp   Det clothes
       "Wash the clothes!"

Following Kuroda's (1972) treatment of *wa* topics in Japanese, and Sityar's (1995)
treatment of nominative arguments in Cebuano, I claim that Topics in Malagasy are not
grammatical subjects, or discourse topics, but rather topics of predication. The content of
the Topic thus maps roughly onto the restriction in a tripartite LF structure, while the Predi-
cate maps onto the nuclear scope, as illustrated in (12):

(12)   S
                           _____|_____
                          | | |
                      Operator   Restriction   Nuclear Scope
                                   (Topic)   (Predicate)

Informally speaking, the Topic presents a presupposed entity or set, while the
Predicate asserts, denies, or questions some property of that entity or set. Although there
are problems equating Malagasy Topics with Kuroda's and Sityar's notion 'subject of a
categorical judgement', it is perhaps significant that in prototypically 'thetic' constructions,
the Topic position is generally empty.[3] For example, Topic DPs are absent in existential-
type constructions formed with the verb *misy*, as shown in (13) and (14). (See Pearson
1996 for additional discussion of Topics.)

(13)   [Misy penina mena] eo   ambonin'ny   latabatra
         exist pen   red   Deic   on top of-Det table
       "There is a red pen on the table"

(14)   [Nisy   entana tonga] omaly
         Pst-exist parcel arrived yesterday
       "A parcel arrived yesterday"
       "Some parcels arrived yesterday"

I will assume here that Topic DPs occupy the specifier of a functional projection
TopP. I place TopP outside the scope of existential closure, which is introduced by a func-
tional projection that I will call PredP, as in the tree in (15).[4] This is how I capture the fact
that non-specific noun phrases may occur anywhere inside the Predicate, where they are
bound by the existential operator, but are prohibited from occurring in the Topic field. This

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[3] "Categorical" judgements first present an entity (a subject), and then predicate some property of that
entity, while "thetic" judgements merely present some property or situation, without predicating it of any
particular entity. Prototypically categorical sentences include generic statements (*Cows eat grass*), while
prototypically thetic sentences include existentials (*There is a book on the table*) and weather expressions
(*It's raining*). See Kuroda (1972), Sasse (1987).
[4] My PredP projection should not be confused with the Predication Phrase (PrP) argued for in Bowers
(1993), or other similarly named categories.

is very much in the spirit of Kratzer (1989) and Diesing (1992), except that I locate existential closure higher than they do, above TP rather than at the IP-VP boundary.

(15)

```
                        TopP
                       /    \
(Topic =)      DP_Top        Top'
                             /   \
                          Top    PredP        (= Predicate)
                                /    \
                               ∃      TP?
```

Let me also briefly review morphological case marking in Malagasy, which will be relevant to the discussion in sections 4 and 5. Malagasy noun phrases are generally recognized as having (up to) three morphological case forms, traditionally called "nominative", "accusative", and "genitive" (see Keenan 1994). The nominative case is used for Topics, as shown in (16). Pronouns have special nominative case forms characterized by the prefix *i-*, while proper names and common noun phrases are unmarked for nominative. Nominative case is also found on clefted DPs, as well as fronted contrastive - or 'switch reference' - topics, which I will not discuss here.

(16)   [Namangy   ny vehivavy] **izahay**
          Pst-visit:ST Det woman   1pExcl:Nom
       "We visited the woman"

       [Namangy   ny vehivavy] **Rabe**
          Pst-visit:ST Det woman   Rabe
       "Rabe visited the woman"

       [Namangy   ny vehivavy] **ny zaza**
          Pst-visit:ST Det woman   Det child
       "The child visited the woman"

Accusative case is found on non-Topic objects of verbs, as well as the complements of certain adjectives and prepositions. As with the nominative, accusative case pronouns have special forms. In addition, proper names are marked with the oblique prefix *an-* - which is also used in locative and adverbial expressions, e.g. *an-trano* "at home" and *an-tsirambina* "carelessly, with carelessness". (Common noun phrases may or may not take the prefix *an-* as well, depending on the definiteness of the noun phrase, as well as the dialect and age group of the speaker.) Accusative case forms are shown in (17):

(17)   [Namangy   **anay**   ] ny vehivavy
          Pst-visit:ST 1pExcl:Acc Det woman
       "The woman visited us"

       [Namangy   **an-dRabe**] ny vehivavy
          Pst-visit:ST Obl-Rabe   Det woman
       "The woman visited Rabe"

       [Namangy   **ny zaza**] ny vehivavy
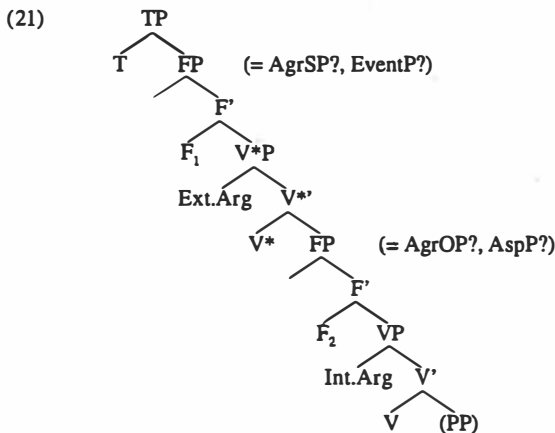   Pst-visit:ST Det child   Det woman
       "The woman visited the child"

Finally, genitive case is used for non-Topic subjects of verbs, as shown in (18), as well as possessors and the objects of most prepositions, as shown in (19). Genitive case is

characterized by what Keenan (1994) calls "n-bonding", whereby the determiner (or D°) element of the noun phrase undergoes phonological fusion with a suffix -n(a) on the predicate head. The genitive DP and the predicate head with which it fuses form a single phonological word, as indicated by the orthography. (See section 4 for a tentative analysis of this construction.)

(18)   [Novangia**nay**   ] ny vehivavy
        Pst-visit:OT-1pExcl   Det woman
        "The woman was visited by us"

        [Novangian**-dRabe**] ny vehivavy
        Pst-visit:OT-Rabe   Det woman
        "The woman was visited by Rabe"

        [Novangian**'ny zaza**] ny vehivavy
        Pst-visit:OT-Det child   Det woman
        "The woman was visited by the child"

(19)   ny boky   "the book"   ami(na)   "with/at"
        ny bok**inay**   "our book"   am**inay**   "with/at us"
        ny bok**in'ny** zaza "the child's book" am**in'ny** zaza "with/at the child"

3.   Word order

I now turn to some word order facts, starting with the order of the verb and its non-Topic arguments, which together form the core of the Predicate phrase. The order of these elements, which is fairly rigid, is given in (20), based on examples like those in (5)-(8):

(20)   Verb — Actor/Experiencer — Theme/Patient — Recipient — Oblique

To account for this order, I will assume the structure in (21), which is based largely on Travis (1991, 1994):

(21)   TP
              / \
            T   FP   (= AgrSP?, EventP?)
                / \
                   F'
                  / \
                F₁   V*P
                    / \
                Ext.Arg V*'
                        / \
                      V*   FP   (= AgrOP?, AspP?)
                          / \
                             F'
                            / \
                          F₂   VP
                              / \
                          Int.Arg V'
                                  / \
                                 V   (PP)

Here V* is a light predicate, analogous to v in Chomsky (1995), which assigns a theta-role to the external argument. F_1 and F_2 are functional heads of some sort, which select VPs and play a role in the Case licensing of arguments. I assume that the verb undergoes successive head adjunction, raising (at least) to $F_1°$. For our purposes, the crucial thing about this tree is that it is strictly right-branching, such that (non-Topic) external arguments both precede and asymmetrically c-command (non-Topic) internal arguments. Evidence for c-command comes from examples like (22), where *ny zanaka* "the children" is a benefactive Topic. Here we see that an Actor antecedent may bind a Theme anaphor within the Predicate phrase (this example taken from Keenan 1993):

(22)   [Amonoan'ny ray aman-dreny rehetra$_i$ tena$_i$] ny zanaka
        kill:ObT-Det   parents   all   self   Det children
        "All parents$_i$ kill themselves$_i$ for (their) children"

Turning to projections above TP, (23) shows that the negative morpheme *tsy*, which presumably occupies the head of NegP, immediately precedes the verb, occurring at the leftmost edge of the Predicate phrase. Complementizers such as *fa* (which heads finite complement clauses) occur clause-initially, immediately preceding negation, as in (24):

(23)   [Tsy namaky   ny boky] ny mpianatra
        Neg Pst-read:ST Det book Det student
        "The student didn't read the book"

(24)   (Fantatro) [fa   [tsy namaky   ny boky] ny mpianatra]
        known-1s   Comp   Neg Pst-read:ST Det book Det student
        "(I know) that the student didn't read the book"

At the right edge of the Predicate, following obliques, a number of sentential adverbial elements can occur, among them *angamba* "probably". (25) shows that *angamba* scopes over Predicate-initial negation, and is thus arguably generated above NegP, given the assumption that adverbs do not move from their base positions for scope-taking.

(25)   [Tsy namaky   ny boky tany   an-tokotany angamba] ny mpianatra
        Neg Pst-read:ST Det book Pst-Deic Obl-garden probably Det student
        "The student probably didn't read the book in the garden"

Malagasy also possesses various particles associated with clause-type, among them the yes/no question particle *ve* (illustrated below) and the exclamatory particle *anie*. As shown in (26)-(27), these elements obligatorily occur at the rightmost edge of the Predicate. Example (27) shows that *ve* follows *angamba*, and scopes over it.

(26)   [Namaky   ny boky tany   an-tokotany ve] ny mpianatra?
        Pst-read:ST Det book Pst-Deic Obl-garden Qu Det student
        "Did the student read the book in the garden?"

        cf.: * [Namaky ve ny boky tany an-tokotany] ny mpianatra?
             * [Namaky ny boky ve tany an-tokotany] ny mpianatra?
             * [Namaky ny boky tany an-tokotany] ny mpianatra ve?

(27)   [Namaky   ny boky angamba ve] Rabe?
        Pst-read:ST Det book probably Qu Rabe
        "Rabe a-t-il probablement lu le livre?" [consultant's translation]
        "Rabe, is it the case that he probably read the book?"

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Since particles like *ve* occur at the boundary between the Predicate and the Topic field, and since they act as functions over properties or situations, I will locate them in the head of PredP, below TopP, as in (28) (cf. the tree in (15) above). (In simple statements, this position would presumably be occupied by a phonetically null declarative morpheme.)

(28) $[_{TopP}$ DP_{Top} $[_{Top'}$ $Top°$ $[_{PredP}$ *ve* ... $[_{TP?}$ ... $]$ $]$ $]$ $]$

Finally, there are a certain number of elements which can occur outside the Predicate, usually after the Topic. For instance, adverbials like *omaly* "yesterday", which provide the temporal context for the event, typically occur clause-finally (or sometimes in between the Predicate and the Topic), as shown in (29):

(29)   [Namaky   ny boky   ve] ny mpianatra omaly?
       Pst-read:ST Det book   Qu Det student   yesterday
       "Was the student reading the book yesterday?"

       [Namaky   ny boky   ve] omaly   ny mpianatra?
       Pst-read:ST Det book   Qu yesterday Det student
       "Was the student reading the book yesterday?"

In addition, certain elements are regularly 'stranded' after the Topic, such as locative PPs in 'have/be' constructions (cf. (13) above), as well as finite clause complements headed by *fa* (as opposed to ECM/raising complements, which remain inside the Predicate; cf. (44) below). These elements presumably extract from inside the Predicate, perhaps for scope reasons. (Note that I won't discuss post-Topic elements below; I mention them here merely for the sake of completeness.) The word order facts presented in this section may be summarized by means of a template, such as the one in (30):

(30) $C°$ — $Neg°$ — Verb + arguments — *angamba* — *ve* — Topic, *omaly*, etc.

4.   **Deriving word order**

So how do we draw a tree that captures the word order and scopal facts discussed in section 3? By expanding the Guilfoyle, Hung, and Travis tree in (2) in order to accommodate negation, adverbials, post-Topic elements, etc., we arrive at a tree like (31):

(31)
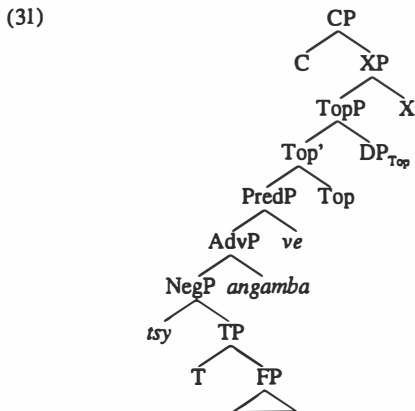
(Note that XP is an abbreviation for the position(s) of post-Topic elements such as *omaly*. Note also that I assume without discussion that adverbs like *angamba* "probably" are 'unaccusative' predicate heads which take an event phrase - here NegP, or some projection containing NegP - as their internal argument, as indicated by the tree.)

Clearly the unusual thing about the tree in (31) is that the lower part (NegP and below) is right-branching, while the upper part is either partially or completely left-branching. Although this fact alone is not sufficient grounds for rejecting the tree, I would like to argue that an entirely right-branching structure can capture the word order facts just as well - if we allow for pied-piping - and that the pied-piping story has at least one empirical advantage. As a lead-in to this analysis, let me turn to the issue of expanded COMP.

In recent literature it has been proposed that CP, like IP, should be broken up into a series of functional projections. Positing a more articulated structure for COMP allows us to (a) provide feature-specific landing sites for operators, (b) explain various ordering restrictions between operators and complementizer heads, and (c) account for morphologically complex complementizers in languages like Korean.

One such proposal is offered by Bhatt and Yoon (1991). Bhatt and Yoon observe that morphemes within COMP can have at least two potentially distinct functions: First, complementizers can act as simple subordinators, which close off the clause and allow it to act as an argument of a higher predicate (*hogy* in Hungarian would be an example of such a morpheme). Secondly, complementizers may mark clause-type or 'force'. Force morphemes introduce interpretable features such as [Q], and may be selected by a higher head. In English and many other languages, these two functions, subordination and force marking, are conflated into a single set of elements such as *that* and *whether*. But in other languages, these two functions are marked by separate morphemes. Korean is one such language, as illustrated in (32)-(33). Here force is marked (in both root and embedded clauses) by the declarative morpheme -*ta* and the question morpheme -*ni/-nya*, while subordination is marked by the morpheme -*ko* (examples taken from Bhatt and Yoon 1991).

(32)   John-i   wa-ss-ta
        John-Nom   come-Pst-Decl
        "John came"

        Bill-un [John-i   wa-ss-ta-ko   ] sayngkakhanta
        Bill-Top   John-Nom   come-Pst-Decl-Sub   thinks
        "Bill thinks that John came

(33)   John-i   wa-ss-ni?
        John-Nom   come-Pst-Qu
        "Did John come?"

        Bill-un [John-i   wa-ss-nya-ko   ] mwulessta
        Bill-Top   John-Nom   come-Pst-Qu-Sub   asked
        "Bill asked whether John came"

Bhatt and Yoon propose that COMP in languages like English consists of a single CP projection, the head of which marks both force and subordination; whereas in languages like Korean, COMP consists of a force phrase (or "mood" phrase, to use Bhatt and Yoon's term), to which the subordinator head is adjoined in embedded clauses. However, since adjunction to XP - and especially head-adjunction to XP - is prohibited under my assumptions, and since I want COMP to look essentially the same in all languages, I will

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assume the structure in (34) (where SubP is present in embedded clauses, but absent in root clauses):

(34)   [$_{SubP}$ Sub° [$_{ForceP}$ Force° [$_{XP}$ ...]]]

   For Korean, we would say that -*ko* is generated in Sub°, while -*ta* and -*ni/-nya* are generated in Force°. For complementizers like *whether* in English, a number of possible derivations can be explored: We might say that *whether* is generated in Sub° and selects a phonetically null ForceP complement containing a [Q] feature, or we might say that *whether* is itself a [+Q] morpheme in the head of ForceP which undergoes obligatory raising to Sub° (thus explaining the absence of *whether* in root clauses). As for Malagasy complementizers like *fa*, I will assume that they are generated in Sub° and that Force° is null.

   Rizzi (1995) gives an elaborate analysis of COMP (what he refers to as the "left periphery") in Romance and English. Among the phenomena he discusses is the position of Topics in clitic left-dislocation constructions, which I tentatively take to be analogous to Topics in Malagasy. In particular, he notes that clitic left-dislocated Topics follow the complementizer *che* in embedded statements, as shown in (35), but precede wh-operators in embedded questions, as shown in (36):

(35)   Credo   che   il tuo libro, loro lo apprezzerebbero   molto
       believe:1s that the your book   they it would:appreciate much
       "I believe that your book, they would appreciate (it) a lot"

       * Credo,   il tuo libro, che loro lo apprezzerebbero   molto
         believe:1s the your book   that they it would:appreciate much
   "I believe, your book, that they would appreciate (it) a lot"

(36)   Mi domando, il premio Nobel, a chi   lo potrebbero dare
       me ask:1s   the Nobel Prize   to whom   it could:3p   give
       "I wonder, the Nobel Prize, to whom they could give (it)"

       ? Mi domando a chi,   il premio Nobel, lo potrebbero dare
         me ask:1s   to whom   the Nobel Prize   it could:3p   give
       "I wonder to whom, the Nobel Prize, they could give (it)"

   Rizzi accounts for this by locating *che* in the head of ForceP - which he places above the Topic phrase where it is visible for selection by a higher head - while wh-question operators move to some SpecXP below the Topic (possibly the specifier of my PredP projection), as in (37). Presumably in the latter case there is some sort of feature matching between the [Wh] head in XP and a null [Q] head of ForceP.

(37)   [$_{ForceP}$ Force° [$_{TopP}$ DP$_{Top}$ Top° [$_{XP (=PredP)}$ [+Wh] ...]]]

   Merging the structures in (34) and (37), we get a hierarchy of COMP projections which I argue is instantiated in Malagasy. The tree in (38) on the next page gives what I assume to be the underlying structure for clauses, showing the ordering of complementizers, force, Topics, negation, etc. (other functional heads which I have not discussed here may also appear in this structure). Given this tree, deriving the proper word order facts by pied-piping is straightforward. To derive a sentence which includes, say, an adverbial like *angamba* scoping over negation (such as (25)), we first move NegP (containing TP) into the specifier of the adverbial phrase, and then move the adverbial phrase to SpecPredP. Finally - and this is the crucial move - PredP raises over the Topic and up to SpecForceP, yielding Predicate-Topic order. The tree in (39) shows the results of these movements:

(38)

(39)
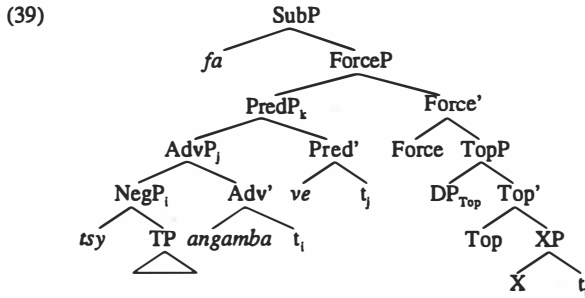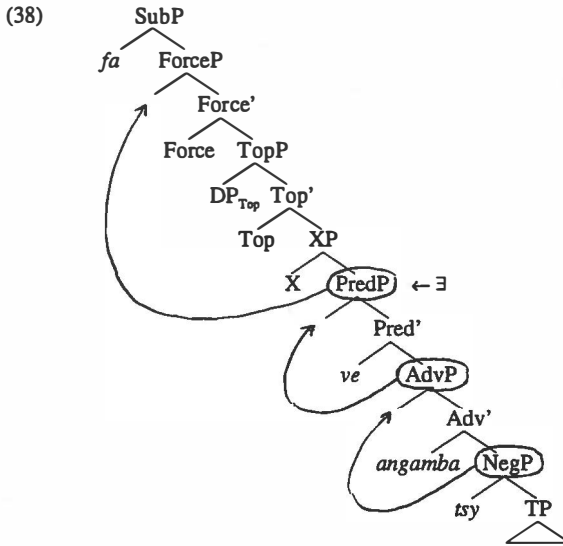
At this point we must ask: What motivates all this pied-piping? While the answer to this question remains obscure, here is one possible approach to the problem, based on recent Minimalist ideas of movement, as expounded in Chomsky (1995). Chomsky argues that the operation Move should be reformulated as Attract-Feature: Thus, for example, suppose that a head contains a feature [F] which needs to be checked off for convergence. At some point in the derivation, this [F] will attract the closest available compatible feature [F'], causing [F'] to raise into the checking domain of [F]. If this movement is covert, Chomsky assumes, then [F'] will raise by itself, in accordance with principles of economy. However, if movement is overt (that is, if the target feature [F] is strong), then [F'] will carry along additional material - in particular phonological material. Chomsky calls this approach to movement 'generalized pied-piping'. Following his interpretation of economy, [F'] will carry along just enough material for convergence, as specified by output conditions (such as constraints on PF) which are independent of feature movement itself.

Chomsky gives an example of this involving wh-movement in English. In wh-questions, there is a feature in COMP which attracts [Wh] elements. This feature is strong in English, so the closest available [Wh] will raise overtly. Suppose that the [Wh] feature in question is contained within the DP in (40), where the possessive determiner joins with SpecDP at PF to form a single word *whose*.
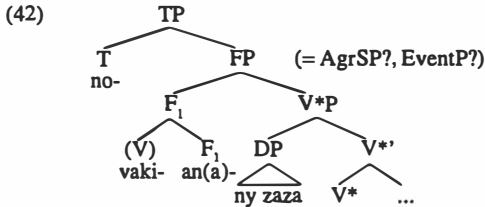
(40)
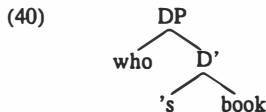
If the [Wh] feature were to raise to COMP by itself, then the derivation would crash at PF, by assumption. If the [Wh] feature carried along the specifier *who*, stranding *'s book*, then again the derivation would crash at PF, given that *'s* is a sub-word element, which cannot be stranded. Finally, raising *whose* and stranding *book* is not an option, since *whose* is not a constituent, and hence not visible to the movement operation. Thus, the smallest category containing the [Wh] feature which can be moved is the entire DP *whose book*. From this perspective, pied-piping of *whose book* in English follows from the way in which transformations interact with output conditions. All that the operation Attract-Feature 'cares about' is the [Wh] feature in (40); the fact that this feature must drag along the rest of the DP results from language-specific morphological requirements.

Now, perhaps an analysis of this kind would work for Malagasy pied-piping as well. To begin with, suppose that in Malagasy the head of PredP and the head of ForceP both have strong features which attract the verb. (It makes sense to think of force morph-emes as attracting the verb, since in many languages they take the form of verbal suffixes, as in Korean.) The most economical way of satisfying the strong [V-] features of Pred and Force would be to have the verb move up by successive head adjunction, but this is not what happens. Instead, the verb moves up to SpecPredP as part of TP, after which PredP raises to SpecForceP. Under a 'generalized pied-piping' approach to movement, what we would say is that XP movement is forced here because some output constraint, perhaps of a morphological nature, blocks movement of an X° constituent. So the question then be-comes: What constraint forces XP movement in Malagasy but not other languages?

A number of possible answers come to mind, which as yet remain to be explored. In passing, let me note the following morphological fact which might account for at least a subset of the pied-piping cases. Recall from my discussion of case in Malagasy (section 2) that non-topicalized (or genitive) subjects form a unit with the verb at PF. An example of this is given in (41), where the subject *ny zaza* "the child" is linked to the root *vaki-* "read" by a suffix *-an(a)*:

(41) [Novakian'ny   zaza] ny boky
        Pst-read:OT-Det child   Det book
      "The book was read by the child"

In (42) below I give a possible structure for the bracketed Predicate in (41), referring back to the tree in (21) (note that I have simplified the structure somewhat). I as-sume that the verb root *vaki-* undergoes successive head adjunction up to F_1, where it adjoins to the functional head *an(a)-*. This *an(a)-* is perhaps responsible for Case licensing of the genitive subject *ny zaza*, which occupies the specifier of the complement of F_1. Meanwhile, the past tense prefix *no-* is sitting in the head of TP. (Additional movements may take place as well. For instance, F_1^{omax} may raise to T° in the overt syntax.)

(42)

```
              TP
         ┌─────┴─────┐
         T           FP      (= AgrSP?, EventP?)
        no-      ┌────┴────┐
              F₁           V*P
           ┌───┴───┐    ┌───┴───┐
         (V)    F₁  DP        V*'
        vaki-  an(a)-△     ┌───┴───┐
                  ny zaza  V*    ...
```

So, given that the functional head *an(a)*- to which the verb root *vaki*- has adjoined must form a phonological unit with the DP in SpecV*P, it follows that if a [V] feature of *vaki*- is to raise overtly, it must carry the subject DP along with it. Assuming the tree in (42) is correct, the smallest category which can move to a higher position is TP. Hence, rather than head movement of V to Force°, we get TP moving to SpecPredP, and PredP moving to SpecForceP. (It remains to be seen whether a PF constraint-based approach to movement, of the type outlined above, can be made to work for *all* cases of Predicate pied-piping in Malagasy. I intend to pursue this question in future research.)

5. A consequence of the pied-piping story

Let me conclude by discussing some potential evidence in favor of the pied-piping story outlined in the previous section, based on the syntax of embedded clauses. We know from a variety of languages that some clausal complements and adjuncts are smaller than others. For example, control complements in English are generally taken to be full CPs, while ECM and raising complements are IPs of some sort, and complements of verbs like *see* in *Lise saw Helen leave* are smaller still. Suppose we find evidence of clausal complements in Malagasy which are small enough that they arguably lack a ForceP projection. The traditional Guilfoyle, Hung, and Travis account of Malagasy phrase structure - which places the Topic above and to the right of the Predicate, as in (2)/(31) - would have nothing special to say about such clauses. However, the pied-piping analysis outlined here makes a very clear prediction: In clauses which lack a ForceP projection there will be no feature to attract PredP, and hence no movement of PredP above the Topic. Such clauses should thus have Topic-Predicate order instead of Predicate-Topic order.

In fact, Topic-Predicate order *does* appear to be attested in a variety of clauses which are arguably smaller than 'CP'. For instance, take the case of ECM constructions, as illustrated in (43). Here the Topic *i Noro* appears to precede the Predicate within the ECM complement, and receive accusative Case in the form of the oblique prefix *an*-:

(43) Nanantena [an'i   Noro ho   nianatra   tsara] Rakoto
      Pst-hope:ST Obl-Det Noro Comp Pst-study:ST good   Rakoto
      "Rakoto hoped for Noro to study well"

Now, it is possible that the order in (43) is derived by overt raising of the embedded Topic into a higher position - say, to SpecAgrOP within the matrix clause. If such were the case, then ECM constructions would not be a convincing example of Topic-Predicate order in embedded clauses, since the Topic could have raised from its canonical position following the Predicate, as shown by the placement of the trace in (44):

(44) Nanantena an'i   Noroᵢ [ho   nianatra   tsara tᵢ] Rakoto
      Pst-hope:ST Obl-Det Noro   Comp Pst-study:ST good   Rakoto
      "Rakoto hoped for Noro to study well"

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However, there is some evidence to suggest that ECM Topics in Malagasy do not raise overtly. Recall from examples like (1) above that adjunct PPs follow direct objects. We would thus predict that if the ECM Topic has raised out of its clause to the canonical direct object position (say, SpecAgrOP), it should precede a matrix PP adjunct.[5] In fact, as (45) shows, the preferred order is for the ECM Topic to follow a matrix PP adjunct. (Note though that the opposite order, while definitely worse, is not completely out.)

(45)   Nanantena amin'ny fony   manontolo an'i   Noro ho   nianatra...
        Pst-hope:ST with-Det heart-3s whole   Obl-Det Noro Comp Pst-study
        "[Rakoto$_i$] hoped with all his$_i$ heart Noro to study..."

        ? Nanantena an'i   Noro   amin'ny fony   manontolo ho   nianatra...
        Pst-hope:ST Obl-Det children with-Det heart-3s whole   Comp Pst-study
        "[Rakoto$_i$] hoped for Noro with all his$_i$ heart to study..."

Whatever the proper analysis of ECM constructions turns out to be, other examples of Topic-Predicate order in embedded clauses also exist. Take for instance the adverbial clauses shown in (46). Here we might suppose that the Topic has raised over the Predicate in order to get (exceptional) Case from the preposition which heads the clause, but this is almost certainly not the correct analysis. For instance, the preposition *tamin(a)* "when-Past" in the first example assigns genitive case to DP objects. However, the embedded Topic pronoun *izy* is in the nominative case form. I thus assume that *izy* is getting Case clause-internally rather than from *tamin(a)*, and that the order Topic-Predicate results from an absence of PredP pied-piping, rather than from a double movement which first raises the Predicate above the Topic, and then raises the Topic above the Predicate.

(46)   Hendribe   Rabe tamin'   [izy   mbola kely]
        very well-behaved   Rabe Pst-when   3s:Nom still   little
        "Rabe was very well-behaved when he was (still) young"

        Aza   mitabataba satria   [ny rainareo mamaky ny bokiny]
        don't make noise   because   Det father-2p read:ST Det book-3s
        "Don't make noise because you're father is reading his book"

Finally, consider the example in (47), containing a complement of a verb of percep-tion. Here again we find Topic-Predicate order, where the Topic *Rabe* is in its nominative form. Evidence that the bracketed string in (47) is a constituent comes from (48), where "Rabe entered the room" have undergone clefting:

(47)   Ren'ny   zaza [Rabe niditra   tao   amin'ny efitrano]
        heard-Det child Rabe Pst-enter:ST Pst-Deic in-Det   room
        "The child heard Rabe come into the room"

(48)   [Rabe niditra   tao   amin'ny efitrano] no ren'ny   zaza
          Rabe Pst-enter:ST   Pst-Deic in-Det   room   Cleft heard-Det child
        "Rabe coming into the room is what the child heard"

Now here, we might suppose that verbs of perception take VP complements, in which case the attested order would be predicted both by my tree and by the tree in (2). However, it seems unlikely to me that the bracketed constituents in (47) and (48) are VPs, given that the embedded verbs are marked for tense, and (more importantly) given that *Rabe* has the properties of a Topic rather than a VP-internal subject (e.g. it need not be an Agent, but can carry any theta role).

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[5] Thanks to Diane Massam for suggesting this test to me.

6. Conclusion

In this paper I have argued that Malagasy has a bipartite clause structure consisting of a Predicate constituent and a Topic field. I have also argued that the linear ordering of these elements, Predicate-Topic, can be obtained without assuming that Malagasy has specifiers to the right of heads, if we assume that the Predicate pied-pipes to a position above the Topic, within an expanded COMP structure. In contrast to the traditional view of Malagasy phrase structure, as exemplified by the tree in (2), the pied-piping theory makes a major prediction about word order in embedded clauses, namely that, in clauses where the landing site for PredP raising is absent, the order of elements should be Topic-Predicate rather than Predicate-Topic. Initial evidence suggests that this prediction is borne out.

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