Chapter 1

Introduction

1.0. The proposal

The aim of this thesis is to explore certain properties of the clause structure of Malagasy, an Austronesian language of Madagascar, and to consider how Malagasy fits into a general syntactic typology of languages. In particular, I will focus on the structural status of the right-peripheral DP constituent, conventionally analyzed as the *subject* of the clause. I will show that this element is best analyzed as a topic, similar in its distribution to the clause-initial topic in verb-second languages like German and Icelandic. I will also present evidence to show that the right-peripheral position of the DP constituent is derived by means of a series of leftward phrasal movements, in a manner consistent with the *Linear Correspondence Axiom* of Kayne (1994). In the course of presenting this analysis, I elucidate some of the functional structure of the Malagasy clause, especially that of the left-periphery, or *C-domain*. I also consider the role of the voicing system in Malagasy, and offer a novel analysis of the well-known accessibility restriction, limiting A′-extraction to subjects (Keenan 1976, Keenan & Comrie 1977, MacLaughlin 1995). In this introductory chapter, I summarize the basic analysis that I will be arguing for, present some theoretical assumptions, and lay out the organization for the rest of the thesis.

Malagasy is a head-initial language with relatively strict word order, conventionally characterized as VOS. The Malagasy clause has a bipartite structure, comprised of a clause-initial *predicate phrase* and a (generally) clause-final *external argument* (EA) of category DP. This structure is illustrated in (1) (here and throughout, the EA is indicated in the example sentences by a dotted underline):

(1) Mamaky boky any an-tokotany ny mpianatra
NomP.read book there Obl-garden Det student
"The student is reading a book in the garden"

In common with other Western Austronesian languages, Malagasy possesses a complex *voicing* system for mapping various arguments of the verb to the EA function. Consider the sentences in (2), which constitute rough paraphrases of each other: In (2a), the EA function is carried by the agent noun phrase *ny vehivavy* "the woman". That *ny vehivavy* is the agent is indicated by the presence of *nominative-pivot* (NomP) voice morphology on the verb. (2b) expresses the same event as (2a), but here the theme *ny boky* "the book(s)" has been promoted to the EA function instead of the agent. This change correlates with a difference in voice morphology: In place of the nominative-pivot form, the *translative-pivot* (TrnP) form is used. Finally in (2c), the EA function is carried by the noun phrase *ny latabatra* "the table", interpreted as a goal/location, and the verb appears in yet another voice form, the *circumstantial-pivot* (CrcP). Notice that in all cases the

DP which functions as the EA occurs at the end of the sentence, following the other dependents of the verb.[1]

(2) a. Nametraka ny boky teo ambonin'ny latabatra ny vehivavy
Pst-NomP.put Det book Pst-there on.top-Det table Det woman
"The woman put the books on the table"

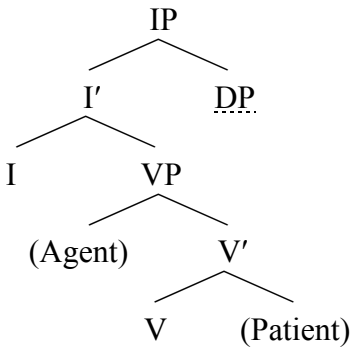
b. Napetran'ny vehivavy teo ambonin'ny latabatra ny boky
Pst-TrnP.put-Det woman Pst-there on.top-Det table Det book
"The books, the woman put (them) on the table"

c. Nametrahan'ny vehivavy ny boky ny latabatra
Pst-CrcP.put-Det woman Det book Det table
"The table, the woman put the books (on it)"

In this thesis I consider two general questions about the external argument: (a) What position does it occupy in the clause structure? (b) Why does it appear at the end of the clause, following the verb and its non-EA dependents?

Within the Principles & Parameters literature, the generally accepted answers to these questions are the ones first proposed by Guilfoyle, Hung, & Travis (1992) (GHT), whose seminal analysis of Austronesian clause structure has been adopted and extended in much subsequent work (for discussion of Malagasy, see in particular Travis 1991a, 1994, 1997, and Paul 1999). GHT treat the external argument as the structural subject of the clause, which raises to the specifier of IP (or TP) from its base position within the verb phrase in order to receive/check nominative case (with the voice morphology on the verb determining which constituent will raise, as discussed in 2.4). The location of the external argument at the right-periphery of the clause is accounted for by means of a simple directionality parameter, according to which I^0 projects its specifier to the right of the intermediate projection I′ rather than the left, as shown in the tree in (3). (This structure also accounts for the left-peripheral position of the verb, which undergoes head movement to I^0.)

(3)



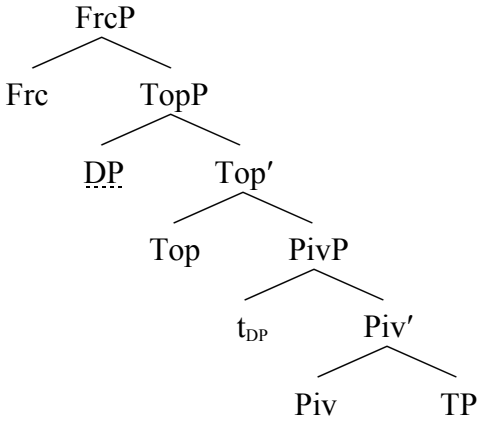
[1] In order to express the contrast between (2a) and (2b-c), I gloss the latter by means of a topicalization construction (*The books, the woman put (them) on the table*). I do not mean to suggest that the Malagasy sentences in (2b-c) have the same structure as the English topicalization construction. The gloss is merely intended to remind the reader that the theme *ny boky* "the books" is structurally prominent in this sentence.

In this thesis I will challenge both of these assumptions about the external argument. Rather than treating the EA as a nominative case-marked subject in the specifier of IP/TP, I will analyze it as a topic which undergoes A′-movement from a case position to a scopal position within the C-domain of the clause. In the process, I will draw a close parallel between Malagasy and another class of languages with regular overt topic movement, namely the Germanic verb-second languages (German, Dutch, Scandinavian, etc.).

With regard to the position of the EA relative to the predicate phrase, I observe that the structure in (3) is ruled out under Kayne's (1994) Antisymmetry proposal, which restricts the order of constituents within phrase markers to *specifier-head-complement*. (3) is also problematic for other recent theories on the mapping of syntactic structure to constituent order, which, though they differ in many important respects from Kayne's proposal (and from each other), agree in requiring that specifiers uniformly precede heads (e.g., Chomsky 1995, Fukui & Takano 1998, Haider 1994, 2000, Brody 1997, 2000, Epstein et al. 1998, and others). I therefore argue for an alternative structure, according to which the external argument occupies a left-specifier, and surface constituent order is derived through leftward movement of the predicate phrase over the EA (cf. Rackowski & Travis 2000, Massam 2000).

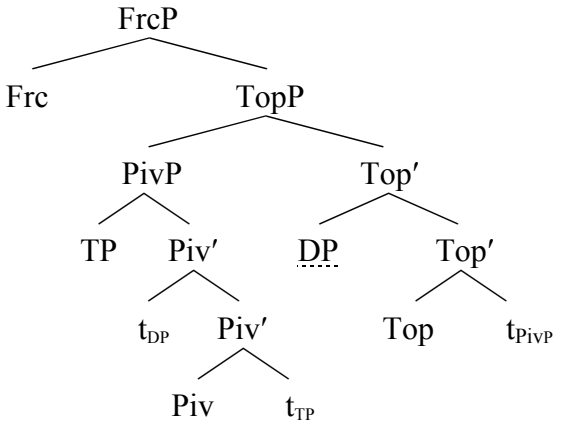
The specific proposal which I will argue for is illustrated by the trees in (4) and (5). In chapter 3, I propose that external arguments undergo A′-movement from a case position within TP to the specifier of a projection in the C-domain of the clause, which I dub TopP (*topic phrase*). This TopP projection forms part of a 'split' CP structure, located below the position in which complementizers in Malagasy are generated (FrcP, or *force phrase*) and above a lower C-projection referred to as PivP (*pivot phrase*), which provides a landing site for certain types of extraction:

(4)



The right-peripheral placement of the DP in SpecTopP is derived by applying successive XP-movement operations to (4), resulting in a 'roll-up' structure in which the linear order of major phrasal constituents is reversed (cf. Barbiers 1995, Cinque 1996 for similar derivations): Lexical features of the Piv head attract TP, causing it to raise and become a second, 'outer' specifier of PivP. PivP is then attracted by the Top head, and raises to become the outer specifier of TopP, producing the structure in (5):

(5)



To motivate these movements, I appeal to the distributional similarity between external arguments in Malagasy and fronted topics in Germanic verb-second languages, which I locate in the same SpecTopP position. Using this similarity as a departure point, I suggest that predicate-fronting in Malagasy fulfills the same lexical requirements that trigger successive verb movement (T-to-C raising) in V2 clauses. The only difference between the two language types involves the level of category which raises: In Germanic languages, the lexical requirements of Piv and Top are satisfied by means of head-adjunction (T^{0max}, containing the verb, adjoins to Piv^0, which adjoins to Top^0), whereas in Malagasy, head-adjunction is ruled out for independent morphological reasons, and so XP-movement is employed instead. In short, Malagasy may be regarded as the phrasal-movement equivalent of a V2 language.

In the following section, I review some background information on the Minimalist framework which I assume in this thesis. Then in section 1.2 I give a detailed overview of chapters 2-4.

1.1. Preliminary theoretical assumptions

Below I give a general outline of my theoretical assumptions. Many of these assumptions will be discussed further, and in some cases modified, in later chapters. I begin in 1.1.1 and 1.1.2 by reviewing the general approach to phrase-structure building and syntactic relations which I will adopt. Here I generally follow the Minimalist framework of Chomsky (1995), with certain modifications. Then in 1.1.3 I introduce Kayne's (1994) *Linear Correspondence Axiom* (LCA), and discuss how it can be incorporated into a Minimalist approach to derivation. In this discussion I draw on proposals by Epstein, et al. (1998) for reformulating c-command in terms of merger. This reformulation allows for the possibility of multiple specifiers, which Kayne's theory excludes, but which form a crucial component of the XP-raising analysis argued for in chapter 4.

1.1.1. Features and derivations

Following the standard Minimalist model (Chomsky 1995, chapter 3), I will assume that syntactic structures are built in a bottom-up fashion. A *numeration*, consisting of a set of lexical items (morphemes), is selected from the lexicon, and these items are combined into larger syntactic objects through cyclic applications of a small number of structure-building operations. The sequence of such operations necessary to construct an expression E is called the *derivation* of E. E consists of a pair of representations, one of which is interpreted by the *conceptual-intentional* (C-

I) performance systems (roughly, those involved in the computation of meaning), and the other of which is interpreted by the *articulatory-perceptual* (A-P) systems (those involved in the production and processing of utterances). The former representation is called the LF, or *logical form*, of E, and the latter representation is called the PF, or *phonetic form*, of E (the terms LF and PF are also used to refer to those domains—or 'levels'—of the derivation which interface with the C-I and A-P systems, respectively). The mapping from the LF representation to the PF representation is called *spell-out*.

When a sequence of operations, applied to a given numeration, produces a well-formed expression—that is, a syntactic object which is interpretable by both the C-I and A-P systems—we say that the derivation *converges*. If the result is an ill-formed (uninterpretable) expression, the derivation *crashes*. If a derivation creates an expression which is specifically uninterpretable by the C-I systems, we say that the derivation *crashes at LF*. Likewise, the derivation *crashes at PF* if it is the A-P systems which fail to interpret the expression.

Lexical items consist of bundles of *features*. Such features may include *categorial* features ([N], [V], [T], [D], etc.), *operator* features ([wh], [neg], etc.), φ-features (expressing values for person, number, and gender), and perhaps other purely formal features involved in licensing (such as abstract case features), as well as morpho-phonological and semantic features of various sorts. I will have nothing to say here on the precise inventory of features, or on the question of whether feature bundles have any internal structure or 'feature geometry' (see Harley 1994, Hanson, Harley, & Ritter 2000, Harley & Ritter [to appear]). However, I will assume that there are no negative features, but only the presence or absence of a particular feature in a given bundle.

In standard Minimalist theory, features are divided into different classes according to how they interact with the derivation. The most important division is between *interpretable* and *uninterpretable* features. Loosely speaking, interpretable features are those whose content is relevant to either the C-I or A-P systems, and are thus visible at one of the interface levels. Uninterpretable features are formal features which trigger syntactic operations, but whose content is not relevant to the interface levels. By assumption, uninterpretable features must be eliminated from the derivation in order for it to converge (the principle of *Full Interpretation*). Uninterpretable features are further classified into *strong* and *weak* features. Strong features are features which require overt movement (displacement) of a constituent containing a compatible feature in order to be eliminated, while weak features are those which may be eliminated without triggering overt movement (cf. the discussion of feature-checking in 1.1.2). Although the interpretable/uninterpretable and strong/weak distinctions have played an important role in the Minimalist program, I will have little to say about them here (but see sections 4.2.3 and 4.3.4 for some discussion of overt versus covert movement).

Concerning categorial features in particular, I will adopt the traditional distinction between *lexical* categories (N, V, A, P) and *functional* categories (D, C, T, Asp, Neg, Num, etc.). Following Chomsky & Lasnik (1995), I further divide functional categories into *L-related* and *non-L-related* categories. L-related categories are those in whose projections the case- and θ-related properties of a lexical category (such as a verb) are discharged, while non-L-related categories play other roles in the derivation. Typically, L-related categories host arguments in their specifiers, while non-L-related categories host scope-taking operators (quantifiers, wh-phrases, etc.) in their specifiers.

1.1.2. Phrase-structure building, movement, and syntactic relations

The principal structure-building operation used in syntactic derivation is the binary function *Merge*, which concatenates two objects, α and β, to create a third object γ. Chomsky represents γ as the set {L,{α,β}}, where {α,β} is the set of features contained in α and β, and L is the *label* of γ. This label specifies—among other things, perhaps—the categorial feature of γ, which it inherits from either α or β. If γ inherits its categorial feature from α, we say that α *projects* γ. To reflect this categorial connection between α and γ, we can write the set notation for γ as {α,{α,β}}.

The objects which form the input set for Merge, as well as the objects produced by Merge, are called *terms*. A term is a set of features—either the set of features which comprise a lexical item drawn from the numeration, or a larger set of features formed by concatenating two or more lexical items. A number of relations can be defined over terms, including *immediately contains*, *contains*, and *is a term of* (cf. the tree structure relations *immediately dominates*, *dominates*, and *is dominated by*):

(6) a. The term γ *immediately contains* the terms α and β in derivation D iff α merges with β to form γ at some stage of D.

b. The term γ *contains* the term α iff: (a) γ immediately contains α, or (b) there is an ordered set of one or more terms S = $<t_n \ldots t_1>$ such that γ immediately contains t_n, t_1 immediately contains α, and for all t in S, t_{i+1} immediately contains t_i.

c. α *is a term of* γ iff: (a) α and γ are terms, and (b) either γ = α, or γ contains α.

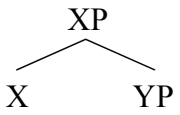
Intuitively, α is a term of γ if α is γ, or if α is one of the terms which went into the construction of γ. Adopting traditional terminology, I will generally refer to terms as *constituents*, and terms which are properly contained in other terms as *subconstituents*.

On the basis of the definitions in (6), we can also define the notions *sub-term* and *terminal* (or initial term), which will be useful in the following discussion.

(7) a. α is a *sub-term* of γ iff α is a term of γ and α ≠ γ.
b. α is a *terminal* iff there is no term β such that α contains β.

Throughout this thesis, I will use standard tree structure notation to represent the application of merger operations. Under this notation, labeled nodes correspond to (the categorial features of) terms, while the branches connecting them indicate relations of immediate containment. For example, the structure in (8) represents the merger of two terms, X and YP, to form a larger term XP. The choice of XP as a label for the output term indicates that, of the two input terms, X is the one which projects.

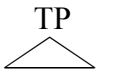
(8)

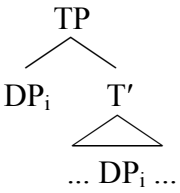


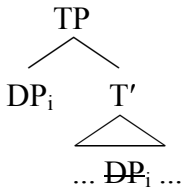
Within the 'bare phrase structure' theory, the classification of terms as minimal, maximal, or intermediate projections is taken to be relative rather than intrinsic. Here, however, I will assume a basic difference between *heads* and *non-heads*, and will use standard phrase structure

notations (X^0 versus XP) to distinguish them. Where relevant, I will also use the notation X' to designate non-maximal non-heads, and X^{0max} to refer to maximal heads (in the case of head-adjunction structures).

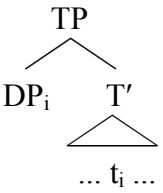
There are two possible sources for the input terms of Merge: Either Merge selects two terms α and β and combines them into a single term γ, or Merge selects a term α and combines it with one of its sub-terms α′ to form a new term. This latter option is called *Move*. There is some disagreement in the Minimalist literature on the formal characterization of Move. Most authors (Chomsky 1995, Nunes 1995, Collins 1997, et al.) treat movement as the creation of copies: A sub-term α′ is copied and the copy is merged with a term α which contains it. The two copies constitute members in a *chain*, with independent principles determining which member will be pronounced at PF. For example, movement of a DP into the specifier of TP is depicted as in (9): The set of features comprising the DP in (9a) is duplicated, creating a two-member chain {DP_i,DP_i}; one of the members of this chain is then merged with TP, which projects, resulting in the structure in (9b) (notice that this causes the TP in (9a) to be reanalyzed as a non-maximal projection T′). Finally, at PF, the phonological features of the lower copy (and perhaps other features as well) are erased, as in (9c), causing the DP to be pronounced in its displaced position:

(9) a. 

b. 

c. 

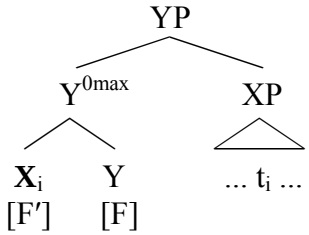
Epstein et al. (1998) argue that chains and copies are superfluous under a purely derivational theory. Instead, they treat movement as an operation called Remerge, which reselects a sub-term of α and merges it with α. Here I will remain neutral between these two approaches, adopting traditional trace notation to indicate instances of movement, as in (10) (but see 4.2.3 for additional discussion of the copy theory of movement):

(10) 

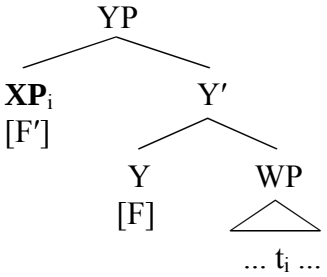
I will follow Chomsky in assuming that movement is needed in order to satisfy the morphological requirements of lexical items. Specifically, I assume that movement is triggered by an operation *Attract-F*: As I mentioned above, all uninterpretable features need to be eliminated from the derivation before it can converge. In order for an uninterpretable feature to be eliminated, it must be *checked* by entering into a local structural relation with a compatible interpretable feature. Thus, when a term is introduced into the derivation which bears an uninterpretable feature F, that feature will attract a compatible interpretable feature F′, causing F′ to be copied (or remerged) in the local checking domain of F. If F is *strong*, then the phonological features associated with F′ will be attracted as well, resulting in the linear displacement of a constituent at PF—viz., overt movement (see 4.3.4 for some discussion).

Following standard assumptions, I assume that F′ is in the *checking domain* of F if (i) F′ has percolated to the top of an X^0-level constituent which merges with the head containing F (11a), or (ii) F′ has percolated to the top of an XP-level constituent which merges with a phrasal projection of the head containing F (11b). (11a) is known as a *head-adjunction* configuration, while (11b) is known as a *specifier-head* configuration. Following Kayne (1994), I will assume that these are the only two configurations which may be created by Move, using *adjunction* as a cover term for both. (This is contra Chomsky 1995, who argues for a third configuration called *phrasal adjunction*, in which an XP-level category merges with a maximal projection, creating two segments. As discussed in the next section, Kayne assumes that phrasal adjuncts are structurally non-distinct from specifiers; I adopt this assumption here, although for different reasons.)

(11) a.



b.



1.1.3. C-command and the Linear Correspondence Axiom

Crucially, I will assume that some form of Kayne's (1994) *Linear Correspondence Axiom*, or LCA, is correct. The LCA specifies a simple mapping from the (total) asymmetrical c-command relation defined over the terms of an LF derivation to the linear order of items in the corresponding PF derivation. By adopting the LCA, together with a limited number of other assumptions (see below), Kayne is able to derive a rather restrictive theory of phrase structure, which includes the following features: (a) There are no elementary principles of X-bar theory, and hence no X-bar module in the grammar. (b) There is no directionality parameter; phrase markers conform universally to the order *specifier-head-complement*, right-adjunction is disallowed. (Given (b), together with the requirement that a moved constituent must c-command its trace, it follows that rightward movement is also disallowed.) Subsequent studies, based on data from a variety of languages, have provided substantial support for the LCA, or modified versions thereof. These include Zwart (1993), Barbiers (1995), Cinque (1996), Koopman (1996), Nkemnji (1996), Hallman (1997a), Carstens (1997), Lee (1998, 2000), Nakajima (1999), Koopman & Szabolcsi (2000), Hinterhölzl (2000), and many others.

We can state the LCA as in (12).[2] The first part of this condition specifies that the linear order of elements at PF is determined by the asymmetric c-command relations obtaining between terms at LF. The second part of the condition specifies that the ordering of PF elements must be

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[2] Kayne's (1994) original formulation of the LCA is much more concise than (12), and consequently much more opaque: Kayne specifies that for all phrase markers, "d(A) is a linear ordering of T", where T is the set of terminals in the phrase marker, A is the set of all ordered pairs of non-terminals <X,Y> in the phrase marker, such that X asymmetrically c-commands Y, and d(A) is the set of ordered pairs of terminals <*a*,*b*> such that *a* is dominated by X and *b* is dominated by Y.

total, entailing that for all pairs of PF elements {*a*,*b*}, the LF structure must provide unambiguous (complete and non-contradictory) instructions on whether *a* precedes *b* or *b* precedes *a*.

(12) *The Linear Correspondence Axiom*

a. For all X, Y, *a*, *b* such that (i) X and Y are LF terms, (ii) *a* and *b* are PF elements, and (iii) *a* maps to a terminal of X and *b* maps to a terminal of Y:

If X asymmetrically c-commands Y at spell-out, then *a* precedes *b*.

b. For all PF elements *a* and *b* in a given phrase marker ($a \neq b$), either *a* precedes *b* or *b* precedes *a*.

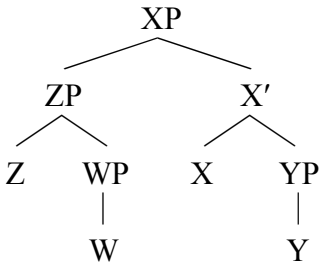
The LCA makes crucial reference to *asymmetric c-command*. (13) gives the traditional formulation of simple c-command (Reinhart 1976).

(13) X *c-commands* Y iff (a) $X \neq Y$, (b) X does not dominate Y and Y does not dominate X, and (c) the first/lowest branching node which dominates X dominates Y.

X asymmetrically c-commands Y iff X c-commands Y and Y does not c-command X.

However, it turns out that, given the definition of c-command in (13) and the requirement that linear orderings be total, the range of structures allowed by the LCA is too narrow. It is therefore necessary to supplement (12)–(13) with some additional assumptions. To see why, consider the structure in (14), where ZP is the specifier of XP and YP is the complement of X^0. Within this structure, the asymmetric c-command relations in (15) obtain:

(14)



(15) a. Z asymmetrically c-commands W
b. X asymmetrically c-commands Y
c. ZP asymmetrically c-commands X, YP, Y
d. X′ asymmetrically c-commands Z, WP, W

Given the LCA, the LF relations in (15) entail the following precedence relations at PF (where *pf*(α) = the set of PF objects/features which map to the terminals of α):

(16) a. *pf*(Z) precedes *pf*(WP)
b. *pf*(X) precedes *pf*(YP)
c. *pf*(ZP) precedes *pf*(X′)
d. *pf*(X′) precedes *pf*(ZP)

Notice that (16c) and (16d) contradict each other, in violation of (12b). The terminals of X′ cannot both precede and follow the terminals of ZP. In order to resolve this problem and allow structures such as (14), we must modify the theory in such a way that the X′ term fails to c-command anything, thereby eliminating the set of relations in (15d).[3]

Kayne (1994) and Chomsky (1995) propose different strategies for accomplishing this. Kayne's strategy is to adopt the assumptions in (17):

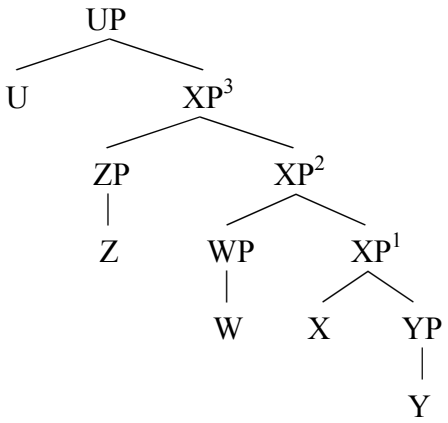
(17) a. C-command applies to full categories rather than terms/nodes.
b. The merger of a specifier with its target is a special case of XP-adjunction.

If specifiers are really adjuncts (17b), then it follows that X′ and XP are not separate categories, but *segments* of a single category. Hence, if c-command applies only to categories (17a), it follows that segments are not potential c-commanders. We can thus eliminate the c-command relations in (15d), leaving the following set of precedence relations at PF, as desired:

(18) a. *pf*(Z) precedes *pf*(WP)
b. *pf*(X) precedes *pf*(YP)
c. *pf*(ZP) precedes *pf*(X′)

However, if we adopt the assumptions in (17), then it follows that multiple adjunction to the same phrasal constituent—viz., multiple specifiers—will be ruled out: Consider the structure in (19), in which a maximal projection XP, to which ZP and WP have both merged, is selected by the head U to form UP:

(19)



The problem here involves the c-command relations between ZP and WP. Consider ZP first: Under Kayne's assumptions, the lowest category dominating ZP is UP, XP^3 being a segment rather than a full category. Keeping in mind that c-command only applies to categories, it follows that ZP c-commands WP, and asymmetrically c-commands W (in addition to X, YP, and Y), meaning that *pf*(Z) should precede *pf*(W). However, WP also c-commands ZP (the lowest

[3] Alternatively, we could modify the theory such that the ZP term fails to c-command anything; however, this would yield *head-complement-specifier* as the universal order for phrase markers—an empirically undesirable result, given that specifier-initial structures are so much more common than specifier-final structures cross-linguistically.

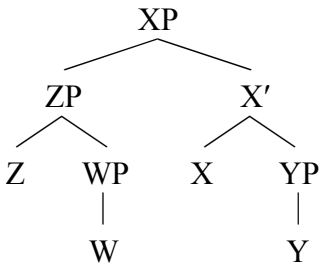
category dominating WP is UP, which also dominates ZP). Hence, WP asymmetrically c-commands Z, and so *pf*(W) should precede *pf*(Z). Kayne thus rules out multiple adjunction on the grounds that it produces contradictory ordering requirements, in violation of (12b).

However, structures like those in (19)—specifically, projections containing multiple specifiers—play a crucial role in my analysis of Malagasy word order. I will thus reject (17) and adopt instead the 'bare phrase structure' approach to the problem in (14)–(16) suggested by Chomsky (1995). In order to allow multiple specifiers, Chomsky retains the traditional conception of c-command as a relation between terms (nodes) rather than categories, and instead blocks X′ from participating in c-command by invoking the principle in (20):

(20) Only maximal and minimal categories are visible to the computation.

Consider again the structure in (14), repeated below as (21). Here X′, being neither maximal nor minimal, is invisible for c-command, and thus fails to enter into an asymmetric c-command relation with the sub-terms of ZP. In this way, Chomsky eliminates the contradiction in (16c-d): *pf*(ZP) precedes *pf*(X′), but not vice versa.

(21)



However, as Epstein et al. (1998) point out, there is a potential problem with the principle in (20), in that it appears to allow X and YP in (21) to c-command out of the X′ constituent. If X′ is invisible for c-command, then given the definition of c-command in (13), X and YP should c-command ZP (and asymmetrically c-command Z and WP), since the closest visible node dominating X and YP is XP, which also dominates ZP.

Here I adopt the solution proposed by Epstein et al., who reinterpret c-command not as a *representational* relation (defined in terms of dominance) which holds between nodes in a phrase structure, but as a *derivational* relation which holds between two terms when they are concatenated by Merge. The definition of c-command which they propose is paraphrased in (22):[4]

(22) X *c-commands* Y iff there is some Z such that Y is a term of Z, and X concatenates with Z via Merge.

In other words, c-command is the relation which holds between a constituent X and all of the terms of the constituent Z with which X has concatenated to form a larger unit.

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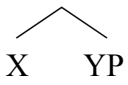
[4] My version of Epstein et al.'s definition incorporates the *term of* relation in (6c), which is also defined on the basis of Merge. Recall that the *term of* relation is reflexive (X is a term of itself). The definition in (22) thus includes both symmetric c-command (Y = Z), and asymmetric c-command (Y ≠ Z).

If c-command is defined in terms of Merge, this entails that when two terms in an expression E are concatenated, the c-command relations that obtain between those terms will be computed at the point in the derivation of E where concatenation takes place, and that information will be added to the structural description of E. For example, in constructing the tree in (21), there is a stage at which X merges with YP, with X projecting, as shown in (23). Because X and YP have merged, and because both are visible to the computation (as per (20)), it follows from the definition in (22) that they c-command each other, and that X asymmetrically c-commands the sub-terms of YP.

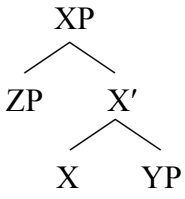
(23)



X asymmetrically c-commands the sub-terms of YP

At a later stage in the derivation, the XP in (23) merges with ZP, and X again projects, producing the structure in (24), where the original XP is reanalyzed as an intermediate projection X′. Once this second merger takes place, the c-command relations between the merged terms are calculated and added to the list of c-command relations already established: ZP c-commands X′, and asymmetrically c-commands its sub-terms. By contrast, X′, now that it has become an intermediate projection of X, is no longer visible to the computation, and thus does not c-command ZP. Crucially, however, the fact that the XP in (23) has been reanalyzed as X′ does not change the c-command relations which were established when X and YP merged. Given the way the definition in (22) is formulated, it follows that the c-command relations of two merged terms are not recalculated at subsequent stages of the derivation.

(24)

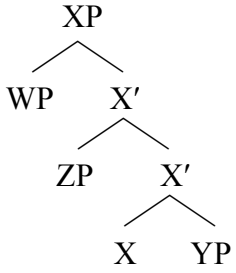


X asymmetrically c-commands the sub-terms of YP
ZP asymmetrically c-commands the sub-terms of X′

In short, the definition in (22) ensures that X will fail to c-command ZP in (24) even though X′ has been rendered invisible for c-command, because ZP is not a term of the term with which X merged in (23). By the same token, YP will also fail to c-command ZP in (24).

Crucially for my story, defining c-command in terms of Merge allows for the possibility of multiple specifiers to the same projection. Under Kayne's approach, multiple specifiers were ruled out because they introduced contradictory ordering relations, with the higher specifier asymmetrically c-commanding into the lower one, and vice versa, in violation of (12b). Under the derivational approach, c-command relations are established at the point of merger; hence, the order in which two constituents merge will unambiguously determine the c-command relations between them. Consider the structure in (25), for example, in which WP has merged with (24) as a second, outer specifier of XP. Notice that there is a derivational asymmetry between WP and ZP: Whereas ZP was present as a term of XP at the point in the derivation where WP merged with XP, the reverse is not true: WP was not present at the point in the derivation where ZP merged with XP, but was only introduced later. Thus WP will c-command ZP, but not vice versa.

(25)



X asymmetrically c-commands the sub-terms of YP
ZP asymmetrically c-commands the sub-terms of the lower X′
WP asymmetrically c-commands the sub-terms of the higher X′

1.2. Outline of the thesis

The body of the thesis is divided into three chapters. In chapter 2 I present background information on Malagasy and introduce the main themes of chapters 3 and 4. Chapter 3 deals with the evidence for analyzing the external argument as an A′-constituent. Chapter 4 presents my analysis of surface word order in terms of successive XP-movement.

I begin chapter 2 with a general discussion of word order and constituency in Malagasy clauses. I then discuss nominal and verbal morphology, and propose a basic clause structure for the predicate phrase (= the TP constituent). In the last part of chapter 2 I offer some observations and tentative analysis of the voice morphology. Adapting the approach of Guilfoyle, Hung, & Travis (1992) to a more articulated functional structure, I analyze the voice morphemes as the spell-out of L-related heads. These heads belong to two types, light verbs (causative and applicative morphemes) and aspectual heads. I suggest that, due perhaps to a generalized doubly-filled COMP constraint, these heads are spelled out only if their specifiers contain a trace. From this, I argue that the function of voice morphology is to indicate the abstract case of an A′-moved constituent (the external argument). As evidence that the distribution of the voice morphemes is dependent on A′-movement, I compare Malagasy with the related language Chamorro, in which voice morphology of the Malagasy type is confined largely to wh-movement contexts (wh-questions, relative clauses), where it replaces regular φ-feature agreement. Malagasy can be thought of as a language in which Chamorro-style 'wh-agreement' has been generalized to all clause types due to the obligatory nature of topicalization.

These observations provide a lead-in to chapter 3, which is concerned with the syntactic status of the external argument (EA) position. I present evidence to show that movement to the EA position has the properties of A′-movement rather than A-movement, suggesting that the external argument is a topic-like element rather than a subject. I conclude that the external argument raises to a scopal position in the C-domain of the clause, dubbed TopP.

I present two broad types of evidence for treating the external argument as an A′-element, related to binding and extraction. With respect to binding, I show that, like wh-movement in other languages, DP-movement to the EA position exhibits obligatory reconstruction effects. Thus, if we were to treat the external argument as a subject, we would need to stipulate that reconstruction from (nominative) case-positions to θ-positions is obligatory in Malagasy, while being optional or unavailable in other languages.

With respect to extraction, I discuss two sets of facts which suggest that mapping to the EA position involves A′-movement: The first set of facts involves the presence of voicing restrictions in cases where the external argument is linked to a position inside an embedded clause (long-distance dependencies). I show that while the voice of the embedded verb is determined by the case features of the external argument, the voice of the matrix verb is determined by the

case features of the embedded clause out of which it has extracted. If we were to analyze the external argument as a subject and associate voicing alternations with grammatical relation-changing operations such as passivization, we would need to assume that movement out of an embedded clause is possible only if that clause is a subject, complement clauses being opaque. This is the opposite of what standard theories of extraction and islands would lead us to expect. By contrast, if we analyze the external argument as a topic, then we can explain the voicing restrictions as the reflex of a process of successive CP pied-piping of the kind found in Basque wh-questions.

The second set of extraction-related facts involves the well-known accessibility restriction found in many Western Austronesian languages, according to which the extracted element in relative clauses, wh-questions, clefts, etc., necessarily determines the voice of the verb, suggesting that A′-extraction must proceed through the EA position. If we treat the EA as the subject, then we must stipulate that only subjects in Malagasy can extract. However, as in the case of long-distance dependencies, this stipulation is problematic from the perspective of a general theory of movement, given that in other languages subjects tend to be less extractable than objects. I therefore suggest an alternative approach to the facts, according to which voice morphology indicates not the θ-role of a subject, but the abstract case features of an A′-chain, as in chapter 2. Adopting this perspective, we can derive the accessibility restriction by analyzing the EA as a topic-like element which competes with wh-operators to occupy a scopal position in the C-domain. The Malagasy situation is thus highly comparable to what we find in V2 languages like German and Icelandic, in which wh-movement and topicalization are mutually exclusive in the same clause.

In chapter 4 I turn to the issue of word order. I begin by reviewing previous accounts of Malagasy clause structure, and then present the details of the movement-based analysis discussed above, whereby EA-final order is derived via successive XP-movement (TP raises to become the outer specifier of PivP, which then raises to become the outer specifier of TopP, causing the predicate phrase to be displaced to the left of the EA). I argue that, in terms of its formal properties, this process of XP-movement is essentially equivalent to successive X^0-movement (T-to-C raising) in verb-second languages. The only significant difference is in how much material is displaced at PF.

To account for this raising into the C-domain, I argue that in order to be interpretable, each of the projections which comprise the C-domain must be lexically identified, either by having an overt head, or by attracting the categorial feature of the closest L-related projection, namely TP. Malagasy is like a V2 language in that categorial feature attraction takes place in the overt syntax. However, in the case of V2 languages, attraction triggers head-adjunction (T^0 adjoins to Piv^0, which adjoins to Top^0), whereas in Malagasy it takes the form of XP-movement (TP raises to become a specifier of PivP, which raises to become a specifier of TopP). I tentatively attribute this contrast to independent morphological differences between V2 languages and Malagasy: In the V2 languages, T^0 (containing the verb) forms a discrete morphological unit, and can thus be displaced by overt movement without causing the derivation to crash at PF. In Malagasy, T^0 forms part of a larger morphological unit, and thus it must 'pied pipe' the maximal projection TP in order for the derivation to converge at PF.

I conclude chapter 4 by presenting two pieces of empirical evidence for preferring the movement analysis over the right-specifier analysis. The first piece of evidence involves the placement of the particle *ve* (used to mark yes/no questions), which Paul (1999) analyzes as a second-position clitic: If we adopt a movement-based derivation of Malagasy word order, then

we can formulate a simple rule of *ve*-placement, according to which the closest XP asymmetrically c-commanded by *ve* (generated in the head of FrcP) is attracted into its checking domain. On the other hand, if we adopt the right-specifier analysis, a more complicated rule of *ve*-placement would need to be stipulated. The second piece of evidence involves word order in embedded clauses: If the EA occupies a right-specifier position, then we predict that it will follow the predicate phrase in all cases. However, if the right-peripheral position of the EA is derived via leftward movement of the predicate phrase, this leaves open the possibility that movement will fail to take place under certain circumstances, in which case the EA will be ordered to the left of the predicate. I show that EA-initial order is in fact attested in certain types of embedded clauses.