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The Clause Structure of Malagasy:

A Minimalist Approach

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Linguistics

by

Joel Matthew Pearson

2001

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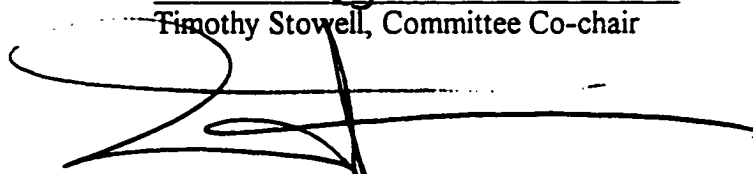
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LIST OF ABBREVIATIONS

1ex	first person plural exclusive	FS	free state
1in	first person plural inclusive	Fut	future tense particle
1s	first person singular	Imp	imperative
2p	second person plural	Incpl	incompletive
2s	second person singular	Inf	infinitive
3	third person (singular or plural)	Irr	irrealis tense/mood
3p	third person plural	Lnk	linking morpheme
3s	third person singular	M	masculine
Acc	accusative case	Neg	negative marker
AccP	accusative-pivot voice	Nom	nominative case
Ag	agent phrase	NomP	nominative-pivot voice
Appl	applicative morpheme	Obj	object, objective case
Aux	auxiliary	Obl	oblique prefix
Comp	complementizer	Perf	perfective aspect
Cpl	completive	Pres	present tense
CrcP	circumstantial-pivot voice	Pst	past tense
CS	construct state	Qu	yes/no question particle
Dat	dative case	Recip	reciprocal prefix
DatP	dative-pivot voice	Redup	reduplicated stem
Det	determiner	Subj	subject
Emph	emphatic particle	Tafa	tafa-passive form
Encl	enclitic	Top	topic particle
Erg	ergative case	TrnP	translative-pivot voice
F	feminine	Voa	voa-passive form
Foc	focus particle	Wh	wh-expletive/operator

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This dissertation is supposed to represent some sort of endpoint, the culmination of many years of hard work. And yet I feel like I've just begun to think about the issues addressed here, and to explore the mysteries of this bizarre and wonderful language. So rather than feeling like the conclusion of something, this moment feels more like some random point in the middle of a long journey. Still, it's appropriate that I take time to thank all of the people who helped me get this far.

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- . (March, 1998). Resultative complements and 'non-active' voice morphology in Malagasy. Paper presented at the 5th meeting of the Austronesian Formal Linguistics Association, University of Hawai'i, Mānoa, Hawai'i.

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ABSTRACT OF THE DISSERTATION

The Clause Structure of Malagasy:

A Minimalist Approach

by

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Doctor of Philosophy in Linguistics

University of California, Los Angeles, 2001

Professor Edward L. Keenan, Co-chair

Professor Timothy Stowell, Co-chair

This dissertation explores the clause structure and word order of Malagasy within the framework of Chomsky's (1995) Minimalist Program and Kayne's (1994) Antisymmetry proposals. In particular, I focus on the status of the clause-final *external argument* (EA), conventionally analyzed as a nominative case-marked *subject*. I consider two major questions about the EA: What position does it occupy in the clause structure, and why is it spelled out in a right-peripheral position, following the predicate?

With regard to its syntactic status, I argue that the EA is not a *subject*, but a *topic*, similar in its distribution to fronted topics in verb-second languages like Icelandic. I propose that EAs undergo A'-movement to the specifier of a TopP (*topic phrase*) projection, located above TP and below the position of the complementizer.

Concerning word order, I show that the right-peripheral position of the EA can be derived via leftward movement of the predicate phrase, in a manner consistent with Kayne's Linear Correspondence Axiom. I suggest that predicate-fronting is triggered by the same lexical requirements responsible for T-to-C raising in Icelandic and other languages, except that in Malagasy, T⁰-movement is unavailable for independent reasons, and so TP-movement is employed instead. Malagasy word order may thus be regarded as the phrasal-movement analogue of verb-second order.

The dissertation is divided into four chapters. In chapter 1 I summarize my analysis and discuss my theoretical assumptions. In chapter 2 I give an overview of Malagasy word order, clause structure, and morphology. I also offer a speculative treatment of the Malagasy voicing system, which I equate with wh-agreement in Chamorro and other languages. In chapter 3 I present evidence from binding, reconstruction, and locality to show that the EA position behaves as an A'-position rather than a case position, strongly suggesting that the EA is a topic-like element rather than a subject. I also provide a novel analysis of the well-known 'subject-only' extraction restriction. Finally in chapter 4 I discuss my XP-movement analysis of EA-final word order. I cite evidence in favor of this analysis from two domains, particle placement and word order in embedded clauses.

Chapter 1

Introduction

1.0. The proposal

The goal 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 preverbal 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 adjunctions, 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”

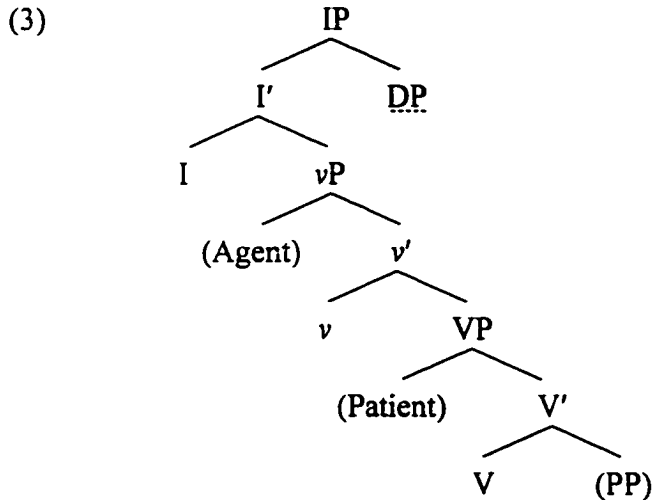
Thematically, the range of elements which can occur in the external argument position is quite free. In common with other Western Austronesian languages, Malagasy possesses a complex *voicing* system for mapping various arguments of the verb to the EA function. For example, consider the sentences in (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 of the event 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.

- (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 is it (i.e., 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), whose basic analysis of Austronesian clause structure has been modified and extended in subsequent work (e.g., Travis 1991a, 1994, 1997, Paul 1999). These authors treat the external argument as the structural subject of the clause, which raises to the specifier of IP (TP) from its base position within the verb phrase in order to receive/check nominative case (where the voice morphology on the verb determines 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 .)

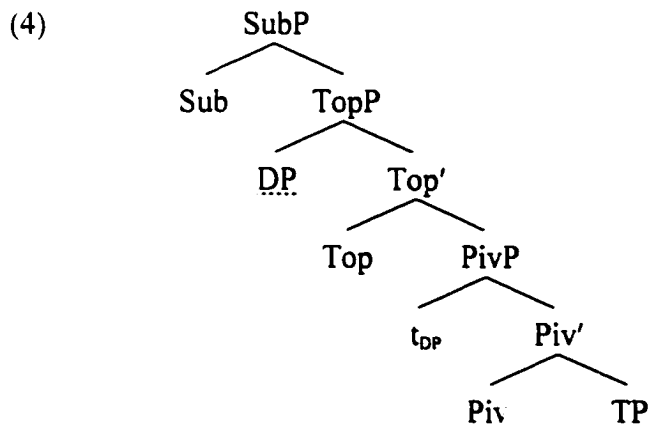


In this thesis I will challenge both of these assumptions about the external argument. Rather than treating the EA as a nominative case-marked subject in the specifier of IP/TP, I will analyze it as a topic which undergoes A'-movement from a case position to a scopal position within the C-domain of the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

With regard to the position of the EA, 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 proposals on the mapping of syntactic structure to constituent order, such as Chomsky (1995), Fukui & Takano (1998), Haider (1994, 2000), Brody (1997, 2000), and Epstein et al. (1998), which, though they differ in many important respects from Kayne's proposal (and from each other), agree in requiring that specifiers uniformly precede heads. I therefore argue for an alternative structure, according to which the external argu-

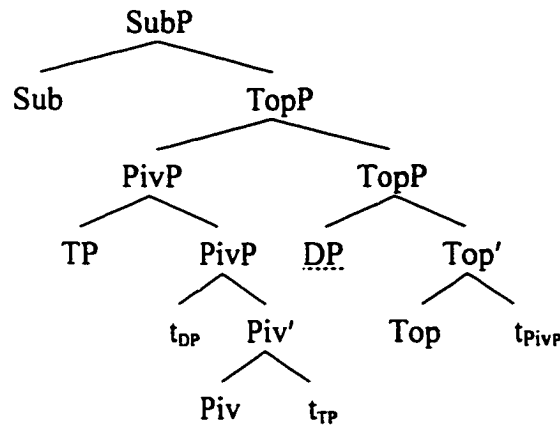
ment occupies a left-specifier, and surface constituent order is derived through leftward movement of the predicate phrase over the EA (cf. Rackowski & Travis 2000).

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 within the C-domain of the clause, which I dub TopP (*topic phrase*). This TopP projection is located within a 'split' CP structure, below the position in which complementizers in Malagasy are generated (SubP, or *subordinator phrase*) and above a lower C-projection which I refer to as PivP (*pivot phrase*), which provides a landing site for various types of extraction. The hierarchy of categories which I assume is shown in (4):



The right-peripheral placement of the DP in SpecTopP is derived by applying successive XP-adjunction operations to (4), resulting in a 'roll-up' structure in which the linear order of major constituents is reversed (cf. Barbiers 1995, Cinque 1996): Lexical features of the Piv head attract TP, causing it to raise and adjoin to PivP, after which PivP is attracted by the Top head, and raises to adjoin to 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 head 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^0 , 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-adjunction 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 developing the analysis outlined above. 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 assume. Here I generally follow the Minimalist framework of Chomsky (1995, chapters 3-4), 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 the LCA in terms of simple c-command rather than asymmetric c-command. This reformulation allows for the possibility of multiple specifiers and XP-adjuncts, which form a crucial component of my analysis.

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 (words or 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 pro-

cessing 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 components—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 object 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 *categorical* features ([N], [V], [T], [D], etc.), *operator* features ([wh], [neg], etc.), ϕ -features, 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’). However, I will assume that there are no negative features, but only the presence or absence of a particular feature in a given bundle.

Features may be divided into different classes according to how they interact with the derivation. The most important division for my purposes 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 which have no interpretive content. By assumption, uninterpretable features must be eliminated from the derivation in order for it to converge (the principle of *Full Interpretation*). The interpretable/uninterpretable distinction will play an important role in chapter 4, where I use it to motivate the sequence of movements involved in deriving predicate-initial order in Malagasy.

Uninterpretable features may be 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 (cf. the discussion of feature-checking in 1.1.2), while weak features are those which may be eliminated without triggering overt movement. The strong/weak distinction has played an important role in the Minimalist program, since the assignment of a strong or weak value to features in different languages is taken to be the principal source of cross-linguistic variation. However, feature strength will play a less important role in this thesis than the more basic distinction between interpretable and uninterpretable features (but see sections 4.2.3 and 4.3.4 for some discussion of overt versus covert movement).

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

The principal (and perhaps the only) structure-building operation used in derivations is the binary function *Merge*, which concatenates two syntactic objects, α and β , to create a

third (different) object γ . Chomsky represents γ as the set $\{L, \{\alpha, \beta\}\}$, where $\{\alpha, \beta\}$ 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 rewrite the set notation for γ as $\{\alpha, \{\alpha, \beta\}\}$.

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*):

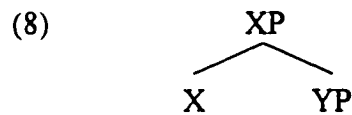
- (6) i. The term γ *immediately contains* the terms α and β in derivation D iff α merges with β to form γ at some stage of D .
- ii. The term γ *contains* the term α iff:
 - (a) γ immediately contains α , or
 - (b) there is an ordered set of one or more terms $S = \langle T_n \dots T_1 \rangle$ such that γ immediately contains T_n , T_1 immediately contains α , and for all T in S , T_{i+1} immediately contains T_i .
- iii. α *is a term of* γ iff:
 - (a) α and γ are terms, and
 - (b) either $\gamma = \alpha$, 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) i. α is a *sub-term* of β iff α is a term of β and $\alpha \neq \beta$.
 ii. 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.

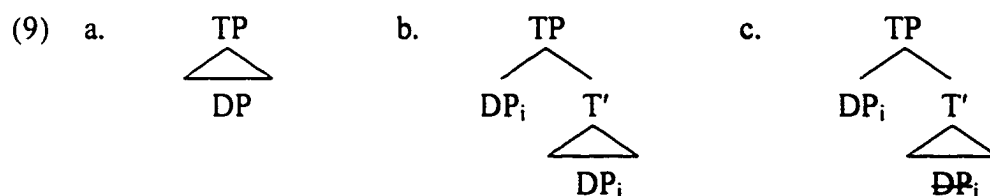


Within the ‘bare phrase structure’ theory, the classification of terms as minimal, maximal, or intermediate projections is taken to be relative rather than intrinsic. Here, however, I will assume a basic difference between *heads* and *non-heads*, and will use standard phrase structure notations (X^0 versus XP) to distinguish them.¹

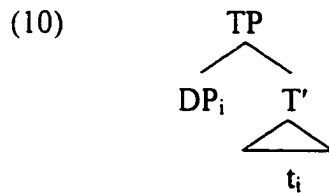
There are two possible sources for the input terms of Merge: Either Merge selects two terms α and β and combines them into a single term γ , or Merge selects a term α and combines it with one of its subterms α' to form a new term. This latter option is called

¹ I will also use X' to designate non-maximal non-heads, and X^{0max} to refer to maximal heads (in the case of head-adjunction structures).

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 create a *movement chain*, with independent principles determining which copy 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 set $\{DP_i, DP_i\}$; one of the members of this set is then merged with TP, which projects, resulting in the structure in (9b). 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:



Epstein et al. (1998) argue that chains and copies are superfluous under a purely derivational theory. Instead, they treat move as an operation called *Remerge*, which reselects a subterm of α from the numeration 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):



With regard to the justification for movement, I will follow Chomsky in assuming that movement is motivated by the need to satisfy morphological requirements. Specifically, I assume that movement is triggered by an operation *Attract-F*: As I mentioned above, uninterpretable features need to be eliminated in order for a derivation to 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 (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 (see 4.3.4 for some discussion).

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 provides 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 ele-

mentary principles of *X'*-theory, and hence no *X'*-structure module in the grammar. (b) There is no directionality parameter; phrase markers conform universally to a *specifier-head-complement* order, and 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 analyses, based on data from a variety of languages, have provided substantial empirical 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 (11).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 total—which entails that for all pairs of PF elements $\{a,b\}$, the LF structure must provide unambiguous (i.e., complete and non-contradictory) instructions on whether *a* precedes *b* or *b* precedes *a* at PF.

(11) *The Linear Correspondence Axiom*

- i. 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 the appropriate point in the derivation), then *a* will precede *b*.

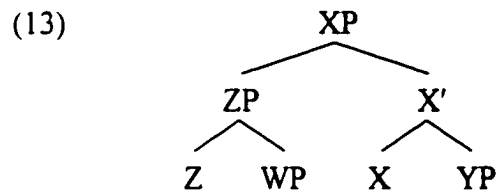
² Kayne's (1994) original formulation of the LCA is more concise (and consequently more opaque) than (11): Kayne specifies that for all phrase markers, "*d*(*A*) is a linear ordering of *T*", where *T* is the set of terminal nodes in the phrase marker, *A* is the set of all ordered pairs of non-terminal nodes $\langle X,Y \rangle$ in the phrase marker, such that *X* asymmetrically c-commands *Y*, and *d*(*A*) is the set of ordered pairs of terminals $\langle a,b \rangle$ such that *a* is dominated by *X* and *b* is dominated by *Y*.

- ii. 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*. I give a traditional formulation of *simple c-command* in (12) (cf. Reinhart 1976). On the basis of (12), *asymmetric c-command* is defined such that X asymmetrically c-commands Y iff X c-commands Y and Y does not c-command X :

- (12) X c-commands Y iff (i) $X \neq Y$, (ii) X does not dominate Y and Y does not dominate X , and (iii) the first/lowest branching node which dominates X dominates Y .

However, it turns out that, given the definition of c-command in (12) 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 (11)–(12) with some additional assumptions. To see why, consider the structure in (13), where ZP is the specifier of XP and YP is the complement of X^0 . Within this structure, the asymmetric c-command relations in (14) obtain:



- (14) a. Z asymmetrically c-commands every term of WP , except WP itself
 b. X asymmetrically c-commands every term of YP , except YP itself
 c. ZP asymmetrically c-commands every term of X and every term of YP
 d. X' asymmetrically c-commands every term of Z and every term of WP

Given the LCA, it follows from (14a-d) that the following relations hold at PF (where $pf(\alpha)$ = the set of PF objects/features which map to the terminals of α):

- (15) 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 (15c) and (15d) contradict each other, in violation of (11ii). The terminals of X' cannot both precede and follow the terminals of ZP . In order to resolve this problem, 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 (14d).

Kayne (1994) and Chomsky (1995) propose different strategies for accomplishing this. Kayne's strategy is to adopt the assumptions in (16):

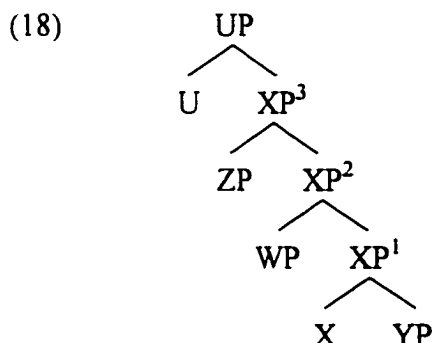
- (16) i. C-command applies to full categories rather than terms/nodes.
 ii. The merger of a specifier with its target is a special case of XP-adjunction.

If specifiers are really adjuncts (16b), 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 (16a), it follows that segments are not potential c-commanders. We can thus eliminate the c-command relations in (14d), leaving the following set of precedence relations at PF, as desired:

- (17) 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 (16), then it follows that multiple adjunction to the same category (e.g., multiple specifiers, phrasal adjunction to an XP containing a specifier, etc.) will be ruled out: Consider the structure in (18), in which a maximal pro-

jection XP, to which ZP and WP have both been adjoined, is selected by the head U to form UP:



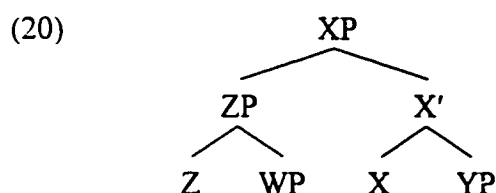
The problem here involves the c-command relations between ZP and WP. Consider ZP first: The lowest category dominating ZP is UP, XP³ being a segment rather than a full category. Keeping in mind that c-command only applies to categories, it follows that ZP c-commands WP, and asymmetrically c-commands the sub-terms of WP (in addition to the terms of X and YP). The terminals of ZP should thus precede those of WP at PF. However, WP also c-commands ZP (the lowest category dominating WP is UP, which also dominates ZP). Furthermore, WP asymmetrically c-commands the sub-terms of ZP. Hence, the terminals of WP should precede those of ZP. Kayne thus rules out multiple adjunction on the grounds that it produces contradictory ordering requirements, in violation of the requirement in (11ii).

However, XP-adjunction to categories containing specifiers plays a crucial role in my analysis of Malagasy word order. I will thus reject (16) and adopt instead the ‘bare phrase structure’ approach to the problem in (13)–(15) suggested by Chomsky (1995). In order to allow multiple specifiers and XP-adjunction, Chomsky retains the traditional

conception of c-command as a relation between terms (nodes) rather than categories, and instead blocks X' from c-commanding by invoking the principle in (19):

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

Consider again the structure in (13), repeated below as (20). Here X' , being neither maximal nor minimal, is invisible for c-command, and thus fails to enter into an asymmetric c-command relation with Z and WP . In this way, Chomsky eliminates the contradiction in (15c-d): $pf(ZP)$ precedes $pf(X')$, but not vice versa.



However, as Epstein et al. (1998) point out, there is a potential problem with the principle in (19), in that it appears to allow X and YP in (20) to c-command out of the X' constituent. If X' is invisible for c-command, then given the definition of c-command in (12), 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 .

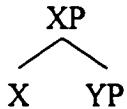
Here I adopt the solution proposed by Epstein et al., who reinterpret c-command not as a *representational* relation (defined in terms of dominance) which holds between nodes in a phrase structure, but as a *derivational* relation which holds between two terms

which have been concatenated by Merge. The definition of c-command which they propose may be paraphrased as in (19):³

- (21) *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.

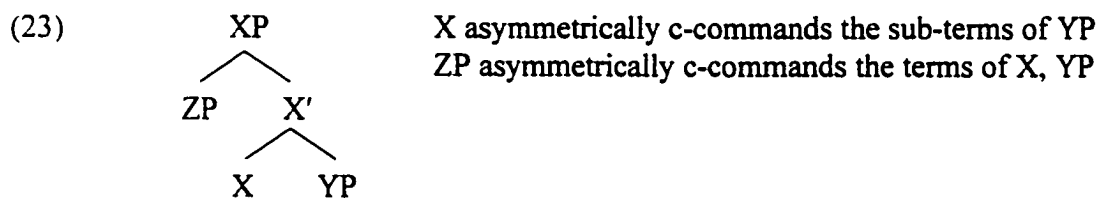
If c-command is defined in terms of Merge, this entails that when two terms in an expression E are concatenated, the c-command relations that obtain between those terms will be computed at the point in the derivation of E where concatenation takes place, and that information will be added to the structural description of E. For example, in constructing the tree in (20), there is a stage at which X merges with YP, with X projecting, as shown in (22). Because X and YP have merged, and because both are visible to the computation (as per (19)), it follows from the definition in (21) that they c-command each other, and that X asymmetrically c-commands the sub-terms of YP.

- (22)  X asymmetrically c-commands the sub-terms of YP

At a later stage in the derivation, the XP in (22) merges with ZP, and X again projects, producing the structure in (23), where the original XP has been reanalyzed as an intermediate projection X'. Once this second merger takes place, the c-command relations be-

³ My version of Epstein et al.'s definition incorporates the *term of* relation in (6iii), 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 (21) thus includes both symmetric c-command (Y = Z), and asymmetric c-command (Y ≠ Z).

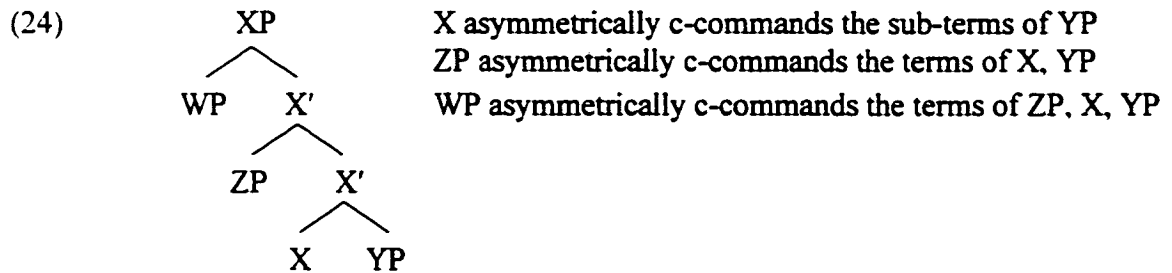
tween the merged terms are calculated and added to the list of c-command relations already established: ZP c-commands X', and asymmetrically c-commands its sub-terms. However, X', now that it has become an intermediate projection of X, is no longer visible to the computation, and thus does not c-command anything. Crucially, however, the fact that the XP in (22) has been reanalyzed as X' does not change the c-command relations established when X and YP merged. Given the way the definition in (21) is formulated, it follows that the c-command relations of two merged terms are not recalculated at subsequent stages of the derivation.



In short, the definition in (21) ensures that X will fail to c-command ZP in (23) even though X' has been rendered invisible for c-command, because ZP is not a term of the term with which X merged in (22).

Crucially for my story, defining c-command in terms of Merge allows for the possibility of multiple specifiers or XP-adjuncts to the same projection. Under Kayne's approach, multiple specifiers/adjuncts were ruled out because they introduced contradictory relations, with the higher specifier/adjunct asymmetrically c-commanding into the lower one, and vice versa. Under the derivational approach, c-command relations are established at the point of merger; thus, the order in which two constituents merge will determine the c-command relations between them. Consider the structure in (24), for example, in

which WP has merged with the structure in (23) as the 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.



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 introduces 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-adjunction.

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, and Travis (1992), I analyze the voice morphemes as the spell-out of case-assigning heads. These heads belong to two types, light verbs (causative and applicative morphemes) and aspectual heads. I suggest that (due perhaps to a

‘doubly-filled COMP’ effect) these heads are spelled out only if their specifiers contain an A'-trace (cf. participial agreement in French). 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 appearance of the voice morphemes is dependent on A'-movement, I compare Malagasy with 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 Chamorro-type language in which ‘wh-agreement’ has been generalized to all clause types due to the obligatory nature of topic-fronting.

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 in this chapter 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, 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 in order to explain the accessibility restriction 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-adjunction (TP adjoins to PivP, which adjoins to TopP, causing the predicate phrase to raise over the surface position of the EA). I argue that, in terms of its formal properties, this process of XP-adjunction is essentially equivalent to successive X^0 -adjunction (T-to-C raising) in verb-second languages like Icelandic. The only significant difference is in how much material is displaced at PF.

To account for adjunction to C-projections in Malagasy and V2 languages, I argue that L-related categories (V, T, etc.) differ from non-L-related categories such as Top and Piv in that the former are interpretable at LF while the latter are uninterpretable. Thus, when Top^0 and Piv^0 host elements in their specifiers (and thus contribute to the semantics by allowing topics and other elements to establish scope), TopP and PivP need to be 'supported' by a constituent bearing an interpretable categorial feature in order to be visible at LF. This requirement causes Top and Piv to attract the categorial feature of TP into their checking domains. 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-adjunction (TP adjoins to PivP, which adjoins to TopP). I tentatively attribute this contrast to independent morphological differences between V2 languages and Malagasy: In the former case, T^0 (containing the verb) forms a discrete morphological unit, and can thus be displaced by overt movement. In the latter case, T^0 forms part of a larger morphological unit, and hence movement of T^0 would cause the derivation to crash at PF; hence TP-movement is employed instead.

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 *ve* cliticizes to the right edge of the highest maximal projection in the clause. On the other hand, if we adopt the right-specifier analysis, we would need to stipulate that *ve* cliticizes sometimes to the left of its host and sometimes to the right. 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.

Chapter 2

Predicate-Argument Structure and Verbal Morphology

2.0. Introduction

Malagasy is an Austronesian language spoken by virtually the entire population of the island of Madagascar (approximately 12 million people). It is a member of the Western Malayo-Polynesian branch of Austronesian, and is thus closely related to the languages of the Philippines (such as Tagalog and Cebuano), as well as many of the languages of Malaysia and Indonesia. On the basis of comparative evidence, Dahl (1951) argues that Malagasy's closest relatives are the languages of the Southeast Barito subgroup of Kalimantan. He suggests that the ancestors of the Malagasy originated in southern Borneo, and migrated to Madagascar between 1000 and 1500 years ago. Although its phonology and lexicon have been influenced by the Bantu languages of mainland East Africa, Malagasy shares most of the characteristic morphosyntactic features of its Southeast Asian relatives, including verb-initial word order and a complex voicing system.

There are several dialects of Malagasy. All of the data cited in this thesis are from the Merina dialect spoken in and around the capital city, Antananarivo. In addition to being the native dialect of my principal consultant, Noro Ramahatafandry, Merina is the basis for standard written Malagasy, and has been the focus of most of the previous linguistic work on the language.

There is good deal of reliable descriptive literature on Malagasy. In addition to an excellent Malagasy-French dictionary (Abinal & Malzac 1963), several comprehensive pedagogical and reference grammars have been published, many of them written by native speakers. These include Rahajarizafy (1960), Rajemisa-Raolison (1971), Rajaona (1972), and Dez (1980). Recent years have seen an outgrowth of detailed descriptive work by native-speaking Malagasy linguists, including an extensive survey of verbal morphology and diathesis by Rabenilaina (1985, 1991), as well as studies of complex verbal constructions (Ranaivoson 1985), adjectives (Ralalaohervony 1995), and temporal adverbs (Raharinirina-Rabaovololona 1991).

Within the generative grammar tradition, a good deal of research on various aspects of Malagasy morphology and syntax has become available since the early 1970s. Important contributions include Keenan (1976, 1994), Travis & Williams (1983), Randriamasimanana (1986, 1998, 1999), Travis (1991, 1994), Guilfoyle, Hung, & Travis (1992), Manaster-Ramer (1992), Voskuil (1993), Law (1995, 1997), Pearson (1996a, 1997), Dahl (1996), Keenan & Polinsky (1998), Paul (1998b, 1999, 2000, to appear), Phillips (2000), and Rackowski & Travis (to appear). There are also two recent collections of working papers on various aspects of the structure of Malagasy, edited by Pearson & Paul (1996) and Paul (1998a).

In this chapter I offer some background information on the basic features of Malagasy, and introduce some of the issues to be investigated in this thesis. The organization of this chapter is as follows: In section 2.1 I discuss the basic structure of the Malagasy clause. In 2.2 I provide a brief overview of verbal morphology, including a discussion of

the *voicing* system, a central feature of the language. Here I briefly discuss the interaction between voice morphology and extraction, an issue to which I return in chapter 3. In 2.3 I discuss nominal morphology and the hierarchical positions of arguments within the predicate phrase, and present my assumptions on the phrase structure of the clause. Finally in 2.4 I discuss the morphology of the voicing system, and sketch analysis of the voicing system in which the voice morphemes are treated as functional heads involved in abstract case-licensing, which are spelled out overtly just in case their specifiers contain an A'-trace. Thus, the function of voice morphology is to indicate the abstract case of an A'-chain (with its head in the EA position). As evidence that voice morphology is triggered by A'-movement, I compare Malagasy with Chamorro. Chamorro normally exhibits ϕ -feature agreement on verbs; however, in wh-movement contexts (wh-questions, relative clauses, etc.), regular ϕ -feature agreement is replaced by special *wh-agreement* morphology (Chung 1982, 1994, 1998). These wh-agreement morphemes appear to be cognate with the voice morphemes found in Philippine-type languages. One way to interpret this is to analyze Malagasy as a Chamorro-type language in which wh-agreement has been generalized to all clause types due to the presence of obligatory A'-movement of the EA to a topic position (cf. chapter 3).

2.1. An overview of Malagasy clause structure

Malagasy is a verb-initial language, traditionally classified as VOS, with relatively fixed word order. Malagasy displays all of the usual word order properties of a head-initial language (e.g., prepositions, noun–adjective order in DP, postnominal possessors and

relative clauses, postverbal PP adjuncts, and so on). In this section I review some general facts pertaining to word order and constituency.

Malagasy clauses generally have a bipartite structure, comprised of a *predicate phrase* (or PredP), and a constituent denoting the participant of which the PredP is predicated. This latter constituent is variously referred to as the *subject*, *topic*, or *focus* of the clause. In chapters 3 and 4 I argue that this element occupies an A'-position analogous to the position of preverbal topics in verb-second languages like German and Icelandic. However, rather than referring to this element as a topic, I will adopt a purely descriptive term, *external argument* (abbreviated EA). In sentence (1) below, the EA is marked with a dotted underline (a convention I follow throughout this thesis); the remainder of the sentence constitutes the predicate phrase:¹

- (1) Mamono akoho amin'ny antsy ny...mpamboly
 NomP.kill chicken with-Det knife Det farmer
 "The farmer kills {a chicken / chickens} with the knife"

In (1) the predicate phrase consists of a verb and its dependents (a direct object and a PP).

Non-verbal constituents may also function as predicate phrases: As the examples below

¹ Standard Malagasy orthography is employed throughout this thesis. This orthography is fairly transparent, but note that *h* is generally silent, *o* = [u], *j* = [dz], and *dr* and *tr* represent voiced and voiceless retroflex plosives. Finally, the high front vowel [i] is written *y* word-finally and *i* elsewhere.

I will generally not indicate word-internal morpheme boundaries in the Malagasy examples, as the internal structure of words will usually not be relevant to the discussion. Note that the apostrophes and hyphens which occur in the Malagasy examples (e.g., *amin'ny* in (1), *henon-dRabe* in (3b)) are part of the standard orthography.

show, the PredP may consist of a bare noun phrase (2a), a weak quantifier or numeral phrase (2b), an adjectival phrase (2c,d), or a locative phrase (2e):²

- (2) a. Dokotera ny...rahalahiko
 doctor Det brother-1s
 “My brother is/was a doctor”
- b. Roa ny...zanan’i..... Noro
 two Det children-Lnk-Det Noro
 “Noro has two children”
 lit. “The children of Noro (are) two”
- c. Hendry ny...ankizy
 wise Det children
 “The children are well-behaved”
- d. Maty ny...miaramila maro
 dead/died Det soldier many
 “Many of the soldiers {died / are dead}”
- e. Ary anatin’ny ala ny...gidro
 there inside-Lnk-Det forest Det lemur
 “The lemur is in the forest”

The fact that the clauses in (1)–(2) have a bipartite structure is supported by a variety of constituency tests, as discussed by Keenan (1976, 1994), Dahl (1996), and others. Note, for example, that it is possible to conjoin two PredPs using the phrasal connective *sy* “and”, as in (3), where the sentence-final EA is predicated of both conjuncts (example (3a) is taken from Keenan 1976):³

² Except in existential constructions, non-verbal predicates are not introduced by an overt copular element. I remain agnostic on whether the clauses in (2) contain a phonetically null copula.

³ Note that Malagasy has two principal connectives equivalent to “and”, namely *sy* and *ary*. *Ary* is generally used for conjoining clauses, while *sy* is used exclusively for conjoining constituents other than clauses, such as DPs and PPs (cf. the examples in (i)–(ii) below). The fact that the sentences in (3) require *sy*

- (3) a. [Misotro toaka] sy [mihinam-bary] Rakoto
 NomP.drink rum and NomP.eat-rice Rakoto
 “Rakoto is drinking rum and eating rice”
- b. [Henon-dRabe] sy [nojeren-dRajaona] ny...mpihira gasy
 heard-Rabe and Pst-AccP.watch-Rajaona Det folksinger
 “The folksinger, Rabe heard (him) and Rajaona watched (him)”

Additional evidence for the constituency of the predicate phrase comes from the placement of certain particles, such as the yes/no question marker *ve*. As illustrated in (4), *ve* targets the boundary between the PredP and the EA:

- (4) a. Mamono akoho amin’ny antsy ve ny mpamboly?
 NomP.kill chicken with-Det knife Qu Det farmer
 “Is the farmer killing chickens with the knife?”
- b. * Mamono *ve* akoho amin’ny antsy ny mpamboly?
 c. * Mamono akoho *ve* amin’ny antsy ny mpamboly?
 d. * Mamono akoho amin’ny antsy ny mpamboly *ve?*

Paul (1999) argues convincingly that *ve* is a second-position clitic, which attaches to the right edge of the leftmost phrasal constituent in the clause (see section 4.4.1 for a discussion of Paul’s evidence). Thus, the fact that *ve* follows *mamono akoho amin’ny antsy* in (4) shows that this string is a single constituent.

strongly suggests that we are dealing with conjoined PredPs sharing a single EA—rather than, say, conjoined clauses where the EA of the first clause has been deleted under coreference with the EA of the second clause.

- (i) Misotro toaka Rajaona { *ary* / **sy* } mihinam-bary Rakoto
 NomP.drink rum Rajaona NomP.eat-rice Rakoto
 “[Rajaona drinks rum] and [Rakoto eats rice]”
- (ii) Misotro toaka Rajaona { *sy* / ??*ary* } Rakoto
 NomP.drink rum Rajaona Rakoto
 “[Rajaona] and [Rakoto] drink rum”

Turning to the external argument: There are certain featural restrictions on the type of constituent which may occupy the external argument position. In particular, the EA must be of category DP, and it must be [+specific], in the sense of Enç (1991). That is, the EA must be associated with an existential presupposition—either by virtue of being definite (or generic), or by virtue of expressing quantification over a definite set of entities (as with universal QPs and partitive expressions). Types of DPs which may appear in the EA position include pronouns (5a); proper names (5b); definite descriptions headed by a determiner such as *ny*, *ilay*, or *ireo* (5c-d); or definite descriptions flanked by copies of a deictic determiner, in what is known as the *framing demonstrative* construction (5e) (see 2.3.1 for additional discussion of determiners).

- (5) a. Mihinana akondro izahay
 NomP.eat banana lex
 ‘‘We are eating bananas’’
- b. Mihinana akondro i.....Tenda
 NomP.eat banana Det Tenda
 ‘‘Tenda is eating bananas’’
- c. Mihinana akondro ny.....gidro
 NomP.eat banana Det lemur
 ‘‘The lemur(s) is/are eating bananas’’
 or ‘‘Lemurs eat bananas’’ [generic]
- d. Mihinana akondro ilay.....gidro
 NomP.eat banana Det lemur
 ‘‘That [previously-mentioned] lemur is eating bananas’’
- e. Mihinana akondro io.....gidro.....io
 NomP.eat banana this lemur this
 ‘‘This lemur is eating bananas’’

By contrast, bare noun phrases and PPs may not function as EAs, as shown in (6):

- (6) a. * Mihinana akondro gidro
 NomP.eat banana lemur
 “A lemur is eating bananas”
- b. * Namonoan’ny mpamboly akoho tamin’ity antsy ity
 Pst-CrcP.kill-Det farmer chicken Pst-with-this knife this
 “The farmer killed chickens with this knife”

Although the EA is typically the rightmost element in the clause, there are a handful of other constituent types which also occupy right-peripheral positions. For example, certain kinds of adverbial expressions and PPs—specifically, those which serve to establish the general spatio-temporal context for the event denoted by the PredP—frequently occur outside the predicate phrase, following the EA, as shown in (7a-b) (adapted from examples in Rajemisa-Raolison 1971):⁴

- (7) a. Nanoratra taratasy ny zazavavy tany am-pianarana
 Pst-NomP.write letter Det girl Pst-there Obl-school
 “The girl wrote a letter in school”
- b. Niasa tany tamin’ny angady izahay omaly hariva
 Pst-NomP.work field Pst-with-Det spade lex yesterday evening
 “Yesterday evening we worked (in the) fields with a spade”

⁴ Certain adverbs, such as *matetika* “generally”, can also optionally follow the EA, as shown in (i) (adapted from Rackowski 1998). These adverbs are all licensed in rather high positions in the projection hierarchy, according to Cinque (1999)—a fact to which I return in Pearson (in preparation).

- (i) Tsy mandamina mihitsy ny trano Rakoto matetika
 Neg NomP.arrange at.all Det house Rakoto generally
 “Rakoto generally does not put the house in order”

In addition to spatio-temporal adverbials, adjunct and complement clauses regularly follow the EA, as shown in (8).⁵ This is reminiscent of CP extraposition in English and other languages. (See sections 4.2.2 and 4.2.3 for some discussion of post-EA constituents.)

- (8) a. Manantena i.....Tenda [fa hianatra tsara ny.....ankizy]
 NomP.hope Det Tenda that Irr-NomP.study well Det children
 “Tenda hopes that the children will study well”
- b. Tsy maintsy nandalo amin’ny lavabato izy [vao tonga tany]
 necessary Pst-NomP.pass in-Det cave 3 before arrive there
 “They had to pass through a cave to get there [lit. before arriving there]”

Normally in every sentence the external argument position must be filled. Taken in isolation, a sentence consisting of just of a predicate phrase is generally judged ungrammatical, with three major exceptions: Certain types of imperatives lack an overt EA, as shown in (9) (see 2.3.2). Existential sentences formed with the copular verb *misy* “exist” (10a-b) also lack an EA (on the structure of existentials, see Polinsky 1994, Pearson 1996a/b, Paul 2000). Finally, the EA slot is sometimes empty in ‘ambient’ sentences—that is, sentences where the predicate is attributed to the environment—as in the example in (10c), taken from a passage in a text concerning the conditions inside a cave.⁶

⁵ Although extraposed clauses in Malagasy are generally introduced by an overt complementizer or subordinator such as *fa* “that” or *vao* “before”, ‘bare’ CP complements are also sometimes extraposed, as in (i). This seems to occur most often when the matrix predicate is an adjective:

- (i) Talanjona ny.....vahoaka [nahita ilay tovolahy nipetraka amin’ny vato]
 surprised Det people Pst-NomP.see that young.man Pst-NomP.sit on-Det rock
 “The people were surprised to see that young man sitting on the rock”

⁶ Consider also (i) below, courtesy of Ileana Paul (p.c.): Paul speculates that this sentence involves a rare example of a PP functioning as the external argument of a predicate. Another possibility is that the PP is extraposed, and the EA function is fulfilled by a null expletive, as I have assumed for (10c).

- (9) Mamakia boky Ø
 NomP.read-Imp book
 “Read a book!”
- (10) a. Nisy entana tonga Ø
 Pst-NomP.exist parcel arrived
 “Some parcels arrived”
 lit. “(There) exist parcels (that) arrived”
- b. Tsy nisy olona tonga tamin’ny fety Ø
 Neg Pst-NomP.exist people arrived Pst-to-Det party
 “Nobody came to the party”
 lit. “(There) don’t exist people (who) came to the party”
- c. Feno rano Ø tao
 full water Pst-in.there
 “In there (it) was full of water”

Though sentences in isolation must have an EA, in connected discourse the EA is often elided under coreference with the EA of a previous clause, a phenomenon reminiscent of *topic-drop* in other languages (Huang 1984; cf. the discussion in 3.1.2). Consider the sequence of sentences in (11), taken from a passage in a folk tale: In the first clause (11a) the noun phrase *izy roalahy* “those two men” (lit. “they two-male”) functions as the EA. Subsequent clauses in (11b-d) are understood to be predicated of the same referent, and the matrix EA position is left empty:

- (11) a. Tamin’izay, tonga nihazakazaka izy roalahy
 Pst-at-that.time arrived Pst-NomP.run 3 two-men
 “At that moment, those two men came running up”

-
- (i) [_{PredP} Toerana tsara hiafenana] ao amban’ny latabatra
 place good Irr-CrcP.hide there under-Det table
 “Under the table is a good place to hide”

- b. Raiki-tahotra sy nangovitra Ø ...
struck-fear and Pst-NomP.tremble
“[They] were struck with fear and began to tremble...”
- c. ... raha nahita Ø [fa velona ihany ny...rahalahiny]
when Pst-NomP.see that alive truly Det brother-3
“... when [they] saw that their brother was (still) alive”
- d. Tsy tampotampoka toy izay, nandositra Ø
Neg sudden.Redup like that Pst-NomP.run.away
“Just like that, [they] ran away”
(lit. “Not a little suddenly like that, [they] ran away”)

Note finally that there is one class of sentences which may or may not contain an overt external argument, depending on one’s analysis, namely sentences consisting of a matrix predicate followed by a complement clause headed by *fa*, such as (12a). The position of *ve* shows that the complement clause is outside of the predicate phrase (12b). However, it is unclear whether the complement clause occupies the EA position (*That the student is reading the book is known by Rakoto*), or whether it is extraposed, as in (8a), and the EA position is either empty or filled by a null expletive (*[It] is known by Rakoto that the student is reading the book*). Here I will assume that the first analysis is the correct one, although nothing I will say is incompatible with the second analysis.

- (12) a. Fantan-dRakoto [fa mamaky ny boky ny...mpianatra]
known-Lnk-Rakoto that NomP.read Det book Det student
“Rakoto knows that the student is reading the book”
- b. Fantan-dRakoto *ve* [fa mamaky ny boky ny...mpianatra] ?
known-Lnk-Rakoto Qu that NomP.read Det book Det student
“Does Rakoto know that the student is reading the book?”

The two major questions addressed in this thesis concern the status of the EA and its structural relationship to the predicate phrase, namely “What position in the phrase structure does the EA occupy?” and “Why does the EA show up at the right-periphery of the clause?” The first question is dealt with in chapter 3. There I argue that the EA occupies an A'-position in the C-domain of the clause, the specifier of a topic projection, TopP. Then in chapter 4 I turn to the second question, and argue that the surface word order of the clause is derived through leftward movement of the predicate phrase to a position above the EA (the motivation for this movement is similar to the motivation for T-to-C raising in VSO and verb-second languages, although the effects of this movement on surface word order are quite different due to independent morphological factors).

The remainder of chapter 2 sets the stage for the discussion in chapters 3 and 4. Having reviewed the basic layout of the clause, I now present some background information on those aspects of nominal and verbal morphology which will be relevant to this discussion.

2.2. An overview of verb morphology

In section 2.4, I discuss the voicing system of Malagasy in detail, and sketch an analysis of voice morphemes as the overt realizations of functional heads which participate in the licensing of abstract case. As a prelude to this discussion, I present an overview of the voicing system in 2.2.1. Then in 2.2.2 I comment briefly on additional morphological features of verbs, such as tense-marking.

2.2.1. The Malagasy voicing system

Consider again example (1), repeated below as (13a): Here the EA *ny mpamboly* “the farmer” denotes the agent of the event. It is also possible to place non-agents in the external argument position, as illustrated in (13b-c): In (13b), the patient of the event is acting as the EA. In (13c) the EA is a noun phrase denoting the instrument with which the action is carried out. Notice that in (13b-c) the agent occurs immediately after the verb, and fuses with the verb stem to form a single prosodic unit (e.g., in (13b) it contracts with *vonoina* to form *vonoin'ny mpamboly*; see section 2.3.1).⁷

- (13) a. Mamono akoho amin'ny antsy ny...mpamboly
NomP.kill chicken with-Det knife Det farmer
“The farmer kills {a chicken / chickens} with the knife”
- b. Vonoin'ny mpamboly amin'ny antsy ny...akoho
AccP.kill-Det farmer with-Det knife Det chicken
“The chickens are killed by the farmer with the knife”
or “The chickens, the farmer is killing (them) with the knife”
- c. Amonoan'ny mpamboly akoho ny...antsy
CrcP.kill-Det farmer chicken Det knife
“The knife is being used by the farmer to kill chickens”
or “The knife, the farmer is killing chickens (with it)”

That *ny akoho* in (13b) and *ny antsy* in (13c) are functioning as the EA of their respective clauses is shown by the fact that they occur clause-finally, and are separated from the rest of the sentence by *ve* in yes/no questions (14).

⁷ Notice that the preposition *amin'* “with”, which marks the instrument in (13a-b), is absent in (13c). I return to this fact in 2.2.1.2 and 2.4.4.

- (14) a. Vonoin'ny mpamboly amin'ny antsy ve ny...akoho?
 AccP.kill-Det farmer with-Det knife Qu Det chicken
 "The chickens, is the farmer killing (them) with the knife?"
- b. Amonoan'ny mpamboly akoho ve ny...antsy?
 CrcP.kill-Det farmer chicken Qu Det knife
 "The knife, is the farmer killing chickens (with it)?"

The paradigm in (13) illustrates what is known as the *voicing* system of Malagasy (the term *verbal focus* is also sometimes used). Borrowing terminology from Travis & Williams (1983), I will refer to the operation which maps one or another dependent of the verb onto the external argument position/function as *externalization*, since the EA is outside the PredP constituent while the non-EA dependents are inside the PredP. For example, we would say that the agent of the verb is externalized in (13a), while the patient is externalized in (13b) and the instrument is externalized in (13c).

Notice that the morphological shape of the verb "kill" (whose root is *vono*) changes depending on which argument is externalized. In (13a), the verb has the form *mamonono*; in (13b), the form *vonoina* is used; and in (13c), the form *amonoana* is used. For reasons discussed in 2.2.1.1 below, I will refer to these as the *nominative-pivot* (NomP), *accusative-pivot* (AccP), and *circumstantial-pivot* (CrcP) forms, respectively. Two other forms, the *translative-pivot* (TrnP) and the *dative-pivot* (DatP) forms, are also attested (see 2.2.1.2 for examples). Although very few verbs appear in all five of these forms, most intransitive verbs accept both NomP and CrcP morphology, while most transitive verbs take these two forms and at least one of the three remaining forms, which may be grouped together as the *object-pivot* forms. The five forms are listed in (15), together

with examples. I review their distribution in 2.2.1.2, returning in 2.4 to the voice morphemes themselves and their place in the functional hierarchy of the clause.

(15) The five voice forms

<i>name</i>	<i>morphological template</i>	<i>examples</i>	
		<i>underlying form</i>	<i>surface form</i>
Nominative-Pivot (NomP)	m- + PFX- + ROOT	m-an-vélar m-an-táov m-i-kápok	mamélatra manáo mikápoka
Accusative-Pivot (AccP)	ROOT + -in	vonó-in vidí-in kapók-in	vonóina vidína kapóhina
Dative-Pivot (DatP)	ROOT + -an	rosó-an tolór-an jinja-an	rosóana tolórana jinjaana
Translative-Pivot (TrnP)	a- + ROOT	a-róso a-tólor a-tósek	aróso atólotra atósika
Circumstantial-Pivot (CrcP)	PFX- + ROOT + -an	an-velár-an an-táov-an i-kapók-an	amelárana anáovana ikapóhana

As can be seen by comparing the underlying and surface forms in (15), various phonological changes accompany the addition of voice morphology to roots. These include nasal assimilation, the deletion or mutation of root-initial and root-final consonants, vowel reduction and coalescence, and (in forms such as *vonó-in* > *vonóina*, *m-i-kápok* > *mikápoka*, etc.) the insertion of an extrametrical ‘default’ *a* after an underlyingly stem-final consonant, allowing that consonant to resyllabify as an onset. Most of these changes are triggered by surface phonotactic constraints banning complex onsets and closed syllables (see Erwin 1996 for discussion).

Complex voicing systems of this sort are a central feature of the so-called ‘Philippine-type’ of Western Austronesian languages. Compare the paradigm in (13) with that in (16), which illustrates the voicing system of Tagalog (Schachter & Otnes 1972, Kroeger 1993, et al.). The various voice forms serve to ‘promote’ different constituents to a syntactically prominent position in the clause, more or less equivalent to the EA in Malagasy. (Note that in Tagalog the promoted constituent is marked with the special determiner *ang* in (15), while non-promoted constituents take the unmarked determiner *ng* or the oblique determiner *sa*):⁸

- (16) a. Bumili ng libro sa tindahan ang maestro
 NomP.buy.(Perf) Det book Obl.Det store Det teacher
 “The teacher bought a book from the store”
- b. Binili ng maestro sa tindahan ang libro
 AccP.buy.(Perf) Det teacher Obl.Det store Det book
 “A/the teacher bought the book from the store”
- c. Binilhan ng maestro ng libro ang tindahan
 DatP.buy.(Perf) Det teacher Det book Det store
 “A/the teacher bought a book from the store”

In (16) the *ang*-marked element is clause-final, suggesting that Tagalog clauses have the same bipartite structure as in Malagasy. However, the order of postverbal constituents in Tagalog is actually quite free: Though the *ang*-marked constituent normally occurs at the

⁸ Here and throughout this thesis, examples from Tagalog have been reglossed using the voicing terminology employed here for Malagasy. In the Tagalog literature, the voice forms illustrated in (16a-c) are usually referred to as the *actor-topic*, *goal-topic*, and *dative/locative-topic* forms, respectively. My identification of the forms in (16a) and (16b) as NomP and AccP is justified by the fact that they behave syntactically very much like the NomP and AccP forms in Malagasy, and in many cases appear to involve historically related morphemes—e.g., the suffix *-an* in *binilhan* seems to be cognate with the DatP/CrcP suffix *-an* in Malagasy.

end of the clause, it may be freely permuted with other constituents, apparently without any effect on interpretation:

- (17) a. Bumili ang...maestro ng libro sa tindahan
 NomP.buy.(Perf) Det teacher Det book Obl.Det store
 “The teacher bought a book from the store”
- b. Bumili ng libro ang...maestro sa tindahan
 NomP.buy.(Perf) Det book Det teacher Obl.Det store
 “The teacher bought a book from the store”

Thus Tagalog appears to lack the rigid *PredP* + *EA* constituent structure found in Malagasy.⁹ In all other respects, however, the voicing systems of the two languages are highly comparable: In both languages, each matrix clause must have one and only one EA; in both languages, the EA must be a [+specific] DP; and in both languages, the voicing system interacts closely with other components of the grammar such as relativization and wh-question formation (section 2.2.1.3).

2.2.1.1. A note on terminology

In this thesis I adopt novel terms for the voice forms. Pedagogical and descriptive grammars, such as Rajemisa-Raolison (1971), generally refer to the NomP as the *active* form and the CrcP as the *circumstantial* or *relative* form, while the AccP, DatP, and TrnP are

⁹ Richards (2000) argues that the pivot is licensed in a predicate-external position just like in Malagasy. The two languages differ in that movement to this position takes place in the overt syntax in Malagasy, but covertly in Tagalog. This difference may be linked to the fact that in Tagalog, but not in Malagasy, the EA is identified morphologically by means of a special set of determiners (e.g., *ang*).

grouped together as different types of *passives*.¹⁰ These labels were adopted by Keenan (1976) and have since become standard in the linguistics literature.¹¹

However, this terminology is somewhat misleading. Although forms such as the AccP and DatP are functionally similar to passives in English and French, in that the patient is ‘promoted’ over the agent to the structurally and pragmatically salient EA role, syntactically the two constructions are quite distinct. As I show in 2.3.2, the ‘demoted’ agent in an AccP clause does not function as an oblique comparable to the *by*-phrase in English passives, but as a core argument of the verb which behaves in all important respects like the postverbal subject in a VSO language. Moreover, as I discuss in chapter 3, the ‘promoted’ patient in an AccP clause does not have the properties of a derived subject, but functions more like a topic (for example, I present evidence from binding and other domains to show that the EA occupies an A’-position rather than an A-position). Thus, to prevent confusion with actives and passives in European languages, I reject the traditional terms here and adopt case-based designations such as *nominative-pivot* and

¹⁰ The designation *passive* also covers two other forms, constructed by adding the prefixes *voa-* and *tafa-* to the root. Examples are given in (i). These forms differ from the AccP, DatP, and TrnP forms in that (a) they typically occur without an overt agent phrase, and (b) they have an inherently completive meaning. I will not consider these forms here, but see Randriamasimanana (1986), Travis (1996) for some discussion.

- (i) a. Voafina tao anatin’ny boaty ny....vola
 Voa.hide Pst-in.there inside-Det box Det money
 “The money was hidden in the box”
 b. Tafatsangana ny....lay
 Tafa.put.up Det tent
 “The tent got put up”

¹¹ Some researchers, however, most notably Guilfoyle, Hung, & Travis (1992), follow the naming conventions found in the literature on Philippine languages, and refer to the NomP and AccP forms as the *actor-topic* and *theme-topic* (or *goal-topic*) forms, respectively.

accusative-pivot instead. In this respect I follow Kroeger (1988), who proposes a similar naming system for the voice forms in Kimaragang Dusun, a related language.

These labels incorporate the term *pivot*, which comes from the descriptive literature on Western Austronesian, where it refers to the constituent whose grammatical function (subject/agent, object/patient, oblique, etc.) is identified by the voice marking on the verb. In all of the cases to be considered in this chapter, it is the external argument which functions as the pivot. For example, in (18), the EA *ny akoho* “the chickens” functions as the pivot of the verb *vonoina* “kill”, insofar as the AccP marking on the verb identifies the EA as a patient.

- (18) Vonoin’ny mpamboly amin’ny antsy ny....akoho
 AccP.kill-Det farmer with-Det knife Det chicken
 “The farmer killed the chickens with the knife”

In chapter 3, however, I will show that there are certain special contexts (involving extraction from embedded clauses) in which the voice of a given verb is determined not by the external argument, but by some larger constituent which properly contains the external argument. This shows that the terms *pivot* and *external argument*, while closely related, are not synonymous (which is why I use a *pivot* rather than *EA* as the basis for the voicing terminology adopted here). However, because the difference between pivots and EAs is not relevant to the discussion in chapter 2, I will defer further discussion of this issue until chapter 3.

My choice of case-based designations like *nominative-pivot* and *accusative-pivot* (rather than semantically-based terms such as *agent-pivot* and *theme-pivot*) reflects the observation that the mapping of EAs to voice forms cuts across traditional thematic roles,

showing a distribution which seems to have more in common with case-marking than with θ -marking. Consider the distribution of the nominative-pivot voice, for example: This form is used not only when the EA is the agent of a canonical transitive verb such as “kill”, but also when the EA is the experiencer argument of a perception verb (19a), or the theme argument of an intransitive verb (19b-c). In other words, this form is used when the EA belongs to that class of DPs that typically receive nominative case in nominative-accusative case-marking languages:

- (19) a. Mahita ny alika ny...zazavavy
 NomP.see Det dog Det girl
 “The girl sees the dog”
- b. Mipetraka eo ambonin’ny vato ny...zazavavy
 NomP.sit there on.top-Lnk-Det rock Det girl
 “The girl is sitting on the rock”
- c. Nianjera ny...zazavavy
 Pst-NomP.fall Det girl
 “The girl fell down”

Intuitively, voice morphology identifies the abstract case of the EA. Thus, the NomP form indicates that the EA bears (abstract) nominative case, while the AccP and DatP forms indicate the EA bears (abstract) accusative and dative case, respectively.¹² I develop this idea further in 2.4, where I discuss the syntactic functions of the voice morphemes themselves.

¹² For related conceptions of voice in Austronesian, see Schachter (1976) on Tagalog and Kroeger (1988) on Kimaragang Dusun. This approach to voice is also similar to Chung’s (1982, 1994, 1998) characterization of *wh-agreement* phenomena in Chamorro, to which I return in 2.4.5.

2.2.1.2. The distribution of the voice forms

The *nominative-pivot* (NomP) voice is formed by adding the prefix *m-* to verb root, in combination with one of a small set of *verbal prefixes*, discussed in 2.4.2. For example, the NomP form *mamaky* “break, read” is comprised of the voice prefix *m-*, the verbal prefix *an-*, and the adjectival root *vaky* “broken”. The *accusative-pivot* (AccP) voice is formed by adding the suffix *-in* to the root. The verbal prefix found on the NomP form is generally absent. Thus the AccP form corresponding to *mamaky* is *vakina*.

As its name suggests, the nominative-pivot form is used when the EA is the ‘notional subject’ (agent, actor, experiencer, etc.) of a transitive verb, or the sole core argument (experiencer, theme, etc.) of an intransitive verb. The *accusative-pivot* form is used when the EA is the direct object of a transitive verb (typically a patient/theme). Compare the sentences in (20). The NomP form *mamaky* in (20a) marks the agent *ny mpianatra* “the student” as the EA, while the AccP form *vakina* in (20b) marks the patient *ny boky* “the book” as the EA:

- (20) a. *Mamaky* *ny boky ny.....mpianatra*
 NomP.read Det book Det student
 “The student is reading the book”
- b. *Vakin'ny* *mpianatra ny.....boky*
 AccP.read-Det student Det book
 “The student is reading the book”

Additional examples illustrating the NomP and AccP forms are given in (21) and (22), respectively (these examples are all adapted from textual sources):

- (21) a. *Manodidina ny tanàna ny tamboho*
 NomP.surround Det village Det fence
 “The fence surrounds the city”
- b. *Nidina tany anaty lavabato izy*
 Pst-NomP.descend Pst-there inside cavern 3
 “He went down into the cavern”
- c. *Mba efa nahita gidro ve ianao?*
 Emph already Pst-NomP.see lemur Qu 2s
 “Have you ever seen a lemur?”
- (22) a. *Notapahin’ny lehilahy ny vahitady*
 Pst-AccP.cut-Det man Det vine.rope
 “The men cut the vine rope”
- b. *Novonoin-dRanaivo ny rahalahiny*
 Pst-AccP.kill-Ranaivo Det brother-3
 “Ranaivo killed his brother”
- c. *Narahin’ny olona marobe ny mpanjaka*
 Pst-AccP.follow-Det people great.many Det king
 “The king had a great many people following him [in his entourage]”

With certain verbs, the *translative-pivot* (TrnP) or *dative-pivot* (DatP) voice is used in place of the accusative-pivot voice to mark externalization of the direct object. The translative-pivot is formed by adding the prefix *a-* to the root, while the DatP voice is formed by adding the suffix *-an* (as with the AccP voice, the verbal prefix found on the NomP form is absent). For example, when the direct object of the verb *taov* “do, make” functions as the EA, the TrnP form *atao* is used (23); and when the direct object of *sorat* “write” functions as the EA, the DatP form *soratana* is used (24):

- (23) a. *Nanao ny fiomanana rehetra izahay*
 Pst-NomP.make Det preparation all lex
 “We made all the preparations”

- b. *Natao ny fiomanana rehetra*
 Pst-TrnP.make Det preparation all
 “All the preparations were made”
- (24) a. *Nanoratra ny taratasy ny mpianatra*
 Pst-NomP.write Det letter Det student
 “The student was writing the letter”
- b. *Nosoratan'ny mpianatra ny taratasy*
 Pst-DatP.write-Det student Det letter
 “The student wrote the letter”

The choice of the TrnP or DatP form over the AccP appears to be an idiosyncratic feature of the verbs in question. If voice marking involves a form of ‘abstract case agreement’, as I suggested above (cf. 2.4), then the use of the DatP or TrnP in place of the AccP is perhaps comparable to what we find in many morphological case-marking languages such as Russian or German, where certain verbs are lexically specified as taking a dative or genitive case-marked object in place of the normal accusative object.

Although the TrnP and DatP forms occur as the sole object-pivot form of certain monotransitive verbs, they more commonly occur in alternation with each other to promote the objects of ditransitive verbs such as *tolor* “offer”. Here, the TrnP form is used when the direct object (theme) is functioning as the EA (25b), while the DatP form is used when the EA is the indirect object (recipient or benefactee) (25c):

- (25) a. *Nanolotra ny dite tamin'ny vahiny i Ketaka*
 Pst-NomP.offer Det tea Pst-to-Det guest Det Ketaka
 “Ketaka offered the tea to the guests”
- b. *Natolotr'i Ketaka tamin'ny vahiny ny dite*
 Pst-TrnP.offer-Det Ketaka Pst-to-Det guest Det tea
 “The tea, Ketaka offered (it) to the guests”

- c. *Notoloran'i* *Ketaka ny dite ny...vahiny*
 Pst-DatP.offer-Det *Ketaka* Det *tea* Det *guest*
 "The guests, Ketaka offered (them) the tea"

In addition, there are a handful of verbs, including *didi* "cut" and *kapok* "hit, beat", for which the TrnP form is used to mark the externalization of an instrument, while the DatP (or AccP) form marks externalization of the patient:

- (26) a. *Nandidy* *mofo tamin'ny antsy ny...vehivavy*
 Pst-NomP.cut bread Pst-with-Det knife Det woman
 "The woman cut bread with the knife"
- b. *Nadidin'ny* *vehivavy ny mofo ny...antsy*
 Pst-TrnP.cut-Det woman Det bread Det knife
 "The knife, the woman cut the bread (with it)"
- c. *Nodidian'ny* *vehivavy tamin'ny antsy ny...mofo*
 Pst-DatP.cut-Det woman Pst-with-Det knife Det bread
 "The bread, the woman cut (it) with the knife"

I will have little to say about the TrnP and DatP forms here, as distinct from the AccP form (see Voskuil 1993, Paul 1999, Pearson 1998b, [in preparation] for discussion). In general, the TrnP form is used to externalize a participant that undergoes a change of location or orientation, what Rappaport & Levin (1988) call the *locatum* of the event.¹³ When used in alternation with the TrnP form, the DatP form marks externalization of the *goal*, i.e., the object/location where that participant ends up. The choice of the terms

¹³ The association of the TrnP form with locatum arguments is supported by the fact that the vast majority of monotransitive verbs which select the TrnP as their sole object-pivot form are verbs which denote a change of position or location. Such verbs include *elez* "scatter, spread, sow", *hanton* "hang", *idin* "take down", *janon* "stop (tr.)", *joro* "set up, erect", *latsak* "lower", *tsangan* "raise", and *tasek* "push" (cf. Paul 1999 for discussion).

translative-pivot and *dative-pivot* is meant to reflect this association with locatum and goal, respectively.¹⁴

Finally, the *circumstantial-pivot* (CrcP) voice is formed by adding a verbal prefix to the root (the same prefix that is selected by the root when it occurs in the NomP form) together with the suffix *-an*. Thus, corresponding to NomP *mamaky* “read” [< *m- an-vaky*] we have the CrcP form *amakiana* [< *an- vaky -an*]. The circumstantial-pivot voice is used when the EA is neither the notional subject nor a notional object of the verb, but instead corresponds to an ‘oblique’ dependent of the verb—i.e., an adverbial or other

¹⁴ Although there are a number of verbs which show alternations between the TrnP form and either the DatP or the AccP form, it is rare for a single verb to take both the AccP and the DatP forms. This near-complementary distribution has led most authors (e.g., Keenan 1976, Travis 1994, Paul 1999) to regard the AccP and DatP forms as non-distinct, and to treat *-in* and *-an* as allomorphic variants of a single voice suffix.

However, there *are* a handful of verbs which may take either suffix, where the choice appears to depend on the argument structure frame which the verb occurs in. In an appendix to his grammar of Malagasy, Rahajarizafy (1960) lists eleven such verbs, many of them fairly common. Among these *istafi* “drape”, which (for some speakers at least) occurs in all three of the object-pivot forms. *Tafi* may be used either as a monotransitive verb or as a ditransitive verb. In the former case, where the meaning is “wear [an article of clothing]”, the AccP form is used when the EA denotes the thing being worn (i). In the latter case, where the verb means “dress [s.o.] in [an article of clothing]”, the TrnP form is used when the EA denotes the thing being worn (ii-a), while the DatP form is used when the EA denotes the one being dressed (ii-b):

- (i) a. *Tafin’ny zazakely ny... lamba*
 AccP.wear-Det child Det lamba
 “The lamba [a traditional Malagasy garment] is worn by the child”
- (ii) a. *Atafin’i Tenda ny zazakely ny... lamba*
 TrnP.dress-Det Tenda Det child Det lamba
 “The lamba, Tenda dresses the child (in it)”
- b. *Tafian’i Tenda amin’ny lamba ny... zazakely*
 DatP.dress-Det Tenda in-Det lamba Det child
 “The child, Tenda dresses (her) in the lamba”

On the basis of examples like these, the following tentative generalization may be made: For verbs which take a DP complement (i.e., monotransitives), the accusative-pivot form is generally used when that complement is mapped to the EA position. For verbs which take a small clause complement (i.e., ditransitives), the translative-pivot form is used when the subject of the small clause is mapped to the EA, while the dative-pivot form is used when the object of the preposition is mapped to the EA (cf. Pearson 1998b, [in preparation] for more discussion).

non- θ -marked dependent, or a θ -marked dependent which is licensed by a preposition in non-CrcP clauses rather than receiving structural case from the verb complex. For example, in (27) below, the CrcP form is used when the instrument *ny antsy* “the knife” occupies the EA position:

- (27) a. Mandidy ny hena amin'ny antsy ny...vehivavy
 NomP.cut Det meat with-Det knife Det woman
 “The woman is cutting the meat with the knife”
- b. Andidian'ny vehivavy ny hena ny...antsy
 CrcP.cut-Det woman Det meat Det knife
 “The knife, the woman is cutting the meat (with it)”

Notice that in the NomP sentence in (27a) the instrument is marked by the all-purpose preposition *amin'* “with, to, at”, while in the CrcP sentence this preposition is absent. This suggests a possible connection between CrcP-formation in Malagasy and applicative-formation in languages like Chichewa (Baker 1988a/b, Marantz 1993). In Chichewa, the addition of the suffix *-ir* to the verb promotes an oblique to the role of direct object, causing the preposition *ndi* “with” to be deleted/incorporated (or simply not inserted, depending on one’s theory). I return to the connection between CrcP morphology and applicative formation in 2.4.4.

- (28) a. Mavuto a-na-umba mtsuko ndi mpeni
 Mavuto 3s-Pres-mold waterpot with knife
 “Mavuto molded the waterpot with the knife”
- b. Mavuto a-na-umb-ir-a mtsuko mpeni
 Mavuto 3s-Pres-mold-Appl waterpot knife
 “Mavuto molded the waterpot with the knife”

The set of semantic roles which the EA of a CrcP predicate may bear is quite varied. Rajemisa-Raolison (1971) identifies several such roles. In addition to the instrumental construction illustrated above, the CrcP voice may be used when the EA denotes a spatial or temporal location (29a), goal or recipient (29b), benefactee (29c), material/substance (29d), or the domain of quantification in a partitive construction (29e):

- (29) a. *Itoeranay ity trano ity*
CrcP.live-lex that house that
“We live in that house”
- b. *Tsy nilazana ilay vaovao ny zanany*
Neg Pst-CrcP.tell that news Det child-3
“Her child was not told the news”
- c. *Namonoany ny akoho ny vahiny*
Pst-CrcP.kill-3 Det chicken Det guest
“She killed the chicken for the guests”
- d. *Anaovany trano ny birikinay*
CrcP.make-3 house Det brick-lex
“He is building a house out of our bricks”
- e. *Nanasan-dRakoto telo ny lovia*
Pst-CrcP.wash-Rakoto three Det dish
“The dishes, Rakoto washed three (of them)”

Quite often, the CrcP form is used when an oblique phrase is focused—where focused constituents occur at the left edge of the clause, separated from the predicate phrase by the focus particle *no*. Examples are given below, showing clefted obliques denoting a temporal location (30a), manner (30b), cause/reason (30c), and purpose (30d).

- (30) a. *Amin'ny alarobia no handehananay*
on-Det Wednesday Foc Irr-CrcP.go-lex
“We will leave on Wednesday”

- b. Amin-kafaliana lehibe no *iarahabanay* anao
 with-happiness great Foc CrcP.greet-lex 2s
 “It is with great joy that we greet you”
- c. Ny fitiavana no *namonoany* tena
 Det love Foc Pst-CrcP.kill-3 self
 “He killed himself for love”
- d. Mba ho hendry no *nanasaziako* azy
 so.that Irr well-behaved Foc Pst-CrcP.punish-1s 3
 “I punished them so that they’d behave”
 lit. “It is in order that [they] would be well-behaved that I punished them”

What controls the voice of the verb in these sentences? In 3.4.2 I will argue (following Paul 1999) that the focus-fronting construction has the structure of a pseudocleft, where the fronted constituent is (within) the matrix predicate phrase, while the remainder of the sentence (*no* plus the material which follows it) constitutes a CP which occupies the matrix EA position. This CP contains an operator-variable chain, and is interpreted as a free relative. Thus (30c), for example, is literally “(The reason) why he killed himself (was) love”. The structure which I argue for in 3.4.2 is shown in (31):

- (31) [PredP ny fitiavana] [CP Op_i no namonoany.....t_i]
 Det love Pst-CrcP.kill-3 self
 “It was for love that he killed himself”

(31) shows that the CrcP verb *namonoana* is in an embedded clause inside the matrix EA. This embedded clause in turn takes as its EA the null operator in SpecCP, which determines the voice marking on the verb. (This operator quantifies over a contextually-specified class of oblique event participants—instruments, causes, locations, etc.—and is thus something like a null version of the oblique relative operator *dont* in French.)

Having discussed the basic distribution of the voice forms, I discuss various restrictions on that distribution. In 2.4 I return to the voice morphemes themselves, which I argue to be the spell-out of various predicate and functional heads involved in abstract case licensing (light verbs, applicative morphemes, aspectual markers).

2.2.1.3. Voice and extraction restrictions

Consider again the voice paradigm in (13), repeated below as (32). These sentences each denote the same event, differing only in terms of which participant in that event is singled out as the EA:

- (32) a. Namono ny akoho tamin'ny antsy ny...mpamboly
 Pst-NomP.kill Det chicken Pst-with-Det knife Det farmer
 “The farmer killed the chicken with the knife”
- b. Novonoin'ny mpamboly tamin'ny antsy ny...akoho
 Pst-AccP.kill-Det farmer Pst-with-Det knife Det chicken
 “The farmer killed the chicken with the knife”
- c. Namonoan'ny mpamboly ny akoho ny...antsy
 Pst-CrcP.kill-Det farmer Det chicken Det knife
 “The farmer killed the chicken with the knife”

Native speakers generally judge such sentences to be paraphrases of each other. When called upon to explain how the sentences differ, they respond that (32a) talks about the farmer, (32b) talks about the chicken, and (32c) talks about the knife. That is, (32a-c) differ in terms of how they present the event—specifically with regard to which participant is treated as the ‘topic’ of the sentence (viz., the argument of sentence-level predication). Thus, while externalization does not seem to contribute to the truth-conditional

semantics of the sentence, it does affect its discourse-functional content, inasmuch as it determines how the information in the sentence is ‘packaged’.

However, the choice of which voice construction to use in a given situation is dictated by a complicated array of syntactic and semantic/pragmatic factors. Specificity, for example, plays a major role in restricting the availability of certain voice alternations: Since only [+specific] DPs may be EAs (section 2.1), it follows that the object-pivot forms will be unavailable when the direct object is non-specific:

- (33) a. Namono akoho tamin’ny antsy ny.....mpamboly
 Pst-NomP.kill chicken Pst-with-Det knife Det farmer
 “The farmer killed chickens with the knife”
- b. * Novonoin’ny mpamboly tamin’ny antsy akoho
 Pst-AccP.kill-Det farmer Pst-with-Det knife chicken
 “The farmer killed chickens with the knife”

Furthermore, as is well-known, there are a variety of constructions in which the voice of the verb is structurally determined. Consider the focus-fronting construction, for example: Focus-fronting is illustrated in (34b): The focused constituent occurs at the left edge of the clause, followed by the particle *no* (here glossed “Foc”), which is in turn followed by the predicate phrase.¹⁵

- (34) a. Nihinana ny akondro ny....gidro
 Pst-NomP.eat Det banana Det lemur
 “The lemur ate the banana”

¹⁵ In 3.4.2 I analyze the focus-fronting construction as a pseudocleft (cf. Paul 1999). In (34b), for example, *ny gidro* constitutes a predicate-nominal, while *no nihinana ny akondro* is a nominal constituent interpreted as a free relative. Thus the sentence is literally “(The one) who ate the banana (is) the lemur”.

- b. Ny gidro no nihinana ny akondro
 Det lemur Foc Pst-NomP.eat Det banana
 "It's the *lemur* that ate the banana"

If the focused constituent is interpreted as the subject of the verb, then the verb must appear in the NomP form, as shown in (35). Similarly, if the focused constituent is the the direct object, the appropriate object-pivot form is used (36), and if the focused constituent is interpreted as an oblique (e.g., an instrument), the CrcP form is required (37):¹⁶

- (35) a. Ny mpamboly no *namono* ny akoho tamin'ny antsy
 Det farmer Foc Pst-NomP.kill Det chicken Pst-with-Det knife
 "It's the farmer who killed the chicken with the knife"
- b. * Ny mpamboly no *novonoina* tamin'ny antsy ny akoho
 Det farmer Foc Pst-AccP.kill Pst-with-Det knife Det chicken
 "It's the farmer who killed the chicken with the knife"
- c. * Ny mpamboly no *namonoana* ny akoho ny antsy
 Det farmer Foc Pst-CrcP.kill Det chicken Det knife
 "It's the farmer who killed the chicken with the knife"
- (36) a. * Ny akoho no *namono* tamin'ny antsy ny mpamboly
 Det chicken Foc Pst-NomP.kill Pst-with-Det knife Det farmer
 "It's the chicken that the farmer killed with the knife"
- b. Ny akoho no *novonoin'ny* mpamboly tamin'ny antsy
 Det chicken Foc Pst-AccP.kill-Det farmer Pst-with-Det knife
 "It's the chicken that the farmer killed with the knife"
- c. * Ny akoho no *namonoan'ny* mpamboly ny antsy
 Det chicken Foc Pst-CrcP.kill-Det farmer Det knife
 "It's the farmer who killed the chicken with the knife"

¹⁶ Here I consider only the focusing of DPs. When a non-DP (a PP or adverbial) is focused, these same voicing restrictions do not apply, as discussed in 3.4.4.

- (37) a. * Ny antsy no *namono* ny akoho ny mpamboly
 Det knife Foc Pst-CrcP.kill Det chicken Det farmer
 "It's the knife that the farmer killed the chicken (with)"
- b. * Ny antsy no *novonoin'ny* mpamboly ny akoho
 Det knife Foc Pst-AccP.kill-Det farmer Det chicken
 "It's the knife that the farmer killed the chicken (with)"
- c. Ny antsy no *namonoan'ny* mpamboly ny akoho
 Det knife Foc Pst-CrcP.kill-Det farmer Det chicken
 "It's the knife that the farmer killed the chicken (with)"

The focus-fronting construction is extremely common in Malagasy. When a constituent is associated with a focus operator such as *irery* "alone" or *ihany* "truly" (both used in the sense of "only"), it is obligatorily fronted (38). In addition, matrix wh-questions in Malagasy take the form of focus-fronting structures, where the wh-phrase occupies the focus position (39). (In this respect, Malagasy recalls Hungarian; cf. Horvath 1986, Kiss 1987.)

- (38) a. Ny mpamboly irery no namono akoho tamin'ny antsy
 Det farmer alone Foc Pst-NomP.kill chicken Pst-with-Det knife
 "Only the *farmer* killed chickens with the knife"
- b. Akoho ihany no novonoin'ny mpamboly tamin'ny antsy
 chicken only Foc Pst-AccP.kill-Det farmer Pst-with-Det knife
 "The farmer killed only *chickens* with the knife"
- c. Ny antsy ihany no namonoan'ny mpamboly akoho
 Det knife only Foc Pst-CrcP.kill-Det farmer chicken
 "The farmer killed chickens with only the *knife*"
- (39) a. Iza no namono ny akoho tamin'ny antsy?
 who Foc Pst-NomP.kill Det chicken Pst-with-Det knife
 "Who killed the chicken with the knife?"
- b. Inona no novonoin'ny mpamboly tamin'ny antsy?
 what Foc Pst-AccP.kill-Det farmer Pst-with-Det knife
 "What did the farmer kill with the knife?"

- c. Inona no namonoan'ny mpamboly ny akoho?
 what Foc Pst-CrcP.kill-Det farmer Det chicken
 "What did the farmer kill the chicken with?"

These same voicing restrictions are replicated in a number of other constructions which arguably involve A'-extraction. These include what Keenan (1976) calls the *weak topicalization* construction, which I will refer to as the *dia-topic* construction. Here, a contrastive topic occurs in a fronted position, separated from the predicate by the topic particle *dia* (glossed "Top"):

- (40) a. Nihinana ny akondro ny.....gidro
 Pst-NomP.eat Det banana Det lemur
 "The lemur ate the banana"
- b. Ny gidro dia nihinana ny akondro
 Det lemur Top Pst-NomP.eat Det banana
 "(As for) the lemur, (it) ate the banana"

As with focus-fronting, the voice of the verb is generally constrained by the grammatical function of the topicalized constituent: If the *dia*-topic is the subject of the clause, the NomP form is required (41a); if the *dia*-topic is the object, the appropriate object-pivot form is required (41b); and if the topic is a non-subject, non-object DP, the CrcP form is required (41c). (I return to the syntax of *dia*-topicalization in 3.4.3.)

- (41) a. Ny mpamboly dia *namono* akoho tamin'ny antsy
 Det farmer Top Pst-NomP.kill chicken Pst-with-Det knife
 "As for the farmer, he killed chickens with the knife"
- b. Ny akoho dia *novonoin'*ny mpamboly tamin'ny antsy
 Det chicken Top Pst-AccP.kill-Det farmer Pst-with-Det knife
 "As for the chickens, the farmer killed them with the knife"

- c. Ny antsy dia *namonoan*'ny mpamboly akoho
 Det knife Top Pst-CrcP.kill-Det farmer chicken
 "As for the knife, the farmer killed chickens with it"

This close dependency between voice-marking and A'-extraction is entirely typical of languages belonging to the Philippine-type. Consider Tagalog, for example: Like Malagasy, Tagalog has a complex voicing system which functions to promote one or another of the verb's dependents to the EA function. Although the details of the system are different in Tagalog, alternations analogous to the NomP–AccP alternation in Malagasy can be found, as shown in (42) (adapted from Richards 1997). (Recall that, unlike in Malagasy, there is no fixed position for the EA in Tagalog). As (43)–(44) show, questioning the subject requires the NomP form, while questioning the object requires the AccP form. Similar paradigms are found in other languages as well (see, e.g., Bell 1979, 1983 on Cebuano, and Kroeger 1988 on Kimaragang Dusun).

- (42) a. *Bumili* si Maria ng kalabaw sa tindahan
 NomP.buy.(Perf) Det Maria Det water.buffalo Obl.Det store
 "Maria bought a water buffalo at the store"
- b. *Binili* ni Maria ang kalabaw sa tindahan
 AccP.buy.(Perf) Det Maria Det water.buffalo Obl.Det store
 "Maria bought the water buffalo at the store"
- (43) a. Sino ang *bumili* ng kalabaw sa tindahan?
 who Foc NomP.buy Det water.buffalo Obl.Det store
 "Who bought a/the water buffalo at the store?"
- b. * Sino ang *binili* ang kalabaw sa tindahan?
 who Foc AccP.buy Det water.buffalo Obl.Det store
 "Who bought a/the water buffalo at the store?"

- (44) a. * Ano ang *bumili* si Maria sa tindahan?
 what Foc NomP.buy Det Maria Obl.Det store
 “What did Maria buy at the store?”
- b. Ano ang *binili* ni Maria sa tindahan?
 what Foc AccP.buy Det Maria Obl.Det store
 “What did Maria buy at the store?”

Notice that in these constructions, the A'-extracted element appears to fulfill the external argument role of the clause. Keenan (1976), who treats the EA as a grammatical subject, explains the voice restrictions in Malagasy in terms of language-specific constraints which limit the application of certain transformations to subjects (the well-known accessibility constraint of the Western Austronesian languages; cf. also Guilfoyle, Hung, & Travis 1992). One of the major functions of the voicing system is thus to ‘feed’ subject-only transformations by allowing different dependents of the verb to be promoted to the surface subject role, rendering them accessible for extraction. For example, the voicing alternations in (45) below may be accounted for by arguing that only subjects can undergo the wh-fronting transformation: In (45a), the underlying subject (agent) is being questioned, and so the verb appears in its unmarked ‘active’ form. In order to question an underlying direct object (patient), the verb must first be ‘passivized’, thereby converting that object into a derived subject capable of undergoing the wh-transformation (45b):

- (45) a. Iza no *namono* ny akoho?
 who Foc Pst-NomP.kill Det chicken
 “Who killed the chicken?”
- b. Inona no *novonoin’ny* mpamboly?
 what Foc Pst-AccP.kill-Det farmer
 “What was killed by the farmer?”

In 3.4 I present a different view of voice restrictions, based on the idea that the EA is not a subject, but a topic-like element which occupies an A'-position in the C-domain of the clause. I argue that wh-operators in Malagasy are licensed in the same A'-position as EAs (cf. the situation in verb-second languages like German, where topic-fronting and wh-fronting are mutually exclusive). Thus, externalization does not feed wh-movement; rather, wh-movement is a special kind of externalization, which blocks the externalization of [+specific] DPs. This analysis allows us to account for the existence of voice restrictions without having to posit a language-specific accessibility constraint limiting extraction to subjects.

2.2.2. Additional verb morphology

In addition to inflecting for voice, verbs in Malagasy also inflect for tense. Three tense forms are distinguished: The *non-past*, which is unmarked; the *past* (Pst), which is marked by the prefix *n(o)-*; and the *irrealis* (Irr) or *future*, marked by the prefix *h(o)-*. In the NomP form, *n-* and *h-* replace the voice prefix *m-* (see 2.4.3). In the other voice forms, *n-* and *h-* are used with vowel-initial stems, and *no-* and *ho-* are used with consonant-initial stems. The tense paradigm for *vono* is given in (46):

(46)		NomP	AccP	CrcP
	non-past	mamono	vonoina	amonoana
	past	namono	novonoina	namonoana
	irrealis	hamono	hovonoina	hamonoana

All verbs in Malagasy are marked for tense; there are no infinitival constructions. However, there is a certain amount of functional overlap between the irrealis form and infiniti-

val/subjunctive forms in other languages. A number of verbs select bare clausal complements with irrealis marking, as shown in (47) ((47b) is from Paul & Ranaivoson 1998):

- (47) a. Nikasa hanasa ny zaza i.....Tenda
 Pst-NomP.intend Irr-NomP.wash Det child Det Tenda
 “Tenda intended to wash the child”
- b. Mivoaka hitady hanina ny....biby
 NomP.exit Irr-NomP.look.for food Det animal
 “The animals go out to look for food”

Verb stems also take prefixes to form morphological causatives and reciprocals, while verb roots may undergo reduplication to indicate durative/iterative aspect; however, these phenomena will not play any role in this thesis. I refer the interested reader to Randriamasimanana (1986) and Andriamierenana (1996) for extensive treatments of causative formation, Keenan & Razafimamonjy (to appear) for a discussion of morphological reciprocals, and Erwin (1996) and Keenan & Polinsky (1998) for information on reduplication and verbal morphology in general.

2.3. Morphological case and the structure of the predicate phrase

In this section I present some background information on the syntax and morphology of nominals. In 2.3.1 I discuss nominal morphology. I argue against the traditional characterization of morphological case in Malagasy, which distinguishes three separate case forms, *nominative*, *accusative*, and *genitive*. I propose that the distinction between ‘nominative’ and ‘genitive’ case (apparent only on pronouns) is not one of case, but involves an alternation between ‘strong’ (default) and clitic pronouns.

Then in 2.3.2, I consider the syntactic positions of noun phrases within the predicate phrase. I present evidence to show that the agent phrase (viz., the immediately post-verbal DP in non-NomP clauses) has the properties of a subject, rather than an oblique element comparable to the *by*-phrase in passives. From this we can conclude that the EA is not the subject, as Keenan (1976) and others have claimed, but some higher constituent such as a topic, a conclusion which I argue for at length in chapter 3. I outline a syntactic structure for the predicate phrase in 2.3.3 which is similar in its basic features to that of many VSO languages (cf. Ouhalla 1994a/b, Bobaljik & Carnie 1996, McCloskey 1996, Lee 1998, and papers in Carnie & Guilfoyle 2000).

2.3.1. Nominal morphology

In this section I briefly discuss morphological alternations on noun phrases. (For a detailed treatment of this issue, with particular reference to the internal structure of pronouns and determiners and the syntax of DP, see Zribi-Hertz & Mbolatianavalona 1999.)

Unlike other languages of the Philippine type, Malagasy has a rather impoverished system of nominal inflection. However, there are certain classes of nominals, notably pronouns and proper names, which do exhibit morphological alternations. In characterizing these alternations, one must distinguish three broad distributional classes of noun phrases, namely PredP-internal objects, PredP-internal agent phrases and possessors, and PredP-external noun phrases. Keenan (1994), Voskuil (1993), et al., associate these classes with *accusative*, *genitive*, and *nominative* case, respectively. However, as I will show below, the so-called *nominative* does not actually constitute a distinct case form.

Rather, its distribution overlaps that of the genitive, and also includes environments in which the nominal is unmarked for case. In contexts where the nominative and genitive contrast (namely, in the pronouns), the contrast is not between different case forms, but between ‘strong’ (default) and ‘weak’ (clitic) variants of the same case form.

I thus conclude that there are only two morphological cases in Malagasy, an *accusative* case and a *nominative/genitive* case, the latter of which is generally the unmarked member. To avoid confusion with the terms I have adopted for the voice forms (e.g., *nominative-pivot*), I will refer to these morphological forms as the *objective* and *subjective* case, respectively.¹⁷

I begin by reviewing the morphological forms of pronouns, and then turn to proper names and definite descriptions. As shown in the table below, pronouns in Malagasy distinguish three forms, *strong subjective*, *weak subjective*, and *objective*. (Note the existence of an inclusive/exclusive distinction in the first person plural, and the absence of a singular/plural distinction in the third person.)¹⁸

¹⁷ My choice of *subjective* as the name for the case which marks predicate-internal agent phrases anticipates the discussion in 2.3.2, where I show that agent phrases have the properties of postverbal subjects rather than obliques.

¹⁸ Notice that the strong forms in (48) are generally prefixed with the element *i-*, while the objective forms appear to contain an element *a(n)-*. In Pearson (1996b), I analyzed the *i-* prefix as a spell-out of D⁰, noting that this element appears to show up in a number of other forms which arguably contain a Dhead, including the definite determiners *i* and *ilay* (mentioned below), as well as the demonstratives *ity*, *iny*, *iretsy*, *izany*, etc., the operator *izay* (see 3.4.1), and the referential wh-words *iza* “who” and *inona* “what”. As for *a(n)-*, this is presumably related to the oblique prefix *an-* discussed below.

In addition to the forms given in (48), various complex pronominal expressions are also attested, such as the special third person plural forms *izy ireo* and *ry zareo* (where *ireo* and *zareo* are plural demonstrative elements, and *ry* is a plural determiner sometimes used with proper names).

(48)		<i>subjective strong</i>	<i>weak</i>	<i>objective</i>
	1s	aho, izaho	-ko	ahy
	1ex	izahay	-nay	anay
	1in	isika	-ntsika	antsika
	2s	ianao	-nao	anao
	2p	ianareo	-nareo	anareo
	3	izy	-ny ¹⁹	azy

The *objective* form is mainly used when the pronoun occurs within the predicate phrase, as the direct or indirect object of the verb:

- (49) a. Namangy *azy* ny ankizy
Pst-NomP.visit 3 Det children
“The children visited him/her/them”
- b. Nanolotra *azy* ny dite ny ramatoa
Pst-NomP.offer 3 Det tea Det woman
“The woman offered him/her/them the tea”

The *weak* form is used when the pronoun occurs as the postverbal agent phrase of a non-NomP verb, as in (50). DP-internal possessors also occur in the weak form (hence the traditional term *genitive*), as do the complements of most prepositions, as shown in (51) and (52), respectively. Weak pronouns are enclitics, which form a tight phonological unit with the preceding predicate (as reflected in the orthography, where the two are written as a single word).

¹⁹ The resemblance between the weak third person pronoun *-ny* and the determiner *ny* is perhaps non-coincidental (cf. Uriagereka 1995 on D-like clitic pronouns in Romance).

- (50) a. Novangianay ny ankizy
 Pst-DatP.visit-1s Det children
 ‘‘We visited the children’’
 or ‘‘The children were visited by us’’
- b. Nasehoko ny ankizy ireo sary ireo
 Pst-TrnP.show-1s Det children these picture these
 ‘‘I showed the children these pictures’’
- (51) ny boky ‘‘the book’’
 ny bokiko ‘‘my book’’
 ny bokinao ‘‘your book’’
 ny bokintsika ‘‘our book’’
- (52) amin’ ‘‘with’’
 amiko ‘‘with me’’
 aminao ‘‘with you’’
 amintsika ‘‘with us’’

Finally, the *strong* form is used in contexts where the weak and objective forms are disallowed. This is the form in which clause-final EAs appear, as shown in (53). The strong form is also used in other contexts where the pronoun is not in the case-licensing domain of a verb—for example, when the pronoun is predicative, as in (54), or when it is focus-fronted, as in (55).²⁰ Finally, the strong form is used in the *dia*-topic construction, when the pronoun is base-generated in a left-dislocated position, as in (56) (see 3.4.2 and 3.4.3 for discussions of focus-fronting and *dia*-topicalization):

- (53) a. Mpianatra ianao
 student 2s
 ‘‘You are a student’’

²⁰ In 3.4.2 I argue that the focus-fronting construction is actually a pseudocleft with a null copula. Hence, the use of the strong form when the pronoun is focused is really a special case of the predicative use illustrated in (54).

- b. Namangy ny ankizy *ianao*
Pst-NomP.visit Det children 2s
“You visited the children”
- c. Novangian’ny ankizy *ianao*
Pst-DatP.visit-Det children 2s
“The children visited you”
- (54) *Ianao* ihany ity
2s only this
“It’s only you”
- (55) a. *Ianao* irery no namangy ny ankizy
2s alone Foc Pst-NomP.visit Det children
“You alone visited the children”
lit. “(The one who) visited the children (is) you alone”
- b. *Ianao* irery no novangian’ny ankizy
2s alone Foc Pst-DatP.visit-Det children
“The children visited you alone”
lit. “(The one who) the children visited (is) you alone”
- (56) *Ianao* dia namangy ny ankizy
2s Top Pst-NomP.visit Det children
“As for you, (you) visited the children”

Strong pronouns are also used in place of weak pronouns in situations where cliticization is blocked for one reason or another. Consider the sentence in (57a), for example, in which the weak third person pronoun *-ny* occupies the agent phrase position: Since weak pronouns in Malagasy may not be conjoined with another noun phrase (a general property of clitics cross-linguistically), the strong form *izy* is used in place of *-ny* in (57b), where the subject is a coordinated DP. Also, as in most languages, clitics in Malagasy may not be modified or head complex expressions, so *izy* replaces *-ny* in these contexts as well. For example, in (57c), *izy* combines with the plural proximate demonstrative *ireo*

to form the complex pronoun *izy ireo* “they, those ones” (often used in place of the simple pronoun when the speaker wants to indicate explicitly that the referent is plural). In (57d), the pronoun is modified by a relative clause consisting of the verb *mivady*. Here again, the weak form *-ny* is replaced with *izy* (*izy mivady*, literally “they who-are-married” [*< vady* “spouse”], is a common way of saying “the married couple”).²¹

- (57) a. Hitany tany an-tokotany i.....Koto
 saw-Lnk-3 Pst-there Obl-garden Det Koto
 “She/he/they saw Koto in the garden”
- b. Hitan’ [*izy sy ny zaza*] tany an-tokotany i.....Koto
 saw-Lnk 3 and Det child Pst-there Obl-garden Det Koto
 “S/he and the child saw Koto in the garden”
- c. Hitan’ [*izy ireo*] tany an-tokotany i.....Koto
 saw-Lnk 3 these Pst-there Obl-garden Det Koto
 “They saw Koto in the garden”
- d. Hitan’ [*izy mivady*] tany an-tokotany i.....Koto
 saw-Lnk 3 NomP.married Pst-there Obl-garden Det Koto
 “They, the married couple, saw Koto in the garden”

The fact that strong and weak forms have an overlapping distribution shows that they do not encode distinct morphological cases, but a single case, the *subjective*, contrasting with the *objective* case. Since the objective case has a more limited distribution, I conclude that the subjective case is the morphological default. This conclusion is corroborated by the fact that the subjective is the form used when the pronoun does not bear case—

²¹ Pronoun modification is quite common in Malagasy. Other examples include *izy mirahalahy* “the brothers” (lit. “they who-are-brothers” *< rahalahy* “brother [of a man]”) and *izy roalahy* “the two men” (lit. “they two-male”).

either because it is functioning as a predicate (as in simple copular sentences and focus constructions), or because it is base-generated in a non-case position outside the predicate phrase and licensed through coindexation with a null operator (as I assume for the *dia*-topic construction; see 3.4.3). In this respect, strong pronouns in Malagasy are comparable to strong pronouns in French (*moi, toi, vous*, etc.), which are arguably unmarked for case. Like the *izy* form in Malagasy, the French strong pronouns are used in place of case-marked clitic pronouns in coordinate structures, and also appear in the dislocated position in clefts and clitic left-dislocation constructions.

Turning to non-pronominal noun phrases, these may be divided into various subclasses according to the kind of determiner they take. Proper names take the determiner *i* or *ra-*, where the former is written as an independent word and the latter as a prefix—e.g., *i Koto, Rakoto*.²² Definite descriptions take a separate class of determiners, including *ny, ilay*, and *ireo*: *Ilay* marks the noun phrase as [+definite,+singular] while *ireo* marks it as [+definite,+plural]. These determiners are used when the noun phrase refers back to an entity which was recently mentioned in the discourse. *Ny*, the most common determiner, marks the noun phrase as [+specific], in the sense of Enç (1991)—i.e., definite, specific indefinite, generic, or quantificational (when the set being quantified over is presupposed, or when the quantifier is strong, in the sense of Milsark 1977). Examples include *ny lehilahy* “the man/men, men in general”, *ny lehilahy anankiray* “one [specific] man”, *ny*

²² Broadly speaking, *i* is used with names of foreign origin, as well as indigenous names when used of children, while *ra-* is used with indigenous names of adults (there are numerous exceptions, however). Note that many speakers appear to have reanalyzed the prefixal determiner *ra-* as part of the name itself; for these speakers, names beginning with *ra-* require the determiner *i* (e.g., *i Rakoto*).

ever, *an-* is never used as an objective case marker with bare noun phrases, or those headed by *ny*.²⁵

- (59) a. Ampianarinay amin'ny sekoly Rakoto
 AccP.teach-lex at-Det school Rakoto
 "We teach Rakoto at school"
- b. Mampianatra *an-dRakoto* amin'ny sekoly izahay
 NomP.teach Obj-Rakoto at-Det school lex
 "We teach Rakoto at school"

An- also functions as a locative marker (60a) and in possessive predicate constructions (60b), and is also used to form adverbial expressions such as *an-tsirambina* "carelessly" (< *tsirambina* "carelessness"). This suggests that *an-* is a prepositional element of some kind.²⁶ (In this these, I will gloss *an-* as "Obj" when used as an objective case marker, and as "Obl" when used as an oblique marker, leaving open the question of whether these functions can be given a uniform treatment.)

- (60) a. Mamaky boky any *an-tokotany* ny mpianatra
 NomP.read book there Obl-garden Det student
 "The student is reading a book in the garden"
- b. *An-dRakoto* ity boky ity
 Obl-Rakoto this book this
 "This book is Rakoto's"

²⁵ Anecdotal evidence suggests that the use of *an-* as a case marker is spreading. Ed Keenan (p.c.) reports that some speakers even attach *an-* to the third person objective pronoun *azy* (e.g., *Namangy an'azy ny ankizy* "The children visited him/her/them").

²⁶ Zribi-Hertz & Mbolatianavalona (1999) analyze *an-* as the head of KP (Case Phrase) (cf. Travis & La-Montagne 1992).

Note that in the subjective form, noun phrases (like pronouns) fuse with their hosts to form a single prosodic unit. In the case of noun phrases, this fusion is mediated by the linking morpheme *-n* (glossed “Lnk”), which attaches to the host as a suffix. For example, *-n* suffixes to the translative-pivot form *aseho* “show” when the latter is followed by the subject *ny vehivavy* “the woman”, yielding *asehon'ny vehivavy* “shown by the woman”. Keenan (1994) dubs this process *n-bonding*. Examples illustrating *n-bonding* of non-pronominal DPs are given in (32)–(34):

- (61) a. Natosin'i *Ketaka ny...vato*
 Pst-TrnP.push-Lnk-Det Ketaka Det stone
 “Ketaka pushed the stone”
- b. Natosin-*dRajaona* *ny...vato*
 Pst-TrnP.push-Lnk-Rajaona Det stone
 “Rajaona pushed the stone”
- c. Namonoan'io *mpamboly io ny akoho ilay...antsy*
 Pst-CrcP.kill-Lnk-this farmer this Det chicken that knife
 “This farmer killed the chickens with that knife”
- (62) ny boky “the book(s)”
 ny bokin'ny *zaza* “the child's book(s)”
 ny bokin'ireto *zaza ireto* “these children's book(s)”
 ny bokin-dRakoto “Rakoto's book(s)”
- (63) ami(n') “with”
 amin'ny *zaza* “with the child”
 amin'ireto *zaza ireto* “with these children”
 amin-dRakoto “with Rakoto”

As evidence that the subjective DP and its host form a prosodic unit, note the following:

- (a) The DP must be strictly adjacent to its host. (b) Attachment of the DP to its host triggers certain sound changes, many of which are also attested word-internally. For exam-

ple, *amonoana* “CrcP. kill” combines with the linking morpheme *-n* and the subject *Rakoto* to produce *amonoan-dRakoto*. Here the final epenthetic *a* of the verb is lost (or not inserted), the *n* of the CrcP suffix *-an* merges with the linking morpheme into a single segment, which in turn fuses with *r* to form *ndr* (cf. footnote 24). (c) The DP and its host behave as a unit for purposes of stress assignment. For example, when *àmonóana* “AccP.kill” merges with *ny mpambóly* “the farmer”, the primary stress on the verb is reduced to a secondary stress, yielding *àmonòan’ny mpambóly*.²⁷

Although the DP and its host clearly form a *phonological* unit, they do not appear to form a *syntactic* unit. Note for example that the DP may be coordinated, as in (64) (cf. (61b)), strongly suggesting that it has not incorporated into its host in the syntax.

²⁷ Interestingly, the fusion of a subject/possessor nominal with a preceding head is not unique to Malagasy, but is also attested in other verb-initial languages such as Berber—and in virtually identical syntactic contexts. Nominals in Berber have two forms, the *construct state* (CS) and the *free state* (FS), distinguished morphologically for most singular noun phrases (e.g., “girl” is *istafuxt* in the free state and *tfruxt* in the construct state). These two forms are in complementary distribution: Simplifying somewhat, the CS is used when the noun phrase is (a) a postverbal subject, (b) a possessor within DP, or (c) the object of most prepositions; while the FS is used elsewhere (e.g. for direct objects, predicate nominals, preverbal topics, etc.). The following examples are from Tarifit Berber (Ouhalla 1994b):

- (i) a. Y-zra *ufmux* *tafuxt*
 3sM-see boy.CS girl.FS
 “The boy saw the girl”
- b. axxam *Umzzian*
 room.FS Amzzian.CS
 “Amzzian’s room”
- c. Afrux g *uxxam*
 boy.FS in room.CS
 “The boy is in the room”

Ouhalla argues that CS nominals form a word-like unit with the preceding head. As with n-bonding constructions in Malagasy, the CS nominal and the preceding head must be strictly adjacent, and function as a unit for purposes of stress assignment. Furthermore, the concatenation of a CS nominal with a preceding head triggers certain phonological processes which are otherwise restricted to word-internal domains.

- (64) Natosin-*dRajaona* sy *Ranaivo* ny....vato
 Pst-TrnP.push-Lnk-Rajaona and Ranaivo Det stone
 “Rajaona and Ranaivo pushed the stone”

In the discussion which follows, I will assume that the DP and its host do not form a constituent in the syntax, but combine only at PF (perhaps as a result of a morphological operation which merges linearly adjacent heads, as in Halle & Marantz 1993). This distinction between syntactic constituency and phonological constituency will become important in 4.3.4, where I appeal to phonological constituency as a trigger for pied-piping.

2.3.2. The agent phrase as a structural subject

Consider again the voicing paradigm in (13), repeated here as (65):

- (65) a. Mamono akoho amin’ny antsy ny....mpamboly
 NomP.kill chicken with-Det knife Det farmer
 “The farmer kills chickens with the knife”
- b. Vonoin’ny mpamboly amin’ny antsy ny....akoho
 AccP.kill-Det farmer with-Det knife Det chicken
 “The chickens, the farmer kills (them) with the knife”
- c. Amonoan’ny mpamboly akoho ny....antsy
 CrcP.kill-Det farmer chicken Det knife
 “The knife, the farmer kills chickens (with it)”

The order of constituents within the predicate phrase is relatively fixed. The subjective case-marked agent phrase (when present) is immediately right-adjacent to the verb. The agent phrase is followed by the objective case-marked object (when present), which is in

turn followed by PPs and other dependents.²⁸ We can schematize the order of elements within the predicate phrase as in (66):

- (66) a. *NomP*: [PredP V e_i Obj PP] $\underline{DP_i}$
 b. *AccP*: [PredP V Ag e_i PP] $\underline{DP_i}$
 c. *CrcP*: [PredP V Ag Obj e_i] $\underline{DP_i}$

In section 2.3.3 I present some initial assumptions about the internal phrase structure of the PredP constituent (to be elaborated in later chapters). In this section I focus on the properties of the postverbal agent phrase.

Descriptive grammarians such as Rajemisa-Raolison (1971) treat the predicate-external constituent as the subject of the clause, and thus regard object-pivot constructions such as (65b) as *passives*. If (65b) were indeed a passive, we might expect the agent phrase to behave as some sort of adjunct element, analogous to the *by*-phrase in English passives. However, as I will show here, the agent phrase actually possesses the properties of a subject. I conclude that this constituent occupies a position structurally comparable to that of postverbal subjects in VSO clauses in languages like Standard Arabic (67a) and verb-second clauses in languages like Icelandic (67b):

- (67) a. Ra'a-a l-'awlaadu Zaydan
 saw-3s Det-boys.Nom Zayd.Acc
 "The boys saw Zayd"

²⁸ I am ignoring various complications, which will be dealt with in Pearson (in preparation). For example, Malagasy has limited rightward scrambling of direct objects across adverbs and PPs (which I analyze in terms of leftward remnant movement). I also disregard word order in double object constructions, which presents additional complications.

- b. Bókina hafði *maðurinn* ekki enn lesið
 book-the.Acc had man-the.Nom not still read
 “The book, the man had still not read (it)”

At first glance, the postverbal agent phrase in Malagasy does appear to possess some of the properties of an adjunct. For example, like *by*-phrases in passives, agent phrases are generally optional, as shown in (68):

- (68) a. Novonoin’ny mpamboly ny...akoho
 Pst-AccP.kill-Det farmer Det chicken
 “The chicken(s) were killed by the farmer”
- b. Novonoina ny...akoho
 Pst-AccP.kill Det chicken
 “The chicken(s) were killed”

However, this apparent similarity to the *by*-phrase is misleading. Although agent phrases are in principle optional, in actual usage they are present more often than one would expect if they were adjuncts. In one text frequency study, Keenan & Manorohanta (to appear) found that approximately 60% of the non-NomP verbs they counted had overt agent phrases. Furthermore, in many cases where the verb lacked an overt agent phrase, the agent phrase slot could be analyzed as containing a null pronominal argument coindexed with an overt argument in a higher clause (cf. example (72) below, where the agent phrase of the embedded verb *hosasana* is a PRO argument controlled by the agent phrase of the matrix verb). By contrast, overt *by*-phrases show up in English passives less than 20% of the time, according to most studies (Keenan & Manorohanta [to appear], citing Svartvik 1966, Dusková 1972, Stein 1979, Givón 1979).

In nearly all respects, the agent phrase clearly exhibits the properties of an argument rather than an adjunct. For example, recall from the previous section that the agent phrase must be strictly adjacent to the verb. I know of no language which imposes an adjacency requirement on postverbal adjuncts. However, as Ouhalla (1994b) points out, VSO languages quite often impose just such a restriction on postverbal subjects: In Berber, Semitic, and Celtic, for example, nothing may intervene between the verb and a postverbal subject (other than phonologically light clitics). Interestingly, a similar restriction holds in English subject–aux inversion contexts, where the subject must be strictly right-adjacent to the raised auxiliary:

- (69) a. I'm sure that *slowly* Daniel will come to his senses.
 b. * Will *slowly* Daniel come to his senses?
 c. I know that *this article* Amanda would rather I didn't read
 d. * Why would *this article* Amanda rather I didn't read?

In addition to the distributional evidence, there is evidence from control structures for identifying the agent phrase as a subject. In embedded clauses, the position occupied by the agent phrase may be filled by a null argument controlled from outside the clause (presumably PRO). Consider the example in (70a), taken from Law (1995), where the EA “the child” is interpreted as the patient of the embedded verb “wash” (and hence presumably forms a chain with a trace in the embedded direct object position). Here the covert agent phrase of the embedded verb *hosasana* “wash” is controlled by the agent phrase of the matrix verb, namely *Rasoa*. A possible structure for this sentence is given in (70b):

- (70) a. Kasain-dRaso_a hosasana ny...zaza
 AccP.intend-Raso_a Irr-DatP.wash Det child
 “The child, Raso_a intends to wash (him)”

- b. [_{PrdP} Kasain-dRaso_a_i [_{CP} hosasana PRO_i t_j]] ny zaza_j

If the structure in (70b) is correct, then such examples can be taken as strong evidence for treating the agent phrase as a subject rather than an oblique, given that PRO is confined to subject positions (Chomsky 1981, et al.).²⁹

Furthermore, consider the deletion of the understood second person subject in imperatives: As Keenan (1976) and Manaster-Ramer (1995) discuss, each of the five voices has its own imperative form. Compare the indicative sentences in (71a-c) with their imperative counterparts in (71a’-c’):

- (71) a. Mamono akoho i.....Soa
 NomP.kill chicken Det Soa
 “Soa is killing (some) chickens”
- a’. Mamonoa akoho
 NomP.kill-Imp chicken
 “Kill (some) chickens!”
- b. Vonoin’i Soa ny...akoho
 DatP.kill-Det Soa Det chicken
 “Soa is killing the chickens”
- b’. Vonoy ny...akoho
 DatP.kill-Imp Det chicken
 “Kill the chickens!”

²⁹ Cf. Anderson (1976), who makes extensive use of control tests (*equi-NP deletion*) to identify the subject constituent in morphologically ergative languages.

- c. Amonoa*n*'i Soa akoho ny...antsy
 CrcP.kill-Det Soa chicken Det knife
 "Soa is using the knife to kill (some) chickens"
- c'. Amonoy akoho ny...antsy
 CrcP.kill-Imp chicken Det knife
 "Use the knife to kill (some) chickens!"

In the NomP imperative construction in (71a'), where the agent phrase and the external argument are non-distinct, the EA position is empty (presumably filled by some null argument with understood second person reference).³⁰ Significantly, in the non-NomP imperatives in (71b'-c') it is the agent phrase rather than the EA which is the target for deletion. Deletion in imperatives being a traditional test for subjecthood, this pattern further corroborates the identification of the agent phrase as a subject rather than an oblique element.

Finally, as various authors have observed, the agent phrase behaves as an argument for purposes of binding. Consider the example in (72), adapted from Keenan (1993), where the verb is in the CrcP form and the EA *ny zanany* "his children" is interpreted as a benefactee. Here we see that the agent phrase *ny lehilahy* "the man" may bind a reflexive anaphor *tena* within the predicate. Compare this with the examples in (73), which show that the *by*-phrase in an English passive is incapable of binding an anaphor within the local domain of the passive verb: [Baker,Johnson,Roberts]

³⁰ An overt second person pronoun is also possible here, although this is less usual:

- (i) Mamonoa akoho ianao
 NomP.kill-Imp chicken 2s
 "You kill some chickens!"

- (72) Namonoan'ny lehilahy_i tena_i ny...zanany
 Pst-CrcP.kill-Det man self Det child-3
 "The man_i killed himself_i for his children"

- (73) a. Daniel_i was shown pictures of himself_i by the children
 b. ?* Daniel was shown pictures of themselves_i by the children_i

Furthermore, as the examples in (74) and (75) show, the agent phrase occupies a position from which it asymmetrically c-commands the PredP-internal position of the direct object: Whereas the agent phrase may act as the antecedent for an reflexive object, as shown in (72), repeated below as (74a), the direct object is incapable of anteceding a reflexive in the agent phrase position, as shown in (74b). Similarly, whereas a quantified agent phrase may bind into the direct object (75a), sentences in which a quantified object binds into the agent phrase are judged quite marginal.

- (74) a. Namonoan'ny lehilahy_i tena_i ny...zanany
 Pst-CrcP.kill-Det man self Det child-3
 "The man_i killed himself_i for his children"
- b. * Namonoan'ny tenany_i ny lehilahy_i ny...zanany
 Pst-CrcP.kill-Det self-3 Det man Det child-3
 "Himself_i killed the man_i for his children"
- (75) a. Nanasehoan'ny lehilahy tsirairay_i ny rahalahiny_i ny...zanany
 Pst-CrP.show-Det man each Det brother-3 Det child-3
 "Each man_i showed his_i brother to his children"
- b. ?? Nanasehoan'ny rahalahiny_i ny lehilahy tsirairay_i ny...zanany
 Pst-CrP.show-Det brother-3 Det man each Det child-3
 "His_i brother showed each man_i to his children"

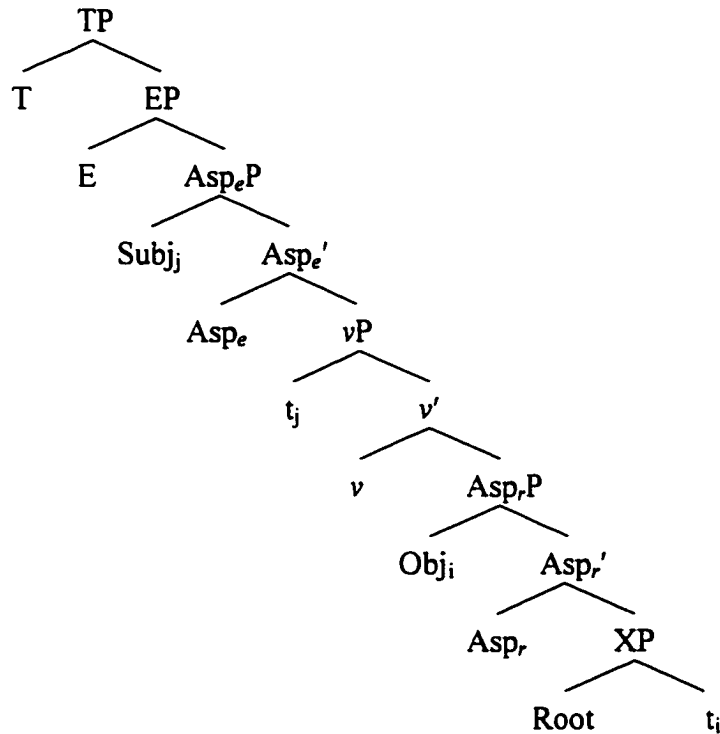
On the basis of this evidence, I conclude that the agent phrase position is the structural subject position in Malagasy—viz., the highest A-position in the clause, in which abstract

nominative case features are checked, and to which morphological subjective case is assigned (cf. 2.3.1). Of course, if the agent phrase is the ‘true’ subject of the clause, it follows that the *external argument*, located above the position of the agent phrase, must be a topic of some kind (see below). As a consequence, the traditional typological classification of Malagasy must be revised: Malagasy is not a VOS language at all, but a VSO language containing a clause-final topic position to which the subject often moves (cf. Pensalfini 1995). I defend this conclusion in detail in chapter 3.

2.3.3. The predicate phrase as a VSO structure

Having established that the postverbal agent phrase is the subject of the clause, located in the nominative case position (from which it asymmetrically c-commands PredP-internal objects), let me present some background assumptions on the internal phrase structure of the predicate. For simple transitive clauses, I will adopt the projection hierarchy in (76) (based in large part on Travis 1991a, 1994):

(76)



Following Chomsky (1995, chapter 4), I assume that transitive verbs are composed of two predicate ‘shells’: The root is generated in the head of the lower shell, which I designate simply XP, since the lexical category of the root may vary (cf. 2.4.1). The root merges with the direct object to form XP, discharging its internal θ -role. It then raises to the light verb v to discharge its external θ -role to the subject, which is generated in the specifier of vP . I also adopt Chomsky’s assumption that morphological case and agreement are reflexes of a syntactic relation of feature-checking, rather than the spell-out of an Agr head (cf. also Sportiche 1990, Koopman & Sportiche 1991, Travis 1994).

I differ from Chomsky in assuming that each of the predicate shells is dominated by an aspectual projection (cf. Travis 1991, 1994, Borer 1994, 1998, Demirdache & Uribe-Extebarria 1997, Pearson 2000a). These projections play a role in licensing nomi-

nal arguments, and are thus analogous to the Agr_sP and Agr_oP of Chomsky (1995, chapter 3) and Bobaljik & Jonas (1996) (cf. also Mahajan 1990). The AspP dominating the XP shell, which I dub Asp_rP (r = result), is associated with the telicity of the event denoted by the verb. It attracts the direct object, thereby checking its morphological case features.³¹ The AspP dominating $v\text{P}$, dubbed Asp_eP (e = event), checks the case features of the subject. This aspectual projection is associated roughly with the initiation of the event, and by extension, with the agentivity of the event (Borer 1994 dubs this projection Asp_{or}P , where *or* stands for “originator”).

Above Asp_eP is EP, or *event phrase* (Travis 1994). This projection, which corresponds closely to Stowell’s (1996) *zeit phrase* (ZP), introduces or licenses the event argument of the verb, and serves to ‘close off’ the predicate, converting it into an event-denoting constituent. EP is in turn selected as an argument by the tense phrase, TP, which orders the event relative to some reference time, typically the moment of speaking (cf. Zagana 1990, Stowell 1995, 1996 on tense as an ordering predicate which takes time- or event-denoting constituents as its arguments).

³¹ The connection between object licensing and aspect has been noted by many authors, e.g., Tenny (1991), de Hoop (1992). In some languages we even find variation in the case form of the object according to the perfectivity of the predicate—e.g., Finnish, where partitive case is associated with incompleteness and accusative case is associated with completeness (Vainikka & Maling 1993):

- (i) a. Anne rakensi *taloa*
 Anne build-Pst house-Part
 “Anne was building a/the house” [incompletive]
- b. Anne rakensi *talon*
 Anne build-Pst house-Acc
 “Anne built a/the house” [completive]

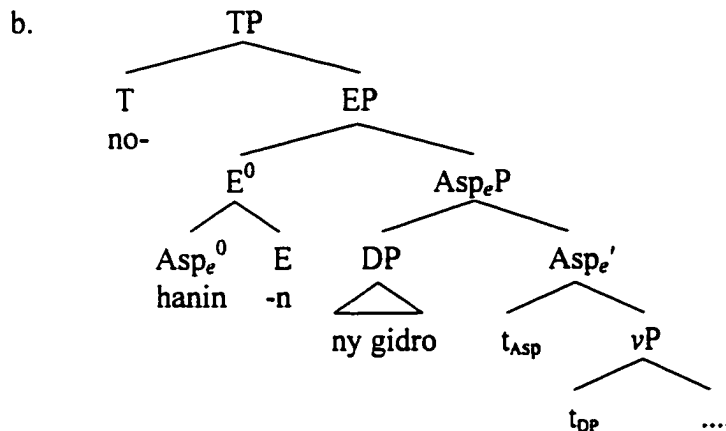
TP marks the upper boundary of the verbal domain of the clause. I will assume here that the verb stem raises as far as the EP projection, where it adjoins to the left of E^0 .³² Since E^0 immediately precedes the specifier of Asp_eP (where nominative case is checked), this ensures that the verb will be immediately left-adjacent to the agent phrase in non-NomP clauses, allowing them to combine at PF into a single prosodic unit. Although nothing hinges on this, I speculate that the linking morpheme *-n* (section 2.3.1), which intervenes between the verb stem and the postverbal subject, is generated in E^0 (cf. Travis 1994), and attracts the verb to check a feature. I further assume that the tense morpheme, which appears at the left edge of the verb complex, is generated in T^0 , immediately above the highest position of the verb. I thus treat the tense morpheme as a proclitic, which attaches to the verb stem at PF, rather than a ‘true’ prefix which combines with its host in the syntax (this assumption will turn out to be important in the section 4.3.4, where I appeal to the proclitic status of the tense morpheme as a morphological trigger for predicate-fronting).

To illustrate these assumptions, consider the sentence in (77a). (77b) shows the structure for the verb complex *nohanin'ny gidro*, comprised of the past tense marker *no-*, the AccP verb stem *hanin* (< *han* “eat” + *-in*), the linking morpheme *-n*, and the postverb-

³² In the tree in (77b), I depict this move as head-adjunction (Asp_e^0 , containing the verb, adjoins to E^0). However, given the theory developed in chapter 4, it is also possible that verb-movement in Malagasy involves XP adjunction. I leave this as an open question (but see Pearson [in preparation]).

al subject *ny gidro* “the lemur”.³³ Though they fail to form a syntactic constituent, these elements combine into a single prosodic unit at PF.

- (77) a. Nohanin’ny gidro ny...voankazo
 Pst-AccP.eat-Det lemur Det fruit
 “The lemur ate the fruit”



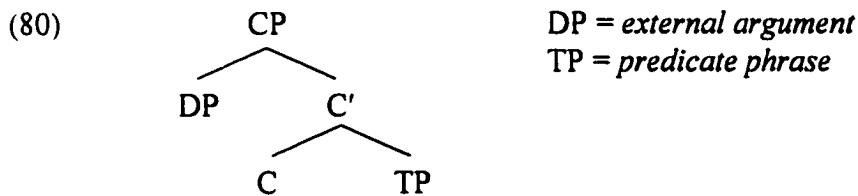
I return in 2.4 to the heads of the lower projections, Asp_eP , vP , and Asp_eP , in which I locate various pieces of the voice morphology discussed in 2.2.1.

It is likely that there are additional projections above TP. For example, the negative morpheme *tsy* precedes the tense morpheme, as shown in (78) below, suggesting that TP is optionally dominated by a NegP projection (or perhaps a Pol(arity)P projection, as in Laka 1992). Other elements which precede the tense morpheme include the aspectual particles *efa* “already” and *mbola* “still, yet” (79a-b), which presumably head their own functional projection(s). However, for the sake of simplicity, I will ignore these complications and treat TP as the highest projection in the predicate phrase.

³³ The verb stem and the AccP suffix *-in* combine within the complement of v . In 2.4.3 below I suggest that *-in* is generated in the head of Asp_eP .

- (78) *Tsy nohanin'ny gidro ny...voankazo*
 Neg Pst-AccP.eat-Det lemur Det fruit
 "The lemur did not eat the fruit"
- (79) a. *Efa nohanin'ny gidro ny...voankazo*
 already Pst-AccP.eat-Det lemur Det fruit
 "The lemur has already eaten the fruit"
- b. *Mbola tsy nohanin'ny gidro ny...voankazo*
 still Neg Pst-AccP.eat-Det lemur Det fruit
 "The lemur still hasn't eaten the fruit"

Where is the *external argument* located with respect to the structure in (76)? In chapter 3 I present extensive evidence to show that the EA is a topic-like element, analogous in many respects to the preverbal topic in verb-second clauses in Icelandic and other languages. I will therefore locate the EA in an A'-position in the C-domain of the clause, above TP. The exact position of the EA will be discussed in chapter 3. As a provisional analysis, we may assume (following the traditional account of topic-fronting in verb-second languages; cf. den Besten 1989) that the EA extracts from the predicate phrase and raises to the specifier of CP to check a feature in C^0 , as in (80):



2.4. Voice morphology up close

As I discussed in section 2.2.1, Malagasy has five morphologically distinct voice forms, constructed by adding prefixes and suffixes (or combinations thereof) to the verb root.

The full array of voice morphology is illustrated in (81) for *velar* “unroll, spread out”, one of the few verbs for which all five voice forms are attested. (Notice that these forms do not appear to constitute a morphological *paradigm* in the traditional sense: Some of the voice morphemes are prefixal, others are suffixal. Some appear to be mutually exclusive with other morphemes, while others co-occur in particular combinations. Some morphemes even recur in more than one voice.)

(81)	NomP	m-	<i>an-</i>	velar	>	mamelatra
	CrcP		<i>an-</i>	velar	-an	> amelarana
	DatP			velar	-an	> velarana
	AccP			velar	-in	> velarina
	TrnP	a-		velar		> avelatra

In this section I focus on the syntactic status of the voice morphemes in (81), which I analyze as the overt realizations of predicate and functional heads within the structure laid out in 2.3.2. Because of the complexity of the data, I will only be able to present the outlines of an analysis here, leaving many questions unanswered. In particular I will set aside the thorny issue of how the voice morphemes combine with the verb root to produce the correct linear order at PF. (This matter is taken up in Pearson (in preparation), where some tentative proposals are made.) For purposes of the discussion in chapters 3 and 4, what is most important are the central assumptions which I will make about voice morphology, summarized in (82i-ii):

- (82) i. The voice morpheme *m-* is generated in the aspectual head Asp_e , associated with abstract nominative case assignment, while *-in* is generated in Asp_r , associated with abstract accusative case.

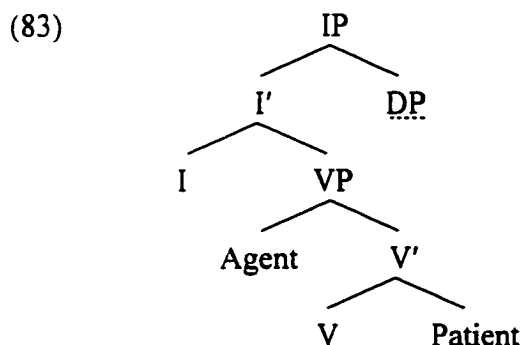
- ii. The head of AspP is pronounced only if its specifier contains an A'-trace (perhaps due to a generalized doubly-filled COMP filter).

The function of the voicing morphology is thus to specify the abstract case of an A'-chain: In a sense, then, voice morphemes such as *m-* and *-in* mark a kind of 'case agreement' with an A'-moved constituent, typically the EA in SpecCP.

As evidence for this general approach, I compare Malagasy with another Austro-nesian language, Chamorro. Chamorro normally exhibits ϕ -feature agreement on verbs, following an ergative-absolutive pattern. However, in clauses containing a wh-movement chain (wh-questions, relative clauses, etc.), this ϕ -feature agreement is replaced by special *wh-agreement* morphology, which correlates with the grammatical function of the wh-moved constituent (Chung 1982, 1994, 1998). As Donohue & Maclachlan (2000) and others have pointed out, the wh-agreement morphemes in Chamorro appear to be cognate with the voice morphemes in Tagalog—and, by extension, those in Malagasy. The fact that in Chamorro these morphemes show up on the verb just in case there is wh-movement suggests a strong link between voice and A'-movement. I conclude that Malagasy is a Chamorro-type language in which wh-agreement has been generalized to all clause types due to the presence of obligatory topicalization (movement of the EA to the specifier of CP).

By associating the morphemes in (81) with abstract case-assignment, I follow the general approach to voice morphology proposed by Guilfoyle, Hung, & Travis (1992) (GHT), and elaborated by Travis (1991a, 1994, 1996, 1997). GHT analyze the Malagasy bipartite clause structure as in (83), where the predicate phrase corresponds to I' and the

EA occupies the specifier of IP. The clause-initial position of the verb is derived through overt V-to-I movement, while the clause-final position of the EA results from a language-particular parameter which orders the specifier of IP to the right of I' (see chapters 3 and 4 for discussion):



GHT analyze the voice morphemes as case-assigners (generated in I^0), which license all but one of the verb's arguments VP-internally, forcing the remaining argument to raise out of VP to SpecIP to get structural case from I^0 . For example, the verbal prefix *an-* assigns case to the patient in its base position, leaving the agent without inherent case and forcing it to raise to SpecIP. By contrast, the AccP suffix *-in* assigns case to the agent in SpecVP. The absence of the *an-* prefix in the AccP form means that the patient fails to receive case in its base position, forcing it to raise to SpecIP.

Although I disagree with GHT on the landing site and motivation for externalization, I concur with their general claim that the voice morphemes play a role in case-licensing. My implementation of this idea is outlined in the following sections: In 2.4.1 I discuss the properties of verb roots. 2.4.2 deals with verbal prefixes *an-* and *i-*, which attach to the verb in the NomP and CrcP forms. I analyze as instantiations of the light

verb *v* (Travis 1991a, Chomsky 1995), and briefly consider the question of why they are absent in the object-pivot forms. In 2.4.3 I discuss the NomP morpheme *m-* and the AccP morpheme *-in*, and sketch the analysis summarized in (82) above. In 2.4.4 I briefly discuss the suffix *-an*, which occurs in the DatP and CrcP forms. I analyze *-an* as an applicative suffix, which converts obliques into accusative case-marked objects (cf. Travis 1997; see also Voskuil 1996 for a similar approach to the cognate suffix in Tagalog). Finally in 2.4.5 I draw an analogy between voice-marking in Malagasy and wh-agreement in Chamorro.

2.4.1. The structure of root predicates

Verbs in Malagasy are formed from *roots*, to which voice-related prefixes and suffixes are attached. For example, the NomP verb *mamono* “kill” consists of the root *vono*, to which the prefixes *m-* and *an-* have been added. Many roots never occur except in combination with voice morphology. However, a great number of roots can function as unflected free forms, and it is on the basis of these that we can ascertain some of the general properties of roots.

Free roots may be divided into two broad lexical classes, *nominal* roots and *adjectival* roots. Nominal roots are roots which may function as nouns. Examples of verbs derived from nominal roots include *misotro* “drink” from *sotro* “spoon, ladle”, *manondro* “point at, indicate” from *tondro* “index finger”, *mangady* “dig” from *hady* “ditch”, and *mivady* “be married” from *vady* “spouse”. Adjectival roots are those which function primarily as predicates or noun phrase modifiers. Examples of verbs built from predicative

roots include *mameno* “fill (up)” from *feno* “full”, *manapaka* “split (in two), cut” from *tapaka* “split/cut [adj.]”, *mandrava* “destroy” from *rava* “ruined”, *mandre* (or *mahare*) “hear” from *re* “heard”, and *mamita* “finish” from *vita* “complete/done”.

Adjectival roots are morphologically distinct from verbs, insofar as they fail to inflect for past tense. In terms of their argument structure, adjectival roots generally form one-place predicates, whose sole argument occupies the EA position, as shown in (84).

- (84) a. Feno ny...tavoahangy
 full Det bottle
 “The bottle is full”
- b. Lany ny...vola
 spent Det money
 “The money is/was spent”
- c. Maty ny...miaramila
 died/dead Det soldier
 “The soldiers {died / are dead}”

Some adjectival roots may optionally add a second argument, as shown in (85) and (86). In two-place adjectival predicates, the theme argument maps to the EA position, while the secondary argument maps to the PredP-internal subjective case position, and forms a phonological unit with the adjective. Notice that when this secondary argument is present, the adjective is suffixed with the linking morpheme *-n* (2.3.1). Because two-place adjectives pattern with the AccP voice in externalizing the theme, Rajemisa-Raolison (1971) refers to this form as the *passifracine*, or *root passive*.

- (85) a. Vita ny...asa
 finished Det work
 “The work is/was finished”

- b. Vitan'ny ankizy ny...asa
complete-Lnk-Det children Det work
"The children (have) finished the work"
- (86) a. Hitan'ny lehilahy ny...alika
seen-Lnk-Det man Det dog
"The man saw the dog"
- b. Tian-dRajaona i...Tenda
loved-Lnk-Rajaona Det Tenda
"Rajaona loves Tenda"

Adjectival roots generally denote states, as in (87a). However, a number of roots may also be taken to denote events involving a punctual change of state (what Vendler 1967 refers to as *achievements*), as in (87b):

- | | | | | | |
|---------|----------|----------------|----|--------|-------------------|
| (87) a. | faly | "be happy" | b. | azo | "get, understand" |
| | fantatra | "know" | | hadino | "forget" |
| | soa | "be beautiful" | | hita | "see, find" |
| | tia | "love, want" | | re | "hear" |
| | tsara | "be good" | | tadidy | "remember" |
| | vaky | "be broken" | | tonga | "arrive, happen" |

There are also a number of adjectival roots which are ambiguous between the two readings, as shown in (88). These may be construed as denoting either the inception of a state, or the state itself:

- | | | | |
|------|-------|----------|---------------|
| (88) | maty | "die" | "be dead" |
| | simba | "ruin" | "be ruined" |
| | vita | "finish" | "be complete" |

I will assume here that the stative meaning of these roots is basic, and that the change-of-state meaning is secondary. As evidence for their basic stativeness, note that achievement-denoting roots (unlike the verbs which may be formed from them) are inherently

completive—that is, they presuppose the existence of a result. Consider the contrast between (89) below, containing the verb *vitaina*, formed by adding the AccP suffix *-in* to the root *vita* “complete”, with the sentence in (90), in which *vita* is used as an unsuffixed predicate.

As Travis (1996) demonstrates, verbs in Malagasy (even ones denoting inherently telic events) are underspecified for completiveness: While the sentence in (89a) is most naturally construed such that the work actually got finished, this construal may be freely negated in the presence of information to the contrary. Thus the continuation in (89b) is truth-conditionally compatible with (89a):

- (89) a. Vitain’ny ankizy ny.....asa
 AccP.complete-Det children Det work
 “The children { finished / set about finishing } the work”
- b. ... nefa mbola tsy vita foana
 but still Neg complete entirely
 “... but (it’s) still not completely finished”

Bare roots, by contrast, are inherently completive. Thus (90a), containing *vita* without any voice morphology, must be construed such that the work got finished. Continuing the sentence with information which negates this construal, as in (90b), renders the sentence semantically ill-formed.

- (90) a. Vitan’ny ankizy ny.....asa
 complete-Lnk-Det children Det work
 “The children finished the work”
- b. # ... nefa mbola tsy vita foana
 but still Neg complete entirely
 “... but (it’s) still not completely finished”

2.4.2. Verbal prefixes and VP-shells

In forming the NomP and CrcP voices, the root (whether nominal or adjectival) is usually prefixed with one of a small set of *verbal prefixes*, of which the principal examples are *i-* and *an-* (or *ana-*).³⁴ The choice of prefix is determined by the root. For example, *resak* “conversation” takes *i-* to form *m-i-resak* [> *miresaka*] “talk with”, while *vaky* “broken” takes *an-* to form *m-an-vaky* [> *mamaky*] “break, read”.³⁵

It is unclear exactly what factors (if any) determine the choice of *i-* or *an-* for a given root. Yet there is evidence to suggest that the distribution of these prefixes is not entirely idiosyncratic. Note that there are a large number of roots which combine with both of these prefixes, yielding pairs of related verb stems. In such cases, the stem containing *an-* is invariably transitive, while the stem containing *i-* is almost invariably intransitive (usually unaccusative, but sometimes unergative or inherently reflexive).³⁶ Examples of *an-/i-* stem pairs are given in (91):

³⁴ A third prefix, *a-*, is used primarily to form stative verbs from nominal roots—e.g., the root *tokis* “confidence” takes *a-* to form *m-a-tokis* [> *matoky*] “trust, have confidence in”. There are also a handful of roots which form verbs without the addition of a prefix, including *ody*, which forms the NomP verb *m-ody* [> *mody*] “go home”. Here, however, I will focus my attention on verbs formed with *i-* or *an-*.

³⁵ Certain other morphemes may intervene between the root and the verbal prefix, which I will not discuss here. To give just one example, the prefix *a-* (footnote 34) may be followed by the element *ha-*, which Travis (1996) characterizes as a marker of telicity. When attached to a nominal root, *a-* + *ha-* denotes successful completion of an event, e.g., *m-a-ha-dera* “manage to praise” < *dera* “praise”; *m-a-ha-jery* “catch sight of” < *jere* “look at”. When attached to an adjectival root, *a-* + *ha-* denotes causativity, e.g., *m-a-ha-soa* “make [s.th.] beautiful” < *soa* “beautiful”. (See Phillips 2000, Travis 1996 for more discussion.)

³⁶ In a sample of 81 *an-/i-* pairs which I examined, there were only three cases where the *i-* stem was (optionally) transitive, and no cases at all where the *an-* stem was intransitive.

(91)	m-an-haja	>	manaja	“respect (tr.)”
	m-i-haja	>	mihaja	“be respected”
	m-an-janon	>	manjanona	“stop (tr.)”
	m-i-janon	>	mijanona	“stop (intr.), stay”
	m-an-sasa	>	manasa	“wash (tr.)”
	m-i-sasa	>	misasa	“wash onself”
	m-an-voha	>	mamoha	“open (tr.)”
	m-i-voha	>	mivoha	“be open (intr.)”

This suggests that *an-* and *i-* are transitivity markers. However, the situation is complicated by the existence of a large number of transitive verbs in Malagasy which take *i-* as their verbal prefix. Some examples are given in (92a) (notice that this list includes a number of ‘canonical transitives’ such as “eat” and “hit”). In addition, there is a small group of common intransitives which take *an-* as their verbal prefix, as shown in (92b). The existence of such verbs cast doubt on the possibility that the choice between *an-* and *i-* is determined in a straightforward way by transitivity. I leave this issue unresolved.

(92) a.	m-i-hinan	>	mihinana	“eat”
	m-i-kapok	>	mikapoka	“hit, beat”
	m-i-lanja	>	milanja	“carry”
	m-i-tadi	>	mitady	“look for”
	m-i-tehak	>	mitehaka	“cuff, strike”
b.	m-an-dihiz	>	mandihy	“dance”
	m-an-hatsiak	>	mangatsiaka	“be cold”
	m-an-lehan	>	mandeha	“go, walk”

Adding *i-* or *an-* converts a root into a verb capable of inflecting for tense. In the case of adjectival roots, adding a prefix generally alters the argument structure as well. As the

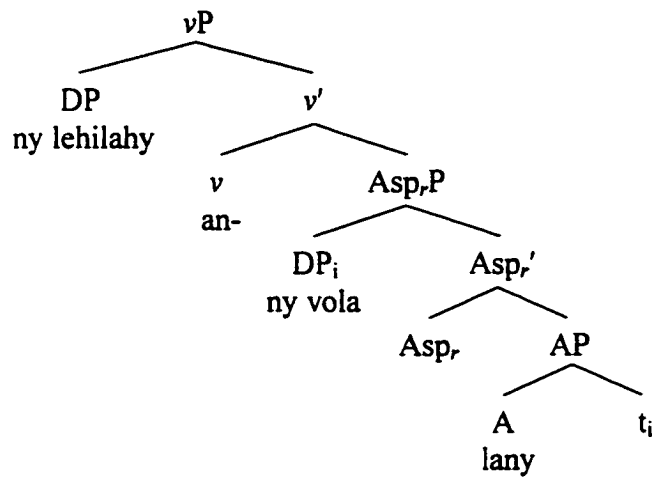
examples in (11) and (11) show, adding *an-* to a one-place adjectival predicate converts it into a transitive verb taking an agent and a theme:

- (93) a. Feno ny...tavoahangy
 full Det bottle
 “The bottle is full”
- b. Mameno [*< m- an- feno*] ny tavoahangy ny...lehilahy
 NomP.fill Det bottle Det man
 “The man is filling the bottle”
- (94) a. Lany ny...vola
 spent Det money
 “The money is/was spent”
- b. Mandany [*< m- an- lany*] ny vola ny...lehilahy
 NomP.spend Det money Det man
 “The man is spending the money”

Because the prefix plays a role (however obscure) in determining the transitivity of the verb, and in the process adds an extra argument (typically an agent) to the argument structure, I will assume that *an-* and *i-* are instantiations of the light verb *v*, as in Travis 1991a. The structure for the sentence in (94b) is given in (95) (cf. the structure in (76)): The adjectival root *lany* combines with the DP *ny vola* “the money”, to which it assigns a theme θ -role. The DP then raises to the specifier of Asp,P to check its accusative case features. Asp,P merges with the verbal prefix *an-* in v^0 , which assigns an agent θ -role to a DP in its specifier:³⁷

³⁷ This analysis would seem to be in accord with the intuitions of native-speaking linguists. Cf. Randriamasimanana (1999), who treats *an-* as a reduced form of the verb stem *-anao* “do, make”.

(95)



In 2.2.1 I observed that the verbal prefix is present in the NomP and CrcP, but absent in the AccP, DatP, and TrnP forms. What accounts for this distribution? Recall that the NomP and CrcP forms are used to externalize subjects and obliques, respectively, while the remaining forms are used to externalize case-marked direct and indirect objects. The correct generalization about the distribution of the verbal prefix thus appears to be the following:

- (96) The verbal prefix is suppressed when a case-marked object is externalized; otherwise it is overt.

That there should be a connection between the distribution of verbal prefixes and the licensing of objects is expected under Chomsky (1995, chapter 4), who argues that direct objects check their case by merging with v^0 . Nevertheless, it is unclear what is responsible for the pattern in (96). I leave this as a subject for future research.

2.4.3. Accusative- and nominative-pivot morphology

Recall from 2.2.1.2 that when the postverbal subject of the verb raises to the EA position, the NomP prefix *m-* is added to the verb stem (97a), and when the direct object raises to the EA position, the AccP suffix *-in* is typically added to the verb stem (97b):

- (97) a. Mamaky [< *m-* an- vaky] ny boky ny...mpianatra
NomP.read Det book Det student
“The student is reading the book”
- b. Vakin’ [< vaky *-in*] ny mpianatra ny...boky
AccP.read Det student Det book
“The student is reading the book”

Traditionally, NomP and AccP morphology are associated with the externalization of thematic *agents* and *patients*, respectively. However, in 2.2.1 I showed that the distribution of the NomP form has more in common with case-marking than θ -marking, since it is used not only to externalize agents, but also experiencers and the themes of intransitive verbs—viz., more-or-less the range of constituents which occur in the nominative form in languages with nominative-accusative case-marking systems.

By the same token, AccP morphology is not associated exclusively with patients, but also marks externalization of other constituents which arguably receive structural accusative case from the verb: Consider the *raising-to-object* construction in (98b), for example, discussed in detail in sections 3.5.2 and 4.4.2.1: Here the sentence in (98a) is embedded under a higher verb *hever* “think, believe”, and the EA *Rasoa* is mapped to the abstract accusative case position of the matrix clause, as shown by the fact that it bears the objective case prefix *an-* (2.3.1):

- (98) a. Namono ny akoho Rasoa
 Pst-NomP.kill Det chicken Rasoa
 “Rasoa killed the chicken”
- b. Mihevitra *an-dRasoa* ho namono ny akoho i.....Bao
 NomP.think Obj-Rasoa Pst-NomP.kill Det chicken Det Bao
 “Bao believes Rasoa to have killed that chicken”

In (98b), *Rasoa* does not stand in a thematic relation to the matrix verb “think”; instead it is interpreted as the agent of the embedded verb “kill”. And yet, when *Rasoa* is promoted to the EA position of the matrix clause, as in (99), the matrix verb carries AccP morphology (the suffix *-in* is added to the root *hever*):

- (99) Heverin'i Bao ho namono ny akoho Rasoa
 AccP.think-Det Bao Pst-NomP.kill Det chicken Rasoa
 “Rasoa, Bao believes to have killed that chicken”

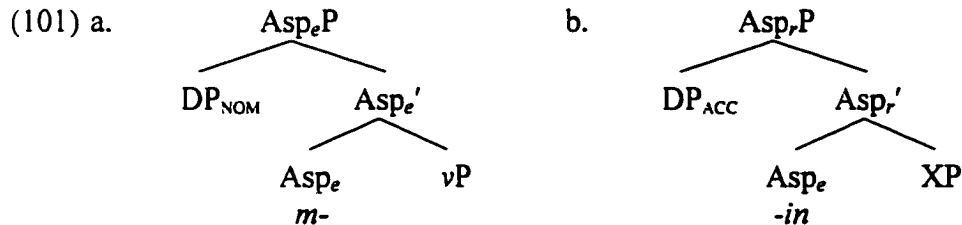
On the basis of such examples, I conclude that the following generalization holds:

- (100) i. The prefix *m-* is added to the verb stem when the DP in the clause which bears abstract *nominative* case raises into the EA position.
- ii. The suffix *-in* is added to the verb stem when the DP in the clause which bears abstract *accusative* case raises into the EA position.

What are *m-* and *-in*, and why do they get inserted under these circumstances? In 2.3.3 I posited that nominative and accusative case are assigned/checked in the specifiers of aspectual projections dominating the higher and lower predicate shells in the clause: Accusative case is assigned in the specifier of *Asp_P*, a projection associated with the endpoint of the event denoted by the verb—reflecting the observation that the properties of direct objects often determine whether an event is interpreted as telic (*Daniel built a house*) or

atelic (*Daniel built houses*)—while nominative case is assigned in the specifier of Asp_eP , associated with the initiation of the event (cf. Borer 1994 for discussion).

Suppose, then, that *m-* and *-in* are instantiations of the aspectual heads Asp_e and Asp_r , respectively:



Of course, *m-* is only inserted in the structure if the nominative case-bearing DP has raised into the C-domain—that is, Asp_e^0 is overt if and only if the DP has extracted from $\text{SpecAsp}_e\text{P}$, leaving an A'-trace (unpronounced copy). A similar situation holds for *-in*. To explain this pattern, I invoke a generalized 'doubly-filled COMP' filter of the type suggested by Sportiche (1992) and (in a very different context) by Koopman (1996). This filter states that the head and specifier of a functional category FP may not both be pronounced within FP (the definition in (102) is adapted from Sportiche):^{38,39}

(102) *Generalized Doubly-Filled COMP Filter*

* $[_{FP} \text{ XP } [_F \text{ F}^0 \dots]]$, where F is a functional category licensing some property P, and both XP and F^0 overtly encode P.

This analysis of *m-* and *-in* is summarized in (103):

³⁸ Within the copy theory of movement (see chapter 1), this filter can be thought of as a principle constraining the pronunciation of copies.

- (103) i. The prefix *m-* is inserted in Asp_e iff $\text{SpecAsp}_e\text{P}$ contains an A'-trace.
 ii. The suffix *-in* is inserted in Asp_r iff $\text{SpecAsp}_r\text{P}$ contains an A'-trace.

There is some evidence to suggest that *m-* and *-in* are Asp heads, insofar as the choice between NomP morphology and non-NomP morphology sometimes has consequences for the aspectual interpretation of the clause: All other things being equal, the use of a NomP construction tends to favor an imperfective interpretation of the event denoted by the verb, while the use of a AccP or DatP construction favors a perfective interpretation.

Consider the sentences in (104) below. Taken in isolation, these sentences are treated by native speakers as near paraphrases of each other, differing only in which participant, the agent or theme, is construed as more salient:

- (104) a. *Namoha* *ny varavarankely Rakoto*
 Pst-NomP.open Det window Rakoto
 ‘‘Rakoto opened the window’’
- b. *Novohain-dRakoto* *ny varavarankely*
 Pst-AccP.open-Rakoto Det window
 ‘‘Rakoto opened the window’’

However, when these sentences are embedded within a larger event context, they are evaluated differently with regard to aspect. Consider the examples in (105) below: Here, the sentences in (104) are preceded by a subordinate clause headed by *rehefa*, meaning ‘‘as, when, as soon as’’ (105a). Within the context of (105a), (105b), with the verb in the NomP form, is construed such that the event of opening the window overlaps the moment

³⁹ Cf. Travis (1996), who also appeals to a doubly-filled COMP filter to solve a similar problem in Tagalog voice morphology.

at which the speaker enters the house; while (105c), with the verb in the AccP form, is construed such that the event of opening the window properly precedes or follows the moment of entering the house:⁴⁰

- (105) a. Rehefa niditra an-trano aho ...
 when Pst-NomP.enter Obl-house 1s
 “When I entered the house...”
- b. ... *namoha* ny varavarankely Rakoto
 Pst-NomP.open Det window Rakoto
 “... Rakoto was opening the window”
- c. ... *novohain-dRakoto* ny varavarankely
 Pst-AccP.open-Rakoto Det window
 “... Rakoto (had) opened the window”

Consider also the pair in (106) below:

- (106) a. Telo andro [vao *nosoratany* ny taratasy]
 three day before Pst-DatP.write-3 Det letter
 “It was three days before he had written the letter”
 i.e. “It took him three days to finish writing the letter”

⁴⁰ (105c) is ambiguous between a reading where the event of opening follows the event of entering (paraphrasable as *After I entered the house, Rakoto opened the window*) and one in which the event of opening precedes the event of entering (paraphrasable as *By the time I entered the house, Rakoto had already opened the window*). In actual utterances, such sentences are usually disambiguated by adding extra material to the matrix clause, as shown in (i)-(ii): In (i), the sequential particle *dia* “then” is added to enforce the reading where the event of entering precedes the event of opening the window. In (ii), the aspectual adverb *efa* “already” is added to indicate that the event of opening the window precedes the event of entering:

- (i) Rehefa niditra an-trano aho, *dia* novohain-dRakoto ny varavarankely
 when Pst-NomP.enter Obl-house 1s then Pst-AccP.open-Rakoto Det window
 “When I entered the house, Rakoto then opened the window”
 or “After I entered the house, Rakoto opened the window”
- (ii) Rehefa niditra an-trano aho, *efa* novohain-dRakoto ny varavarankely
 when Pst-NomP.enter Obl-house 1s already Pst-AccP.open-Rakoto Det window
 “When I had entered the house, Rakoto had already opened the window”

Elements such as *dia* and *efa* are extremely common in texts, where they serve to clarify the relative sequence of events in a narrative.

- b. Telo andro [vao nanoratra ny taratasy izy]
 three day before Pst-NomP.write Det letter 3
 “It was three days before he was writing the letter”
 i.e. “It took him three days to begin writing the letter”

Where English uses PPs such as *in three days* to express a measure of time, Malagasy employs a biclausal construction of the form *telo andro vao X* “(it was) three days before X”. As with measure PPs in English (e.g., *We will climb the mountain in three days*), the Malagasy construction may express either the amount of time required to accomplish an event (“It will take us three days to climb the mountain”), or the amount of time elapsing before an event is initiated (“We will start climbing the mountain after three days have passed”). Interestingly, the choice between these two readings appears to be determined by the voice of the verb embedded under *vao* “before”: When a non-NomP verb is used (106a), *telo andro* “three days” specifies the duration of the event of writing the letter—i.e., the end of the three days is associated to the endpoint of the event. When a NomP verb is used (106b), *telo andro* specifies the length of time between some contextually determined reference point and the point at which the event of writing the letter begins—i.e., the end of the three days is associated to the beginning point of the event.

Of course, more needs to be said about the relationship between voice marking and aspect. It is certainly not the case that the NomP and AccP forms can be identified straightforwardly with imperfective and perfective aspect, respectively, since in other contexts the contrast illustrated in (105) and (106) is not evident. I leave a detailed exploration of this issue for further research. For purposes of this thesis, what is crucial to note is that the choice of voice morphology in a given clause correlates not with the the-

matic properties of the external argument (agent, patient, etc.), but with its abstract case features (nominative, accusative, etc.). In this respect, the distribution of the *m*- and *-in* morphemes corroborates my treatment of externalization as movement from a case position to an A'-position (see next chapter), rather than movement from a θ -position to a case position.

2.4.4. Applicative formation and the dative- and circumstantial-pivot

In this section I briefly consider the identity of the suffix *-an*. I tentatively analyze this suffix as an applicative morpheme, which introduces an extra VP shell in the structure (cf. Marantz 1993, Ngonyani 1996), and with it an extra DP capable of raising into the accusative case position.

The *-an* suffix is found on both the dative-pivot form, which is generally used to promote indirect objects (107a), and the circumstantial-pivot form, which is used to promote obliques (goals, instruments, locations, etc.) (107b):

- (107) a. Toloran' [<tolor -an] ny vehivavy ronono ny ankizy
DatP.offer Det woman milk Det children
"The woman offeres the children milk"
- b. Ikapohan' [<i- kapok -an] ny zazalahy ny vato ny langilangy
CrcP.hit Det boy Det rock Det stick
"The boy hits the rock with the stick"

There is a certain amount of functional overlap between the DatP form and the CrcP form. Both may be used to externalize a *goal* or *recipient*, for example, as shown in (108) with the verb *roso* “serve, present, put forward”:

- (108) a. Rosoan'ny vehivavy ny sakafo ny vahiny
 DatP.serve-Det woman Det meal Det guest
 "The woman serves the guests the meal"
- b. Androsoan'ny vehivavy ny sakafo ny vahiny
 CrcP.serve-Det woman Det meal Det guest
 "The woman serves the guests the meal"

It appears that the availability of the DatP form for promoting recipients is dependent on the ability of the verb to undergo *dative shift*: If a ditransitive verb allows dative shift, either DatP and CrcP morphology may be used to promote a recipient to the EA position. If a ditransitive verb does not allow dative shift, then the DatP form is unavailable (or at best marginal). Contrast *roso* "serve, present, put forward", which allows dative shift (109), with *petrak* "put (down), place", which does not allow dative shift (110):⁴¹

- (109) a. Mandroso ny sakafo amin'ny vahiny ny vehivavy
 NomP.serve Det meal to-Det guest Det woman
 "The woman serves the meal to the guests"
- b. Mandroso ny sakafo ny vahiny ny vehivavy
 NomP.serve Det meal Det guest Det woman
 "The woman serves the guests the meal"
- c. Androsoan'ny vehivavy ny sakafo ny vahiny
 CrcP.serve-Det woman Det meal Det guest
 "The woman serves the guests the meal"
- d. Rosoan'ny vehivavy ny sakafo ny vahiny
 DatP.serve-Det woman Det meal Det guest
 "The woman serves the guests the meal"

⁴¹ Notice that in the double object construction in (109b), the indirect object follows the direct object, rather than preceding it (as in English). See Pearson (2000b, in preparation) for discussion.

- (110) 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. * Nametraka ny boky ny latabatra ny...vehivavy
 Pst-NomP.put Det book Det table Det woman
 "The woman put the table the books"
- c. Nametrahan'ny vehivavy ny boky ny...latabatra
 Pst-CrcP.put-Det woman Det book Det table
 "The woman put the books on the table"
- d. * Nopetrahan'ny vehivavy ny boky ny...latabatra
 Pst-DatP.put-Det woman Det book Det table
 "The woman put the books on the table"

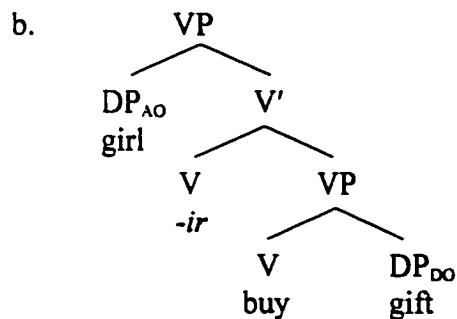
This suggests that the DatP form is used specifically to promote the indirect object of a double object construction, while the CrcP form is used to promote other types of participants (including goal PPs). I return to the difference between the DatP form and the CrcP form below.

What is the suffix *-an*? In 2.2.1.2 I pointed out a similarity between CrcP-formation (111) applicative formation in languages such as Chichewa (112): In the former case, the addition of the suffix *-an* to the verb (along with the suppression of the *m-* prefix), serves to promote the complement of a preposition to the EA function, suppressing or absorbing the preposition in the process. In the latter case, adding the suffix *-ir* to the verb serves to promote the complement of a preposition to an argument position—again suppressing the preposition. The element promoted by the addition of applicative morphology (*mpeni* in (112b)) may be called the *applied object* (DP_{AO}), while the original object is called the *direct object* (DP_{DO}).

- (111) a. Mandidy ny hena amin'ny antsy ny vehivavy
 NomP.cut Det meat with-Det knife Det woman
 "The woman is cutting the meat with the knife"
- b. Andidian'ny vehivavy ny hena ny antsy
 CrcP.cut-Det woman Det meat Det knife
 "The knife, the woman is cutting the meat (with it)"
- (112) a. Mavuto a-na-umba mtsuko ndi mpeni
 Mavuto 3s-Pres-mold waterpot with knife
 "Mavuto molded the waterpot with the knife"
- b. Mavuto a-na-umb-ir-a mtsuko mpeni
 Mavuto 3s-Pres-mold-Appl waterpot knife
 "Mavuto molded the waterpot with the knife"

Marantz (1993) and Ngonyani (1996) argue that applicative constructions such as (112b) involve a layered VP structure. In the case of benefactive applicatives such as (113a), the lexical verb stem "buy" is generated in the lower VP shell, where it assigns a θ -role to the direct object, while the applicative morpheme is generated in the higher VP shell, and licenses the applied object in its specifier (113b):

- (113) a. Chitsiru chi-na-gul-ir-a atsikana mphotso
 fool 3s-Pres-buy-Appl girls gift
 "The fool bought a gift for the girls"

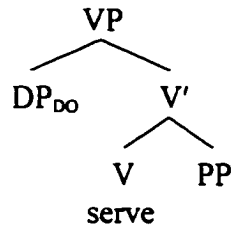


Marantz (1993) extends the structure in (113b) to cover double object constructions in languages like English. Such constructions, he claims, are ‘hidden’ applicatives, in which the head of the higher VP shell is null.

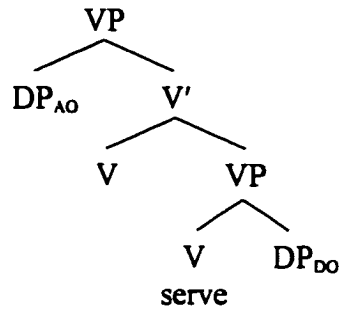
Under this theory, *dative shift* amounts to a variation in the mapping of recipients and other participants: In the DP–PP construction (*give a book to Daniel*), a single VP shell is projected, and the recipient shows up as a PP selected as the inner argument of the ditransitive verb. In the DP–DP (double object) construction, two VP shells are projected, and the recipient is licensed as the specifier of the higher verb (a null applicative morpheme). Extending this analysis to Malagasy, I propose that dative shift with verbs like *roso* “serve, present” involves the same structural alternation: The DP–PP predicate in (114a) has the structure in (115a), where *ny vahiny* “the guests” is the object of a preposition; while the DP–DP predicate in (114b) has the structure in (115b), where *ny vahiny* is the specifier of a higher VP shell headed by a null applicative morpheme.

- (114) a. Mandroso ny sakafo amin’ny vahiny ny.....vehivavy
 NomP.serve Det meal to-Det guest Det woman
 “The woman serves the meal to the guests”
- b. Mandroso ny sakafo ny vahiny ny.....vehivavy
 NomP.serve Det meal Det guest Det woman
 “The woman serves the guests the meal”

(115) a.



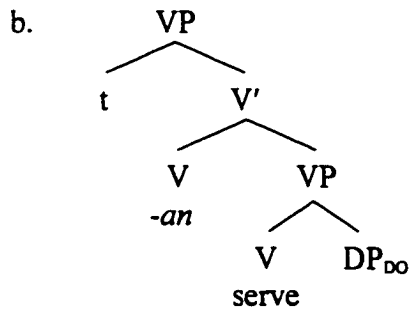
b.



We are now in a position to offer an analysis of the DatP/CrcP suffix *-an*: I propose that *-an* is an overt instantiation of the null applicative head in (115b).

Recall my analysis of *m-* and *-in* from the previous section: I treated them as case checking heads, which, due to a generalized doubly-filled COMP filter, are only spelled out if the DP in their specifier has undergone movement to a higher position. Suppose that the applicative head in (115b) has the same property in Malagasy. It follows that when the applied object of a ditransitive verb raises to the EA position, the applicative head will be spelled out. Consider the sentence in (116a): The recipient *ny vahiny* “the guests” is licensed in the applied object position; once it raises out to become the external argument of the clause, *-an* (which surfaces as a suffix on the verb root) is inserted in the applicative head position, as in (116b):

- (116) a. Rosoan'ny vehivavy ny sakafo ny.....vahiny
 DatP.serve-Det woman Det meal Det guest
 “The woman serves the guests the meal”



This derives the *-an* of the DatP form. But how do we account for the appearance of *-an* on the CrcP form? Recall from the discussion in 1.1.2 that the CrcP form differs from the DatP form in the presence of a verbal prefix (2.4.2). For example, from the root *roso*, we form the DatP *rosoana* by adding *-an*, and the CrcP *androsoana* by adding *-an* and the verbal prefix *an-* (also found in the NomP form *mandroso*). Recall also that the DatP form is associated specifically with dative shift verbs, while the CrcP form is much more widespread, occurring on virtually any verb capable of taking an oblique dependent. It appears, then, that the generalization we need to explain is as follows:

- (117) i. When an applied object is interpreted as the recipient/benefactee of a dative shift verb, the verbal prefix is suppressed when that object undergoes A'-movement
- ii. For all other applied objects, the verbal prefix is not suppressed when the object undergoes A'-movement.

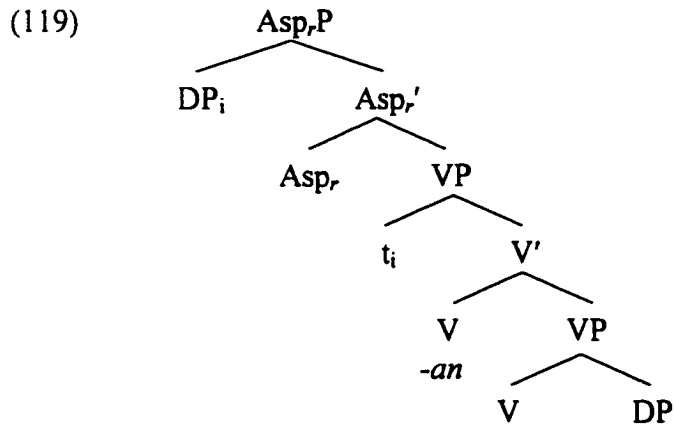
What distinguishes recipients and benefactees from other kinds of applied arguments? Following Marantz (1993), I will argue that the crucial factor is *affectedness*. A verb denoting the transference of an object to a goal undergoes dative shift if and only if the goal is capable of being interpreted as affected by the action in question. Consider the minimal pair in (118), for example, adapted from Pesetsky (1995): A person can be af-

fectured by having a parcel sent to them, but a place cannot; hence, a double object construction is licensed for the verb *send* in the former case, but not the latter case:

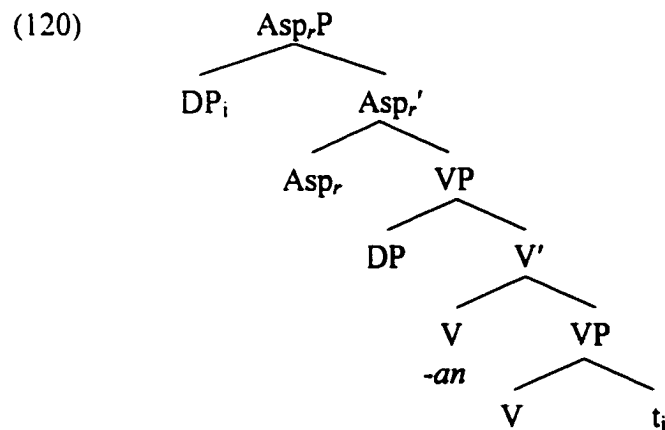
- (118) a. Eric sent a parcel *to Daniel*
 b. Eric sent *Daniel* a parcel
 c. Eric sent a parcel *to France*
 d. * Eric sent *France* a parcel

Suppose that in Malagasy, affected arguments are licensed in the specifier of Asp_P. We saw in the last section that when the accusative case-marked object of a monotransitive verb raises to the EA position from SpecAsp_P (triggering the insertion of the AccP suffix *-in*), the verbal prefix is suppressed. If we assume that affected applied objects (the benefactive/recipient arguments in double object constructions) are similarly licensed via accusative case assignment in SpecAsp_P, then we can explain why the verbal prefix is suppressed in the DatP form as well.

I therefore propose the following: Externalization of an affected applied object involves a two-step process. First, the applied object extracts from the specifier of the VP in which it is generated (triggering *-an* insertion) and raises to the specifier of Asp_P to check accusative case. The result of this move is shown in (119). The applied object then extracts from SpecAsp_P, suppressing the verbal prefix in the process, and raises on to the EA position. This derivation yields the dative-pivot form, in which the verb root bears the applicative suffix *-an* and there is no prefix. (In order to prevent the suffix *-in* from being inserted once the applied object has vacated SpecAsp_P, I suggest that there is a low-level morphological rule blocking *-in* and *-an* from both attaching to the same verb stem.)



Given this approach, it is a simple matter to derive the circumstantial-pivot form, in which *-an* and the verbal prefix are both present on the stem: The CrcP form is used to externalize applied objects which are not interpreted as (directly) affected by the event denoted by the verb (instruments, locations, etc.). So in this case, it is not the applied object which raises to the specifier of Asp_rP , but some other element—usually the direct object generated in the lower VP shell:



Since the direct object does not raise out of $\text{SpecAsp}_r\text{P}$, the verbal prefix will surface (as it does in the NomP form, where the direct object again remains in its case position). The

applied object extracts from VP, triggering *-an* insertion in the applicative head, and raises over the direct object to the EA position. Thus the verb will surface with both the verbal prefix and the *-an* suffix attached to it.

One question raised by this analysis involves the following hypothetical situation: Suppose that once the direct object raises to SpecAsp,P over the applied object (as in (120)), it then raises on to become the EA of the clause, leaving the applied object in its base position (SpecVP). Raising of the direct object out of SpecAsp,P triggers *-in* insertion in Asp,⁰ (*-an* is not inserted in the higher V because there is a DP in the specifier of VP at spell-out). The result in the ill-formed sentence in (121a), in which the verb shows AccP marking, in agreement with the externalized direct object *ny akoho* “the chicken” and the instrument *ny antsy* “the knife” surfaces as a predicate-internal applied object DP (cf. the well-formed sentence in (121b), in which the instrument surfaces as the complement of a preposition):

- (121) a. * Vonoin’ny mpamboly ny antsy ny...akoho
 AccP.kill-Det farmer Det knife Det chicken
 “The chickens, the farmer kills with the knife”
- b. Vonoin’ny mpamboly amin’ny antsy ny...akoho
 AccP.kill-Det farmer with-Det knife Det chicken
 “The chickens, the farmer kills with the knife”

What rules out the derivation of a sentence like (121a) from the structure in (120)? Here I will assume the following:

- (122) Non-affected applied arguments may not be licensed in situ, but must raise out of their base positions

Thus, the applied object in (120) cannot remain in the specifier of VP, but must raise out. Although (122) may seem stipulative, examples have been cited from Bantu languages (e.g., Swahili; Ngonyani 1996) in which certain kinds of applied objects are licensed only if they are displaced from the applied object position by *wh*-movement or some other operation. It is possible that applied objects in CrcP constructions have this same property. I leave this as a matter for further investigation.

2.4.5. Voice-marking and *wh*-agreement: Malagasy versus Chamorro

In section 2.4.2 I suggested that the NomP prefix *m-* and the AccP suffix *-in* are generated in case-assigning aspectual heads. Due to some morphological property of these heads (perhaps a doubly-filled COMP effect), the NomP and AccP morphemes only surface if the AspP projection which hosts them has a trace in its specifier (AccP morphology is also blocked by the presence of an applicative suffix on the verb). The effect of these morphemes, then, is to indicate the abstract case of an A'-extracted element.

While many questions about this analysis remained to be answered, I believe that there is cross-linguistic evidence for two major assumptions, namely that (a) the voice morphemes are generated in case-licensing heads, and (b) voice morphology is linked to the presence of A'-movement. In this section I compare voice-marking in Malagasy with *wh*-agreement in Chamorro, as discussed in detail by Chung (1982, 1994, 1998). Following Donohue & Maclachlan (2000) and others, I suggest that voice-marking in Malagasy and *wh*-agreement in Chamorro are the same animal: Both involve the spell-out of a case-licensing head in the presence of an A'-trace. The distributional differences between

voice in Malagasy and wh-agreement in Chamorro are due to independent syntactic differences between the two languages: In Malagasy, externalization (which I analyze as A'-movement in the next chapter) is obligatory; therefore wh-agreement will be found in every clause containing a verb. Chamorro, on the other hand, lacks an (obligatory) externalization operation, and so wh-agreement will show up on the verb only if an A'-chain is created by wh-operator movement, as in relative clauses and constituent questions.

Chamorro is a verb-initial language, usually classified as a member of the Western Malayo-Polynesian branch of Austronesian on the basis of its structural resemblance to the Philippine languages. The details of wh-agreement in Chamorro are complex, but the basic facts are as follows (all examples taken from Chung 1998): In normal transitive clauses, the verb agrees in ϕ -features with the subject. In (123), for example, the verb bears the third person singular realis prefix *ha-*, indicating agreement with *si Juan*:

- (123) *Ha-fa'gasi si Juan i kareta*
 3sErg-wash Det Juan Det car
 "Juan washed the car"

However, when the transitive subject undergoes A'-extraction, as in wh-questions (124a) and relative clauses (124b), the person/number-agreement morpheme is replaced with the infix *-um-* (or its allomorphic variant, the prefix *mu-*). Chung analyzes *-um-/mu-* as a special morpheme which indicates that the extracted element is to be interpreted as the transitive subject of the clause—specifically, she argues that it marks agreement in case features between the verb (in I^0) and an A'-chain whose trace is in its minimal m-command domain. The general process whereby the regular person/number marking on

the verb is replaced with special morphology in A'-extraction contexts is referred to as *wh-agreement*.⁴²

- (124) a. Hayi fuma'gasi i kareta?
 who um.wash Det car
 ‘Who washed the car?’
- c. Hu-apasi i taotao [Op ni fuma'gasi i kareta-hu]
 lsErg-pay Det person Comp um.wash Det car-ls
 ‘I paid the person who washed my car’

The distribution of *wh-agreement* morphology is sensitive to a number of factors, including the grammatical function of the extracted element (subject, object, or oblique) and the transitivity of the verb.⁴³ Here I will focus on transitive verbs: When the subject of a transitive verb is extracted, *-um-/mu-* is inserted on the verb in place of ergative agreement morphology, as we saw in (124). When a transitive object is extracted, as in (125), there are two options: Either no *wh-agreement* is triggered (125a), or the infix *-in-* is added to the verb, and the regular subject agreement marker (here, the third person singular irrealis prefix *u-*) is replaced with the corresponding ‘possessor agreement’ suffix (125b). (These possessor agreement suffixes have a similar distribution to—and are in some cases cognate with—the subjective enclitic pronouns in Malagasy; see 2.3.1.) The infix *-in-*, like *-um-/mu-*, is analyzed by Chung as a *wh-agreement* morpheme, which indicates that a transitive object has undergone A'-extraction across the verb.

⁴² Wh-agreement phenomena have also been reported for Palauan (Georgopoulos 1991) and Tukang Besi (Donohue 1999).

⁴³ The mood of the verb (realis vs. irrealis) also plays a role in the distribution of *wh-agreement*, but I will ignore this factor here. See Chung (1998) for details.

- (125) a. Hafa pāra u-fa'tinas si Juan?
 what Fut 3sErg(Irr)-make Det Juan
 "What is Juan going to make?"
- b. Hafa pāra fina'tinas-ña si Juan?
 what Fut in.make-3s.Lnk Det Juan
 "What is Juan going to make?"

What exactly is wh-agreement? Let us assume that *-um-/mu-* and *-in-* are the overt realizations of the heads of functional categories, and ask what categories they might be. As I observed, the choice of morpheme varies depending on whether the A'-extracted constituent is a subject or object. Furthermore, notice that *-um-/mu-* is in complementary distribution with ergative subject agreement. Thus, it is reasonable to suppose that *-um-/mu-* and *-in-* are case/agreement-related heads.

As various authors have observed (e.g., Topping 1973, Richards 1997, Donohue & Maclachlan 2000), the Chamorro wh-agreement morphemes *-um-* and *-in-* are clearly cognate with the 'actor-topic' and 'theme-topic' markers found in Tagalog and other Philippine languages, which serve to promote subjects and objects, respectively, to the EA function (126):

- (126) a. Bumili si Maria ng kalabaw sa tindahan
 NomP.bought Det Maria Det water.buffalo Obl.Det store
 "Maria bought a water buffalo at the store"
- b. Binili ni Maria ang kalabaw sa tindahan
 AccP.bought Det Maria Det water.buffalo Obl.Det store
 "Maria bought a water buffalo at the store"

Given the close relationship between Tagalog and Malagasy, it is not implausible to assume that Chamorro *-um-/mu-* is also cognate with the Malagasy NomP prefix *m-*, while

the infix *-in-* is cognate with the AccP suffix *-in*.⁴⁴ Furthermore, if my analysis of *m-* and *-in* is on the right track, we can reasonably conclude that Chamorro wh-agreement morphology and Malagasy voicing morphology are not just historically related, but in fact embody the same phenomenon synchronically, namely the spell-out of a functional head in the presence of an A'-trace: Like Malagasy *m-*, Chamorro *-um-/mu-* is generated in the head of Asp_P (associated in this case with ergative case marking and agreement), while Chamorro *-in-*, like Malagasy *-in*, is generated in the head of Asp_P.

Of course, voice morphology is prevalent in Malagasy (every verb must be marked for voice), while wh-agreement in Chamorro is confined to certain constructions such as wh-questions and relative clauses. If voice-marking and wh-agreement are really one and the same, why should there be this difference in distribution? Suppose we assume that externalization in Malagasy involves A'-movement, as I will argue in the next chapter. Since externalization is obligatory (every clause must have an EA), it follows that every clause in Malagasy will contain an A'-chain with its head in C-domain. If the function of wh-agreement/voice is to indicate the abstract case of an A'-moved element, then we expect voice morphology to be present in all clauses. However, let us assume that Chamorro lacks an (obligatory) overt operation analogous to externalization in Malagasy, such that the EA position (SpecCP) may remain empty. It follows then that wh-agreement/voice will be confined to those clauses in which an A'-chain is created by

⁴⁴ Abinal & Malzac (1963) actually list a large number of verbs with two alternating AccP forms, one formed by suffixing *-in* to the root and the other formed by infixing *-in-* after the first consonant of the root (e.g., *vaky* "read" > *vakina*, *vinaky* "AccP.read"). Although the suffixed alternate is by far the more common in contemporary Malagasy, infixed forms are occasionally still attested.

movement of some other element to the C-domain, such as a *wh*-operator. In clauses where there is no A'-chain, the verb's arguments will remain in their case positions (triggering ϕ -feature agreement on the verb), and the case-licensing heads *-um-/mu-* and *-in-* will remain silent.

If an analysis of this sort turns out to be feasible, then we can interpret the Chamorro facts as strong comparative evidence in favor of linking voice-marking in Malagasy directly to the presence of A'-movement. Many questions remain unanswered; however initial evidence suggests that an analysis of voice morphology along the lines suggested here can be made to work. I leave further consideration of this issue as a subject for future investigation.

2.5. Summary of chapter 2

In this chapter I introduced some basic facts about Malagasy morphology and sentence structure, and presented some observations and speculative analysis on the voicing system. In 2.1 I showed that Malagasy clauses have a bipartite structure, comprised of a *predicate phrase* and a clause-final *external argument*, which is generally obligatory.

In 2.2 I discussed verbal morphology, with particular emphasis on the distribution of the five voice forms. Then in 2.3 I discussed nominal morphology and the hierarchical arrangement of arguments, and propose a basic clause structure for the predicate phrase. I showed that the predicate-internal agent phrase has the properties of a case-bearing subject, suggesting that the external argument is a topic-like element of some kind.

Finally in 2.4 I considered the morphemes which comprise the voice forms. In basic agreement with Guilfoyle, Hung, and Travis (1992), I analyzed these morphemes as the spell-out of heads involved in case-assignment and argument promotion (light verbs, applicative morphemes, and case-licensing heads involved in aspect-marking). I suggested that, due perhaps to a generalized doubly-filled COMP filter, these heads are spelled out only if their specifiers contain an A'-trace, a situation comparable in some ways to participial agreement in French.

As evidence for a connection between voice morphology and A'-movement, I compared Malagasy with a related language, Chamorro. Chamorro possesses a voicing system similar to the one in Malagasy, but only in clauses containing A'-chains, such as wh-questions and relative clauses. In other clause types, ϕ -feature agreement appears on the verb instead. I argued that if we analyze externalization as A'-movement (as I propose in the next chapter), then given the obligatory nature of externalization, it follows that every clause in Malagasy will contain an A'-chain. I suggested that Malagasy voice morphemes instantiate wh-agreement of the Chamorro type. The only real difference between the two languages is that Malagasy has generalized wh-agreement to all clause types.

In chapter 3 I take up the claim that the external argument is a topic-like element rather than a subject. I present comparative evidence showing that EAs share distributional properties with topics in other languages, as well as language-internal evidence from binding and extraction to show that externalization patterns with A'-movement rather than case-driven A-movement.

Chapter 3

Externalization as A'-movement

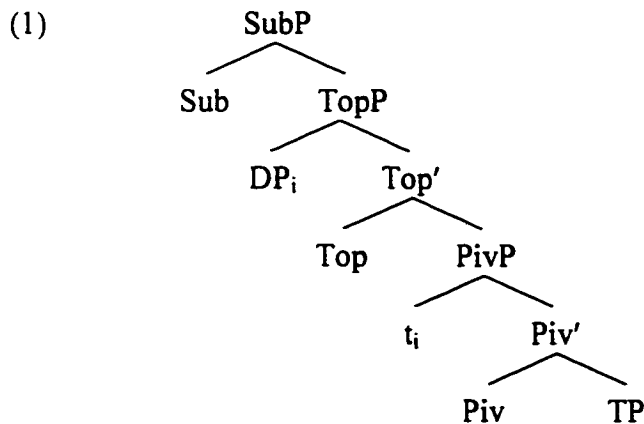
3.0. Introduction

In chapter 2, I discussed the bipartite structure of the Malagasy clause, and outlined an analysis of the voicing system. According to this analysis, the *external argument* constituent (EA) is licensed in the specifier of CP, while voice morphemes such as *m-* and *-in* are the realizations of functional heads, which indicate the location of the A'-trace of the external argument. In this chapter I focus in more detail on the claim that the external argument moves to SpecCP, presenting evidence to show that externalization is a feature-driven A'-movement operation analogous to wh-movement, rather than an A-movement operation analogous to raising-to-subject in passives.¹

In the process of developing a detailed analysis of externalization, I argue that the C-domain of the clause consists not of a single CP projection, but of several projections, each with its own features (Rizzi 1997, Zwart 1993, Koopman 1996, Cinque 1999, et al.). In particular I will argue for three projections, SubP (*subordinator phrase*), TopP (*topic phrase*), and PivP (*pivot phrase*). Of these, TopP is the one in which the external argument is licensed. The structure which I propose is illustrated by the tree in (1) (I post-

¹ Within the Minimalist framework, in which movement is characterized in terms of feature attraction (governed by general principles of economy), the A/A'-movement distinction (Chomsky 1981) is treated as epiphenomenal, inasmuch as there are no principles which refer to this distinction. While I acknowledge this development in the theory, I will continue to use *A-movement* and *A'-movement* as convenient cover terms to refer to movements triggered by case/EPP-features and operator features, respectively.

pone until chapter 4 the question of how the EA in SpecTopP winds up at the right-periphery of the clause, following the predicate phrase):²



As (1) shows, TopP is located below SubP, the projection in which complementizers such as *fa* “that” and *raha* “whether/if/when” are generated. In order to reach the specifier of TopP, external arguments first raise into the specifier of a lower A'-projection, PivP. The trace in SpecPivP forms a chain with a trace inside TP (the predicate phrase) which agrees with the voice morphology. SpecPivP is thus the position associated with the *pivot* of the clause—viz., the element whose grammatical function is identified by the voice morphology on the verb—which is usually (but not always) the external argument. The reasons for distinguishing two positions, SpecTopP and SpecPivP, will be discussed in 3.1 and 3.3. Briefly, I will argue that in certain cases the EA pied-pipes a larger constituent XP into SpecPivP, and then extracts from XP and raises on to SpecTopP.

² Rizzi (1997) argues that TopP should be divided into a higher and lower topic projection (both capable of recursion), which flank a Foc(us)P projection. Because multiple EAs are ruled out in Malagasy, and because constituent focus involves a pseudocleft construction (section 3.4.2), I find no evidence for TopP-recursion or FocP in Malagasy, and will not include them in my phrase structure. (But cf. Paul (1999), whose depiction of the left periphery in Malagasy corresponds more closely to Rizzi's structure.)

The analysis in (1) goes against the traditional account of Malagasy clause structure, which treats the EA as the *subject* of the clause. For example, Guilfoyle, Hung, & Travis (1992) argue that the EA is generated inside the VP and raises to the specifier of IP, where it is assigned structural nominative case. Hence, they treat externalization as a case-driven A-movement operation, essentially identical to raising-to-subject in English. This analysis has been adopted in much subsequent research on Malagasy, including Travis (1994, 1997), MacLaughlin (1995), and Paul (1999).

However, as I will show in this chapter, there are strong conceptual and empirical reasons for regarding the external argument position as an A'-position rather than a subject position. In particular, I will argue that by adopting an A'-analysis of externalization, we can explain a number of disparate facts about Malagasy pertaining to binding, reconstruction, and extraction, without the need for special stipulations. I will also show that the A'-movement analysis provides the context for a straightforward account for the voicing restrictions discussed in 2.2.1.3.

This chapter is organized as follows: In 3.1, I outline my analysis of externalization as A'-movement of an operator into the C-domain of the clause, presenting motivation for each of the phrase structure positions shown in (1) above. I contrast this analysis with that of Guilfoyle, Hung, & Travis (1992), who treat externalization as movement to SpecIP, and discuss some of the empirical differences between the two approaches. In the course of presenting my analysis, I argue for a close connection between the EA position in Malagasy and the preverbal topic position in verb-second languages like Icelandic

and German (a connection which will become important in my discussion of word order in chapter 4).

Having outlined my analysis in 3.1, I present empirical support in 3.2 and 3.3 for treating externalization as an A'-movement operation rather than an A-movement operation. In 3.2 I discuss the rather complicated interaction between externalization and binding. I show that for purposes of binding, the external argument is interpreted in its predicate-internal position rather than its surface position. In this respect, EAs pattern with wh-phrases and other A'-elements in languages like English, which exhibit reconstruction effects. Subjects in English, by contrast, do not reconstruct from SpecTP into their θ -positions (at least not obligatorily). Thus, if we were to treat the external argument in Malagasy as a subject, we would have to supplement our theory of binding with a parameter specifying that subjects obligatorily reconstruct in Malagasy but not in English.³

In 3.3 I discuss the voicing restrictions which accompany externalization out of an embedded clause. I show that when a DP raises out of an embedded clause into the matrix EA position (*long-distance externalization*), the voice of the matrix verb reflects the abstract case of the embedded clause: For example, if the embedded clause is a θ -marked complement to which accusative case is assigned, then subextraction from that clause will trigger AccP morphology on the matrix verb. I will refer to this descriptively as the *pivot restriction on extraction* (PRE). Suppose we adopt an A-movement account of externalization, according to which the function of the voice morphology is to promote a

³ There are some complications with the A'-movement analysis of externalization, involving the absence of weak crossover effects. I deal with this issue in 3.2.3, and suggest some possible solutions.

constituent to the subject position. Under such a theory, the only way to explain the PRE would be to stipulate that subextraction from a clause is possible only if that clause is a subject. This stipulation is problematic, given that subject clauses in more familiar languages invariably behave as strong islands for extraction (cf. Ross 1967, Chomsky 1977, 1986, Huang 1982, and many others). On the other hand, if we treat externalization as A'-movement to a topic position, then the PRE can be satisfactorily explained in terms of clausal pied-piping of the type found in long-distance wh-movement constructions in Basque and other languages.

In 3.4 I show how the A'-movement analysis of externalization allows for a natural account of the voicing restrictions discussed in 2.2.1.3. Recall that in a number of contexts involving wh-extraction, the extracted element strictly determines the voice of the verb. For example, when a direct object is questioned, the appropriate object-pivot form is required; using the NomP form is prohibited (compare the sentence pairs in (2) and (3)). Descriptively, the clause-initial wh-position and the clause-final EA position may not be filled simultaneously in the same clause:

- (2) a. Namaky ny boky ny...mpianatra
 Pst-NomP.read Det book Det student
 "The student read the book"
- b. Novakin'ny mpianatra ny...boky
 Pst-AccP.read-Det student Det book
 "The student read the book"
- (3) a. * Inona no namaky ny...mpianatra?
 what Foc Pst-NomP.read Det student
 "What did the student read?"

- b. Inona no novakin'ny mpianatra?
 what Foc Pst-AccP.read-Det student
 "What did the student read?"

According to the traditional account, which treats the EA position as a subject position, the only way to explain the contrast in (3) is to assume that in languages of the Malagasy type, subjects may undergo A'-extraction while non-subjects may not. This is unexpected, given that more familiar cases of subject/non-subject extraction asymmetries go the other way, with non-subjects being more accessible for extraction than subjects.

On the other hand, if we adopt the analysis argued for in this chapter, we can account for the contrast in (3) without having to resort to conceptually unappealing stipulations. If externalization is a type of A'-movement similar to topicalization, then the ungrammaticality of (3a) can be explained by assuming that externalization and wh-movement compete for the same position in the C-domain (specifically, SpecPivP). As is well known, wh-movement blocks topicalization in verb-second languages as well, not to mention English (see 3.4.1 for examples and discussion).

Finally, in 3.5, I review two pieces of evidence which have been cited for analyzing the EA as a subject, and which are potentially problematic under the A'-movement analysis argued for here: (a) morphological alternations in the pronouns suggest that the EA position is the locus of nominative case assignment, and (b) the pattern of voice marking found in the *raising-to-object* construction suggests that externalization has the ability to feed subsequent case-driven movement (resulting in an *improper movement* configuration if externalization is A'-movement). I consider these phenomena in turn, and suggest how they can be reconciled with the analysis argued for in 3.1. With regard to pronoun

morphology, I show that the so-called nominative case forms of the pronouns are actually default forms, which behave much like ‘strong’ (non-clitic) pronouns in French and other languages. As for raising-to-object, I propose an alternative analysis of this construction, according to which the ‘raised’ object is actually base-generated in the matrix clause and linked to a null operator in the embedded clause (cf. the English *tough*-movement construction).

3.1. Externalization and the structure of the left-periphery

In this section I argue that externalization in Malagasy involves movement to the specifier of TopP, an A'-projection located above TP and below the position of the complementizer in embedded clauses.⁴ An outline of the analysis is presented in 3.1.3 below, and elaborated in subsequent sections. I preface this in 3.1.1 with a brief discussion of previous analyses of externalization, focusing on the long-debated question of whether the external argument is best analyzed as a *subject*, a *topic*, or both/neither. I suggest that the appropriate structural analogue for the EA position is actually the preverbal topic position in Germanic verb-second languages like Icelandic, presenting evidence to support this analogy in 3.1.2.

⁴ There are a number of other proposals in the literature for an extra A'-position below the complementizer position but above the subject position, associated with topicalization or presupposition. These include the TopP projection of Müller & Sternefeld (1993), Zwart (1993), and Rizzi (1997) (cf. also Branigan 1998), and the RefP projection of Beghelli & Stowell (1994, 1997), Kiss (1996), and Szabolcsi (1997). In the end I will argue that my TopP is essentially the same as the projection posited by Müller & Sternefeld, et al.. I leave open the question of whether my proposal can be reconciled with the RefP theory of Beghelli & Stowell, et al..

3.1.1. The external argument: Subject or topic?

Descriptive grammarians such as Rahajarizafy (1960), Rajemisa-Raolison (1971), and Dez (1980) identify the external argument as the *subject* of the clause, and this assumption has been carried over into much of the theoretical work on Malagasy (e.g., Keenan 1976, 1994; Manaster-Ramer 1992). Guilfoyle, Hung, & Travis (1992) (GHT), working within the Government-Binding framework, translate this into phrase structure terms, arguing that the external argument raises to the specifier of IP, where it receives nominative case from I^0 , just like subjects in English and other languages. GHT's analysis has been adopted, with various modifications, by other researchers, among them Paul (1999), MacLaughlin (1995), and Ndayiragije (2000).⁵

A number of facts have been cited for treating the external argument as a subject. For example, as discussed in 2.3.1, externalized and non-externalized pronouns exhibit morphological alternations suggestive of case-marking. Consider the examples below, in which the patient θ -role of the verb is assigned to the first person exclusive pronoun: When the pronoun is predicate-internal, it takes the form *anay* (4a). However, when it is promoted to the external argument position in a DatP construction, the form *izahay* is used instead (4b).

⁵ In general, the identification of the EA/pivot as a subject has prevailed among scholars of Philippine-type languages, going back at least as far as Bloomfield's (1917) discussion of *ang*-phrases in Tagalog. More recently, Kroeger (1993) offers a detailed defense of the EA-as-subject approach for Tagalog (and also provides a concise literature review on this issue, to which I refer the interested reader).

An alternative view, championed by Schachter (1976, 1996) and others, is that the notion *subject* is irrelevant to the description of Philippine-type languages, insofar as the classic functional characteristics of subjects (nominative case, ability to bind reflexives, deletion in imperatives and control complements, etc.) fail to associate to a single phrase structure position, but are instead split between the EA position and the agent phrase position. (Cf. my discussion of Guilfoyle, Hung, & Travis (1992) below).

- (4) a. Namangy *anay* tany am-pianarana ny...dokotera
 Pst-NomP.visit lex Pst-there Obl-school Det doctor
 “The doctor visited us at school”
- b. Novangian’ny dokotera tany am-pianarana izahay
 Pst-DatP.visit-Det doctor Pst-there Obl-school lex
 “We were visited at school by the doctor”

Keenan (1976), Voskuil (1993), et al., identify *anay* as the accusative case form of the pronoun, and *izahay* as the nominative case form, and thus conclude that externalization targets a structural case position: In (4a) the pronoun receives accusative case inside the predicate phrase from the NomP (‘active’) verb, while in (4b), accusative case is unavailable from the DatP (‘passive’) verb, and so the pronoun raises to SpecIP to get nominative case from INFL. (But see 3.5.1 for arguments against this.)

Distributional evidence is also sometimes cited for treating the external argument as a subject. As many researchers have observed, the restrictions on externalization are similar to those which constrain movement to the subject position in other languages: Recall from 2.1 that (except in existentials, ellipsis contexts, and certain imperatives) the EA position in Malagasy must be filled with overt lexical material. A similar restriction holds for the subject position in languages like English and French, where it is attributed to an EPP feature of INFL. Moreover, just as clauses in languages like English and French may contain at most one nominative-marked subject, Malagasy clauses may contain at most one EA. This would make sense if externalization were movement to a subject position, given that EPP-driven operations generally do not reiterate. Finally, note that only constituents of category DP (and possibly CP) may function as EAs, while those of category PP, NP, AP, etc., may not. Since only DPs (and possibly CPs) have case fea-

tures to check, this restriction would make sense if the EA were licensed in the nominative case position.

Although the above facts suggest that the external argument is the subject of the clause, there is also compelling evidence for treating the *agent phrase* as the subject. For example, as I discussed in 2.3.2, in clause-types where the agent phrase is distinct from the EA (viz., non-NomP clauses), it is the agent phrase which undergoes deletion in imperatives, while the EA position remains filled. Compare the sentences in (5a) and (5b) with their imperative counterparts in (5a') and (5b'), respectively:

- (5) a. Vonoin'i Soa ny...akoho
 DatP.kill-Det Soa Det chicken
 "Soa kills the chickens"
- a'. Vonoy ny...akoho
 DatP.kill-Imp Det chicken
 "Kill the chickens!"
- b. Amonoaan'i Soa akoho ny...antsy
 CrcP.kill-Det Soa chicken Det knife
 "Soa uses the knife to kill chickens"
- b'. Amonoy akoho ny...antsy
 CrcP.kill-Imp chicken Det knife
 "Use the knife to kill (some) chickens!"

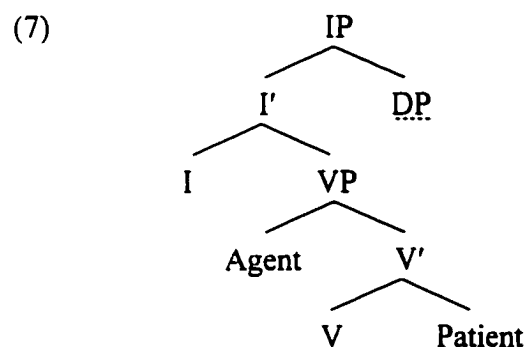
Moreover, the agent phrase position behaves as a subject position for purposes of control. Consider the sentence in (6a), for example. Here, the implied agent of the embedded verb *hosasana* "wash" is understood to corefer with the agent of the matrix verb *kasaina* "intend". Adopting the standard analysis of control clauses, we may thus assume that the

agent phrase position of the embedded clause is occupied by a PRO argument coindexed with the agent of the matrix verb, as in (6b):

- (6) a. Kasain-dRasoa hosasana ny zaza
 AccP.intend-Rasoa Irr-DatP.wash Det child
 “The child, Rasoa intends to wash (him)”
- b. [_{PredP} Kasain-dRasoa_i [_{CP} hosasana PRO_i t_j]] ny zaza_j

It is generally agreed that PRO is confined to subject positions (Chomsky 1981, et al.). Thus, the fact that PRO may occupy the postverbal agent phrase position in Malagasy shows that the agent phrase rather than the EA is the ‘true’ subject of the clause.

In order to explain the fact that external arguments and agent phrases both possess subject-like properties, Guilfoyle, Hung, & Travis (1992) locate the external argument in the specifier of IP, and the agent phrase in the VP-internal subject position (Kitagawa 1986, Fukui & Speas 1986, Kuroda 1988, Koopman & Sportiche 1991), as shown in (7):



In a sense, then, both the EA and the agent phrase count as structural subjects: The EA occupies the highest A-position in the clause (the position in which nominative case is checked), while the agent phrase occupies the highest thematic position in the clause (the position to which the verb discharges its outermost θ -role). GHT suggest that the proper-

ties conventionally associated with subject positions cross-linguistically (e.g., nominative case, the ability to bind an anaphoric direct object, etc.) are divided between these two positions: The case and EPP features of subjects are manifested on the EA in SpecIP; while binding and control relations—which, according to GHT, are calculated on the basis of relative hierarchical positions within VP (see 3.2.2)—treat the agent phrase in SpecVP as the most prominent argument in the clause.

For GHT, then, the difference in the distribution of subject properties between Malagasy and English reduces to a difference in case-licensing. In English, (overt) constituents generated in SpecVP must always raise to SpecIP to get case from INFL, and hence the EPP/case and binding/control properties of subjects will end up associated to the same DP chain (i.e., if the clause contains an agent. In Malagasy, however, the option exists of case-licensing the agent VP-internally: In NomP clauses, no case is assigned to SpecVP, and so the agent raises to SpecIP to get case, as in English. However, in non-NomP clauses, case is assigned to SpecVP by the voice morphology (see 2.4). This allows a lower constituent to raise over the agent into SpecIP, resulting in a situation where the EPP/case and binding/control properties of subjects are manifested on separate DP chains (the EA and the agent phrase, respectively).

However, as I will argue throughout this chapter, analyzing the EA position as SpecIP raises a number of conceptual problems for standard theories of reconstruction and extraction domains. I will thus adopt an alternative approach, which treats the EA not as a *subject*, but as a *topic*. Specifically, I suggest that the EA occupies the same position

as the preverbal topic constituent in verb-second languages, as discussed in the next section.

3.1.2. External arguments and V2 topics compared

That external arguments in Malagasy share properties with topics in other languages has been recognized for some time. Although Keenan (1976) and Manaster-Ramer (1992) analyze the EA as a subject, they observe that it is more consistently associated with 'referential prominence' (Manaster-Ramer's term) than subjects in other languages: Unlike the subject in English, for example, the external argument in Malagasy obligatorily carries an existential presupposition, and is systematically identified by native speakers as denoting the participant whom the sentence is about (i.e., the EA functions as *topic* in the *topic-comment* structure of the clause).

Of course, the term *topic* does not have a fixed sense, having been used to refer to a number of structurally distinct phenomena in different languages. Some topicalizing operations (e.g., topic-fronting and left-dislocation in English, clitic left-dislocation in Romance) have been argued to involve optional adjunction, while others seem to involve feature-driven movement to a fixed specifier position (e.g., topicalization in Hungarian, cf. Szabolcsi 1997). Some languages even appear to have two or more distinct topic positions, each with its own properties, as Aissen (1992a) has argued for Mayan languages. Thus, identifying the EA as a topic merely begs the question: What kind of topic is it?

As I will argue in this section, there is a significant amount of distributional evidence for equating the external argument constituent in Malagasy with the preverbal

(non-focused, non-wh) constituent in Germanic *verb-second* (V2) constructions, suggesting a close connection between the bipartite predicate-argument structure of Malagasy clauses and the structure of V2 clauses. In chapter 4, I suggest that the clause-final underlined constituent in (8) occupies the same position as the clause-initial underlined constituent in the Icelandic sentences in (9) (Sigurðsson 1990).⁶ Furthermore, the non-externalized subject (agent phrase) in Malagasy, italicized in (8b), occupies the same immediately postverbal position as the non-fronted subject in Icelandic (9b).

- (8) a. [PredP Mbola tsy namaky ny boky] ny...lehilahy
still Neg Pst-NomP.read Det book Det man
“The man has still not read the book”
- b. [PredP Mbola tsy novakin’ny lehilahy] ny...boky
still Neg Pst-AccP.read-Det man Det book
“The book, the man has still not read (it)”
- (9) a. Maðurinn [PredP hafði ekki enn lesið bókina]
man-the.Nom had not still read book-the.Acc
“The man had still not read the book”
- b. Bókina [PredP hafði *maðurinn* ekki enn lesið]
book-the.Acc had man-the.Nom not still read
“The book, the man had still not read (it)”

Clearly, there are non-trivial differences between Malagasy and Icelandic with respect to morphology and word order: In Malagasy, the abstract case of the external argument is identified by the voice form of the verb, while in Icelandic it is indicated by morpho-

⁶ The Icelandic examples in this section are taken from Sigurðsson (1990), Rögnvaldsson & Thráinsson (1990), or Richards (2000) (who cites Rögnvaldsson & Thráinsson, p.c.), while the Dutch examples are taken from Zwart (1993).

logical case marking on the external argument itself. Also, in Icelandic the PredP constituent follows its argument, while in Malagasy it precedes its argument—a difference to which I return in chapter 4. Nevertheless, on the basis of the similarities listed below, it seems reasonable to draw a close structural parallel between Malagasy externalization and topic-fronting in Germanic.⁷

Preverbal topics in V2 languages share a number of distributional characteristics with external arguments in Malagasy: As discussed in 2.1, every matrix clause in Malagasy must have an overt EA (abstracting away from ellipsis contexts, NomP imperatives, and existential constructions). This is analogous to the constraint requiring every V2 clause to have an overt fronted constituent (abstracting away from ellipsis, imperatives, and yes/no questions). In both cases, the grammatical role of the promoted constituent is not fixed, but may vary from clause to clause. Furthermore, Malagasy EAs must be [+specific] (10). This recalls the well-known definiteness restriction on preverbal DP topics in Germanic, illustrated in (11) for Icelandic:

- (10) a. Nohanin'ny gidro ilay...voankazo
 Pst-AccP.eat-Det lemur that fruit
 "The lemur ate that fruit"
- b. * Nohanin'ny gidro voankazo
 Pst-AccP.eat-Det lemur fruit
 "The lemur ate (some) fruit"

⁷ This similarity to preverbal topics in Germanic has been noted for external arguments in other Austro-nesian languages. Richards (2000) argues that the *ang*-marked constituent in Tagalog raises covertly to the same position as Germanic topics, which he identifies as an A'-position immediately above TP (roughly equivalent to my PivP/TopP). Most of Richards's observations about Tagalog carry over to Malagasy, the major difference being that externalization happens overtly in Malagasy rather than covertly (cf. chapter 2, footnote 9).

- (11) a. Bókina keypti Jón
book-the bought John(Nom)
“John bought the book”
- b. ?? Bók keypti Jón
book bought John(Nom)
“John bought a book”

Recall also that a Malagasy clause may not have multiple EAs. By the same token, having more than one preverbal constituent is (by definition) strictly disallowed in verb-second clauses.

Topic-fronting in Germanic shares many of the A'-movement properties of Malagasy externalization discussed in 3.2–3.3 below. For example, both topic-fronting and externalization may create long distance dependencies across a finite clause boundary. Compare (12), in which the matrix EA *i Koto* is interpreted as the direct object of the embedded clause, with the Dutch and Icelandic examples in (13a-b):

- (12) Heveriko novangian'ny vehivavy i.....Koto
AccP.think-1s Pst-DatP.visit-Det woman Det Koto
“Koto, I think (that) the woman visited”

- (13) a. Marie denk ik dat Jan gekust heeft
Marie think I that Jan kissed has
“Marie, I think that Jan kissed”

- b. Þessi maður held ég að hafi tekið út peninga úr bankanum
this man think I that has taken out money from bank-the
“This man, I think that (he) has taken some money from the bank”

In addition, both externalization and topic-fronting exhibit reconstruction effects: As I discuss in 3.2.1, the reflexive anaphor *ny tenany* may be promoted to the EA position over

its antecedent (14). Promotion of an anaphor to the preverbal topic position over its antecedent is also allowed in Germanic, as shown in (15a) for Icelandic and (15b) for Dutch:

- (14) Novonoin'ny lehilahy ny....tenany
 Pst-AccP.kill-Det man Det self-3
 "The man killed himself"

- (15) a. Sjálfan sig elskar Jón
 himself loves John
 "Himself, John loves"

- b. Zichzelf herkent Jan niet
 himself recognizes John not
 "Himself, John doesn't recognize"

Furthermore, Malagasy exhibits a pattern of optional EA deletion which is highly reminiscent of *topic-drop* in languages like German. As Huang (1984) and others have discussed, German has a rule which optionally deletes (discourse-salient) pronominal elements from V2 clauses in informal contexts. This rule targets both subject and object pronouns, but crucially only those pronouns which occupy the preverbal topic position may be deleted. Compare (16) below, where the subject is the topic, with (17), where the object is the topic: In the former case, the subject but not the object may be deleted, while in the latter case the reverse holds:

- (16) a. Ich hab' ihn schon gesehen
 I have him already seen
 "I already saw him"

- b. Ø hab' ihn schon gesehen
 have him already seen
 "(I) already saw him"

- c. * Ich hab' Ø schon gesehen
 I have already seen
 "I already saw (him)"
- (17) a. Ihn hab' ich schon gesehen
 him have him already seen
 "Him, I already saw"
- b. Ø hab' ich schon gesehen
 have him already seen
 "(Him), I already saw"
- c. * Ihn hab' Ø schon gesehen
 him have already seen
 "Him, (I) already saw"

A similar pattern of deletion is found in Malagasy: In informal conversation, pronouns which are particularly discourse-salient may be optionally dropped, but only if they occupy the external argument position. This is illustrated in (18)–(19) below: In (18), where the verb is in the NomP form, we see that externalized subject pronouns may be freely deleted, while non-externalized object pronouns may not. In (19), where the verb is in the DatP form, we see that externalized object pronouns may be deleted, while non-externalized subject pronouns may not:⁸

- (18) a. Mamangy an'i Tenda izy
 NomP.visit Obj-Det Tenda 3
 "He is visiting Tenda"

⁸ (18a-b) might be used to answer a question about the agent of the visiting event (e.g., "What is Naivo doing?"), while (19a-b) would be used to answer a question about the patient (e.g., "Where is Tenda?"). Note that sentence (19d) is grammatical under the reading "Tenda is being visited (by someone)", with an implied non-referential agent.

- b. Mamangy an'i Tenda Ø
 NomP.visit Obj-Det Tenda
 “(He) is visiting Tenda”
- c. Mamangy azy i.....Naivo
 NomP.visit 3 Det Naivo
 “Naivo is visiting him”
- d. * Mamangy Ø i.....Naivo
 NomP.visit Det Naivo
 “Naivo is visiting (him)”
- (19) a. Vangian'i Naivo izy
 DatP.visit-Det Naivo 3
 “Him, Naivo is visiting”
- b. Vangian'i Naivo Ø
 DatP.visit-Det Naivo
 “(Him), Naivo is visiting”
- c. Vangiany i.....Tenda
 DatP.visit-3 Det Tenda
 “Tenda, he is visiting”
- d. * Vangiana Ø i.....Tenda
 DatP.visit Det Tenda
 “Tenda, (he) is visiting”

The similarity between German and Malagasy with regard to optional deletion of pronouns follows straightforwardly if the position of preverbal topics in V2 languages is the same as the position of external arguments in Malagasy. (For additional similarities between these two positions, see 3.2.3 and 3.3.)⁹

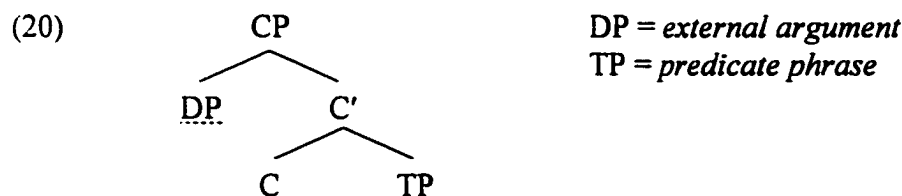
⁹ There are also some important differences between the Germanic topic position and the EA position in Malagasy. I consider some of these in 4.3.1.

In the next section, I develop a structure for the predicate-external portion of the Malagasy clause, in which the landing site for EAs is identified as the specifier of TopP (*topic phrase*)—essentially the same position to which fronted constituents raise in Germanic, according to the analysis of Müller & Sternefeld (1993), Zwart (1993), and others (for more on the structure of verb-second clauses, see 4.3.1). Syntactic evidence for this analysis is given in sections 3.2–3.4, where I show that the external argument behaves like topics in other languages in terms of how it interacts with binding and *wh*-extraction, and in terms of the kinds of locality constraints it obeys.

Of course, if we choose to treat the EA as a topic, then some explanation will have to be offered for the apparent subject-like properties of EAs mentioned at the beginning of section 3.1.1 (e.g., the pronoun alternations illustrated in (4), which suggest that the EA position is the locus of nominative case assignment). I turn to this issue in section 3.5.

3.1.3. Externalization as movement to SpecTopP

If the external argument is a topic rather than a subject, what position does it occupy? In 2.3.3 I suggested the structure in (20) (abstracting away from linear order) as a first hypothesis: The external argument extracts from its case position inside the predicate phrase (TP) and raises to the specifier of CP (cf. the classic derivation of verb-second order in Germanic):



However, this proposal turns out to be inadequate. As I will show in this section, it is necessary to posit additional projections above and below the surface position of the EA. I will therefore adopt the ‘split CP’ hypothesis of Rizzi (1997) (also Bhatt & Yoon 1991, Zwart 1993, Koopman 1996, Cinque 1999, and others), according to which the C-domain is comprised of a series of projections, each possessing its own categorial features.

Consider first the relative positions of external arguments and complementizers in embedded contexts. If the C-domain consisted of a single projection, and if the EA occupied the specifier of that projection, as in (20), then in embedded clauses the EA should be outside the c-command domain of complementizers such as *fa* “that” and *raha* “whether, if/when” (generated in C^0). However, consider (21), which shows that two embedded clauses, each with its own EA, may be conjoined without repeating the complementizer:¹⁰

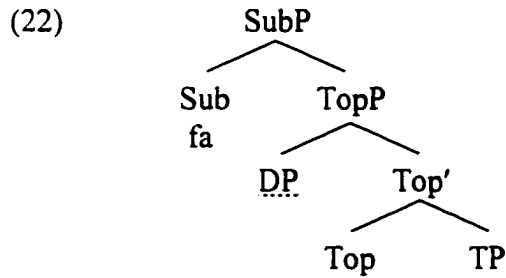
- (21) Fantatro fa [[mihinam-bary i.....Tenda] ary [matory Rabe]]
 known-1s that NomP.eat-rice Det Tenda and NomP.sleep Rabe
 “I know that Tenda is eating and Rabe is sleeping”

Sentence (21) shows that the EA forms a constituent with the predicate phrase to the exclusion of the complementizer *fa*. I will therefore assume that the specifier position occupied by the EA is below the position of the complementizer, necessitating that the C-domain be split up into at least two projections, as in (22): The external argument is licensed in the specifier of a projection designated TopP (cf. MacLaughlin 1995, Pensalfini

¹⁰ According to one speaker I consulted, the sentence is actually ungrammatical if *fa* is repeated before the second conjunct.

The fact that EA-final order occurs in embedded contexts suggests that the proper analogy with Germanic is with those languages which allow embedded V2 (Icelandic, Yiddish). For some remarks on embedded V2, see 4.3.3.

1995), while the complementizer heads a higher projection which I will refer to mnemonically as SubP (*subordinator phrase*). I will assume without argument that SubP is present only when there is an overt complementizer in the numeration.¹¹ In matrix contexts (and certain kinds of embedded contexts as well), SubP is absent and TopP is the highest projection in the clause.



In addition, there is evidence that the C-domain contains a third projection, located in between TopP and TP. To understand why this extra projection is needed, consider first the terminological distinction between *external argument* and *pivot*, touched on briefly in 2.2.1.1: The term *external argument* refers to the right-peripheral DP constituent which combines with the predicate phrase to form a complete sentence. *Pivot*, by contrast, re-

¹¹ In general, *fa* is only allowed if the clause is predicate-external—that is, if the clause is extraposed to the right of the EA (i-a), or functions as the EA itself (i-b). If the clause is internal to the predicate phrase containing the verb which selects it, as in long-distance externalization (i-c) (cf. 3.3), *fa* is absent. I leave a complete analysis of the distribution of *fa* as an issue for future research.

- (i) a. [PredP Mihevitra] i.....Tenda [*fa* matory ny....zaza]
 NomP.think Det Tenda that NomP.sleep Det child
 “Tenda thinks that the child is sleeping”
- b. [PredP Heverin’i Tenda] [*fa* matory ny....zaza]
 AccP.think-Det Tenda that NomP.sleep Det child
 “That the child is sleeping, Tenda thinks (it)”
- c. [PredP Heverin’i Tenda [(**fa*) matory]] ny....zaza
 AccP.think-Det Tenda that NomP.sleep Det child
 “The child, Tenda thinks (she) is sleeping”

fers to that constituent in the clause whose abstract case features are identified by the voice form of the verb—e.g., the nominative-pivot voice identifies a nominative case-bearing argument as the pivot, the circumstantial-pivot voice identifies an oblique constituent as the pivot, and so on. In all of the sentence types we have considered so far, the pivot and the external argument are one and the same. However, there is at least one case, involving extraction from embedded clauses, in which the pivot of a given verb is a constituent other than the external argument. I will review this case briefly here, returning to a more detailed discussion of the facts in 3.3.

Consider the sentence in (23a), containing a control complement (in brackets). In this sentence, the matrix subject *Rakoto* functions as the EA, as indicated by its clause-final position, and by the presence of NomP morphology on the matrix verb *kasa* “intend”. It is also possible to map the object of the embedded verb, *ny vilia* “the dishes”, onto the EA position, in which case the matrix subject occurs in its non-externalized position immediately following the matrix verb, as shown in (23b). Notice that externalizing the embedded object triggers object-pivot morphology on both the matrix and embedded verbs, AccP morphology in the former case and DatP morphology in the latter case.

- (23) a. Mikasa [hanasa ny vilia] Rakoto
 NomP.intend Irr-NomP.wash Det dish Rakoto
 “Rakoto intends to wash the dishes”
- b. Kasain-dRakoto [hosasana] ny...vilia
 AccP.intend-Rakoto Irr-DatP.wash Det dish
 “The dishes, Rakoto intends to wash”

The fact that *ny vilia* is the matrix EA in (23b), and does not form a constituent with the embedded clause, is shown by the placement of the particle *ve* in yes/no questions (cf. the discussion in 2.1 on the use of *ve* as a diagnostic for determining the right edge of the predicate phrase). As (24) shows, *ve* intervenes between the embedded verb and *ny vilia*:

- (24) Kasain-dRakoto hosasana *ve* *ny...vilia?*
 AccP.intend-Rakoto Irr-DatP.wash Qu Det dish
 lit. “Are the dishes such that Rakoto intends to wash them?”

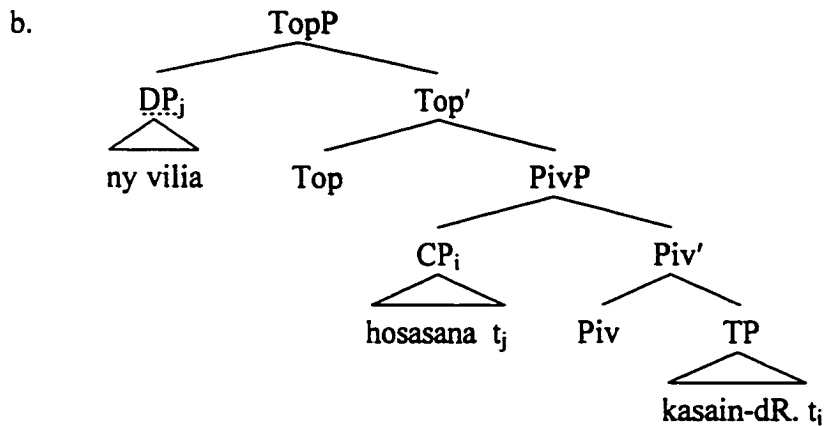
Let us focus on the voice marking in (23b): What constituents determine the voice forms in which the embedded and matrix verbs will appear? A reasonable hypothesis is that the EA *ny vilia* determines the voice of both verbs: We might suppose that when an embedded object is mapped to the matrix EA position, it triggers object-pivot marking on each of the verbs in its domain (this is essentially the solution offered by Law (1995), from whom the examples in (23) are adapted). However, I will present evidence in 3.3 to show that this is not the case. In fact, the EA only controls the voice of the embedded verb, while the voice of the matrix verb is determined by the embedded clause as a whole. Thus, the AccP morphology on *kasa* “intend” in (23b) is triggered by the control clause, which, I argue, receives abstract accusative case from the verb which subcategorizes for it. Descriptively, the pattern is as follows (in 3.3 I refer to this as the *pivot restriction on extraction*, or PRE):

- (25) When a subconstituent α undergoes extraction out of an embedded clause β , the case features of α determine the voice of the embedded verb, while the case features of β determine the voice of the verb in the next higher clause.

Thus, when an argument of an embedded clause becomes the matrix EA, it is the embedded clause rather than the EA which functions as the pivot of the matrix verb. This is what motivates the distinction between *external arguments* and *pivots* mentioned above.

As I showed in (24), the EA does not form a surface constituent with the clause out of which it extracts, since *ve* may intervene between them. Hence we must assume that the pivot position in which the embedded clause is licensed (resulting in AccP marking on the matrix verb) is distinct from the position in which the EA winds up at spell-out. Returning to example (23b), repeated below as (26a): While the matrix EA *ny vilia* “the dishes” occupies the specifier of TopP, I will assume that the embedded clause from which it extracts occupies the specifier of a lower A'-projection, referred to mnemonically as PivP (*pivot phrase*). As its name indicates, PivP is associated with the pivot function: specifically, SpecPivP is the position to which a constituent raises from its case position in TP, thereby triggering the appropriate voice morphology on the verb. The basic structure for (26a) is shown in (26b) (as before, I postpone until chapter 4 the question of how this structure gets translated into the correct linear order):

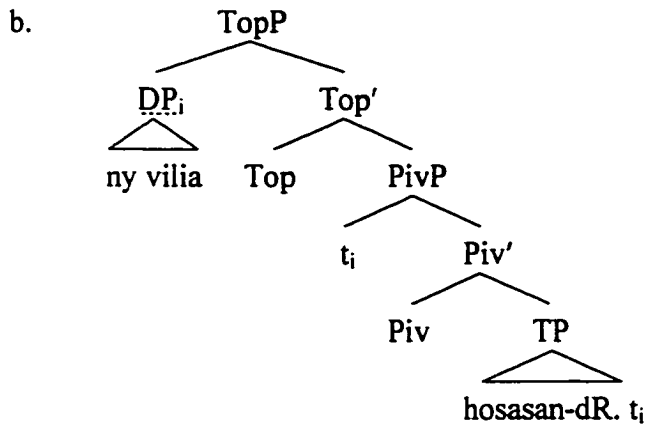
- (26) a. Kasain-dRakoto [hosasana] ny...vilia
 AccP.intend-Rakoto Irr-DatP.wash Det dish
 “The dishes, Rakoto intends to wash”



In 3.3, I will argue that this structure results from clausal pied-piping, followed by subextraction. Briefly, the derivation proceeds as follows: (a) *Ny vilia* is generated in the embedded clause, and raises to the embedded SpecTopP position by way of SpecPivP, triggering DatP morphology on *hosasana* “wash”. (b) Once it has reached the embedded SpecTopP position, *ny vilia* pied-pipes the embedded clause to the specifier of the matrix PivP, causing the embedded clause to trigger AccP morphology on the matrix verb *kasaina* “intend”. (c) Finally, *ny vilia* subextracts from the embedded clause and raises into the specifier of TopP, resulting in the structure in (26b).

Since we are forced to distinguish the pivot position from the EA position in the case of long-distance extraction, it is reasonable to assume that these positions are distinct in cases of local extraction as well. Thus, for a monoclausal sentence such as (27a), I will assume that the EA *ny vilia* first raises to the specifier of PivP, triggering DatP morphology on the verb, and then raises on to its surface position in the specifier of TopP (27b):

- (27) a. Hosasan-dRakoto ny...vilia
 Irr-DatP.wash-Rakoto Det dish
 “Rakoto will wash the dishes”



With respect to its status as the lowest C-related projection in the clause, PivP corresponds to the Fin(iteness)P projection of Rizzi (1997), which he associates with the INFL-related properties of the C-domain, such as the interaction between finiteness and complementizer selection (e.g., *that* vs. *for* in English), as well as complementizer agreement in West Germanic (Haegeman 1992, Zwart 1993, Shlonsky 1994, Hallman 1997b, et al.). The specifier of PivP also corresponds to the position in which Rizzi locates the null operator in English topicalization constructions (28a), as well as its overt equivalent found in other Germanic languages such as Dutch (28b). Thus, the fact that the EA in Malagasy must form a chain with an element in this position makes sense from a cross-linguistic perspective.¹²

¹² Note that resumptive *die* in Dutch, like the EA in Malagasy, is capable of pied-piping a larger constituent to SpecPivP. This is shown in (i) below, where the resumptive pronoun *die*, coindexed with the left-dislocated topic *Jan*, has pied-piped a DP into the specifier of PivP (Zwart 1993) (cf. (26)):

(i) Jan_i [PivP [die_i z'n ouders] [Piv' ken ik t_i niet]]
 Jan that his parents know I not
 "Jan, I don't know his parents"

- (28) a. [TopP John_i [PivP Op_i [Piv' I don't like t_i]]]
 b. [TopP Jan_i [PivP *die*_i [Piv' mag ik t_i niet]]]

Within the Minimalist framework, movement operations are treated in terms of feature attraction: In the case of A'-movement, an uninterpretable scopal feature in one of the C-projections (say, [wh]) attracts its closest interpretable counterpart, causing a constituent associated with the counterpart to raise into its checking domain. There are a number of possible ways to formalize the movement of pivots to SpecPivP and EAs to SpecTopP under this system. For the sake of concreteness, I will adopt the following analysis (to be modified slightly in 3.5):

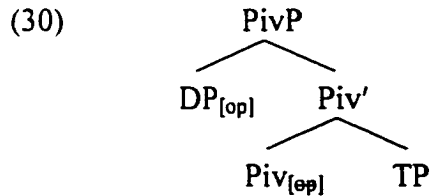
- (29) i. An interpretable [op] feature, associated with the scope-taking property of topics, is assigned in the numeration to a [+specific] DP in the clause.¹³
 ii. The head of PivP possesses an uninterpretable [op] feature which must be checked before spell-out.
 iii. The head of TopP possesses an uninterpretable [D] feature and an uninterpretable [op] feature, which must both be checked before spell-out.¹⁴

The assumptions in (29) suffice to derive the structure in (27b) above: The DP *my vilia* “the dishes” is assigned an [op] feature in the numeration. Once the derivation reaches

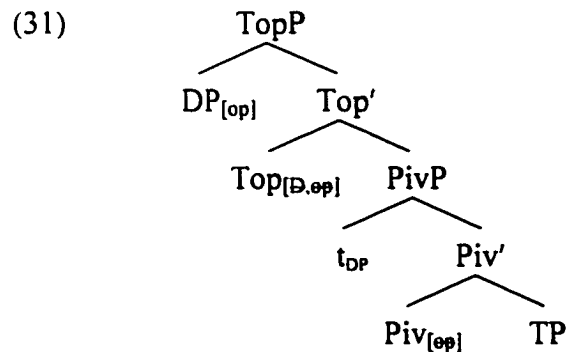
¹³ I assume that the [op] feature is added to the DP in the numeration (rather than being inherited from the lexicon) because being the topic of a clause is not an intrinsic property of DPs or their subconstituents. Instead, a DP is interpreted as a topic by virtue of the scopal position it occupies (being a topic, under this view, consists in being [+specific] and scoping out of the domain of the predicate phrase). The [op] feature of the DP is thus comparable to its abstract case features, which are also added in the numeration. On the assignment of non-intrinsic features in the numeration, see Chomsky 1995, p. 231ff..

¹⁴ If CPs are allowed to raise into the EA position as well as DPs (cf. the discussion at the end of section 2.1), then the attracting feature of Top is not [D] per se, but whatever feature is common to both determiners and complementizers in their shared function as ‘subordinators’, which ‘close off’ a predicate, allowing it to act as an argument of a higher predicate. On the close categorial connection between DP and CP, see Abney (1987), Szabolcsi (1994), among others.

the point where Piv^0 merges with TP to form PivP, the $[\text{op}]$ feature of Piv attracts the DP into its specifier and is eliminated, as shown in (30) (features are notated with subscripts; an uninterpretable feature which has been checked and eliminated from the derivation is indicated by a strikethrough):



Top^0 then merges with PivP to form TopP, and the $[\text{D}]$ and $[\text{op}]$ features of Top attract the closest compatible features—namely, the $[\text{D}]$ and $[\text{op}]$ features of the DP in Spec-PivP—causing the DP to raise again into the specifier of TopP, as in (31):



To derive the structure in (26b), all that is needed is to assume that (a) the embedded clause is of category TopP (i.e., the SubP projection is missing); and (b) this embedded TopP may inherit an $[\text{op}]$ feature from the DP in its specifier via spec-head agreement. Given these assumptions, once the matrix Piv^0 enters the derivation in (26b), its $[\text{op}]$ feature will attract the entire embedded clause into its checking domain, rather than the

DP.¹⁵ Once the embedded clause has raised to become the specifier of the matrix PivP, the DP in its specifier extracts and raises on to the specifier of the matrix TopP to check the [D] and [op] features of Top. (For a detailed discussion, with trees illustrating the steps in this derivation, see section 3.3.2.)

Summarizing the discussion in 3.1, I argued that the external argument in Malagasy occupies the specifier of a TopP projection within a split CP structure, which forms an A'-chain with a trace in the specifier of the next lower C-projection, PivP (the *pivot* position). This position is essentially identical to the position occupied by clause-initial topics in Germanic. Externalization involves a two-step process: The need to check an uninterpretable scope feature [op] causes a case-bearing constituent to extract from the predicate phrase and raise to the specifier of PivP (triggering the appropriate voice-marking on the verb), after which further movement to the specifier of TopP takes place to check uninterpretable [D] and [op] features of the Top head. In most cases, the EA, a [+specific] DP which receives an interpretable [op] feature in the numeration, extracts and raises through SpecPivP to SpecTopP. However, in cases where the EA starts out in an embedded clause, it first raises to the TopP of its own clause, and then pied-pipes that clause to SpecPivP before finally extracting and raising on to SpecTopP.

Having laid out the essential features of my analysis, I now turn to empirical support for treating externalization as movement to a scopal position in the C-domain. Notice that there is an important difference between my analysis and the conventional ana-

¹⁵ Cf. Moritz & Valois (1994), who argue that scopal features such as [wh] and [neg] may be inherited under spec-head agreement, triggering pied-piping.

lysis of externalization, as exemplified by the theory of Guilfoyle, Hung, & Travis (1992) discussed in 3.1.1. According to GHT, promotion of the EA is driven by the need to check case features, and thus counts as *A-movement*, while under my approach, externalization involves a sequence of *A'-movement* operations. Given the differences between A-movement and A'-movement, the choice between GHT's approach and mine has clear empirical consequences.

The theoretical status of the traditional A/A'-movement distinction has been questioned in recent years, largely as a result of research on the properties of scrambling (cf. Webelhuth 1992, as well as Corver & van Riemsdijk 1994 and papers therein). Nevertheless there is a consensus that typical A-movement operations such as raising-to-subject behave differently from typical A'-movement operations such as wh-movement when it comes to binding and reconstruction, locality, and the ability to feed subsequent A-movement (improper movement effects; see 3.5.2). By considering how these differences apply to externalization in Malagasy, it should be possible to decide between my analysis and the one suggested by GHT. This is the focus of sections 3.2 and 3.3 below: In 3.2 I present evidence from binding to show that external arguments undergo obligatory reconstruction. Then in 3.3 I show that movement to the pivot position behaves like wh-movement in other languages with respect to locality (specifically, it exhibits properties suggestive of clausal pied-piping of the kind found in Basque).

If we assume that externalization involves a type of A'-movement, then the binding and extraction facts discussed in 3.2–3.3 follow more-or-less straightforwardly from recognized principles. On the other hand, we would need to posit a number of extra sti-

pulations in order to accommodate these facts under the conventional analysis of externalization as case-driven A-movement. For example, under the A-movement analysis we would be forced to conclude that, whereas in most languages subject clauses are islands for extraction while complement clauses are generally transparent (Ross 1967, Huang 1982, et al.), the exact opposite is true of Malagasy. Furthermore, we would need to assume that subjects obligatorily reconstruct in Malagasy, while being unable to do so in other languages. In short, by analyzing externalization as A-movement, we end up with a theory in which the grammar of Malagasy-type languages looks fundamentally different from that of other language types. By contrast, analyzing externalization as A'-movement allows us to integrate the binding and extraction facts in Malagasy with what we know about other languages. The A'-movement analysis is thus to be preferred on conceptual grounds.

3.2. Externalization, reconstruction, and binding

In this section I consider the interaction of externalization with binding. In 3.2.1 I present evidence from binding and coreference to show that constituents which occupy the EA position obligatorily reconstruct into the predicate phrase—that is, they are obligatorily interpreted in their predicate-internal positions with respect to the Binding Conditions.¹⁶

I take this as evidence that the EA occupies an A'-position. In order to accommodate the

¹⁶ The term *reconstruction* is used here as a matter of convenience. Although I speak of constituents as reconstructing into a lower position, I do not assume that there is an actual transformation which lowers constituents at LF. Rather, I lean towards the 'copy and delete' theory advocated by Chomsky (1995, chapter 3), who analyzes reconstruction effects in terms of the LF-deletion of copies in a movement chain. (See

binding evidence under an analysis which treats EAs as structural subjects (as in Guilfoyle et al. 1992), we would need to introduce an interpretive parameter to ensure that subjects in Malagasy always reconstruct, while failing to reconstruct in other languages. I discuss this in 3.2.2.

Finally, in 3.2.3 I deal with an apparent paradox pertaining to binding in Malagasy, namely that the externalization, while showing the usual reconstruction effects, does not trigger a weak crossover. I present two possible ways to resolve this paradox: (a) Quantifier phrases raise to a position other than SpecTopP, from which reconstruction is impossible. (b) The EA does not actually raise to the specifier of TopP, but is base-generated there and linked to a null operator in SpecPivP (here I follow Lasnik & Stowell (1991), who observe that operator movement does not exhibit weak crossover). Though ultimately I leave the problem of weak crossover unresolved, I observe that similar effects have been documented for topicalization in other languages, such as German, Icelandic, and Hungarian.

3.2.1. The obligatory reconstruction of external arguments

The availability of reconstruction provides a more-or-less reliable test for distinguishing core cases of A-movement (such as raising-to-subject) from core cases of A'-movement (such as wh-movement). Generally speaking, constituents which have undergone A-movement are interpreted in their moved positions, while constituents which have under-

section 4.2.3 for a brief discussion of the copy theory of movement.) Other non-lowering analyses of reconstruction effects are also possible, such as Barss's (1984, 1986) theory of binding paths/chain binding.

gone A'-movement are interpreted in their trace positions—that is, A'-movement reconstructs, while A-movement does not (but see the caveats in footnote 17).

The fact that A-movement need not reconstruct is shown by examples such as (32)–(33): In (32b), the QP *each of these girls* is able to bind the pronoun *her* from its raised position, resulting in a variable interpretation; while in (33b), A-movement of *Bette and Joan* over the anaphor *each other* rescues a potential Principle A violation (and voids a potential Principle C violation):

- (32) a. * It seems to her_i mother [that each of these girls_i is a genius]
 b. Each of these girls_i seems to her_i mother [t_i to be a genius]
- (33) a. * It seems to each other_i [that Bette and Joan_i are manipulative]
 b. Bette and Joan_i seem to each other_i [t_i to be manipulative]

Consider also the examples in (34) and (35) (from Belletti & Rizzi 1988), which show that A-reconstruction is not only unnecessary, but impossible: In (34a-b) we see that A-movement of a pronoun over an R-expression with which it is coindexed results in a Principle C violation. (35a-b) show the same results for Principle B:

- (34) a. It seems to Bill_i's sister [that he_i is the best]
 b. * He_i seems to Bill_i's sister [t_i to be the best]
- (35) a. It seems to him_i [that it is likely [that he_i will win]]
 b. * He_i seems to him_i [t_i to be likely [t_i to win]]

A'-movement, by contrast, obligatorily reconstructs—that is, A'-elements are always interpreted in their trace positions for purposes of binding. That A'-reconstruction is possible is shown by examples such as (36), in which an anaphor or a constituent containing a bound pronoun has undergone contrastive topic-fronting over its antecedent:

- (36) a. [Herself]_i, Joan_i loves t_i more than anyone
 b. [Her_j children]_i, each woman_j loves t_i more than anyone

The obligatoriness of A'-reconstruction is demonstrated by examples such as (37a-b). In these sentences, where a topic or wh-phrase undergoes A'-movement over a pronoun, coreference with the pronoun is ruled out. If we assume that the topic/wh-phrase must reconstruct into the position of its A'-trace, which is c-commanded by the pronoun, then the ungrammaticality of these examples can be attributed straightforwardly to Principle C ((37a-b) are instances *strong crossover*; Wasow 1972, Chomsky 1981, et al.; cf. also Postal 1971).

- (37) a. * Joan_i, I know that she_i loves t_i more than anyone
 b. * Which girl_i do you think that she_i loves t_i the most?

In short, A-reconstruction is disallowed, while A'-reconstruction is obligatory.¹⁷ Thus, if reconstruction of EAs in Malagasy is both possible and obligatory, as I will show below, we may take this as evidence for treating externalization as A'-movement.

¹⁷ The binding facts become more complicated when a pronoun or anaphor is properly contained in the complement of a moved constituent. For example, while A-moved pronouns do not reconstruct, a pronoun within the PP complement of an A'-moved constituent may be interpreted in the base position of that constituent, as shown in (i-a), where the pronoun *his* is bound by *everyone* (Sportiche 1999). Belletti & Rizzi (1988) (who cite Langendoen & Battistella 1982, Johnson 1985) point out similar cases involving anaphors (i-b):

- (i) a. [The pictures of his_j mother]_i seemed to each boy_j [t_i to be more flattering than the pictures of his_j father]
 b. [Replicants of themselves_j]_i seemed to the boys_j [t_i to be ugly]

Moreover, while a pronoun or anaphor contained in the complement of an A'-moved constituent is usually interpreted in the A'-trace position of that constituent (ii-a), it may also be interpreted in a higher position under certain circumstances (ii-b,c):

- (ii) a. [Which picture of herself_j]_i did Joan_j like t_i the best?
 b. Bette_k wondered [[which picture of herself_{j,k}]_i Joan_j liked t_i the best]

In 2.3.2, I provided evidence from binding to show that predicate-internal subjects (agent phrases) asymmetrically c-command predicate-internal objects. Consider the CrcP examples in (38)–(39), in which the subject and object remain within the predicate phrase, and an oblique constituent *ny zanany* “his children” (interpreted as a benefactee) is promoted to the EA position: (38) shows that the subject may bind a reflexive anaphor in the object position, but not vice versa.¹⁸ (39) shows that while a possessive pronoun within the direct object (here the third person enclitic *-ny*) may be bound by a quantified subject, binding of a pronoun within the subject by a quantified direct object is judged marginal.¹⁹

- (38) a. Namonoan’ny lehilahy_i tena_i ny....zanany
 Pst-CrcP.kill-Det man self Det child-3
 “The man_i killed himself_i for his children”
- b. * Namonoan’ny tenany_i ny lehilahy_i ny....zanany
 Pst-CrcP.kill-Det self-3 Det man Det child-3
 “Himself_i killed the man_i for his children”

-
- c. [Which picture of herself_{j,k}], did Bette_k think [that Joan_j liked t_i the best] ?

It is not entirely clear how to analyze examples such as (i) and (ii), but see Barss (1984, 1986), Chomsky (1995), and Sportiche (1999) for specific proposals. I will try to avoid such complications here by sticking whenever possible to examples involving non-complex DPs.

¹⁸ Reflexive anaphors in Malagasy are built from the noun *tena* (lit. “body”). In certain contexts, *tena* may be used by itself as a ‘bare’ NP with reflexive meaning (38a). In other cases, the reflexive takes the form *ny tenany* “his/her self” (38b). The distributional properties of *tena* and *ny tenany* are poorly understood. Note, however, that because *tena* is a bare noun phrase, it is formally [–specific], while *ny tenany* (which includes a determiner) is [+specific]; hence, only *ny tenany* is capable of functioning as an EA, as in (43) below.

¹⁹ To ensure that the pronoun *-ny* in (39a) is interpreted as a bound variable, rather than a true pronoun corefering with a group-denoting expression (“the group of men showed their brothers to my children”), the quantifier *tsirairay*, lit. “one-by-one” (< *iray* “one”), has been used. Unlike the more common universal quantifier in Malagasy, *rehetra* “all”, *tsirairay* is strictly distributive (cf. footnote 21).

- (39) a. Nanasehoan'ny lehilahy tsirairay_i ny rahalahiny_i ny...zanako
 Pst-CrP.show-Det man each Det brother-3 Det child-1s
 "Each man_i showed his_i brother to my children"
- b. ?? Nanasehoan'ny rahalahiny_i ny lehilahy tsirairay_i ny...zanako
 Pst-CrP.show-Det brother-3 Det man each Det child-1s
 "His_i brother showed each man_i to my children"

As the examples in (40) below demonstrate, this binding asymmetry is unaffected by externalization of the object over the subject. (40a) shows that an anaphor may be promoted over its antecedent without violating Condition A or C of the Binding Theory (Travis 1997). Similarly, (40b) shows that a possessive pronoun embedded within an object EA may be bound by a quantified subject. Thus we see that, for purposes of binding, externalized direct objects may reconstruct from the EA position into the scopal domain of the predicate-internal subject.

- (40) a. Novonoin'ny lehilahy_i ny...tenany_i
 AccP.killed-Det man Det self-3
 "Himself_i, the man_i killed"
- b. Novangian'ny mpianatra tsirairay_i androany ny...rainy_i
 DatP.visited-Det student each today Det father
 "His_i father, each student_i visited today"

Consider also (41a-b), involving coreference between a pronoun and an R-expression. In the example in (41a) (courtesy of Ileana Paul, p.c.), an object containing a possessor DP *Ramatoa* is externalized over a third person pronominal subject *-ny*. This sentence is ungrammatical under a reading where *-ny* is coreferential with *Ramatoa*. By contrast, a coreference reading is possible in (41b), where the positions of the pronoun and the R-expression have been reversed:

- (41) a. Norohany ny...vadin-dRamatoa
 Pst-DatP.kiss-3 Det spouse-Lnk-Ramatoa
 “Ramatoa_i’s husband, she_j kissed” [i ≠ j]
- b. Norohan-dRamatoa ny...vadiny
 Pst-DatP.kiss-Ramatoa Det spouse-3
 “Her_i husband, Ramatoa_i kissed”

Examples such as (41a) suggest that reconstruction of externalized objects is not only possible, as (40) shows, but obligatory. If we assume that the EA must be interpreted in the c-command domain of the predicate-internal subject, then we can attribute the absence of a coreference reading in (41a) to Condition C: The DP containing *Ramatoa* reconstructs into the c-command domain of the pronoun, causing the pronoun to A-bind *Ramatoa* (cf. the English equivalent **She_i kissed Ramatoa_i’s husband*).

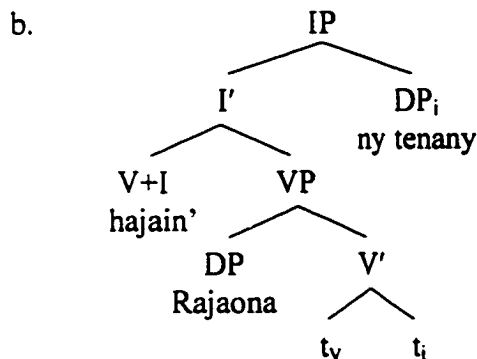
3.2.2. Against an A-movement account of binding phenomena

The evidence in 3.2.1 shows that external arguments are interpreted in their predicate-internal positions for purposes of binding. This is just what we would expect if the EA occupied an A'-position in the C-domain of the clause, as I argued in 3.1, given that A'-moved constituents in other languages obligatorily reconstruct. On the other hand, if we were to analyze externalization as case-driven movement to the specifier of IP, as Guilfoyle, Hung & Travis (1992) argue, we would need to posit language-specific principles of interpretation and/or reconstruction to explain the difference between subjects in Malagasy and subjects in other languages. Not only is the A'-movement analysis more parsimonious than the A-movement analysis, but it is the only analysis which is compatible

with the goals of the Minimalist program, which seeks to eliminate all cross-linguistic parameters other than those based on lexical features (cf. Borer 1984).

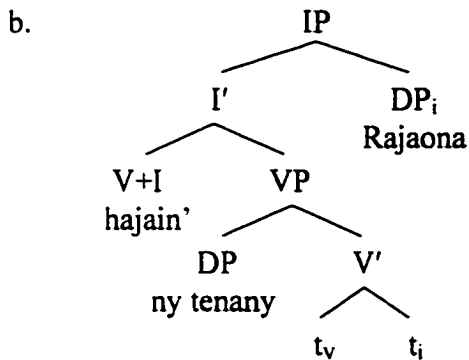
The binding facts discussed above have not gone unnoticed by advocates of the A-movement approach to externalization, who have proposed various theories to explain them. For example, Guilfoyle, Hung, & Travis (1992) argue that binding relations in Malagasy are evaluated with respect to the θ -positions of arguments. That is, the ability of a potential antecedent to bind an anaphor or variable depends on their relative hierarchical positions within the VP domain. This is illustrated in (42)–(43): In (42a), *Rajaona* is able to bind the reflexive *ny tenany*, even though it fails to c-command it in the overt syntax, because it c-commands the base position of the reflexive (the tree which GHT assume for (42a) is given in (42b)).

- (42) a. Hajain-dRajaona ny tenany
 AccP.respect-Rajaona Det self-3
 “Himself_i is respected by Rajaona_i”



By the same token, *Rajaona* fails to bind the reflexive in (43a) even though it c-commands it, because its θ -position is below that of the reflexive (43b):

- (43) a. * Hajain'ny tenany Rajaona
 AccP.respect-Det self-3 Rajaona
 "Rajaona_i is respected by himself_i"



In derivational terms, what this means is that IP subjects in Malagasy obligatorily reconstruct into their VP-internal positions at LF. However, obligatory reconstruction from the specifier of IP is clearly not universal. As is well known for English, a pronominal specifier in the subject of a raising verb may not be bound by a lower QP, even if that QP c-commands the base position of the subject, as shown in (44). If reconstruction from the specifier of IP were allowed in English, (44b) should be grammatical under the intended reading.

- (44) a. Is seems to every mother_i [that her_i child is a genius]
 b. * [Her_i child]_j seems to every mother_i [t_j to be a genius]

Furthermore, as I observed in 3.2.1, movement to SpecIP in English has the ability to create binding configurations which did not exist in the base. This is shown in (45), where the derived subject is capable of binding an anaphor which c-commands its θ -position.

- (45) Bette and Joan_i seem to each other_i [t_i to be manipulative]

If externalization in Malagasy involves movement to a case position such as SpecIP, it is not clear how we could reconcile the English judgments in (44)–(45) with the Malagasy judgments in (42)–(43), unless we assume that binding and/or reconstruction from case-positions is subject to cross-linguistic parameterization. Such a parameter might be formulated as in (46):

- (46) If α is a non-trivial A-chain $\langle \alpha_n, \dots, \alpha_1 \rangle$, where α_1 is in a θ -position and α_n is in a θ' -position (case-position):
- i. *Malagasy*: Interpret α_1 for purposes of Binding Principles A and B
 - ii. *English*: Interpret α_n for purposes of Binding Principles A and B

In traditional Government-Binding terms, this amounts to saying that binding relations are calculated at D-structure in Malagasy and at LF in English. Such a parameter would be difficult to reformulate under the Minimalist framework, however, which seeks to eliminate principles that appeal to distinct derivational levels such as D-structure and LF (see Chomsky 1995, chapter 3 for discussion), as well as cross-linguistic parameters on interpretation (other than those based on lexical differences).

The facts presented here thus cast doubt on any account of Malagasy which treats externalization as movement from a θ -position to a case position. On the other hand, if we assume that externalization involves movement from a case position to an A'-position, then the need to stipulate language-specific binding principles disappears. The reconstruction of non-agent EAs into the domain of the agent phrase follows from the same

principles which require non-subject wh-phrases to reconstruct into the domain of the subject (as in *Which of his_i pictures does each artist_i like the best?*).²⁰

One potential problem for the A'-movement analysis of externalization involves the absence of weak crossover effects when a quantified expression is externalized. I discuss weak crossover in the next section.

3.2.3. The absence of weak crossover

Although externalization exhibits most of the reconstruction properties associated with A'-movement, it behaves differently from standard cases of A'-movement (wh-movement, focus movement) when it comes to *weak crossover*. Lasnik & Stowell (1991) characterize weak crossover in terms of the descriptive generalization in (47):

- (47) In a configuration where a category C A'-binds a pronoun P and a trace T, P may not be contained in an argument phrase XP that c-commands T.

In other words, when a constituent undergoes A'-movement, leaving a trace, it may not bind a pronoun contained within an argument which c-commands that trace. For example, consider the wh-movement examples in (48)–(49) below: In (48) a bound variable construal of the pronoun *her* is unavailable, in spite of the fact that the head of the wh-movement chain c-commands the pronoun, because the constituent containing the pronoun c-commands the wh-trace. In order for a bound construal to be licit, the pronoun

²⁰ Of course, I have said nothing here about the larger question of *why* A-movement and A'-movement behave differently with regard to reconstruction. The advantage of adopting an A'-movement approach of externalization is that, whatever analysis of reconstruction effects we adopt, this analysis will generalize to both English-type languages and Malagasy-type languages.

must be c-commanded by the tail of the wh-movement chain (viz., the highest A-position of the wh-phrase), as in (49):

- (48) a. ?* Who_i did her_i mother say [t_i had grown an inch this month] ?
 b. ?* Which girl_i did you say [her_i mother loves t_i] ?

- (49) Which girl_i did you say [t_i loves her_i mother] ?

If we assume that the wh-phrase obligatorily reconstructs into its trace position, then the ungrammaticality of (48) follows from the c-command condition on pronoun binding (what Sportiche 1999 refers to as *Condition D* of the binding theory):

- (50) A pronoun may be interpreted as a variable bound by a quantifier phrase QP iff (the case position of) the QP c-commands (the case position of) the pronoun.

As my statement of Condition D makes clear, weak crossover configurations are only created by A'-movement. Compare the examples in (48)–(49) with those in (51), involving DP-raising: Even though *every girl* does not c-command the pronoun *her* from its base position, it is sufficient that it c-command the pronoun from its surface position in order to license a bound variable reading of the pronoun. This follows if we assume that *every girl* must not—or at least, need not—reconstruct into its trace position.

- (51) a. * It seemed to her_i mother [that every girl_i had grown an inch this month]
 b. Every girl_i seemed to her_i mother [t_i to have grown an inch this month]

Applying the weak crossover test to Malagasy, we find that externalization patterns with the DP-movement examples in (51) rather than the wh-movement example in (48)—an unexpected result, given the evidence in 3.2.1 to suggest that externalization involves A'-

movement. Consider first the sentences in (52)–(53) below, in which a universally quantified agent (*ny mpianatra tsirairay* “each student”, *ny vehivavy rehetra* “all the women”) binds into a patient (*ny rainy* “his father”, *ny vadiny* “her spouse”):²¹ The NomP sentences in (52a) and (53a) demonstrate that the agent may bind into the patient from the EA position, as one might expect. (52b) and (53b) show that this binding relation is preserved when the direct object is externalized over the subject, suggesting that the direct object EA may reconstruct into its base position below the subject, as discussed above for (40):

- (52) a. Namangy ny rainy; ny.....mpianatra tsirairay; omaly
 Pst-NomP.visit Det father-3 Det student each yesterday
 “Each student_i visited his_i father yesterday”
- b. Novangian’ny mpianatra tsirairay; ny.....rainy; omaly
 Pst-DatP.visit-Det student each Det father-3 yesterday
 “His_i father, each student_i visited yesterday”
- (53) a. Nanoroka ny vadiny; ny vehivavy rehetra;
 Pst-NomP.kiss Det spouse-3 Det woman all
 “All the women_i kissed their_i spouse(s)”

²¹ For the sake of completeness, I present examples containing both of the universal quantifiers in Malagasy, *tsirairay* “each” and *rehetra* “all” (the examples with *rehetra* are taken from Travis 1997). In general, these two quantifiers work in the same way, although the strict bound variable reading is perhaps less salient with *rehetra* than with *tsirairay*, due to the fact that *tsirairay* is strictly distributive while *rehetra* favors a collective interpretation: Compare the sentences in (i), which show that subjects with *rehetra* are semantically compatible with inherently collective predicates (e.g., compound verbs formed with *miaraka* “be/go together”), while subjects with *tsirairay* are not:

- (i) a. Miara-milalao ny zaza rehetra
 NomP.be.together-NomP.play Det child all
 “All the children play together”
- b. # Miara-milalao ny zaza tsirairay
 NomP.be.together-NomP.play Det child each
 “Each child plays together”

- b. Norohan'ny vehivavy rehetra; ny...vadiny_i
 Pst-DatP.kiss-Det woman all Det spouse-3
 "Their_i spouse(s), all the women_i kissed"

Now consider (54)–(55), in which the pronoun is contained in the agent and the patient is a QP. The sentences in (54a) and (55a), in which the subject functions as the EA, are ungrammatical under the bound reading of the pronoun. This is what we expect on the basis of (51), since the QP c-commands neither the EA nor the gap in the agent phrase position with which it is coindexed. However, in (54b) and (55b) we see that the bound pronoun reading suddenly becomes available when the QP is promoted to the EA position. Thus externalization seems to induce an 'anti-weak crossover' effect by eliminating a potential Condition D violation:^{22,23}

- (54) a. * Namangy ny mpianatra tsirairay; ny...rainy_i omaly
 Pst-NomP.visit Det student each Det father-3 yesterday
 "His_i father visited each student_i yesterday"

²² There is some disagreement among speakers on the availability of a bound pronoun interpretation for (54b). Although the majority of speakers who have been consulted have no problem accepting the bound reading, there is one speaker who consistently rejects this reading. I have no explanation for this difference, other than to note that scope and binding judgments in Malagasy—as in many languages—tend to be quite subtle. The judgments given here represent what I consider to be the consensus opinion.

²³ Richards (2000) reports essentially the same contrast in Tagalog: Binding of a pronoun in the subject by a quantified direct object is improved if the direct object functions as the EA/pivot of the clause (recall that the EA/pivot in Tagalog does not occupy a fixed position in the clause, but is instead identified by the determiner *ang*):

- (i) a. * Nagmamahal ang kanyang_i ama ng bawat anak;
 NomP.love Det his-Lnk father Det every child
 "His_i father loves every child_i,"
 b. ? Minamahal ng kanyang_i ama ang bawat anak_i
 AccP.love Det his-Lnk father Det every child
 "Every child_i, his_i father loves"

- b. (?) Novangian'ny rainy_i ny.....mpianatra tsirairay_i omaly
 Pst-DatP.visit-Det father-3 Det student each yesterday
 "Each student_i, his_i father visited yesterday"
- (55) a. * Nanoroka ny vehivavy rehetra_i ny.....vadiny_i
 Pst-NomP.kiss Det woman all Det spouse-3
 "Their_i spouse(s) kissed all the women_i;"
- b. Norohan'ny vadiny_i ny.....vehivavy rehetra_i
 Pst-DatP.kiss-Det spouse-3 Det woman all
 "All the women_i, their_i spouse(s) kissed"

Since the externalization of a patient QP over an agent containing a pronoun fails to trigger a weak crossover effect, we might conclude that externalization really involves A-movement, contra what I argued in 3.2.2. However, such a conclusion would be ill-founded, particularly in light of the reconstruction data discussed in 3.2.1. Although the presence of weak crossover effects is a reliable diagnostic for A'-movement, the absence of such effects cannot by itself be taken as evidence of A-movement.²⁴

It is unclear how to reconcile the absence of weak crossover with the presence of other reconstruction effects. One possible solution would be to assume that quantifier phrases such as *ny mpianatra tsirairay* "each student" do not raise to the specifier of TopP like referential expressions do, but to some other projection from which they may not reconstruct. Interestingly, Hungarian provides evidence for a left-peripheral A'-posi-

²⁴ Initial evidence suggests that weak crossover effects are also absent in wh-questions (i) (see 3.3.2 on the structure of wh-questions). However, a detailed study of binding and wh-movement in Malagasy remains to be done.

(i) Iza no novangian'ny rainy?
 who Foc Pst-DatP.visit-Det father-3
 "Who_i visited his_i father?"

tion associated specifically with (certain kinds of) quantifier phrases. As Kiss (1994) and others have shown, universal QPs typically occupy a position to the left of the predicate phrase, but to the right of topics and sentence adverbials. Consider (56a), for example, in which *minden kérdést* “every question” follows the topic *a tanár* “the teacher” and the temporal adverbial phrase *tegnap az órán* “yesterday in class”, but precedes the perfective particle *meg-*, which marks the left edge of the predicate phrase in this sentence. (Permuting the QP with either the adverbial or the topic, or both, renders the sentence ungrammatical, as shown in (56b-c).)

- (56) a. A tanár tegnap az órán minden kérdést megválaszolt
 Det teacher yesterday Det class-on every question-Acc Perf-answered
 “Yesterday in class the teacher answered every question”
- b. * A tanár minden kérdést tegnap az órán megválaszolt
 c. * Tegnap az órán minden kérdést a tanár megválaszolt

Szabolcsi (1997), adapting Beghelli & Stowell’s (1994, 1997) theory of quantifier scope as feature-driven movement to functional specifiers, identifies the QP position in Hungarian as the specifier of DistP, a projection in which distributive QPs (*each* and *every* phrases) are licensed. This DistP projection is located outside the predicate phrase, but below the topic position:

- (57) [_{TopP} a tanár tegnap az órán [_{DistP} minden kérdést [_{PredP} megválaszolt]]]

Adapting the Hungarian structure to Malagasy, we might argue that externalized QPs do not target the specifier of TopP, but the specifier of DistP (presumably located in between TopP and PivP). If we can determine a principled reason to rule out reconstruction from

SpecDistP, while allowing reconstruction from SpecTopP, then the absence of weak crossover in (54b)/(55b) can be explained straightforwardly. Turning to Hungarian for comparison, note that movement of an object QP to the specifier of DistP over a subject containing a pronoun fails to result in a weak crossover violation (Anna Szabolcsi, p.c.):

- (58) a. Minden fiút meglátogatott az apja
 every boy-Acc Perf-visited Det father-3s
 “Every boy_i, his_i father visited t_i”
- b. Semelyik férfit se akarom, hogy látogassa a felesége
 neither man-Acc Neg want-1s that visit-Subj-3s Det wife-3s
 “Neither man_i, I want his_i wife to visit t_i”

Of course, A'-movement in Hungarian is notoriously immune to weak crossover, as shown by the acceptability of *wh*-questions such as (59) (Kiss 1994). It is thus unclear what significance the Hungarian facts might have for our analysis of Malagasy. Nevertheless, it is worth pursuing the possibility that quantified EAs in Malagasy occupy a different position from that of referential EAs, which may in turn hold the key to explaining their distinct behavior with respect to reconstruction.

- (59) Kit szeret az anyja?
 who-Acc loves Det mother-3s
 “Who_i does his_i mother love t_i?”

An alternative strategy for capturing the absence of weak crossover in (54b)/(55b) is to invoke null operator movement: Suppose that EAs do not raise to the specifier of TopP, but are base-generated there, and receive their θ -roles via coindexation with a null operat-

or in the specifier of PivP. Under this analysis (54b), repeated here as (60a), would have the structure in (60b).²⁵

- (60) a. (?) Novangian'ny rainy_i ny mpianatra tsirairay_i omaly
Pst-DatP.visit-Det father-3 Det student each yesterday
"Each student_i, his_i father visited yesterday"
- b. [TopP each student_i [PivP Op_i [TP his_i father visited t_i]]]

Null operators generally behave like overt wh-phrases in terms of their movement properties (e.g., they obey the same island conditions as wh-phrases; Chomsky 1977). However, as Lasnik & Stowell (1991) have demonstrated, null operators differ from overt wh-phrases in that they fail to trigger weak crossover effects when they raise over a c-commanding argument constituent containing a pronoun. Compare the following examples: In wh-questions such as (61), the wh-phrase fails to bind the pronoun which it has raised over. However, a null operator may bind a pronoun in *tough*-movement constructions, as shown in (62a) (this is true even if the null operator is coindexed with a non-referential QP, as in (62b)):

- (61) * Which boy_i did his_i mother talk to t_i ?
- (62) a. Dennis_i is easy [CP Op_i for his_i mother to talk to t_i]
b. (?) Every boy_i is easy [CP Op_i for his_i mother to talk to t_i]

Weak crossover effects are similarly absent in parasitic gap constructions, which, according to the standard analysis (cf. Contreras 1984, Chomsky 1986), involve an operator-

²⁵ This is essentially the same structure that Rizzi (1997) posits for topicalization in English and Dutch, although he refers to the PivP projection as Fin(iteness)P (cf. (28a-b) above).

variable chain in the adverbial clause coindexed with the A'-chain in the matrix clause (63a). Finally, weak crossover effects are absent in English contrasting fronting constructions, as shown in (63b), which Chomsky (1977) and others have argued to contain a null operator coindexed with a base-generated topic.

- (63) a. (?) Which boy_i did you see t_i before [_{CP} Op_i his_i mother had talked to t_i] ?
 b. Dennis_i, Op_i his_i mother loves t_i more than anyone

Why do null operators differ from overt wh-phrases in this respect? Lasnik & Stowell capture the contrast between (61) and (62)–(63) by arguing that weak crossover effects only arise when the A'-movement involves a 'true' quantifier—that is, an expression which ranges over a set of individuals. Null operators, unlike wh-phrases, are not true quantificational expressions: A null operator does not range over a set; instead, its reference is strictly determined by the antecedent with which it is coindexed. (Lasnik & Stowell suggest that null operators are the covert equivalent of *epithets*—elements which function like R-expressions for purposes of binding, but which are referentially dependent on a discourse antecedent, much like pronouns). Since null operators are non-quantificational, no weak crossover effect results when an argument phrase containing a pronoun c-commands the trace of the operator—even if the antecedent of the operator is a quantificational expression, as in (62b).

While adopting an operator-movement analysis of externalization would help us explain the absence of weak crossover effects, it would also force us to reconsider the data in 3.2.1: Recall that referential EAs are interpreted in their predicate-internal positions for purposes of binding. I described this fact in terms of reconstruction (referential

EAS reconstruct into their predicate-internal positions by LF). However, if the EA is actually base-generated outside the predicate and coindexed with a null operator, then it could not literally reconstruct into the predicate at LF. We would thus have to amend our theory of binding so as to allow a constituent to be interpreted in the trace position of a null operator with which it is coindexed (at least in certain structural contexts). Barss (1984, 1986) proposes just such an amendment to account for connectedness effects in a variety of constructions, such as clefts (64). (On the structure of clefts, cf. Chomsky 1977, 1981, Rochemont 1986, Heggie 1993, et al.)

- (64) a. It was herself_i [Op_i that Joan_i most wanted to blame t_i]
 b. (?) It is always her_i latest movie [Op_i that every actress_i wants to talk about t_i]

Barss argues that if the antecedent of a null operator occupies an A'-position (here understood to include both operator positions and predicate positions), it may form a composed A'-chain with that operator and its trace(s); thus in (64a), *herself* forms a single A'-chain with *Op* and its trace. The fact that *herself* may be bound by *Joan* is explained under Barss's reformulation of binding theory in terms of *binding paths*: Briefly, a DP may bind an anaphor if it is the closest potential c-commanding antecedent of a member of a chain containing the anaphor. *Joan* is the closest c-commanding antecedent of the trace of the operator, and may thus bind *herself*, since *herself* and the trace are part of the same composed A'-chain. (See Barss 1986 for a detailed discussion of binding paths and connectedness effects.)

However we choose to resolve the problems raised in this section, it is important to note that they are not specific to externalization in Malagasy. Other types of topicali-

zation movements show reconstruction effects but fail to trigger weak crossover, including topic-fronting in German, which I showed in 3.1.2 to be very similar to externalization in many respects. Consider (65)–(68) below, where the Malagasy sentences in (52) and (54) are compared with their German equivalents:²⁶ As we see in (65)–(66), binding by a quantified subject of a possessive pronoun within the direct object is preserved when the object is topicalized/externalized over the subject, showing that the object reconstructs into the domain of the subject in both languages:

- (65) a. Namangy ny rainy_i ny.....mpianatra tsirairay_i omaly
 Pst-NomP.visit Det father-3 Det student each yesterday
 “Each student_i visited his_i father yesterday”
- b. Jeder.....Student_i hat gestern seinen_i Vater besucht
 every.Nom student has yesterday his.Acc father visited
 “Every student_i visited his_i father yesterday”
- (66) a. Novangian’ny mpianatra tsirairay_i ny.....rainy_i omaly
 Pst-DatP.visit-Det student each Det father-3 yesterday
 “His_i father, each student_i visited yesterday”
- b. Seinen_i Vater hat jeder Student_i gestern besucht
 his.Acc father has every.Nom student yesterday visited
 “His_i father, every student_i visited yesterday”

In (67)–(68) we see that in German, as in Malagasy, promotion of a quantified object over a subject containing a pronoun produces an ‘anti-weak crossover’ effect: The sentences in (67), in which a subject containing the pronoun is the topic/EA and the quantified object is within the predicate, the bound variable reading of the pronoun is disallowed.

²⁶ Thanks to Hubert Haider, Roland Hinterhölzl, and Jörg Rhiemeier (p.c.) for providing the German judgments in (65)–(68).

However, when the quantified object functions raises over the subject to the topic/EA position, the bound variable reading becomes available (68):²⁷

- (67) a. * *Namangy ny mpianatra tsirairay; ny...rainy; omaly*
 Pst-NomP.visit Det student each Det father-3 yesterday
 “His_i father visited each student_i yesterday”
- b. * *Sein_i...Vater hat gestern jeden Studenten_i besucht*
 his.Nom father has yesterday every.Acc student.Acc visited
 “His_i father visited every student_i yesterday”
- (68) a. (?) *Novangian’ny rainy; ny...mpianatra tsirairay; omaly*
 Pst-DatP.visit-Det father-3 Det student each yesterday
 “Each student_i, his_i father visited yesterday”
- b. *Jeden...Studenten_i hat gestern sein_i Vater besucht*
 every.Acc student.Acc has yesterday his.Nom father visited
 “Every student_i, his_i father visited yesterday”

This ‘anti-weak crossover’ effect is also attested in other Germanic languages, such as Icelandic. According to Richards (2000), in a sentence with a quantified object and a subject containing a pronoun, the bound reading of the pronoun is improved if the object raises over the subject to the preverbal topic position:²⁸

²⁷ On the absence of weak crossover effects with German topicalization, see Haider (1988), Frey (1990).

²⁸ Interestingly, as Lee & Santorini (1994) observe, and as my own consultations with native speakers confirm, topicalization in Dutch *does* exhibit weak crossover effects. This is shown by examples such as (i), which is ungrammatical under the intended reading (the absence of overt case-marking on non-pronominal DPs in Dutch makes the sentence potentially ambiguous). This inconsistency shows that topicalization in the Germanic languages is not a unified phenomenon. I leave the task of sorting out the interaction between topicalization and reconstruction in Germanic for future research.

(i) *Iedere student heeft gisteren zijn vader bezocht*
 every student has yesterday his father visited
 ok “Every student_i visited his_i father yesterday” (*iedere student* = subject)
 * “Every student_i, his_i father visited (him) yesterday” (*iedere student* = topicalized object)

- (69) a. * Foreldrar hans_i kenna sérhverjum stráki_i að keyra
 parents his teach every(Acc) boy(Acc) Comp drive.Inf
 “His_i parents teach every boy_i how to drive”
- b. ? Sérhverjum stráki_i kenna foreldrar hans_i að keyra
 every(Acc) boy(Acc) teach parents his Comp drive.Inf
 “Every boy_i, his_i parents teach how to drive”

The point of the preceding discussion is that, while the absence of weak crossover effects is a characteristic property of A-movement, there are also certain types of A'-movement (null operator movement in *tough*-constructions and parasitic gap constructions, wh-movement in Hungarian, topicalization in German and Icelandic, etc.) which fail to exhibit weak crossover effects. As a consequence, although some explanation must be offered for the absence of weak crossover in these cases, the mere fact that it is absent cannot be taken as counterevidence to the claim in 3.1 that external arguments in Malagasy occupy an A'-position.

For the sake of simplicity, I will continue to assume that the EA is base-generated inside the predicate phrase and raises to the specifier of TopP, as argued in 3.1, setting aside the absence of weak crossover effects as an unresolved problem. However, the refinements to this story which I propose in the remainder of chapter 3, and in chapter 4, are equally compatible with the alternative approaches discussed in this section.

3.3. Externalization out of embedded clauses

In addition to the binding facts discussed in 3.2, a second major piece of evidence for treating the external argument as an A'-element involves externalization out of embedded clauses. As I will show below, promoting an argument of an embedded clause to the

matrix EA position imposes restrictions on the voice of both the embedded verb and the matrix verb: Specifically, the embedded verb agrees in voice with the extracted argument, while the matrix verb agrees in voice with the embedded clause out of which extraction takes place (cf. the discussion in 3.1.2). We may express this pattern by means of the following informal generalization:

- (70) An argument may be extracted from an embedded clause if and only if that clause has been made the pivot of the next higher verb.

Under an A-movement theory of externalization, in which the EA/pivot is analyzed as a subject occupying a nominative case position, (70) entails that subextraction from a clause is possible only if that clause is a subject. Given that subject clauses are strong islands for extraction in other languages, it is highly unexpected that Malagasy should have such a restriction. On the other hand, if we treat the externalization as a type of A'-movement, then the voicing restriction in (70) can be satisfactorily explained in terms of *clausal pied-piping*, of the type found in long-distance wh-movement and partial wh-movement constructions in a variety of languages, as I show below.

In 3.3.1, I present the relevant data on long-distance extraction, deriving a more refined version of the generalization in (70). Then in 3.3.2, I discuss how (70) bears on the choice between the A-movement and A'-movement analyses of externalization, and develop an analysis of long-distance externalization which appeals to clausal pied-piping.

3.3.1. Long-distance externalization and voicing restrictions

Consider sentences such as (71a-b), in which the verb *hever* “think” selects an experiencer DP subject *Rakoto* (marked with abstract nominative case) and a CP complement headed by *fa* “that”.²⁹

- (71) a. Mihevitra Rakoto [fa namangy ny dadany ny...mpianatra]
 NomP.think Rakoto that Pst-NomP.visit Det father-3 Det student
 “Rakoto thinks that the student visited his father”
- b. Mihevitra Rakoto [fa novangian’ny mpianatra ny...dadany]
 NomP.think Rakoto that Pst-DatP.visit-Det student Det father-3
 “Rakoto thinks that the student visited his father”

In (71), the subject functions as the EA, as indicated by the NomP morphology on the matrix verb, while the CP complement is extraposed. Notice that the CP contains an EA position of its own, which is filled by either the subject (71a) or the object (71b) of the embedded verb, depending on the voice morphology.

As shown in (72), it is also possible for the CP to function as the EA, in which case the verb will appear in the AccP form. This is presumably because the CP is assigned abstract accusative case by the verb, and hence promotion of the CP to the SpecPivP position (and thence to SpecTopP) triggers the insertion of AccP morphology in the specifier of AspP.³⁰

²⁹ Throughout this section I use *CP* as a cover term for clausal constituents headed by a C-related category (Sub or Top). Since the bracketed constituents in (74) are introduced by an overt complementizer, they are of category SubP. Below I stipulate that clauses which lack an overt complementizer are TopPs.

³⁰ Another possibility is that the verb assigns accusative case to a null expletive which is coindexed with the CP, and that it is the expletive which raises to the EA position in (72) (the CP being extraposed). In the interest of simplicity, I will disregard this possibility here.

- (72) a. Heverin-dRakoto [fa namangy ny dadany ny mpianatra]
 AccP.think-Rakoto that Pst-NomP.visit Det father-3 Det student
 “Rakoto thinks that the student visited his father”
- b. Heverin-dRakoto [fa novangian’ny mpianatra ny dadany]
 AccP.think-Rakoto that Pst-DatP.visit-Det student Det father-3
 “Rakoto thinks that the student visited his father”

In addition to the externalization patterns in (71) and (72), there is a third possibility, which is that one of the arguments of the embedded verb will raise to become the matrix EA, as in (73). (73a) shows externalization of the embedded subject *ny mpianatra* “the student”, while in (73b) the embedded object *ny dadany* “his father” is externalized.³¹

- (73) a. Heverin-dRakoto [namangy ny dadany] ny mpianatra
 AccP.think-Rakoto Pst-NomP.visit Det father-3 Det student
 “The student, Rakoto thinks (he) visited his father”
- b. Heverin-dRakoto [novangian’ny mpianatra] ny dadany
 AccP.think-Rakoto Pst-DatP.visit-Det student Det father-3
 “His father, Rakoto thinks that the student visited”

The difference in constituency between (72), where the entire CP is outside the matrix predicate phrase, and (73), where only the extracted DP is outside the predicate phrase, is shown by the placement of the yes/no particle *ve* in these examples (74)–(75) (the rather

³¹ Notice that in these examples, the complementizer *fa* is absent, and the embedded clause is not extraposed, but occurs inside the predicate phrase, to the left of the EA. Curiously, this restriction does not hold when an embedded argument is questioned or clefted, as shown in (i). I have nothing useful to say about this difference, and so I set the matter aside.

- (i) Iza no heverin-dRakoto fa namangy ny dadany?
 who Foc AccP.think-Rakoto that Pst-NomP.visit Det father-3
 “Who does Rakoto think that visited his father?”

artificial glosses in (74)–(75) are intended to bring out the structural difference between (72) and (73)):

- (74) a. Heverin-dRakoto ve fa namangy ny dadany ny mpianatra?
 AccP.think-Rakoto Qu that Pst-NomP.visit Det father-3 Det student
 “That the student visited his father, does Rakoto think (that)?”
- b. Heverin-dRakoto namangy ny dadany ve ny mpianatra?
 AccP.think-Rakoto Pst-NomP.visit Det father-3 Qu Det student
 “The student, does Rakoto think (he) visited his father?”
- (75) a. Heverin-dRakoto ve fa novangian’ny mpianatra ny dadany?
 AccP.think-Rakoto Qu that Pst-DatP.visit-Det student Det father-3
 “That the student visited his father, does Rakoto think (that)?”
- b. Heverin-dRakoto novangian’ny mpianatra ve ny dadany?
 AccP.think-Rakoto Pst-DatP.visit-Det student Qu Det father-3
 “His father, does Rakoto think that the student visited (him)?”

Notice the pattern of voice marking in (73a) and (73b). In both cases, the matrix verb occurs in the AccP form (I return to the reasons for this below), while the voice of the embedded verb varies with the abstract case of the extracted argument: In (73a) the embedded subject is extracted, and the embedded verb appears in the NomP voice, while in (73b) the embedded object is extracted, and the embedded verb appears in the DatP voice. This pattern of voice marking is not restricted to externalization out of embedded clauses, but is also encountered with other cases of extraction, as in *wh*-questions (76). (Cf. 2.2.1.3. I return to the structure of *wh*-questions in 3.4.2, where I follow Paul (1999) in analyzing them as pseudoclefts containing a null operator):

- (76) a. Iza [Op_i no heverin-dRakoto (fa) namangy t_i ny dadany]
 who Foc AccP.think-Rakoto that Pst-NomP.visit Det father-3
 “Who does Rakoto think visited his father?”

- b. Iza [Op_i no heverin-dRakoto (fa) novangian'ny mpianatra t_i]
 who Foc AccP.think-Rakoto that Pst-DatP.visit-Det student
 "Who does Rakoto think the student visited?"

In addition to extracting DPs from regular complement clauses, it is also possible to extract a DP from a control complement containing a null subject (presumably PRO). Examples are given in (77b), where the direct object of the embedded verb has raised to become the matrix EA, and (77c), where the matrix EA is interpreted as an instrumental adjunct to the embedded verb. As with (73), the matrix verb shows up in the AccP form, while the voice of the embedded verb varies depending on the case of the extracted DP, DatP in (77b) and CrcP in (77c):

- (77) a. Mikasa [hanasa ny zaza amin'ny savony] Rasoa
 NomP.intend Irr-NomP.wash Det child with-Det soap Rasoa
 "Rasoa intends [PRO to wash the child with the soap]"
- b. Kasain-dRasoa [hosasana amin'ny savony] ny...zaza
 AccP.intend-Rasoa Irr-DatP.wash with-Det soap Det child
 "The child, Rasoa intends [PRO to wash (her) with the soap]"
- c. Kasain-dRasoa [hanasana ny zaza] ny...savony
 AccP.intend-Rasoa Irr-CrcP.wash Det child Det soap
 "The soap, Rasoa intends [PRO to wash the child (with it)]"

As expected, these voice marking patterns are replicated in wh-questions:

- (78) a. Iza [Op_i no kasain-dRasoa hosasana t_i amin'ny savony]
 who Foc AccP.intend-Rasoa Irr-DatP.wash with-Det soap
 "Who does Rasoa intend to wash with the soap?"
- b. Inona [Op_i no kasain-dRasoa hanasana ny zaza t_i]
 what Foc AccP.intend-Rasoa Irr-CrcP.wash Det child
 "What does Rasoa intend to wash the child with?"

On the basis of the examples considered so far, we can posit the following generalization concerning voice in embedded clauses from which extraction has taken place:

- (79) In order for a DP (or null operator) to extract from an embedded clause, it must first become the pivot of the embedded verb.

In terms of the theory presented in 3.1, this means that, before moving into a higher clause, the DP must first raise from its case position to the SpecPivP position of its own clause, triggering insertion of the correct voice morphology on the verb. (It may then raise on to the SpecTopP position of its clause; see 3.3.2 for a full analysis.) SpecPivP thus acts as an escape hatch for extraction of EAs and null operators from the clause.

What is the source of the AccP marking on the matrix verb in these examples? Recall that the matrix verb also appears in the AccP form when the embedded clause as a whole is externalized, as shown in (72). I suggested that this was because the verb assigns abstract accusative case to the embedded clause. Thus, we can add the following generalization to the one in (79):

- (80) In order for a DP (or null operator) to extract from an embedded clause, the embedded clause must become the pivot of the matrix verb.

As evidence for (80), consider a slightly more complicated set of examples, involving externalization of an argument embedded in an object-control clause: In the (a) sentences below, the matrix subject functions as the EA, while in the (b) sentences the EA is the matrix direct object, and in the (c) sentences it is the direct object of the embedded verb:

- (81) a. Maniraka an'ilay vehivavy [mividy mofo] Rasoa
 NomP.send Obj-that woman NomP.buy bread Rasoa
 "Rasoa is sending that woman [PRO to buy bread]"

- b. Irahin-dRaso [mividy mofo] ilay...vehivavy
 AccP.send-Raso NomP.buy bread that woman
 “That woman, Raso is sending (her) [PRO to buy bread]”
- c. Anirahan-dRaso an’ilay vehivavy [vidina] ny...mofo
 CrcP.send-Raso Obj-that woman AccP.buy Det bread
 “The bread, Raso is sending that woman [PRO to buy (it)]”
- (82) a. Manosika anay [hividy mofo] ianareo
 NomP.push 1ex Irr-NomP.buy bread 2p
 “You are urging us [PRO to buy bread]”
- b. Atosikareo [hividy mofo] izahay
 TrnP.push-2p Irr-NomP.buy bread 1ex
 “Us, you are urging [PRO to buy bread]”
- c. Anosehanareo anay [hovidina] ny...mofo
 CrcP.push-2p 1ex Irr-AccP.buy Det bread
 “The bread, you are urging us [PRO to buy]”

First, consider the voice of the embedded verb: In the (a) and (b) sentences, where no extraction has taken place, the embedded verb is in the NomP form; while in the (c) sentences, the direct object is extracted, and the embedded verb is in the AccP form. This is what we would expect on the basis of (79), which states that an extracted DP necessarily functions as the pivot of the clause it extracts from. Next, consider the voice of the matrix verb: In the (a) sentences, where the matrix subject is externalized, the verb is in the NomP form, as we would predict. Similarly, in the (b) sentences, where the matrix object is externalized, the verb is in one of the object-pivot forms (AccP in the case of *irak* “send” and the TrnP in the case of *tosek* “push/urge”). However, notice that in the (c) sentences, where the embedded object is extracted, the verb appears in the CrcP form.

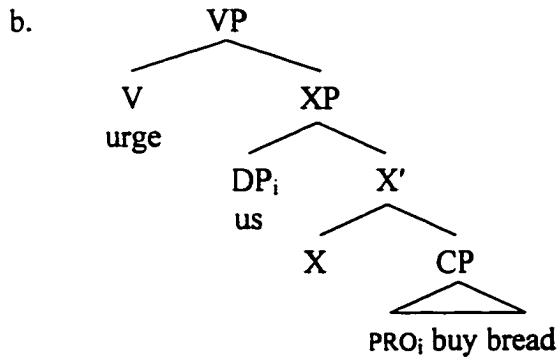
Recall from section 2.4.4 that the CrcP form is used when the EA is not a ‘core’ internal argument of the verb, but an underlying oblique element (e.g., an instrument, location, or benefactee) which has been promoted to the abstract accusative case position by means of applicative morphology. Why, then, should the extraction of a direct object from an object-control clause trigger CrcP marking on the matrix verb in (81c) and (82c)?

In the case of subject control constructions like (83a) below, the matrix verb *kasa* “intend” selects the embedded CP as the complement (‘direct object’), and thus may be expected to assign it abstract accusative case, as I have suggested. In accordance with (80), then, the embedded clause will trigger AccP morphology on *kasa* when one of the embedded arguments is extracted, as shown in (83b).

- (83) a. Mikasa [hanasa ny zaza amin’ny savony] Rasoa
 NomP.intend Irr-NomP.wash Det child with-Det soap Rasoa
 “Rasoa intends [PRO to wash the child with the soap]”
- b. Kasain-dRasoa [hosasana amin’ny savony] ny...zaza
 AccP.intend-Rasoa Irr-DatP.wash with-Det soap Det child
 “The child, Rasoa intends [PRO to wash (her) with the soap]”

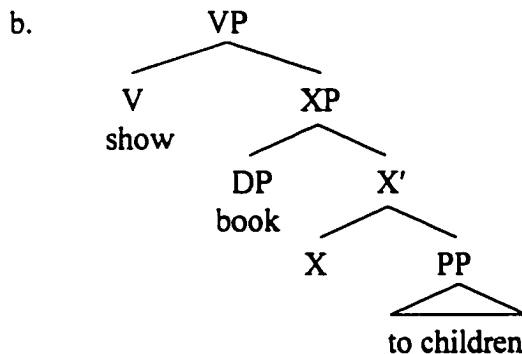
However, in the object-control construction in (84a), there is arguably no direct selectional relation between the matrix verb and the embedded clause: Traditionally, object-control verbs like *tosek* “urge” were analyzed as subcategorizing for two complements, a nominal direct object and a CP. However, this analysis is no longer available under the Minimalist framework, which assumes strict binary branching (cf. Kayne 1984). Mulder (1992) argues that in object control predicates the embedded CP is the complement of a small clause head X^0 , which takes the controlling object as its specifier, as in (84b).

- (84) a. Manosika anay hivity mofo ianareo
 NomP.urge lex Irr-NomP.buy bread 2p
 “You are urging us to buy bread”



(84b) is essentially identical to the structure which Mulder posits for ditransitive predicates, as shown in (85), with the object control clause occupying the same structural position as the goal PP.

- (85) a. Manaseho ny boky amin'ny ankizy ny vehivavy
 NomP.show Det book to-Det children Det woman
 “The woman is showing the book to the children”

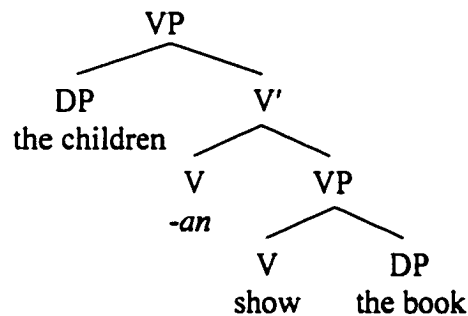


Interestingly, the promotion of a goal PP to the ea position triggers CrcP morphology on the verb, as discussed in 2.2.1.2. Compare the example in (86) with (85a):

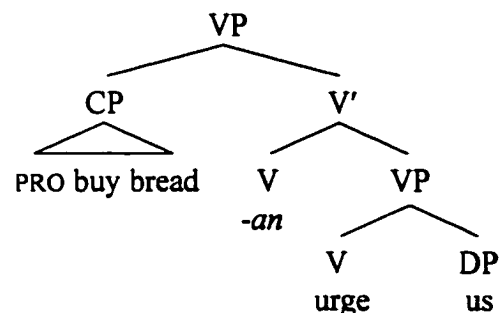
- (86) Anasehoan'ny vehivavy ny boky ny...ankizy
 CrcP.show-Det woman Det book Det children
 "The children, the woman is showing the book (to them)"

In 2.4.4, I argued that the CrcP suffix *-an* is an applicative morpheme, which projects a VP shell structure. This VP contains a DP in its specifier (the *applied object*), which denotes a recipient, instrument, benefactee, etc. of the event denoted by the lower VP shell (cf. Marantz 1993, Ngonyani 1996). Thus, in (86), the EA *ny ankizy* "the children" is mapped to the applied object position, from which it is able to raise into the C-domain, as shown in (87a). Suppose we accept Mulder's (1992) structural analogy between ditransitive constructions and object-control constructions. It follows that object-control clauses, like recipients, should be able to map to the applied object position (87b), from which they can raise out to become the pivot of a higher verb.

(87) a.



b.



Thus, on analogy with ditransitive constructions, we can conclude that the CrcP morphology on the matrix verb “push, urge” in (82c), repeated below as (88), is triggered by the object-control clause. This clause is generated in the applied object position, and then raises to become the pivot of the matrix verb in order to be transparent for extraction of *ny mofo* “the bread” (as required by the condition in (80)), triggering the insertion of the CrcP suffix *-an* on the matrix verb.

- (88) Anosehanareo anay hovidina ny...mofo
 CrcP.urge-2p 1ex Irr-AccP.buy Det bread
 “The bread, you are urging us to buy”

As evidence that this conclusion is on the right track, consider the examples in (89): Paul & Ranaivoson (1998) observe that it is possible to nominalize object control clauses by adding the determiner *ny*, as in (89a). Like any other DP headed by an overt determiner, this nominalized clause may function as the EA of the clause containing it. Crucially, externalization of the clause triggers CrcP marking on the verb (89b):

- (89) a. Manosika anay *ny hiditra* ianareo
 NomP.push 1ex Det Irr-NomP.enter 2p
 “You are urging us to go in”
- b. Anosehanareo anay *ny...hiditra*
 CrcP.push-2p 1ex Det Irr-NomP.enter
 “Going in, you urge us (to do it)”

Summarizing this section, we saw that the when a DP or null operator raises out of an embedded clause, certain constraints are imposed on the voice of the matrix and embedded verbs. I will refer to these constraints collectively as the *pivot restriction on extraction*, or PRE:

(90) *Pivot restriction on extraction*

Given a configuration in which a clause γ contains an embedded clause β , which in turn contains a subconstituent α (α = DP or null operator):

$[_{\gamma} V \dots [_{\beta} V \dots \alpha \dots] \dots]$

If α extracts from β , conditions (i) and (ii) must be met:

- i. The abstract case of α determines the voice of the verb in β .
- ii. The abstract case of β determines the voice of the verb in γ .

In section 3.3.2, I consider the consequences of the PRE with regard to the choice between the A-movement and A'-movement analyses of externalization.

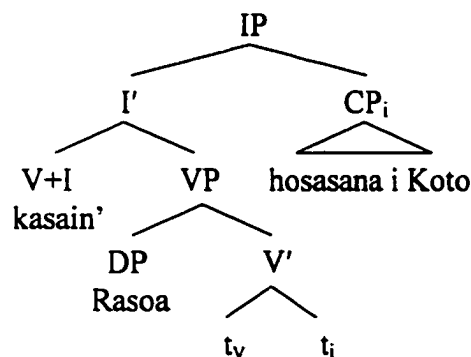
3.3.2. Long-distance externalization as clausal pied-piping

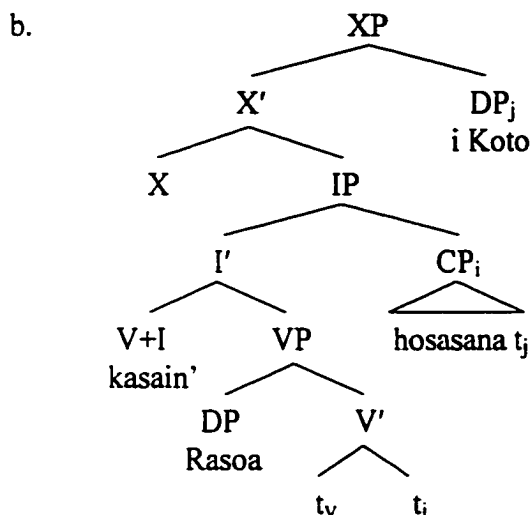
In the previous section we saw that when a DP is extracted from an embedded clause, the abstract case of that clause is identified by the appropriate voice morphology on the higher verb: If the embedded clause receives abstract accusative case from the higher verb, then the higher verb will take AccP morphology (91a). On the other hand, if the embedded clause functions as an oblique dependent of the higher verb (comparable to the goal PP in a ditransitive predicate), as I argued in the case of object-control complements, then the higher verb will take CrcP morphology (91b):

- (91) a. Kasain-dRasoa hosasana i.....Koto
 AccP.intend-Rasoa Irr-DatP.wash Det Koto
 “Koto, Rasoa intends to wash”
- b. Anirahan-dRasoa anay vidina ilay...boky
 CrcP.send-Rasoa lex AccP.buy that book
 “‘That book, Rasoa is sending us to buy”

Guilfoyle, Hung & Travis (1992) and other researchers treat the voice morphemes as case assigners, which license all but one of the verb's dependents within VP, forcing the remaining dependent to raise to the specifier of IP in order to receive structural nominative case—hence, externalization is essentially the same operation as raising-to-subject in passive/unaccusative clauses in English. If this analysis is correct, then the fact that the matrix verbs in (91a-b) carry AccP and CrcP morphology, respectively, must mean that the embedded clause has been promoted to the subject position of the matrix clause. A sentence like (91a) would have the derivation in (92a-b) below (adapting GHT's tree structure; see 3.1.1): The DP *i Koto* first raises to become the subject of the embedded clause, triggering DatP marking on the embedded verb. Next, the embedded clause raises to become the subject of the matrix clause (92a), triggering AccP morphology on the matrix verb. Finally, *i Koto* extracts from the embedded clause and raises to the specifier of some higher category XP (92b):

(92) a.





Since the voice of the matrix verb is always strictly determined by the structural role of the embedded clause, we would have to assume under this theory that movement of the embedded clause to SpecIP is a necessary precondition for extraction. Thus, we are led to posit the restriction in (93) as an explanation for the PRE:

- (93) Sentential complements in Malagasy are islands for extraction, while sentential subjects are not. Thus, a CP must raise into the specifier of the closest dominating IP before any of its subconstituents can raise out.

Given what we know about extraction domains and island constraints in other languages, (93) seems suspicious. Sentential subjects (and complex subjects generally) almost always behave as strong islands for extraction, especially when compared with sentential complements, which are generally transparent, as shown in (94) (Ross 1967, Huang 1982, Chomsky 1986, and many others). This contrast is central to Huang's *Condition on Extraction Domains* ((94b) is bad because the subject clause is not properly governed), as well as Chomsky's *barriers* account of locality and island effects ((94b) is bad because

the subject clause is not L-marked, and thus counts as a barrier for government of the trace by the wh-phrase).

- (94) a. Who_i is it obvious [that Daniel loves t_i]?
b. * Who_i is [that Daniel loves t_i] obvious?

On the other hand, if we assume that externalization involves movement to an A'-position rather than a subject position, then the PRE takes on a very different character: In order for a DP in an embedded clause to raise to the matrix EA position, it must first undergo A'-movement to the pivot position of its own clause, after which the embedded clause undergoes A'-movement to the matrix pivot position. This brings to mind the phenomenon of *clausal pied-piping* in wh-questions, discussed below. Taking this observation as a starting point, I will argue for an analysis of the PRE in terms of A'-pied-piping: The predicate-external DP in (91a-b) starts out by raising from its case position through SpecPivP to the SpecTopP of the lower clause, triggering the appropriate voice marking on the embedded verb. It then pied-pipes the embedded clause, which raises from its case position to the SpecPivP of the higher clause, triggering voice marking on the matrix verb. Finally, the DP extracts from the embedded clause and undergoes short A'-movement to SpecTopP.

Clausal pied-piping in wh-questions is attested in a variety of languages, including Basque, Imbabura Quechua, and (with non-finite clauses only) German (Ortiz de Urbina 1989, 1993; Cole 1982; van Riemsdijk 1985, Fanselow & Mahajan 1996). Take Basque, for example: In this language, an embedded wh-phrase may establish matrix scope in one of two ways: (a) by raising into the matrix SpecCP, using the embedded

SpecCP as an escape hatch (as in successive-cyclic movement in English), *or* (b) by raising into the embedded SpecCP and then pied-piping the clause as a whole into the matrix SpecCP. In sentences with multiple embedding, this type of pied-piping may apply cyclically.

As an example of this construction, consider the sample derivation in (95) below, from Ortiz de Urbina (1993), in which the *wh*-phrase *nor* “who” is embedded in the lowest clause: Starting with the structure in (95a), the *wh*-phrase first undergoes (vacuous) movement to the SpecCP of its own clause. There, according to Ortiz de Urbina, it discharges its [wh] feature onto the CP as a whole, transforming the latter into a *wh*-operator. That CP then raises into the specifier of the next higher CP, producing the intermediate structure in (95b). (Note that Basque has verb-second order in *wh*/focus-fronting constructions, possibly the result of T-to-C movement; hence the verb-auxiliary cluster *uste duela* “thinks” inverts with the subject of the intermediate clause, *Jonek* “John”.) At this point, the [wh] feature is discharged onto the intermediate CP, which then raises into the matrix SpecCP to check the [wh] feature on C⁰ (again triggering inversion of the verb-auxiliary cluster with the subject). This yields the surface structure in (95c):

- (95) a. Mirenek esan du [Jonek uste du-ela [nor etorri d-ela]] ?
 Mary-Erg said Aux John-Erg think Aux-that who come Aux-that
 lit. “Mary said that John thinks that who has come?”
- b. Mirenek esan du [[nor etorri d-ela] uste du-ela Jonek] ?
 Mary-Erg said Aux who come Aux-that think Aux-that John-Erg
 lit. “Mary said who has come does John think?”

- c. [[Nor etorri d-ela] uste du-ela Jonek] esan du Mirenek?
 who come Aux-that think Aux-that John-Erg said Aux Mary-Erg
 lit. “[CP [CP [CP Who has come] does John think] did Mary say]?”
 (i.e., “Who did Mary say that John thinks has come?”)

Clausal pied-piping in the covert syntax is also attested in *partial wh-movement* constructions in German, Hindi and Hungarian, according to the analyses proposed by Mahajan (1990, 1996), Fanselow & Mahajan (1996), and Horvath (1997) (cf. also Dayal 1994 on Hindi). In such constructions, a wh-phrase within an embedded clause is construed as taking matrix scope. The matrix clause contains a semantically empty wh-expletive, glossed “Wh” in (96):

- (96) a. Was glaubst Du [wen sie gesehen hat] ?
 Wh believe you who she seen has
 “Who do you think she saw?”
- b. Siita-ne kyaa socaa [ki Ravii-ne kis-ko dekhaa] ?
 Sita-Erg Wh thought that Ravi-Erg who-Dat saw
 “Who did Sita think that Ravi saw?”
- c. Mit gondolsz [hogy kit látott János] ?
 Wh-Acc think-2s that who-Acc saw-3s Janos-Nom
 “Who do you think that Janos saw?”

According to the traditional analysis of partial wh-movement (based primarily on German), the wh-expletive is base-generated in the matrix SpecCP position, where it checks the [wh] feature on C^0 . At LF, the expletive is replaced by the embedded wh-phrase, ensuring that the latter is interpreted with matrix scope. However, Fanselow & Mahajan and Horvath argue convincingly that the wh-expletive is actually base-generated in a case-position, and takes the embedded clause as a whole, rather than the wh-phrase, as its

associate.³² Under this theory, *was* in (96a) constitutes the [wh] equivalent of the expletive *es* in (97):

- (97) Ich konnte *es*_i nicht glauben, [dass Maria ihn liebt]_i
 I could it not believe-Inf that Maria him loves
 “I couldn’t believe that Maria loves him”

Deriving a matrix interpretation for the embedded wh-phrases in (96) involves a two-step process: Starting from the base structure in (98a), the wh-expletive and the embedded wh-phrase each raise to the SpecCP position of their respective clauses (98b) (this step happens overtly in German and Hungarian, and covertly in Hindi). The embedded clause then raises to replace the expletive, producing the LF structure in (98c). Notice that (98c) closely parallels the surface structure configuration in the Basque example (95c).

- (98) a. [CP you thought *Wh*_i [CP she has seen *who*]_i]
 b. [CP *Wh*_i did you think *t*_i [CP *who*_j has she seen *t*_j]_i]
 c. [CP [CP *who*_j has she seen *t*_j]_i did you think *t*_i]

Here I will assume that long-distance externalization in Malagasy also involves clausal pied-piping: When a DP in an embedded clause raises to become the matrix external

³² As evidence that the expletive is generated in a case-position, Horvath notes that the morphological case form of the wh-expletive in Hungarian is lexically determined by the matrix verb—and may be different from the case form of the embedded wh-phrase, which is determined by the embedded verb. Compare the following examples, containing the verb “say” (which assigns accusative case to its object) and “expect, count on” (which assigns allative case to its object):

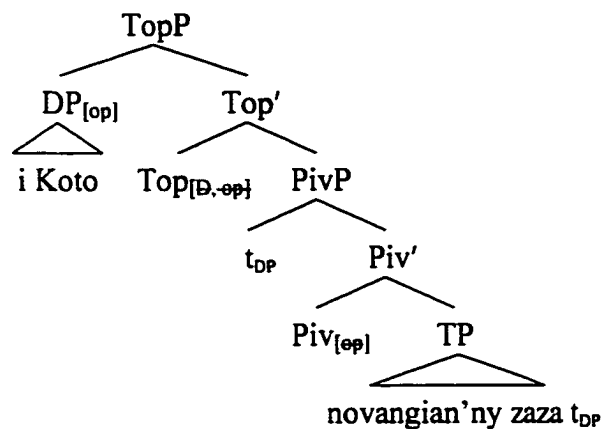
- (i) a. *Mit* mondtál, hogy *mire* számítanak a gyerekek?
 Wh-Acc say-2s that what-All count-3s the kids-Nom
 “What did you say the kids expected?”
 b. *Mire* számítasz, hogy *mit* fognak mondani a gyerekek?
 Wh-All count-2s that what-Acc will-3s say-Inf the kids-Nom
 “What do you expect the kids will say?”

argument, it first undergoes A'-movement to the pivot position of its own clause, after which the clause as a whole undergoes A'-movement to the pivot position of the matrix clause. To see how this analysis derives the effects of the PRE in (90) above, consider the examples in (99a-b), in which a DP raises to the matrix EA position from inside a complement clause:

- (99) a. Heveriko novangian'ny zaza i.....Koto
 AccP.think-1s Pst-DatP.visit-Det child Det Koto
 "Koto, I think the child visited (him)"
- b. Kasain-dRaso hosasana i.....Koto
 AccP.intend-Raso Irr-DatP.wash Det Koto
 "Koto, Raso intends to wash (him)"

The derivation of these sentences proceeds as follows (here I abstract away from surface word order; cf. footnote 33): Starting from the embedded object position, the DP *i Koto*, which was assigned an interpretable scope feature [op] in the numeration, raises to the SpecPivP of the embedded clause to check the uninterpretable [op] feature on Piv. This move triggers DatP marking on the embedded verb. The DP then raises on to the embedded SpecTopP position to check the [D] and [op] features of Top, resulting in the structure in (100):

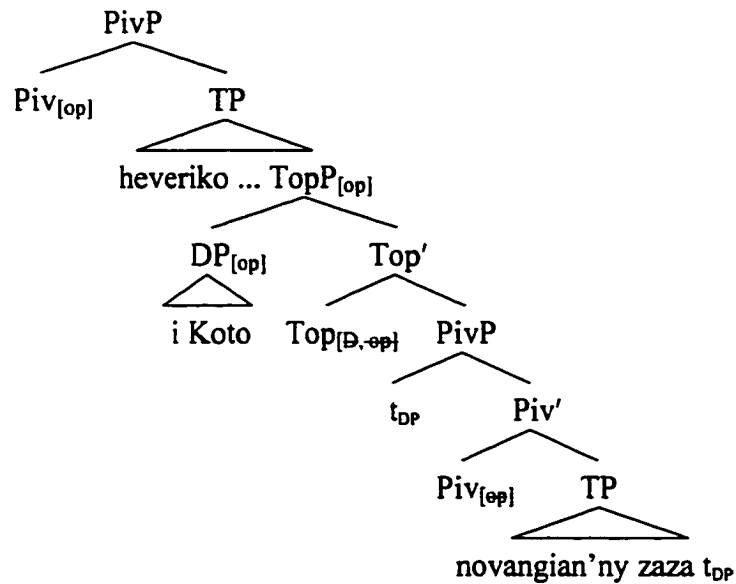
(100)



Suppose that once the DP has raised to the specifier of TopP, TopP inherits its [op] feature by means of spec-head agreement (cf. Moritz & Valois 1994, who propose that other scope-related features such as [wh] and [neg] may be inherited in this way). Suppose also that the structure in (100) may be selected by the matrix verb directly, without the need for a SubP layer. These assumptions are sufficient to ensure that the voice of the matrix verb will be determined by the embedded clause.

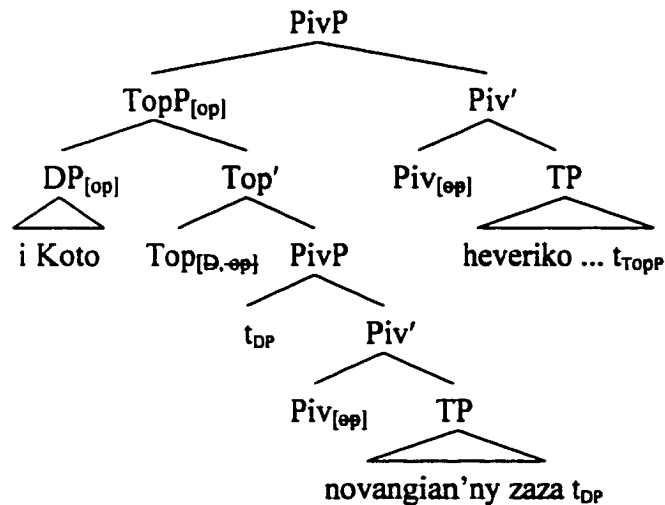
We may skip ahead to the point in the derivation shown in (101) below: After the structure in (100) has combined with the verb *hever* “think” to form the matrix VP, and the matrix TP structure has been built on top of this, Piv⁰ (containing an uninterpretable [op] feature) merges with TP to form PivP.

(101)

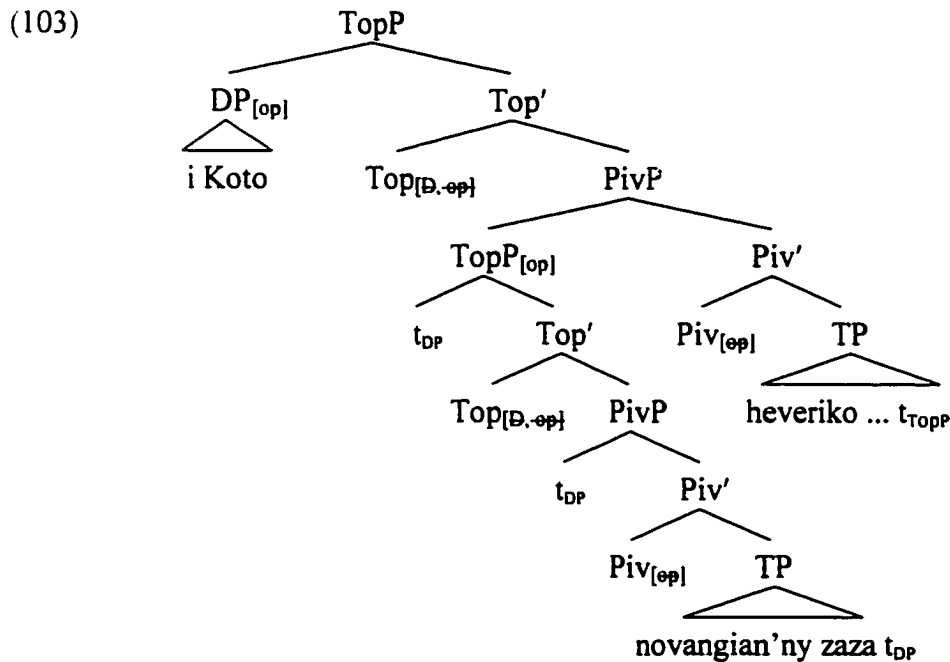


In order to check its [op] feature, Piv attracts the closest constituent containing a compatible feature. This constituent is the embedded TopP, which inherited an [op] feature from the DP in its specifier. The embedded TopP thus raises to become the specifier of the matrix PivP, as shown in (102). Since the TopP is assigned abstract accusative case, the raising of this constituent to SpecPivP triggers AccP marking on the matrix verb.

(102)



Finally, the structure in (102) combines with Top^0 to form TopP . Top has $[\text{D}]$ and $[\text{op}]$ features which need to be checked, and so it attracts the closest constituent containing compatible features, namely the DP in the specifier of the embedded TopP , which then raises to become the specifier of the matrix TopP (and hence the EA of the matrix clause). The resulting structure is shown in (103):³³



How do we know that the DP extracts from the embedded TopP , rather than pied-piping the TopP to the matrix EA position? Recall that the external argument is separated from the embedded predicate phrase by the particle *ve* in yes/no questions, showing that it does not form a constituent with the embedded clause:

³³ I revisit this derivation in 4.2.1, where I show how the correct surface word order is achieved by means of XP-adjunction. Briefly, I argue that TP adjoins to PivP (ensuring that *heveriko* will end up to the left of *novangian'ny zaza*), after which PivP adjoins to TopP (ensuring that *heveriko novangian'ny zaza* will end up to the left of *i Koto*).

- (104) Heverinao novangian'ny zaza ve i.....Koto?
 AccP.think-2s Pst-DatP.visit-Det child Qu Det Koto
 "Koto, do you think the child visited (him)?"

I take this as evidence that it extracts from the embedded clause after the latter has pied-piped to the specifier of PivP. Thus, in order to derive both the correct surface constituency and the effects of the PRE, we must assume that long-distance externalization involves a combination of pied-piping and successive-cyclic movement: The EA pied-pipes the complement clause to the matrix SpecPivP, and then undergoes spec-to-spec raising from the embedded SpecTopP to the matrix SpecTopP.

The fact that movement to SpecPivP triggers pied-piping while movement to SpecTopP does not is predicted by the theory in 3.1, according to which movement to SpecPivP is required to check a scope-related feature [op], while movement to SpecTopP is required to check both an [op] feature and a [D] feature: While there is extensive cross-linguistic evidence that scope-related features may be transmitted under spec-head agreement, the same is not true of categorial features such as [D]. Consequently, when the EA raises to the specifier of the embedded TopP, TopP inherits its [op] feature, but not its [D] feature. Thus, when the matrix Top attracts a constituent to satisfy its [D] and [op] features, it will attract the EA rather than the embedded TopP, since only the EA is capable of checking both features of the matrix Top in a single step.

To summarize: In 3.3.1 I observed that when a DP is extracted from an embedded clause, the DP determines the voice of the embedded verb, while the clause from which it is extracted determines the voice morphology of the next higher verb (the PRE). In this section I argued that the PRE is most easily accommodated under a theory which

treats externalization as A'-movement. If externalization were A-movement to SpecIP, as in Guilfoyle et al. (1992), then we would need to stipulate that sentential complements in Malagasy are strong islands for extraction while sentential subjects are transparent—the opposite of what standard accounts of extraction would lead us to expect. On the other hand, if we regard externalization as a form of A'-movement, then the PRE can be understood in terms of *CP pied-piping*. Since CP pied-piping in wh-movement constructions is well attested in other languages, I conclude that this second analysis is the more conceptually appealing. Thus the data presented in this section may be taken as further evidence, together with the binding evidence in 3.2, for treating the external argument as an A'-element rather than a subject.

3.4. Voicing restrictions reconsidered

An important consequence of analysis developed in 3.1, according to which externalization targets a position in the C-domain, is that it offers a simple way to account for the voicing restrictions discussed in section 2.2.1.3. Recall that, although normally any semantically appropriate noun phrase may function as the pivot of a given verb, there are certain constructions involving A'-extraction in which the choice of pivot is syntactically determined. In this section, I discuss several such constructions, and show that they all exemplify the descriptive generalization in (105):

- (105) In clauses containing an operator-variable chain with its tail in a case position, the case position of the tail correlates with the voice morphology on the verb.

In other words, if a clause contains a *wh*-operator, that operator necessarily functions as the pivot of the clause. As I will argue in 3.4.1, the fact that *wh*-operators must be pivots is predicted under the A'-movement theory of externalization argued for in this chapter. By contrast, if we were to adopt an A-movement theory of externalization, we would need to posit language-specific constraints on A'-extraction in order to explain the voicing restrictions described here—constraints which are difficult to reconcile with what we know about A'-extraction in other languages.

3.4.1. Operator movement blocks externalization: Relative clauses

A straightforward example of the constraint in (105) involves relative clause constructions. As Keenan (1972, 1985) establishes, the voice of the verb in the relative clause is in strict correlation with the grammatical role of the participant being relativized.

Relative clauses follow the head noun, and are optionally introduced by the element *izay*, which I analyze as an all-purpose *wh*-operator (glossed “Wh”).³⁴ As (106)

³⁴ My analysis of *izay* as an operator (rather than, say, a complementizer) reflects the fact that it may also be used to introduce embedded *wh*-questions:

- (i) a. Fantatro [*izay* namono ny akoho]
known-Lnk-1s Wh Pst-NomP.kill Det chicken
“I know who killed the chicken”
- b. Fantatro [*izay* novonoin’ny mpamboly]
known-Lnk-1s Wh Pst-AccP.kill-Det farmer
“I know what the farmer killed”

Although *izay* as a relative clause marker is normally characterized as optional, its distribution does appear to be influenced by the semantics of the relative clause. Consider the examples in (ii), in which the embedded verb is in the non-past tense. Here the presence of *izay* forces a generic/habitual construal of the relative clause, while the absence of *izay* favors a present tense construal. This suggests that relative clauses headed by *izay* denote general properties, while relative clauses which do not contain *izay* denote specific, situationally-conditioned attributes.

shows, if the participant being relativized corresponds to the subject of the verb in the relative clause, then the verb appears in the NomP form. Using any other voice form renders the construction ungrammatical.

- (106) a. ny mpamboly [(izay) *namono* ny akoho tamin'ny antsy]
 Det farmer Wh Pst-NomP.kill Det chicken Pst-with-Det knife
 "the farmer who killed the chicken with the knife"
- b. * ny mpamboly [(izay) *novonoina* tamin'ny antsy ny...akoho]
 Det farmer Wh Pst-AccP.kill Pst-with-Det knife Det chicken
 "the farmer who killed the chicken with the knife"
- c. * ny mpamboly [(izay) *namonoana* ny akoho ny...antsy]
 Det farmer Wh Pst-CrcP.kill Det chicken Det knife
 "the farmer who killed the chicken with the knife"

Similarly, if the relativized noun corresponds to the object of the verb in the relative clause, then one of the object-pivot forms will be used (here the AccP form) (107); and if the relativized noun corresponds to a peripheral participant in the relative clause, such as the instrument of the action, then the embedded verb must be in the CrcP form (108):

- (107) a. * ny akoho [(izay) *namono* tamin'ny antsy ny...mpamboly]
 Det chicken Wh Pst-NomP.kill Pst-with-Det knife Det farmer
 "the chicken which the farmer killed with the knife"

-
- (ii) a. ny vehivavy [*manasa* *lamba*]
 Det woman NomP.wash clothes
 "the women who are washing clothes (now)"
- b. ny vehivavy [*izay* *manasa* *lamba*]
 Det woman Wh NomP.wash clothes
 "the women who wash clothes"

- b. ny akoho [(izay) *novonoin'*ny mpamboly tamin'ny antsy]
 Det chicken Wh Pst-AccP.kill-Det farmer Pst-with-Det knife
 "the chicken which the farmer killed with the knife"
- c. * ny akoho [(izay) *namonoan'*ny mpamboly ny....antsy]
 Det chicken Wh Pst-CrcP.kill-Det farmer Det knife
 "the chicken which the farmer killed with the knife"
- (108) a. * ny antsy [(izay) *namono* ny akoho (tamin') ny....mpamboly]
 Det knife Wh Pst-NomP.kill Det chicken with Det farmer
 "the knife that the farmer killed the chicken with"
- b. * ny antsy [(izay) *novonoin'*ny mpamboly (tamin') ny....akoho]
 Det knife Wh Pst-AccP.kill-Det farmer with Det chicken
 "the knife that the farmer killed the chicken with"
- c. ny antsy [(izay) *namonoan'*ny mpamboly ny akoho]
 Det knife Wh Pst-CrcP.kill-Det farmer Det chicken
 "the knife that the farmer killed the chicken with"

Following standard analyses of relative clauses in other languages, I will assume here that the gap in the relative clause is an A'-trace of *izay*—or, in clauses where *izay* is absent, the trace of a phonetically null wh-operator. I will also assume that *izay*/Op is located in the specifier of a high C-projection, from which position it is coindexed with the relativized noun phrase, as shown schematically in (109):

- (109) [DP-*rel*_i [CP *izay*/Op_i ... [TP ... t_i ...]]]

Presumably, then, the voicing restrictions on the embedded verb in (106)–(108) are due to the presence of an operator-variable chain in the clause: The operator necessarily functions as the pivot of the relative clause, triggering the appropriate voice marking on

the verb. Because the operator is coindexed with the relativized noun phrase, this produces the impression that the relativized noun phrase is acting as the pivot.

Why is the operator required to be the pivot of the clause it extracts from? Presumably this is because operators possess some property which forces them to move to (or through) the structural position in which pivots are licensed, thereby blocking the other DPs in the clause from raising into this position. I will refer to this informally as the *blocking effect*:

(110) *The blocking effect*

Movement of a [+specific] DP to the pivot position of its clause is blocked by the presence of a wh-operator

The most straightforward way to understand this is to assume that operators must move to (or through) the pivot position (my SpecPivP). Recall that Keenan (1976), Guilfoyle, Hung, & Travis (1992), et al., equate the pivot with the subject of the clause (voice morphology indicates the grammatical function of the subject). Hence, in order to explain the blocking effect, these authors must assume that operators are required to pass through the subject position (which GHT identify as SpecIP) in order to reach their licensing position in the C-domain. This assumption is typically expressed in the form of a language-specific constraint on extraction:

(111) In Malagasy, only subjects may undergo A'-extraction.

(111) allows configurations like (112a), in which the operator raises through SpecIP to SpecCP, but rules out configurations like (112b), in which the operator raises over an overt EA in SpecIP:

- (112) a. $[_{CP} Op_i C^0 [_{IP} t_i [_{I'} \dots t_i \dots]]]$
 b. * $[_{CP} Op_i C^0 [_{IP} EA [_{I'} \dots t_i \dots]]]$

If only subjects can undergo A'-extraction, then relativization of a logical direct object will be possible only if the verb is first 'passivized'—i.e., only if the object is promoted to SpecIP using object-pivot morphology. According to this approach, then, a central function of the voicing system within the grammar of Malagasy is to promote underlying direct objects and other arguments to the subject role, allowing them to undergo relativization, etc., without violating the constraint in (111).

However, this approach to the blocking effect is problematic from the perspective of a general theory of movement and islandhood. If we accept the stipulation in (111), then we are forced to conclude that the conditions which constrain A'-extraction in Malagasy (and other languages of the Philippine type) are essentially the opposite of what one finds in more familiar cases such as English and Romance, in which extraction from complement positions tends to be much freer than extraction from subject positions—an observation captured by Huang's (1982) Condition on Extraction Domains, and later by the ECP.³⁵

³⁵ Nakamura (1996) attempts to derive (111) from economy principles—in particular, Shortest Move (Chomsky 1995, chapter 3). He suggests that, in choosing between the derivation in (i-a), where the operator first raises into the EA position before raising on to SpecCP, and (i-b), where the operator raises to

On the other hand, we can avoid the stipulation in (111) and the conceptual problems it entails if we suppose that externalization is a form of A'-movement similar to topicalization, as I argued in 3.1. The ability of wh-movement to block topicalization is well known from Germanic languages such as English and Icelandic (113)–(114):

- (113) a. This book, I borrowed from Dennis.
 b. Who did you borrow this book from?
 c. * Who did, this book, you borrow from?
 * Who, this book, did you borrow from?
 ?? This book, who did you borrow from?
- (114) a. Bókina hefur Steingrímur gefið Mariu
 book-the.Acc has Steingrimur.Nom given Maria.Dat
 “The book, Steingrimur has given to Maria”
 b. Hverjum hefur Steingrímur gefið bókina?
 who.Dat has Steingrimur.Nom given book-the.Acc
 “To whom has Steingrimur given the book?”
 c. * Hverjum bókina hefur Steingrímur gefið?
 who.Dat book-the.Acc has Steingrimur.Nom given
 “To whom, the book, has Steingrimur given?”

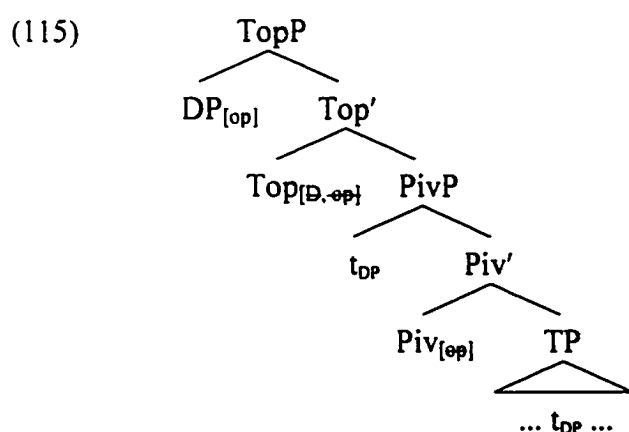
SpecCP in a single step, crossing a filled EA position, (i-a) will be preferred on economy grounds because it involves shorter movements.

- (i) a. $[_{CP} Op_i C^0 [_{IP} t_i [_{I'} \dots DP t_i \dots]]]$
 b. * $[_{CP} Op_i C^0 [_{IP} DP [_{I'} \dots t_{DP} t_i \dots]]]$

However, this analysis is problematic, since it relies on a ‘global’ version of economy in which complete derivations are compared, rather than a ‘local’ version in which single steps in a derivation are compared.

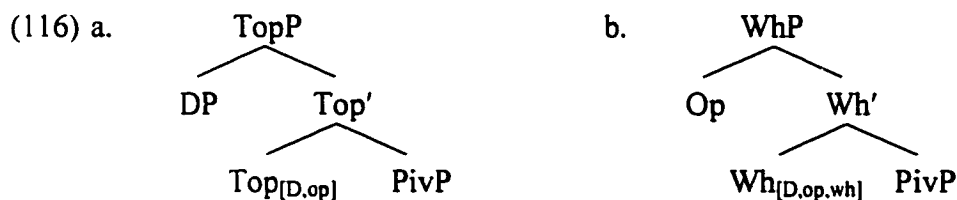
Reformulating Nakamura’s Shortest Move account in terms of the Minimal Link Condition (which states that an attracting uninterpretable feature will attract the closest compatible interpretable feature into its checking domain) does not solve this problem, since the feature which attracts the EA into SpecIP is presumably different from the feature which attracts the operator into SpecCP.

Here I will argue that the blocking effect in (110) results from the fact that wh-operators compete with potential EAs to occupy the specifier of PivP. Recall my two-step feature-checking analysis of externalization from 3.1.2: One of the [+specific] DPs in the clause is assigned an interpretable scope feature, [op]. This feature is attracted by an uninterpretable [op] feature in the head of PivP, causing the DP to raise to SpecPivP. From this position, the DP is attracted into the specifier of TopP to check the uninterpretable [op] and [D] features on Top⁰. This is illustrated in (115):



To ensure the mutual exclusivity between overt EAs and wh-operators, I will modify this analysis by making two additional assumptions. The first assumption pertains to the trigger for wh-movement. Within the Minimalist framework, it is usually assumed that wh-phrases move into the C-domain to fulfill the morphological wh-requirement of a C-head. Usually this requirement is depicted as a (strong) uninterpretable feature [wh] which needs to be checked against a constituent containing an interpretable [wh] feature. However, let us suppose that the wh-requirement actually involves two features, the [wh] feature proper, and the scopal feature [op], each of which needs to be checked.

I will further assume that the projection dominating PivP comes in two ‘flavors’, depending on whether or not its head possesses a [wh] feature in addition to its [op] feature: If the head contains just a [D] feature and an [op] feature, it will attract a DP into its specifier (116a). If in addition it contains a [wh] feature, then it will attract a wh-operator of category DP into its specifier (116b). When the [wh] feature is absent, I will refer to the projection in question as TopP; when the [wh] feature is present, I will use the label WhP instead.



I remain neutral on the purely technical question of whether Top and Wh are one and the same category, but with different lexical requirements, or whether they are separate categories which compete to select PivP, and are thus mutually exclusive (cf. Müller & Sternefeld 1993 for a theory which assumes the latter alternative).³⁶

The uninterpretable [op] feature in the head of PivP may be checked either by an [op] feature on a DP, or by the [op] feature of a wh-operator. Thus, if operator movement prevents movement of any other constituent to SpecPivP, it follows that the operator will control the voice morphology on the verb. In this way we derive the blocking effect in

³⁶ As an alternative, we might assume that WhP and TopP may both be projected in the same clause, but that there is an independent constraint preventing the specifiers of the two projections from being filled overtly in the same clause, as Zwart (1993) proposes for Dutch. Although I do not reject this possibility entirely, I will set it aside here for theory-internal reasons. See 4.3.1, footnote 8 for discussion.

(110) without having to resort to the conceptually unappealing stipulation that only subjects can undergo A'-extraction.

How do we ensure that wh-operators block (potential) external argument DPs from checking the [op] feature of PivP, rather than vice versa? The solution which I will propose takes advantage the difference in how operators and EAs receive their scope-related features: Recall that the [op] feature associated with an externalized DP is inserted in the numeration (just like the case features of the DP). By contrast, operators, which are inherently scope-bearing elements, are specified for their [op] feature in the lexicon. Given this difference, we can derive the fact that wh-operators block the movement of DPs to SpecPivP if we stipulate that the addition of an [op] feature in the numeration is subject to a Last Resort condition—that is, an [op] feature will be assigned to one of the DPs in the clause only if failure to do so would cause the derivation to crash. If there is a wh-operator present in the clause, then that operator will be able to check and eliminate the uninterpretable [op] feature of Piv, allowing the derivation to converge. If there is no wh-operator in the clause, then an [op] feature will be assigned to a DP, which will then raise to SpecPivP; failure to assign such a feature would prevent the [op] feature of Piv from being checked, and the derivation would crash. (I modify this proposal slightly in 3.4.3.)

To summarize this discussion, I have argued that the voicing restrictions discussed in 2.2.1.3 and illustrated in (106)–(108) receive a much simpler explanation under the A'-movement theory of externalization than under the A-movement theory. If we adopt the A-movement theory, we must stipulate that A'-extraction of subjects is allowed, while

extraction of non-subjects is barred. This stipulation is problematic, given that subject/non-subject extraction asymmetries work in the opposite fashion in other languages. On the other hand, if we adopt the A'-movement theory, then the existence of voicing restrictions in operator-movement contexts falls out naturally: All that we need to assume is that operators compete with topic DPs for the same scope-related position in the C-domain. This kind of blocking effect is found in a number of other languages, including English and Icelandic, in which topicalization and wh-movement are mutually exclusive in the same clause (see 4.3 for additional discussion).

Having laid out the basic story, I discuss two other constructions which exhibit voicing restrictions of the kind found in relative clauses, namely wh-questions and focus-fronting in 3.4.2 and *dia*-topicalization in 3.4.3. I show that in both cases, a null wh-operator raises into the SpecPivP position, thereby controlling the voice of the verb and blocking other DPs from raising. Finally in 3.4.4 I discuss a complication involving the absence of blocking effects when a non-DP (typically a PP or adverbial) is being focused or *dia*-topicalized.

3.4.2. Constituent focus as clefting

Recall from 2.2.1.3 that in focus-fronting constructions, the focused constituent appears to function as the pivot of the verb: If the focused constituent is interpreted as the subject of the verb, then the verb must appear in the NomP form (117). Similarly, if the focused constituent is the direct object, the appropriate object-pivot form is used (118):

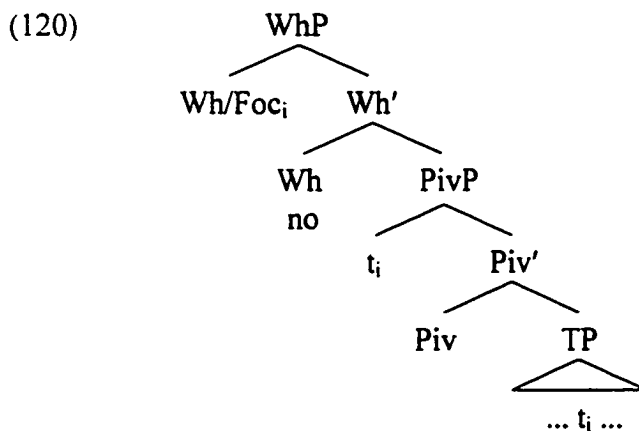
- (117) a. Ny mpamboly no *namono* ny akoho tamin'ny antsy
 Det farmer Foc Pst-NomP.kill Det chicken Pst-with-Det knife
 "It's the farmer who killed the chicken with the knife"
- b. * Ny mpamboly no *novonoina* tamin'ny antsy ny akoho
 Det farmer Foc Pst-AccP.kill Pst-with-Det knife Det chicken
 "It's the farmer who killed the chicken with the knife"
- c. * Ny mpamboly no *namonoana* ny akoho ny antsy
 Det farmer Foc Pst-CrcP.kill Det chicken Det knife
 "It's the farmer who killed the chicken with the knife"
- (118) a. * Ny akoho no *namono* tamin'ny antsy ny mpamboly
 Det chicken Foc Pst-NomP.kill Pst-with-Det knife Det farmer
 "It's the chicken that the farmer killed with the knife"
- b. Ny akoho no *novonoin'ny* mpamboly tamin'ny antsy
 Det chicken Foc Pst-AccP.kill-Det farmer Pst-with-Det knife
 "It's the chicken that the farmer killed with the knife"
- c. * Ny akoho no *namonoan'ny* mpamboly ny antsy
 Det chicken Foc Pst-CrcP.kill-Det farmer Det knife
 "It's the farmer who killed the chicken with the knife"

Finally, when the focused constituent is an oblique element (such as an instrument), the verb must appear in the CrcP form, as shown in (119) (actually this is an oversimplification; see 3.4.4 for the full story on obliques). The pattern in (117)–(119) is highly reminiscent of the relative clause pattern discussed in the previous section. As I will show below, this resemblance is non-accidental.

- (119) a. * Ny antsy no *namono* ny akoho ny mpamboly
 Det knife Foc Pst-CrcP.kill Det chicken Det farmer
 "It's the knife that the farmer killed the chicken (with)"
- b. * Ny antsy no *novonoin'ny* mpamboly ny akoho
 Det knife Foc Pst-AccP.kill-Det farmer Det chicken
 "It's the knife that the farmer killed the chicken (with)"

- c. Ny antsy no *namonoan'ny* mpamboly ny akoho
 Det knife Foc Pst-CrcP.kill-Det farmer Det chicken
 "It's the knife that the farmer killed the chicken (with)"

What is the structure of focus-fronting clauses? On analogy with wh-questions in English, we might assume that wh-operators and focused constituents start out inside the predicate phrase and raise leftward over the verb to the specifier of WhP, with the focus particle *no* generated in Wh⁰ (cf. MacLaughlin 1995 for an analysis along these lines):



However, Paul (1999, to appear) presents evidence (see below) to show that the wh/focus-fronted constituent does not occupy a specifier position in the C-domain. Instead, it functions as the predicate in a pseudocleft construction, of which the constituent consisting of *no* plus the verb and its dependents is the external argument.³⁷ The latter constituent has the structure of a free relative or headless relative clause: It contains an operator-

³⁷ In Pearson (1996b, footnote 17), I also suggested that wh/focus constructions be analyzed as pseudoclefts, but this suggestion was not developed in detail.

The use of (pseudo)clefts to express constituent focus appears to be a general property of Western Austronesian languages. For similar analyses in other languages, see Georgopoulos (1991) on Palauan, Kroeger (1993) and Richards (1998) on Tagalog, Bauer (1991) on Maori, Davies (2000) on Madurese, and Cole, Hermon, & Aman (to appear) on Malay.

variable chain which shares its index with the constituent as a whole, and is interpreted as an expression ranging over the set of entities that bear the property named by the predicate it contains (e.g., *no novonoin'ny mpamboly tamin'ny antsy* in (118b) means something like “what the farmer killed with the knife”).³⁸

The basic structure for *wh*/focus-fronting sentences is thus not (121a), but (121b): The SpecWhP of the clause containing the verb is occupied not by the *wh*/focus phrase itself, but by a null operator which is coindexed with the *wh*/focus phrase.

- (121) a. [WhP Wh/Foc_i *no* [PivP t_i [TP V ... t_i ...]]]
 b. [PredP Wh/Foc_i] [WhP Op_i *no* [PivP t_i [TP V ... t_i ...]]]_i

According to this analysis, the sentences in (122b) and (123b) below have essentially the same structure as the null copular sentences in (122a) and (123a), respectively; the only real difference is that PredP is predicated of a free relative rather than an ordinary definite description:

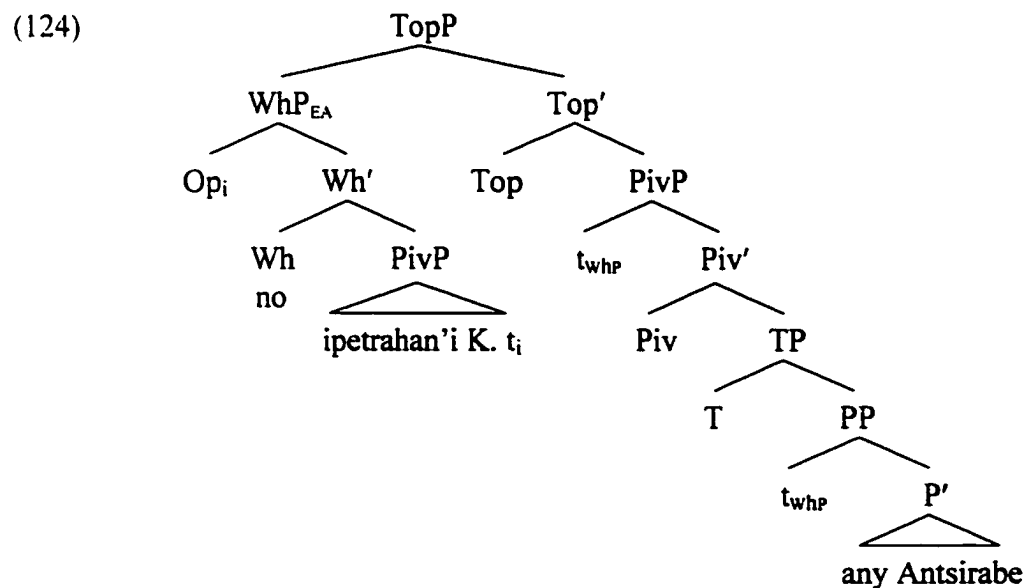
- (122) a. [PredP Mpianatra] [DP ny rahalahiko]
 student Det brother-1s
 “My brother (is) a student”

³⁸ As evidence that the string consisting of *no* and the following predicate is a constituent, Paul (to appear) observes that two such strings may be coordinated, as shown in (i). Furthermore, the fact that the conjunction *sy* is used shows that the conjuncts are not independent clauses (cf. chapter 2, footnote 3):

- (i) Raso [no nijinja vary] sy [no nanapaka bozaka]
 Raso Foc Pst-NomP.harvest rice and Foc Pst-NomP.cut grass
 “It was Raso who harvested rice and cut grass”
 lit. “(The one who) harvested rice and (the one who) cut grass (is) Raso”

- b. [PredP Mpianatra] [whP Op_i no namaky t_i ny boky]
 student Foc Pst-read Det book
 “It’s a student who was reading the book”
 lit. “(The one who) was reading the book (is) a student”
- (123) a. [PredP Any Antsirabe] [DP i Ketaka]
 there Antsirabe Det Ketaka
 “Ketaka (is) in Antsirabe”
- b. [PredP Any Antsirabe] [whP Op_i no ipetrahan’i Ketaka t_i]
 there Antsirabe Foc CrcP.live-Det Ketaka
 “It is in Antsirabe that Ketaka lives”
 lit. “(The place where) Ketaka lives (is) in Antsirabe”

The full structure for a sentence like (123b) is given in (124)—abstracting away from the relative order of the EA and predicate phrase, which is derived via leftward movement of the PivP constituent to adjoin to TopP, as discussed in chapter 4. Here I assume without argument that the clefted constituent *any Antsirabe* is of category PP, and that the predicate phrase includes a tense head, but does not include a null copular verb (see Paul 1999 for a somewhat different structure):



Paul (1999) cites distributional evidence to support the claim that the focused constituent functions as the matrix predicate of the sentence. Note for example that focused constituents pattern with regular predicate nominals and PPs, as well as verbal predicates, in that they may be negated with *tsy* (125)–(126). By contrast, EAs and PredP-internal dependents may not be negated, as shown in (127):³⁹

- (125) a. *Tsy mpianatra ny rahalahiko*
 Neg student Det brother-1s
 “My brother is not a student”
- b. *Tsy mpianatra no namaky boky tany an-tokotany*
 Neg student Foc Pst-NomP.read book Pst-there Obl-garden
 “It’s not a student who was reading a book in the garden”
- (126) a. *Tsy tany an-tokotany ny rahalahiko*
 Neg Pst-there Obl-garden Det brother-1s
 “My brother was not in the garden”
- b. *Tsy tany an-tokotany no namaky boky ny mpianatra*
 Neg Pst-there Obl-garden Foc Pst-NomP.read book Det student
 “It was not in the garden that the student was reading a book”
- (127) a. * *Namaky boky tany an-tokotany tsy ny mpianatra*
 Pst-NomP.read book Pst-there Obl-garden Neg Det student
 “Not the student read a book in the garden”
- b. * *Namaky tsy boky tany an-tokotany ny mpianatra*
 Pst-NomP.read Neg book Pst-there Obl-garden Det student
 “The student read not a book in the garden”
- c. * *Namaky boky tsy tany an-tokotany ny mpianatra*
 Pst-NomP.read book Neg Pst-there Obl-garden Det student
 “The student read a book not in the garden”

³⁹ Here and below, I underline the constituent introduced by *no* to reflect the fact that it is functioning as the EA of the clause.

Also, like verbal predicates (but unlike arguments), focus pivots may be embedded under raising predicates such as *toa* “seem”:

- (128) a. *Toa nanoraka an-dRakoto Rasoa*
 seem Pst-NomP.kiss Obj-Rakoto Rasoa
 “Rasoa seems to have kissed Rakoto”
- b. *Toa Rasoa no nanoraka an-dRakoto*
 seem Rasoa Foc Pst-NomP.kiss Obj-Rakoto
 “It seems to be Rasoa who kissed Rakoto”
 lit. “(The one who) kissed Rakoto seems (to be) Rasoa”

Finally, notice that in yes/no questions, the particle *ve* appears to the right of the focused constituent, immediately preceding *no*, as shown in (129):

- (129) *Tany an-tokotany ve no namaky boky ny mpianatra?*
 Pst-there Obl-garden Qu Foc Pst-NomP.read book Det student
 “It was not in the garden that the student was reading a book”

This receives a straightforward explanation if we assume that the focused constituent is the main predicate of the clause, given that *ve*-placement targets the right edge of the predicate phrase in non-focus/wh sentences, as discussed in 2.1. Compare the following:

- (130) a. *Namono akoho ve ny mpamboly?*
 Pst-NomP.kill chicken Qu Det farmer
 “Was the farmer killing chickens?”
- b. *Akoho ve ireto?*
 chicken Qu these
 “Are these chickens?”
- c. *Akoho ve no novonoin’ny mpamboly?*
 chicken Qu Foc Pst-AccP.kill-Det farmer
 “Was it chickens that the farmer was killing?”
 lit. “Are (the ones that) the farmer was killing chickens?”

If the pseudocleft analysis is correct, then the structure of *wh*/focus-fronting constructions is not very different from that of relative clauses. In both cases, there is a clause containing an operator which raises to SpecPivP (and thence to SpecWhP), thereby preventing an overt DP from raising to the external argument position. Raising to SpecPivP is required in order to check an uninterpretable [op] feature on Piv⁰, and thus the operator (which possesses an inherent interpretable [op] feature) will necessarily determine the voice of the verb it raises over. Since the operator shares its index with the free relative as a whole, which is in turn linked via predication to the focused constituent, this gives the impression that the focused constituent is controlling the voice of the verb.

3.4.3. Topic-fronting

The voicing restrictions found in pseudoclefts are replicated in the *dia*-topic construction. Recall from 2.2.1.3 that the *dia*-topic appears at the left edge of the clause, separated from the predicate by the particle *dia*.⁴⁰ As with the left-dislocation and “as for” con-

⁴⁰ The particle *dia* is also used as a conjunction to mark the consequence in an *if-then* construction, as shown in (i) (where *dia* is glossed “then”):

- (i) Raha vonoinareo aho, dia inona no...soa...ho azonareo?
 if AccP.kill-2p is then what Foc good Irr got-2p
 “If you kill me, then what good will you get from it?”

Although this use of *dia* is usually treated as entirely separate from its use as a topic marker, it is quite likely that one of these functions can be reduced to the other. Perhaps the presence of *dia* in (i) indicates that the fronted conditional clause has been topicalized. Alternatively, the use of *dia* as a conjunction may be primary, in which case the *dia*-topic construction can be treated as a ‘hidden’ *if-then* construction. As evidence for the second analysis, note that *dia*-topics are sometimes introduced by *raha* “if”, in what Keenan (1976) calls the *strong topicalization* construction:

- (ii) Raha io lamba io aloha, dia mbola manasa azy Rasoa
 if that clothes that before then still NomP.wash 3 Rasoa
 “If (it’s a question of) those clothes from before, then Rasoa is still washing them”

structions in English, topicalization with *dia* is typically used to introduce a new referent into the discourse, or to contrast one previously-mentioned referent with another.

- (131) a. Nihinana ny voankazo ny...gidro
 Pst-NomP.eat Det fruit Det lemur
 “The lemur ate the fruit”
- b. Ny gidro dia nihinana ny voankazo
 Det lemur Top Pst-NomP.eat Det fruit
 “(As for) the lemur, (it) ate the fruit”

I assume that the topicalized constituent is base-generated in its surface position, since it may be linked to a resumptive pronoun, as in the examples in (132). The resumptive pronoun strategy is the only strategy available when the *dia*-topic is linked to a position which is inaccessible for A'-extraction—e.g., a position inside an island. An example is given in (132b), where the *dia*-topic corefers with the pronoun *azy*, located inside the free relative constituent in a pseudocleft (this example taken from Keenan 1976, cf. also Paul 1999 for discussion of such examples). In cases where A'-extraction is allowed, a gap is preferred in place of an overt resumptive pronoun, hence the somewhat marginal nature of (132a):

It is easy to understand why conditional clauses and topics should pattern together, since both serve to establish presuppositions. Thompson & Longacre (1985) cite a number of languages in which topic constructions share morphosyntactic properties with *if-then* constructions. In Turkish, for example, both conditional clauses and topics are marked with the suffix *-se*:

- (iii) a. Istanbul-a gid-er-se-n, Topkapi müze-sin-i muhakkak gez
 Istanbul-Dat go-Aor-se-2s Topkapi museum-Poss-Acc for.sure visit
 “If you go to Istanbul, be sure to visit the Topkapi museum”
- b. Ahmed-i-se çok mesgul
 Ahmed-be-se very busy
 “(As for) Ahmed, he’s very busy”

- (132) a. ? Ny lamba dia manasa azy Rasoana
 Det clothes Top NomP.wash 3 Rasoana
 “The clothes, Rasoana is washing them”
- b. Ity radara ity dia ny Rosiana no nanao azy
 this radar this Top Det Russian Foc Pst-NomP.make 3
 “As for this radar, it’s the Russians who built it”

The voice of the verb is generally constrained by the grammatical function of the topicalized constituent, in the same manner as with the focus-fronting construction: If the *dia*-topic is interpreted as the subject of the clause, the NomP form is used (133a); if the *dia*-topic is the object, the appropriate object-pivot form is used (133b); and if the topic is an oblique DP, such as an instrument the CrcP form is used (133c):

- (133) a. Ny mpamboly dia namono akoho tamin’ny antsy
 Det farmer Top Pst-NomP.kill chicken Pst-with-Det knife
 “As for the farmer, (he) killed chickens with the knife”
- b. Ny akoho dia novonoin’ny mpamboly tamin’ny antsy
 Det chicken Top Pst-AccP.kill-Det farmer Pst-with-Det knife
 “As for the chickens, the farmer killed (them) with the knife”
- c. Ny antsy dia namonoan’ny mpamboly akoho
 Det knife Top Pst-CrcP.kill-Det farmer chicken
 “As for the knife, the farmer killed chickens (with it)”

I will assume that the *dia*-topic is generated in the specifier of a functional projection headed by *dia*, which I will call simply DiaP. The complement of *dia* is either a TopP/WhP containing a resumptive pronoun, or a WhP with a null operator in SpecWhP which is coindexed with the topic in SpecDiaP. The latter structure—reminiscent of the structure proposed by Chomsky (1977, 1981) for left-dislocation in English—is illustrated in (134a-b) (cf. (133a-b)):

- (134) a. [DiaP ny mpamboly_i dia [WhP Op_i *namono* t_i ny akoho tamin'ny antsy]]
 b. [DiaP ny akoho_i dia [WhP Op_i *novonoin'* ny mpamboly t_i tamin'ny antsy]]

The basic analysis here is the same as in the preceding cases: As with modifying relative clauses and pseudoclefts, the clause that contains the verb also contains a null operator. This null operator must raise to SpecWhP in order to be interpreted under coindexation with a DP outside the clause.⁴¹ Since this chain includes a link in SpecPivP, the case features of the null operator will correlate with the voice marking on the verb—deriving the generalization that a topicalized DP functions as if it were the pivot of the verb.

3.4.4. Topicalization/clefting of non-DPs and the absence of blocking

In the case of pseudoclefts and *dia*-topic constructions, the analysis presented here is complicated by the fact that the blocking effect is suspended when the clefted/topicalized constituent belongs to a lexical category other than DP. Consider pseudoclefts: As I mentioned briefly in 2.2.1.2, the range of categories which can be clefted includes not only DPs (135a), but also PPs (135b), temporal adverbs (135c), and adverbial clauses (135d):

- (135) a. Ny antsy no namonoan'ny mpamboly ny akoho
 Det knife Foc Pst-CrcP.kill-Det farmer Det chicken
 "It's the knife that the farmer killed the chicken (with)"

⁴¹ Assuming that topicalized DPs are arguments rather than predicates, coindexation is also necessary in this case to avoid violations of the Case Filter and the Theta Criterion: The topicalized DP is generated in an A'-position, but may receive a θ -role and check its case feature indirectly by forming a composed A'-chain with the operator-variable chain in WhP (cf. Barss 1984).

- b. Tamin'ny tsena no nahitan'ny zazalahy ny zazavavy
 Pst-in-Det market Foc Pst-CrcP.see-Det boy Det girl
 "It was in the market where the boy saw the girl"
- c. Omaly hariva no namangy ny reniny Rabe
 yesterday evening Foc Pst-NomP.visit Det mother-3 Rabe
 "It was yesterday evening that Rabe visited his mother"
- d. Mba ho hendry no nanasaziako ny zaza
 so.that Irr well-behaved Foc Pst-CrcP.punish-1s Det child
 "It was so that (he) would behave that I punished the child"

When the clefted constituent is an oblique (i.e., a constituent which receives a 'non-core' θ -role such as instrument, benefactee, location, etc.), the presence or absence of a voicing restriction depends on its lexical category: When the oblique takes the form of a DP, the verb must appear in the CrcP form, as shown in (136) for the instrument *ny antsy*:

- (136) a. * Ny antsy no *namono* ny akoho ny...mpamboly
 Det knife Foc Pst-NomP.kill Det chicken Det farmer
 "It's the knife that the farmer killed the chicken (with)"
- b. * Ny antsy no *novonoin'ny* mpamboly ny...akoho
 Det knife Foc Pst-AccP.kill-Det farmer Det chicken
 "It's the knife that the farmer killed the chicken (with)"
- c. Ny antsy no *namonoan'ny* mpamboly ny akoho
 Det knife Foc Pst-CrcP.kill-Det farmer Det chicken
 "It's the knife that the farmer killed the chicken (with)"

However, when the oblique takes the form of a PP or adverbial, any of the voice forms may be used (Paul 1998b, to appear): Compare (136) with (137), in which the DP *ny antsy* "the knife" is replaced with the PP *tamin'ny antsy* "with the knife". Here the NomP and AccP forms are licit as well as the CrcP form. (138) shows the same range of possibilities when the adverbial *omaly* "yesterday" is clefted:

- (137) a. Tamin'ny antsy no *namono* ny akoho ny...mpamboly
 Pst-with-Det knife Foc Pst-NomP.kill Det chicken Det farmer
 "It's with the knife that the farmer killed the chicken"
- b. Tamin'ny antsy no *novonoin'*ny mpamboly ny...akoho
 Pst-with-Det knife Foc Pst-AccP.kill-Det farmer Det chicken
 "It's with the knife that the farmer killed the chicken"
- c. Tamin'ny antsy no *namonoan'*ny mpamboly ny akoho
 Pst-with-Det knife Foc Pst-CrcP.kill-Det farmer Det chicken
 "It's with the knife that the farmer killed the chicken"
- (138) a. Omaly no *namonoan'*ny mpamboly ny akoho
 yesterday Foc Pst-CrcP.kill-Det farmer Det chicken
 "It's yesterday that the farmer killed the chicken"
- b. Omaly no *namono* ny akoho ny...mpamboly
 c. Omaly no *novonoin'*ny mpamboly ny...akoho

From a purely functional perspective, it is understandable that the CrcP form would be required in (136), but not in (137)–(138). In (136) the preposition *tamin'* “with” is suppressed, and hence there is no way to identify the fronted constituent as an instrument other than by the fact that it triggers CrcP-marking on the verb. In (137)–(138), however, the fronted constituent is unambiguously an oblique, and so there is no need for the voice morphology to identify it as such.

The exact same pattern is found in the case of *dia*-topicalization. When the *dia*-topic is a DP, it controls the voice of the verb, as shown in (133) above. However, when the *dia*-topic is a non-DP, the choice of voice form is unrestricted. This is illustrated in (139), where *tamin'ny antsy* “with the knife” has been topicalized; here, the verb may appear in any voice form:

- (139) a. Tamin'ny antsy dia *namonoan'*ny mpamboly ny akoho
 Pst-with-Det knife Top Pst-CrcP.kill-Det farmer Det chicken
 "With the knife, the farmer killed the chickens"
- b. Tamin'ny antsy dia *namono* ny akoho ny...mpamboly
 Pst-with-Det knife Top Pst-NomP.kill Det chicken Det farmer
 "With the knife, the farmer killed the chickens"
- c. Tamin'ny antsy dia *novonoin'*ny mpamboly ny...akoho
 Pst-with-Det knife Top Pst-AccP.kill-Det farmer Det chicken
 "With the knife, the chickens, the farmer killed (them)"

Given that pseudoclefts and *dia*-topic constructions involve the coindexation between an overt constituent and a null operator, we can summarize the data by means of the generalization in (140):⁴²

- (140) i. When a DP is coindexed with a null operator, the null operator obligatorily functions as the pivot of the verb in its clause.
- ii. When a non-DP is coindexed with a null operator, the null operator may or may not function as the pivot of the verb in its clause.

To what can we attribute the pattern in (140)? Here I will present an analysis which exploits the presence of an uninterpretable [D] feature on the head of WhP.

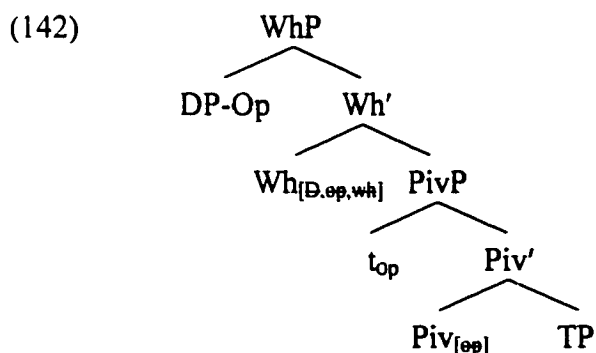
To begin with, I will assume that null wh-operators, like their overt counterparts, can belong to different lexical categories. Following Paul (1999), who cites Williams's (1980) discussion of clefts, I will assume that the category of null operator in Malagasy pseudoclefts and *dia*-topic constructions must match the category of its antecedent (i.e.,

⁴² Stating the generalization in this way correctly captures the fact that relative clause constructions invariably exhibit the blocking effect in (110). In relative clause constructions, the null operator is linked to a DP, and thus obligatorily functions as the pivot of the relative clause, in accordance with (140i).

the clefted/topicalized constituent with which it is coindexed). Thus, in (141a), where the antecedent is a DP, the null operator is of category DP, while in (141b), where the antecedent is a PP, the null operator is also of category PP. (I will refer to the former as a DP-operator, abbreviated *DP-Op*, and the latter as a PP-operator, abbreviated *PP-Op*.)

- (141) a. Ny akoho_i dia [DP-Op_i novonoiko tamin'ny antsy]
 Det chicken Top Pst-AccP.kill-1s Pst-with-Det knife
 "The chickens, I killed with the knife"
- b. Tamin'ny antsy_i dia [PP-Op_i namono ny akoho aho]
 Pst-with-Det knife Top Pst-NomP.kill Det chicken 1s
 "With the knife, I killed the chickens"

In 3.4.1 I stipulated that Wh^0 has an uninterpretable [D] feature which needs to be checked, in addition to its [wh] and [op] features. If the null operator attracted to SpecWhP is a DP-operator, as in (141a), then it will be able to check all three of these features in a single step: The operator first raises from its case position to SpecPivP, checking the [op] feature of Piv^0 and triggering the insertion of the appropriate voice morphology on the verb. It then raises on to SpecWhP, checking the [D], [op] and [wh] features of Wh^0 . The resulting structure is shown in (142).



However, if the operator belongs to a different category—say, PP—it will be unable to check the [D] feature of Wh when it raises to SpecWhP. Thus, to prevent the derivation from crashing, Wh will need to attract a second constituent possessing a [D] feature into its checking domain, creating a multiple-specifier construction.

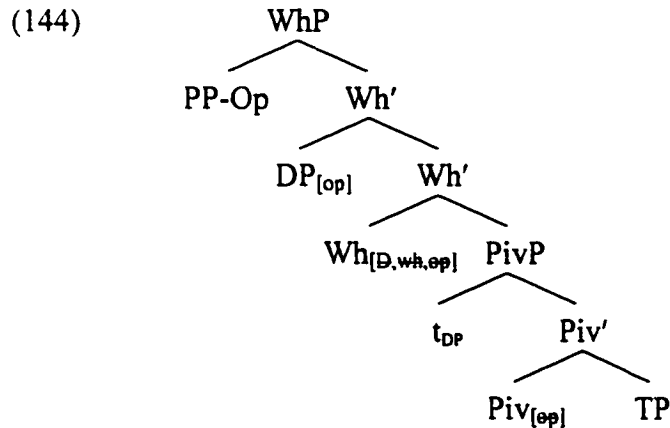
How does this take place? Recall my assumption from 3.4.1 that the assignment of the scope-related feature [op] to a [+specific] DP in the numeration is constrained by a general Last Resort condition on operations ([op] is added only if failure to do so would cause the derivation to crash). If there is a wh-operator in the clause, normally [op] will not be inserted on any of the DPs, since it is not needed to check the uninterpretable [op] features on Piv and Wh/Top. However, in cases where the operator is a non-DP, and is thus unable to check the [D] feature of Wh, the derivation will crash unless Wh can also attract a DP. An [op] feature will thus be added to one of the DPs in this case, allowing the DP to raise to SpecPivP, from which it can undergo short A'-movement to SpecWhP.

Consider the sentence in (143), in which the bracketed constituent contains both an overt EA (*ny mpamboly* “the farmer”, which acts as the pivot of the verb “kill”), and a PP-operator linked to the clefted constituent *tamin'ny antsy* “with the knife”:

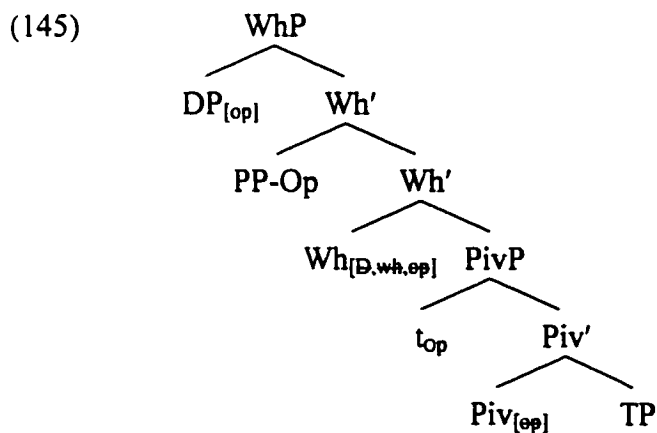
- (143) Tamin'ny antsy dia [_{WhP} namono akoho ny...mpamboly]
 Pst-with-Det knife Top Pst-NomP.kill chicken Det farmer
 “With the knife, the farmer killed (some) chickens”

In this sentence, the operator raises to check the [wh] and [op] features of Wh, while *ny mpamboly* (assigned an [op] feature in the numeration) checks the [D] feature of Wh. Two derivations are possible, depending on whether the DP or the operator is closer to PivP: If the DP is closer, it raises to the specifier of PivP, checking the [op] feature of

Piv and triggering NomP morphology on the verb *namono* “killed”, after which it raises again to become the inner specifier of WhP, checking the [D] and [op] features of Wh. The operator then raises from its base position to check the [wh] feature of Wh, becoming the outer specifier of WhP. The resulting structure is shown in (144):



On the other hand, if the PP-operator is closer to PivP, it will raise first, checking the [op] feature of Piv and the [wh] and [op] features of Wh, after which the DP raises to check the [D] feature of Wh, becoming the outer specifier of WhP, as in (145):



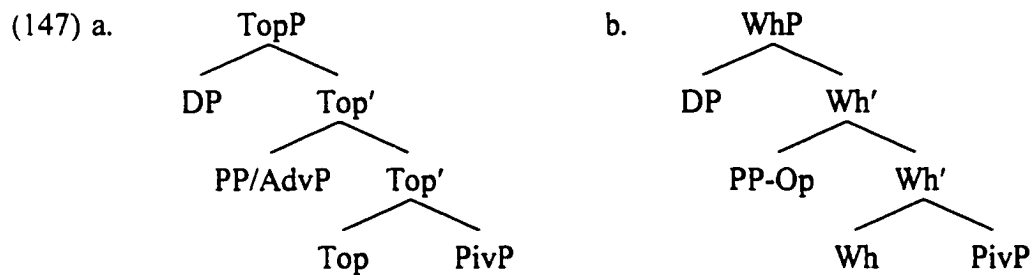
Either way, the result is the same as far as the voice marking on the verb is concerned: In 2.4.3 I argued that the voice morphemes *m-* and *-in* are case-assigning heads, which are spelled out overtly just in case they contain an A'-trace in their specifier. Let us assume that this property of being spelled out in the presence of an A'-trace is a general morphological characteristic of case-assigning heads in Malagasy, which is not shared with non-case-assigning heads (i.e., when an element undergoes A'-movement from the specifier of a head H, H will be spelled out only if it is a case-assigning head). In cases such as (144)–(145), in which a DP subject and a PP-operator both undergo A'-movement to SpecWhP, there is no conflict as far as which element will determine the voice of the verb: The DP raises from the nominative case position, SpecAspP, and thus causes Asp⁰ to be spelled out as *m-*; while the PP-operator raises from a non-case-position, and thus has no effect on the voice of the verb. (In general, when a case-bearing element and a non-case-bearing element both raise into the C-domain, it is the case-bearing element which will act as the pivot of the verb.) We thus correctly predict that the verb “kill” in (143) will exhibit NomP morphology.

Configurations such as (144)–(145), in which a C-projection hosts two specifiers, one containing a DP and the other containing a PP or adverbial element, are not restricted to null operator constructions, but are also found in other clause types. Recall from my discussion of word order in 2.1 that spatio-temporal adverbials and PPs sometimes follow the EA, as illustrated in (146):

- (146) a. Nanoratra taratasy ny zazavavy tany am-pianarana
 Pst-NomP.write letter Det girl Pst-there Obl-school
 “The girl wrote a letter in school”

- b. Niasa tany tamin'ny angady izahay omaly hariva
 Pst-NomP.work field Pst-with-Det spade lex yesterday evening
 “Yesterday evening we worked (in the) fields with a spade”

I have so far said nothing about the position of elements such as “in school” and “yesterday evening” in such sentences. Suppose that they occupy the inner specifier of TopP, as in (147a) (cf. the discussion in 4.3.1). If so, then their position is closely analogous to that of the PP-operator in (145) (abbreviated below as (147b)): TopP and WhP share the property that they may host multiple specifiers, as long as one (and only one) specifier contains a DP:⁴³

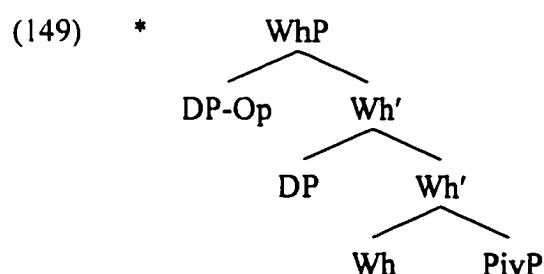


There are a number of questions raised by this analysis. Here, I will attempt to answer two of them. The first question concerns the checking of the [D] and [wh]/[op] features on WhP: Recall that the blocking effect in (110) is suspended *only* if the clefted/topicalized constituent is coindexed with an operator which is not of category DP (i.e., a DP-operator must act as the pivot of its clause). Thus, sentences such as (148a-b), in which a DP-operator co-occurs with an overt DP controlling the voice of the verb, are ill-formed:

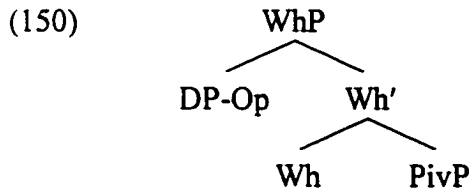
⁴³ It is probably no coincidence that spatio-temporal expressions such as “at school” and “yesterday evening” (which serve to establish the setting of the event denoted by the predicate phrase) are frequently topicalized in verb-second languages like German.

- (148) a. * Ny antsy no [DP-Op *namono* ny akoho ny...mpamboly]
 Det knife Foc Pst-NomP.kill Det chicken Det farmer
 “It’s the knife that the farmer killed the chicken (with)”
- b. * Ny antsy no [DP-Op *novonoin’ny* mpamboly ny...akoho]
 Det knife Foc Pst-AccP.kill-Det farmer Det chicken
 “It’s the knife that the farmer killed the chicken (with)”

Given my analysis, according to which WhP has three uninterpretable features to check, each of which may attract a different constituent, it is reasonable to ask what rules out sentences such as (148a-b). For example, we might imagine a derivation of (148a) in which an [op] feature is assigned in the numeration to *ny mpamboly*, causing it to raise to the inner specifier of WhP (via SpecPivP) to check the [D] and [op] features on Wh, triggering NomP morphology on “kill”. The DP-operator would then raise over it to the outer specifier of WhP to check the [wh] feature on Wh, producing the structure in (149a):



Why is it that (149) is blocked by the derivation in (150) (cf. (142)), in which no [op] feature is assigned to *ny mpamboly* and the DP-operator raises to become the single specifier of WhP?



In order to rule out (149), I will assume that feature attraction and checking are governed by economy considerations. Specifically, I adopt the principle in (151), from Pesetsky & Torrego (2000):

- (151) A head H triggers the minimum number of operations necessary to satisfy the properties of its uninterpretable features.

A DP-operator possesses interpretable [D], [wh], and [op] features. Thus, if Wh attracts the DP-operator into its specifier first, as in (150), then all three uninterpretable features of Wh can be satisfied in a single step. On the other hand, if it attracts an overt DP first to check its [D] and [op] features, as in (149), then it will need to attract another constituent to check its [wh] feature. (150), which involves one operation of Attract-F, is thus more economical than (149), which involves two operations.

A second issue raised by my analysis involves sentences in which a PP is clefted and the verb appears in the CrcP form. As Paul (1999) observes, CrcP morphology is compatible with clefted constituents of various categories, including both DPs (153a) and PPs (153b). The source of CrcP marking in (152a) is clear: *Ny antsy* “the knife” is coindexed with a DP-operator which starts out as the applicative object of the verb “kill”, and thus triggers insertion of the applicative suffix *-an* when it undergoes A'-movement to

SpecPivP (cf. my discussion of CrcP morphology in 2.4.4). But what is the source of CrcP morphology in the PP pseudocleft in (152b)?

- (152) a. Ny antsy no namonoan'ny mpamboly ny akoho
 Det knife Foc Pst-CrcP.kill-Det farmer Det chicken
 "It's the knife that the farmer killed the chicken (with)"
- b. Tamin'ny antsy no namonoan'ny mpamboly ny akoho
 Pst-with-Det knife Foc Pst-CrcP.kill-Det farmer Det chicken
 "It's with the knife that the farmer killed the chicken"

To capture sentences such as (152b), I will have to relax slightly the categorial matching requirement which holds between a null operator and its antecedent. Suppose that applicative objects—which function syntactically as case-bearing arguments of the verb but nevertheless share many semantic properties with obliques—may be coindexed with both DPs and PPs, allowing for the optionality in (152a-b). A similar kind of flexibility is found with operators such as *where* in English, which may be coindexed with both DPs and PPs in (psuedo)clefts:

- (153) a. It was *Madagascar* [where I first met them for the first time]
 b. It was *in Madagascar* [where I first met them for the first time]
- (154) a. [Where I really want to go] is *Madagascar*
 b. [Where I really want to go] is *to Madagascar*

To summarize: In 3.3.1–3.3.3 I showed that when a DP is relativized, clefted, or *diatopicalized*, the abstract case of the null operator with which the DP is coindexed obligatorily determines the voice of the verb in its clause (e.g., when the null operator bears nominative case, the NomP form of the verb is used). I characterized this in terms of a blocking effect on A'-movement: When there is a *wh*-operator in the clause, it raises to

the specifier of PivP to check the [op] feature of Piv, preventing any of the overt DPs in the clause from raising out of TP.

In this section I showed that when the clefted or *dia*-topicalized constituent belongs to a category other than DP (e.g., when it is a PP or adverbial), the blocking effect is suspended. I argued that in such cases, the operator with which the clefted/topicalized constituent is coindexed is a non-DP, and is thus incapable of checking the [D] feature of Wh. To ensure that this feature is checked, Wh attracts an overt DP, triggering the corresponding voice morphology on the verb. The resulting structure involves a WhP with two specifiers, one containing the operator and the other containing a DP pivot. (Note that multiple WhP specifiers are disallowed in the Germanic verb-second languages, where a non-DP wh-operator may not co-occur with a DP topic in the preverbal position. I return to this difference between Malagasy and Germanic in 4.3.1.)

3.5. The subject-like properties of EAs reconsidered

In sections 3.2–3.4, I tried to show that by adopting an A'-movement analysis of externalization, it is possible to avoid positing the sort of language-specific principles which are necessary under an A-movement account (e.g., reconstruction from the subject position is obligatory, only subjects may be A'-extracted, only subject clauses are transparent for subextraction, etc.). This evidence clearly points to the conclusion that external arguments in Malagasy occupy an A'-position. However, as I discussed in 3.1.1, external arguments also share certain properties with IP subjects in more familiar languages like English, properties which previous researchers have taken as evidence for treating the EA

as a subject. In this section I consider two pieces of evidence for treating the EA as a subject which appear to be inconsistent with the A'-analysis argued for in this chapter. 3.5.1 deals with evidence from morphology for associating the EA position with nominative case assignment. 3.5.2 deals with raising-to-object and the issue of *improper movement* (viz., movement from an A'-position to an A-position).

3.5.1. Case-marking on pronouns

A common argument for treating the external argument as a subject involves the distribution of case-marking on pronouns. As various authors have pointed out, pronouns in Malagasy have distinct morphological forms associated with the external argument position. The third person pronoun, for example, takes the form *izy* when it functions as the EA, as shown in (155). When it is internal to the predicate phrase, the pronoun takes the form *azy* (for direct and indirect objects) or *-ny* (for agent phrases, possessors, and the objects of prepositions), as shown in (156):

- (155) a. Namangy ny ankizy izy
 Pst-NomP.visit Det children 3
 "S/he visited the children"
- b. Novangian'ny ankizy izy
 Pst-DatP.visit-Det children 3
 "The children visited him/her"
- (156) a. Namangy azy ny ankizy
 Pst-NomP.visit 3 Det children
 "The children visited him/her"

- b. Novangiany [_< novangian(a) -ny] ny.....ankizy
 Pst-DatP.visit-3 Det children
 “S/he visited the children”

Keenan (1976), Voskuil (1993), and others identify *izy*, *azy*, and *-ny* with nominative, accusative, and genitive case, respectively. If we assume that the *izy* form in (155) represents the morphological realization of structural nominative case on the pronoun, it would follow that movement to the EA position is motivated by the need to check case.

However, as I showed in 2.3.1, the *izy* form is best analyzed not as a nominative form, but as a default form, which appears in syntactic contexts where the *azy* and *-ny* forms are disallowed. In addition to being used when the pronoun is an external argument, the *izy* form also occurs when the pronoun functions as a predicate (or otherwise occupies a non-case position), as in the pseudocleft construction in (157):

- (157) *Izy* no.....novangian'ny.....ankizy
 3 Foc Pst-DatP.visit-Det children
 “It was s/he who the children visited”

Furthermore, the *izy* form is used in place of *-ny* in contexts where cliticization is disallowed, such as when the pronoun is coordinated with another noun phrase. Compare:

- (158) a. Hitany tany an-tokotany i.....Koto
 saw-Lnk-3 Pst-there Obl-garden Det Koto
 “S/he saw Koto in the garden”
- b. Hitan'izy sy ny zaza tany an-tokotany i.....Koto
 saw-Lnk-3 and Det child Pst-there Obl-garden Det Koto
 “S/he and the child saw Koto in the garden”

The distribution of *izy*-type pronouns is actually quite similar to that of strong pronouns in languages like French (*moi, toi, vous*, etc.): Strong pronouns are unmarked for case, and are used in place of—or in combination with—case-inflected clitic pronouns in coordinate structures, left-dislocation constructions, clefts, and the like.

In light of this, there is no compelling reason to associate the *izy* form with the EA position in particular. Consequently, the pronoun facts may not be construed as providing evidence for structural nominative case assignment in the EA position—in fact, quite the contrary: Given that the default form alternates with the clitic form, as in (158), it would be reasonable to assume that structural nominative case is actually assigned in the position occupied by postverbal subjects, as I argued in 2.3.3.

3.5.2. Raising-to-object

A second piece of evidence for regarding externalization as A-movement (which I have not discussed before now) is that, like raising to SpecIP in other languages, this operation appears to feed subsequent A-movement operations such as *raising-to-object*. In this section, I discuss the properties of the raising-to-object construction and explain why it is problematic for the A'-movement analysis of externalization presented here. I then suggest an alternative structure for raising-to-object complements which is consistent with the A'-movement analysis. According to this alternate structure, the 'raised' object is actually base-generated outside of the embedded clause, and coindexed with a null operator in the embedded SpecCP, much as in *tough*-movement constructions.

In the raising-to-object (RTO) construction, an argument of an embedded clause is promoted to the direct object function of a matrix verb (Paul & Rabaovololona 1998). An example of this construction is given in (159a). Here the promoted argument (which I will designate informally as the *derived object*, to distinguish it from objects which are θ -marked by the matrix verb) is separated from the embedded verb by the particle *ho* (I return to this particle below). The RTO construction alternates with a construction in which the argument in question remains within the embedded clause, which is headed by the complementizer *fa* (159b). (Notice that embedded clauses introduced by *ho* are inside the predicate phrase, while those introduced by *fa* extrapose to the right of the matrix EA.)

- (159) a. Mihevitra *ny mpianatra* [*ho mamaky ny boky*] *Rabe*
 NomP.think Det student NomP.read Det book Rabe
 “Rabe thinks of the student that (he) is reading the book”
 or “Rabe believes the student to be reading the book”
- b. Mihevitra *Rabe* [*fa mamaky ny boky ny mpianatra*]
 NomP.think Rabe that NomP.read Det book Det student
 “Rabe thinks that the student is reading the book”

As the gloss of (159a) suggests, RTO complements are in many respects analogous to the *exceptional case-marking* (ECM) complements in English. The two constructions differ in that ECM verbs in English take non-finite clauses, whereas RTO verbs in Malagasy take finite clauses. Consider the following examples from Paul & Rabaovololona (1998), which show that the tense of the embedded verb may vary independently of the tense of the matrix verb:

- (160) a. Mihevitra *an-dRabe* [*ho mamono ilay biby*] *aho*
 NomP.think Obj-Rabe NomP.kill that animal Is
 “I believe of Rabe that he is killing that animal”

- b. Mihevitra an-dRabe [ho *namono* ilay biby] aho
 NomP.think Obj-Rabe Pst-NomP.kill that animal is
 “I believe of Rabe that he killed that animal”
- c. Mihevitra an-dRabe [ho *hamono* ilay biby] aho
 NomP.think Obj-Rabe Irr-NomP.kill that animal is
 “I believe of Rabe that he will kill that animal”

There is evidence to suggest that although it bears a thematic relation to the embedded verb, the derived object is properly part of the matrix clause, and does not form a constituent with the embedded clause. For example, (161) shows that the derived object may be separated from the embedded clause by an adverb which modifies the matrix verb.⁴⁴

- (161) ? Nilaza an-dRabe tamin-katezerana [ho mpangalatra] Rasoa
 Pst-NomP.say Obj-Rabe Pst-with-anger thief Rasoa
 “Rasoa said angrily of Rabe that (he was) a thief”

As can be seen by comparing the examples in (162)–(163) below, the derived object controls the voice of the embedded verb:

⁴⁴ Paul & Rabaovalolona (1998) report a judgment of ?? for this sentence. However, my principal consultant judges similar sentences to be only slightly worse than their counterparts in which the adverb precedes the derived object, hence the upgrade to just a single question mark.

One might ask, of course, why (161) should be marginal at all. Although the relative order of postverbal adverbs and [+specific] direct objects is in principle free, there appears to be a preference among some speakers for ordering manner adverbs before the object rather than after it. For example, Polinsky (1994) reports the following contrast (cf. (i-b) with (161)):

- (i) a. Nitifitra tamin'kasosorana ny vorona ny...mpihaza
 Pst-NomP.kill Pst-with-anger Det bird Det hunter
 “The hunter angrily killed the birds”
- b. ? Nitifitra ny vorona tamin'kasosorana ny...mpihaza
 Pst-NomP.kill Det bird Pst-with-anger Det hunter
 “The hunter angrily killed the birds”

The point to keep in mind here is that although (161) is not entirely acceptable, it is not nearly as bad as one would expect if the derived object formed a constituent with the embedded clause.

- (162) a. Namono an'ilay akoho Ranaivo
 Pst-NomP.kill Obj-that chicken Ranaivo
 "Ranaivo killed that chicken"
- b. Novonoin-dRanaivo ilay akoho
 Pst-AccP.kill-Ranaivo that chicken
 "That chicken, Ranaivo killed (it)"
- (163) a. Mihevitra an-dRanaivo [ho namono an'ilay akoho] Rakoto
 NomP.think Obj-Ranaivo Pst-NomP.kill Obj-that chicken Rakoto
 "Rakoto thinks of Ranaivo that (he) killed that chicken"
- a'. * Mihevitra an-dRanaivo [ho novonoina ilay akoho] Rakoto
 NomP.thinks Obj-Ranaivo Pst-AccP.kill that chicken Rakoto
 "Rakoto thinks of Ranaivo that that chicken was killed (by him)"
- b. Mihevitra an'ilay akoho [ho novonoin-dRanaivo] Rakoto
 NomP.think Obj-that chicken Pst-AccP.kill-Ranaivo Rakoto
 "Rakoto thinks of that chicken that (it) was killed by Ranaivo"
- b'. * Mihevitra an'ilay akoho [ho namono Ranaivo] Rakoto
 NomP.think Obj-that chicken Pst-NomP.kill Ranaivo Rakoto
 "Rakoto said of that chicken that Ranaivo killed (it)"

This suggests that raising-to-object is fed by pivot-formation. That is, before the embedded argument can raise to become the derived object of the matrix verb, it must first be promoted to the pivot role within the lower clause, thereby determining the voice-marking on the lower verb. In terms of the analysis in 3.1, this would mean that an embedded DP must first raise into the SpecPivP position of its own clause before extracting from the clause and raising on to the derived object position.⁴⁵ However, such a requirement would pose a problem for the A'-movement account of externalization, since, as I show

⁴⁵ This would be consistent with the descriptive generalization (mentioned in 3.3.1) that the pivot position is an escape hatch for extraction from embedded clauses.

below, there is ample evidence to suggest that the derived object occupies a case position. Movement from an A'-position to an A-position is generally ruled out on the basis of *improper movement* cases like (164), in which a wh-phrase raises from the embedded Spec-CP position (t') to satisfy the EPP feature of the matrix T:

(164) * Who_i t'_i'' seems [t'_i that Dennis visited t_i]?

Thus, if SpecPivP is an A'-position, as I have argued, it should not be possible for case-driven movement to proceed from this position. In order to allow pivot-formation to feed subsequent A-movement, we would have to assume that the pivot occupies an A-position. Thus, the existence of raising-to-object seems to support Guilfoyle, et al.'s (1992) account of externalization as movement to SpecIP, rather than the analysis presented in 3.1.

As evidence that the derived object occupies an A-position, Paul & Rabaovolo-lona (1998) note that it is marked with morphological objective case: When the derived object is a proper name, the oblique prefix *an-* is required (cf. (163) above), and when it is a pronoun, the objective form is used, as shown in (165). Furthermore, this constituent may raise to become the EA of the matrix clause, triggering AccP morphology on the matrix verb (166), showing that it bears abstract accusative case.⁴⁶

⁴⁶ Sentences such as (166), in which the logical argument of an embedded verb is mapped to the matrixEA position, bear a striking resemblance to the long-distance externalization examples discussed in 3.3:

- (i) a. Kasain-dRasoa hosasana ny...zaza
 AccP.intend-Rasoa Irr-DatP.wash Det child
 "The child, Rasoa intends to wash (her)"
- b. Heverin-dRasoa novangian'ny lehilahy ny...zaza
 AccP.think-Rasoa Pst-DatP.visit-Det man Det child
 "The child, Rasoa thinks that the man visited (her)"

- (165) a. Mamangy *anay* Rakoto
 NomP.visit lex Rakoto
 “Rakoto is visiting us”
- b. Mihevitra *anay* [ho namono an’*ilay* akoho] Rakoto
 NomP.think lex Pst-NomP.kill Obj-that chicken Rakoto
 “Rakoto thinks of us that (we) killed that chicken”
- (166) a. Heverin-dRakoto [ho namono an’*ilay* akoho] Ranaivo
 AccP.think-Rakoto Pst-NomP.kill Obj-that chicken Ranaivo
 “Ranaivo, Rakoto thinks (of him) that (he) killed that chicken”
- b. Heverin-dRakoto [ho novonoin-dRanaivo] *ilay* akoho
 AccP.think-Rakoto Pst-AccP.kill-Ranaivo that chicken
 “That chicken, Rakoto thinks (of it) that (it) was killed by Ranaivo”

That RTO involves movement to an A-position is further suggested by the fact that derived objects may not reconstruct into the embedded clause: As shown in (167a-b), an ana-

However, I believe that the two constructions are actually quite different syntactically. Notice that the sentences in (i) lack the particle *ho*. As the sentences in (ii)–(iii) show, there is a strong correlation between the presence of *ho* and the ability of the externalized argument to appear in the matrix object position:

- (ii) a. Heverin-dRakoto ho novonoin-dRanaivo *ilay* akoho
 AccP.think-Rakoto Pst-AccP.kill-Ranaivo that chicken
 “That chicken, Rakoto believes (of it) that Ranaivo killed (it)”
- b. Mihevitra *an’*ilay* akoho* ho novonoin-dRanaivo Rakoto
 NomP.think Obj-that chicken Pst-AccP.kill-Ranaivo Rakoto
 “Rakoto believes of the chicken that Ranaivo killed (it)”
- (iii) a. Heverin-dRasoa novangian’ny lehilahy *ny* zaza
 AccP.think-Rasoa Pst-DatP.visit-Det man Det child
 “The child, Rasoa thinks that the man visited (her)”
- b. * Mihevitra *ny zaza* novangian’ny lehilahy Rasoa
 NomP.think Det child Pst-DatP.visit-Det man Rasoa
 “Rasoa thinks the child that the man visited (her)”

To explain this difference, I suggest that in the RTO construction, the verb assigns abstract accusative case to the derived object, whereas in the sentences in (i), accusative case is assigned to the clause as a whole. Thus, *ilay akoho* in (ii-a) starts out in the matrix object position and moves from there to the EA position, triggering AccP marking on the matrix verb. In (iii-a), by contrast, *ny zaza* starts out in the embedded ob-

phor in the matrix derived object position may be bound by the matrix subject, but not by an embedded subject (Travis 1997). (Compare (167b) with the grammatical sentence in (167c), illustrating the reconstruction effects discussed in 3.2.1. This contrast shows that the ill-formedness of (167b) is not merely the result of the anaphor having raised over its antecedent):

- (167) a. Mihevitra ny tenany_i [ho hajain'ny ankizy] Rabe_i
 NomP.think Det self-3 AccP.respect-Det children Rabe
 "Rabe_i believes himself_i to be respected by the children"
- b. * Mihevitra ny tenany_i [ho hajain'ny ankizy_i] izahay
 NomP.think Det self-3 AccP.respect-Det children lex
 "We believe themselves_i to be respected by the children_i"
- c. Hajain'ny ankizy_i ny.....tenany_i
 AccP.respect-Det children Det self-3
 "Themselves_i the children_i respect"

Notice, however, that the RTO construction poses a problem for the A'-movement analysis of externalization *only* if we assume that the derived object actually raises out of the embedded clause. An alternative approach would be to assume that the derived object is base-generated in the matrix clause, and coindexed with an operator-variable chain inside the embedded clause, as in (168). If the derived object does not actually raise from the embedded clause, then we are free to treat the EA position as an A'-position without worrying about the problem of improper movement.

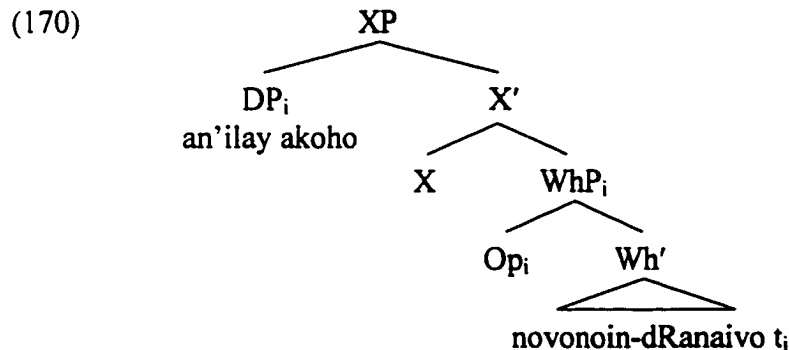
ject position, and externalization involves clausal pied-piping (which triggers AccP marking on the matrix verb) followed by subextraction, as detailed in 3.3.2.

- (168) Mihevitra an'ilay akoho_i [Op_i ho novonoin-dRanaivo t_i] Rakoto
 NomP.think Obj-that chicken Pst-AccP.kill-Ranaivo Rakoto
 lit. "Rakoto thinks (of) that chicken_i [Op_i Ranaivo killed t_i]"

Configurations of this sort, in which an operator-variable chain in a lower clause is identified through coindexation with a higher noun phrase, are familiar from relative clause constructions. Note also Chomsky's (1981, 1982) analysis of tough-movement in English, where the subject of the *tough* predicate is base-generated in the higher clause, and receives its θ -role through transmission from a null operator in the lower clause:

- (169) That chicken_i was easy [Op_i for Ranaivo to kill t_i]

For the sake of concreteness, I will adopt the following analysis of RTO predicates: In addition to selecting a CP complement headed by *fa*, verbs such as *hever* "think, believe" may select a small clause complement, labeled XP in the following tree:



The derived object (*an'ilay akoho* "that chicken" in (168)/(170)) is the subject of this small clause, and is thus generated in the specifier of XP, from which it raises into the SpecAsp_P position of the matrix verb to check its abstract accusative case feature (cf. 2.3.3 on accusative case assignment). The complement of X⁰ is a WhP constituent con-

taining a null operator in its specifier. This WhP is interpreted somewhat like an (indefinite) headless relative clause or free relative construction, which ranges over a set of individuals that bear the property denoted by the embedded predicate. Thus the literal meaning of (168) is something like “Rakoto believes that chicken [to be] what Ranaivo killed”.

Note that, as in small clauses generally, the DP subject and WhP complement of X^0 stand in a predication relation. Since the WhP complement gets its reference from the null operator in its specifier, this ensures that the DP subject of X^0 will be coindexed with the trace in the embedded clause, and interpreted as an argument of the embedded verb.

This analysis captures all of the relevant properties of the RTO construction. The derived object raises overtly from its base position in SpecXP to check case, and hence fails to form a constituent with the embedded clause. Meanwhile, the null operator raises through the specifier of PivP on its way to the embedded SpecWhP position, thereby triggering the appropriate voice morphology on the embedded verb (cf. 3.4.1). The derived object is coindexed with the null operator via predication, hence the impression that the derived object is acting as the pivot of the embedded verb.

Notice also that this account allows for a different explanation of the binding issue mentioned above, namely that an anaphor in the derived object position may not reconstruct into the binding domain of an embedded subject, as shown by the ungrammaticality of (171). If the derived object starts out in the matrix clause, then clearly there is no position in the embedded clause into which it could reconstruct. (171) thus violates both Condition A (there is no local c-commanding antecedent for *ny tenany*) and Condi-

tion C (*ny tenany* c-commands the R-expression *ny ankizy*, with which it is coindexed, and thus A-binds it).⁴⁷

- (171) * Mihevitra ny tenany_i [ho hajain'ny ankizy_i] izahay
 NomP.think Det self-3 AccP.respect-Det children lex
 "We believe themselves_i to be respected by the children_i;"

Finally, this analysis overcomes a conceptual problem with the traditional account of RTO, whereby the derived object extracts from the embedded EA position (identified as a subject position, SpecIP): If the derived object raises into the matrix clause in order to check its case feature, then it must be unable to check this feature in the embedded clause. Yet it is unclear why this should be, since the embedded clause is tensed (cf. (160) above), and should thus have a T head capable of checking a case feature. Under the small clause analysis in (170), the derived object is generated outside the embedded

⁴⁷ At first glance, this argument would appear to be incompatible with the alternative account of externalization which I suggested at the end of 3.2.3 (to account for the absence of weak crossover effects), according to which the EA is base-generated in SpecTopP and linked to a null operator in SpecPivP (i).

- (i) [TopP EA_i [PivP Op_i [TP ... t_i ...]]]

If we were to accept the story in (i), we would need to allow constituents to be interpreted in the trace position of a null operator with which they are coindexed, as in Barss (1984, 1986), in order to explain the grammaticality of sentences such as (ii). If *ny tenany* is linked to a null operator with its trace in the scope of *ny ankizy* in both (ii) and (174), then why can *ny tenany* be bound by *ny ankizy* in the former case, but not the latter case?

- (ii) Hajain'ny ankizy ny...tenany
 AccP.respect-Det children Det self-3
 "Themselves, the children respect"

However, there is a crucial difference between the example in (171) and the one in (ii): In (ii), the reflexive is sitting in an A'-position (SpecTopP), while in (171) it is sitting in an A-position (the derived object position). Barss (1984) argues that the antecedent of a null operator may form an A'-chain with that operator and its trace only if the antecedent is in an A'-position (given the natural assumption that an A'-chain can contain only one set of case- and θ-features). Thus, even if we assume that EAs in Malagasy do not extract from the predicate phrase, but are base-generated in SpecTopP and linked to a null operator, we would still predict that reconstruction of the anaphor is possible in (ii) but not in (171).

clause, and must raise into the matrix SpecAspP to check its case feature; it is coindexed with a null operator, which checks its case feature inside the embedded clause.

As a counterobjection to this, one might observe that case-driven movement out of tensed clauses, while impossible in English, has been argued to exist in other languages, as discussed by Ura (1996). Consider the example in (172b) below from Standard Arabic (Salih 1985, Ouhalla 1994a), in which the direct object of the matrix verb, *l-taalib-a* “the student”, bears a thematic relation to the embedded verb “know” (cf. (172a), in which *l-taalib-a* is in the embedded clause):⁴⁸

- (172) a. Dhanan-tu ['anna Zaynab-a ta-'rifi l-taalib-a]
 believed-1s that Zaynab-Acc 3sF-know the-student-Acc
 “I believed that Zaynab knew the student”
- b. Dhanan-tu l-taalib-a ['anna Zaynab-a ta-'rifi-hu]
 believed-1s the-student-Acc that Zaynab-Acc 3sF-know-3sM
 “I believed that Zaynab knew the student”
 lit. “I believed the student_i that Zaynab knew him_i”

Ura (1996) argues that (172b) involves a kind of successive-cyclic A-movement. Specifically, he argues that *l-taalib-a* “the student” raises to become the matrix object by using the embedded subject position (specifically, the outer specifier of the embedded TP) as an escape hatch. His derivation proceeds more or less as in (173): We begin with the structure in (173a), in which the embedded subject *Zaynab-a* has raised from its θ -position (SpecvP) to become the specifier of TP, thereby checking the EPP- and ϕ -features of T^0 .

⁴⁸ Notice that the embedded subject *Zaynab* receives morphological accusative case in these examples. Following Watanabe (1993), Ura assumes that the embedded subject receives case from T^0 , which raises and adjoins to the complementizer at LF.

Ura argues that in Standard Arabic the EPP- and case-features of T^0 may enter into multiple checking relations, which in turn means that TP may host multiple specifiers (see below). Thus, T^0 may optionally attract the embedded direct object, causing the latter to raise and become the outer specifier of TP, as in (173b).⁴⁹ TP then merges with the complementizer *'anna* to form CP, which merges with the matrix verb “believe” to form VP. Finally, the object raises into the checking domain of the matrix verb to check its case feature (which went unchecked in the embedded clause), resulting in (173c). Adding the matrix ν P and TP layers to (173c) and raising the matrix verb yields the sentence in (172b):

- (173) a. [TP Subj_i [T' T [ν P t_i V Obj]]]
 b. [TP Obj_k [T' Subj_i [T' T [ν P t_i V t_k]]]]]
 c. [ν P Obj_k V [CP C [TP t_k [T' Subj_i [T' T [ν P t_i V t_k]]]]]]]]]

As evidence that T^0 may check its EPP- and case-features multiple times, Ura observes that Standard Arabic allows multiple nominative subjects, as in (174), where the outer subject is interpreted as the possessor of the inner subject:

- (174) Zayd-un 'abuh-u marid-un
 Zayd-Nom father-Nom sick-Nom
 “Zayd, (his) father (is) sick”

⁴⁹ Importantly, Ura must assume that although the object checks the EPP-feature of T in (173b), T *does not* check the case feature of the object. To allow for this, he proposes a Last Resort condition on feature-checking, which permits an uninterpretable feature to go unchecked at a given step in the derivation as long as it is checked at some subsequent step.

Supposing for the sake of argument that we wanted to maintain the traditional analysis of RTO in Malagasy, according to which the derived object undergoes A-extraction from the embedded subject position, we might try to extend Ura's analysis of Arabic to cover this case. However, it seems doubtful that such an analysis could be made to work. Ura's theory predicts that a given language will allow an embedded object to raise out of a tensed clause only if the T head in that language licenses multiple specifiers. If the EA in Malagasy were licensed in the specifier of TP (as the traditional analysis assumes), and if T⁰ were allowed to project multiple specifiers, then we would expect Malagasy to allow multiple EA constructions, analogous to the Arabic multiple nominative construction in (174). However, such constructions are strictly disallowed, as shown in (175).⁵⁰

- (175) * Marary ve ny...zaza ny vehivavy?
 NomP.sick Qu Det child Det woman
 "The woman, is (her) child sick?"

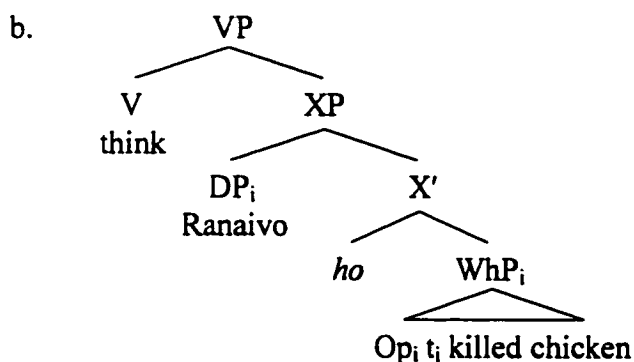
⁵⁰ Note that Malagasy *does* have possessor-raising, but only out of (non-specific, generally non-referential) complement DPs. In (i-a), for example, the possessor raises into the EA position out of the single argument of an unaccusative predicate; while in (i-b), the possessor has raised into the objective case position from the complement of a transitive predicate. In both cases, the possessee occupies a fixed position immediately right-adjacent to the verb, and is perhaps incorporated into the verb. (For more on possessor-raising, see Keenan & Ralalaoherivony 1998, Pearson 1996a/b.)

- (i) a. Mainty volo ve ny...zazavavy?
 NomP.black hair Qu Det girl
 "Does the girl have black hair?"
 or "Is the girl black-haired?"
 b. Tsy hanadino anarana an'i Saholy i...Njaka
 Neg Irr-NomP.forget name Obj-Det Saholy Det Njaka
 "Njaka will not forget Saholy's name"
 lit. "Njaka will not name-forget Saholy"

Thus, even within the context of Ura's theory, the traditional analysis of the RTO construction remains problematic. No such problems exist under the small clause analysis of RTO, according to which the derived object is generated outside the embedded clause.

A final remark on the small clause analysis concerns the placement of the particle *ho*, which intervenes between the derived object and the embedded verb. There are a number of possibilities: *Ho* may be the head of the embedded WhP, or possibly the head of some functional projection above the small clause, which attracts the small clause subject into its specifier to check a formal feature. For the sake of concreteness, I will assume that *ho* is the head of the small clause itself, as in (176):

- (176) a. Mihevitra an-dRanaivo [*ho* namono an'ilay akoho] Rakoto
 NomP.think Obj-Ranaivo Pst-NomP.kill Obj-that chicken Rakoto
 "Rakoto thinks of Ranaivo that (he) killed that chicken"



As possible evidence for analyzing RTO complements as small clauses headed by *ho*, note that this particle is also used to introduce nominal and adjectival secondary predicates in resultative constructions:

- (177) a. Namono [*ho* faty] ny lehilahy izy
 Pst-NomP.kill death Det man 3
 "They killed the man dead"

- b. Mikapoka [*ho* fisaka] ny fantsika amin'ny maritoa aho
 NomP.hit flat Det nail with-Det hammer 1s
 "I am hitting the nail flat with the hammer"

Suppose that resultative constructions involve the selection of an NP or AP small clause complement by the verb, as Hoekstra (1988) and others have argued:

(178) [VP hammer [AP the nail [A' flat]]]

If this analysis is correct, then it is possible to reconcile this use of *ho* with its use in raising-to-object complements: In both cases, *ho* heads a small clause containing a non-verbal predicate—a nominal or adjectival root in the case of resultative constructions, and a free relative CP in the case of RTO.^{51,52}

There are other questions about the RTO construction which remain to be answered. The point of this discussion is that plausible analyses of the RTO construction can be formulated without having to assume that movement of the derived object is fed by

⁵¹ Notice that the direct object precedes *ho* in the raising-to-object construction (176), but follows the secondary predicate in resultative constructions (177). This may have to do with the fact that the direct object bears a thematic relation to the matrix verb in (177), but not in (176). See Pearson (in preparation) for additional discussion of resultative constructions.

⁵² Historically, *ho* appears to be related to the Bantu infinitival/dative marker *ku-*. This particle is also used as an irrealis/future tense marker for non-verbal predicates (i), and combines with the oblique prefix *an-* (see 2.3.1) to form benefactive phrases (ii). I believe that these uses are related to the use of *ho* in raising-to-object and resultative constructions (historically, if not synchronically), but for reasons of space I will not pursue the issue here.

- (i) *Ho* dokotera ny...rahalahiko
 Irr doctor Det brother-1s
 "My brother is going to be a doctor"
- (ii) *Miasa ho* an'ny mpamboly ny...rahalahiko
 NomP.work Obl-Det farmer Det brother-1s
 "My brother works for the farmer"

movement to the pivot position. Thus, the existence of RTO cannot be taken as evidence against treating externalization as an A'-movement operation analogous to topicalization.

3.6. Summary of chapter 3

In this chapter I presented evidence to show that externalization (the mapping of a [+specific] DP onto the predicate-external argument position) patterns with familiar cases of A'-movement such as topicalization, rather than with A-movement operations such as raising-to-subject. On the basis of this evidence, I concluded that the EA occupies an A'-position in the overt syntax, the specifier of a left-peripheral C-projection dubbed TopP.

In 3.2 I showed that, like topics and *wh*-phrases in other languages, EAs obligatorily reconstruct for purposes of binding—an expected fact if EAs occupy an A'-position. If externalization were A-movement, we would need to assume that reconstruction from a nominative case-position to a θ -position is obligatory in Malagasy, while being unavailable (or at most optional) in other languages.

In 3.3 I showed that externalization may form long-distance dependencies of the type found with *wh*-movement in other languages. The pattern of voice marking found in such cases is compatible with a process CP pied-piping of the kind found in Basque *wh*-questions, again suggesting that externalization is A'-movement. In order to reconcile the voice marking facts with an A-movement analysis of externalization, we would need to stipulate that CP complements in Malagasy are islands for extraction while CP subjects are not—a situation at odds with what we find in other languages, and what standard theories of extraction and islandhood would lead us to expect.

In 3.4, I showed that the voicing restrictions found in relative clauses, clefts, etc., are expected if we analyze the EA as a topic-like A'-element which competes with wh-operators for the SpecPivP position, given that wh-movement blocks topicalization in a number of languages (including English and Icelandic). On the other hand, if we analyze the EA as a subject, then we must stipulate that only subjects may undergo A'-extraction in Malagasy. This is an unexpected result, given that subjects are less extractable than non-subjects in other languages.

In short, with regard to binding and reconstruction, extractability, and island effects, Malagasy looks 'well behaved' under an A'-movement analysis of externalization, but anomalous under an A-movement analysis.

Moreover, in those respects with which external arguments appear to pattern with subjects, plausible alternative explanations are available which are consistent with an A'-movement analysis, as I showed in 3.5. As for the evidence from pronoun morphology suggesting that the EA position is the locus of nominative case assignment, I showed that the so-called nominative case pronouns are actually default forms. Regarding the claim that pivot-formation feeds raising-to-object, I proposed that the derived object in RTO constructions does not extract from the embedded clause, but is instead base-generated in the matrix clause and linked to a null operator in the embedded clause, much as in *tough*-constructions in English.

In the next chapter, I return to an issue which was set aside in this chapter, namely the right-peripheral position of the external argument. I develop a movement-based analysis of EA-final order, according to which the derivation of predicate-initial order in Ma-

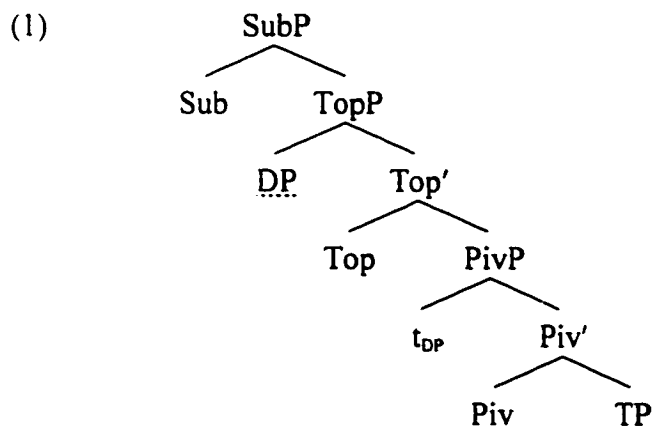
lagasy differs minimally from the derivation of verb-second order in Germanic, thereby reinforcing the parallels between Malagasy EAs and Germanic preverbal topics noted in this chapter.

Chapter 4

Word Order and Clause Structure

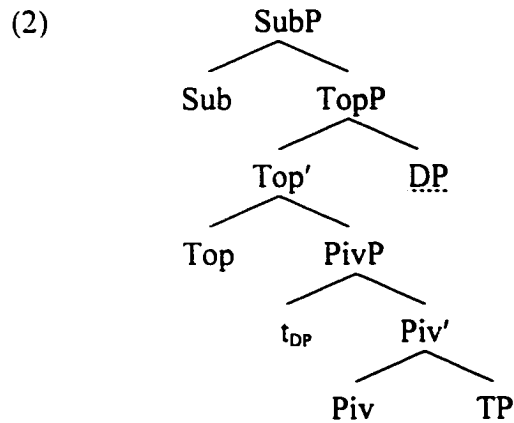
4.0. Introduction

In chapter 3, I argued that the external argument (EA) occupies an A'-position in the C-domain of the clause, the specifier of a projection which I dubbed TopP. This projection is located below the projection which hosts complementizers in embedded clauses (SubP), and above the projection to which the pivot of the verb raises (PivP):

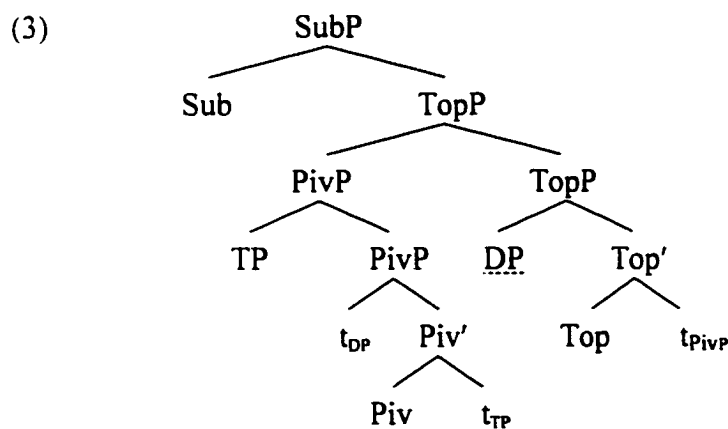


In this chapter, I focus on the right-peripheral position of the external argument. A priori, there are two possible approaches to deriving EA-final order, one involving directionality of concatenation and the other involving movement. Under the first approach, we might assume that Top⁰ takes its specifier on the right, as in (2). (2) amounts to a slightly updated version of the phrase structure trees proposed by Guilfoyle, Hung, & Travis (1992)

(GHT) and MacLaughlin (1995), who assume that the EA occupies a right-specifier position from which it c-commands the predicate phrase at spell-out.



The second approach is based on the assumption that EA-final order is derived from underlying EA-initial order through leftward movement of the predicate phrase to a position above the EA. It is this approach which I will argue for here. In particular, I will argue for a two-step derivation, whereby TP raises and adjoins to PivP, after which PivP raises and adjoins to TopP, yielding the surface structure in (3):



The derivation in (3) involves additional movements which need to be motivated, but in other respects it is arguably simpler than the analysis in (2). For a start, (2) requires us to posit a language internal asymmetry, whereby TopP takes its specifier to the right of the head while other projections take their specifiers to the left of the head. On the other hand, adopting the analysis in (3) allows us to assume that every head in Malagasy concatenates with its specifier in the same direction. Moreover, the cross-linguistic evidence for head–specifier order, particularly in the C-domain, is rather sparse (e.g., Kayne 1994 notes the apparent absence of languages with *wh*-movement to the right-periphery). Finally, it is unclear how (2) could be adapted to the Minimalist framework of Chomsky (1995), in which left-to-right order is treated strictly as a PF phenomenon. (As I discussed in chapter 1, Chomsky adopts Kayne’s (1994) Linear Correspondence Axiom, according to which the left-to-right order of constituents at PF is read off of asymmetric c-command relations at spell-out; cf. Chomsky 1995, pp. 334–340.) The derivation in (3), by contrast, avoids the need to posit directionality parameters on projection/merger, and is thus consistent with Minimalist assumptions.

In addition to being conceptually simpler, the structure in (3) has certain empirical advantages over the one in (2), as I will show in the final section of this chapter. There I discuss two pieces of evidence for (3). The first piece of evidence involves particle placement: (a) By assuming the structure in (3), it is possible to formulate a simple rule to describe the positioning of the yes/no question particle *ve*—viz., *ve* cliticizes post-syntactically to the right edge of the highest maximal projection in the clause. On the other hand, if we adopt the structure in (2), formulating a succinct *ve*-placement rule becomes

more difficult, as we would need to stipulate that *ve* cliticizes sometimes to the left of its host and sometimes to the right.

The second piece of evidence for the analysis in (3) involves word order in embedded clauses: If we assume that the predicate raises over the EA to derive surface word order, as in (3), we allow for the possibility that under certain circumstances, PivP-movement will fail to be triggered, in which case the clause will be spelled out with the EA preceding the predicate rather than following it. I show that EA-initial order is in fact attested in certain kinds of embedded clauses (viz., clausal complements of perception verbs like *hita* “see”, and adverbial clauses headed by certain subordinators, such as *satria* “because”). Given that in many languages with overt verb-raising, the verb surfaces in a lower position in (certain types of) embedded clauses than it does in main clauses, this is just where we might expect to find EA-initial order in Malagasy, under the analysis in (3). By contrast, the analysis in (2) fails to predict the existence of EA-initial order, since the EA position is above and to the right of the predicate phrase at all stages of the derivation. To derive EA-initial order in embedded clauses under the analysis in (2), we would need to assume that in these constructions the EA raises from SpecTopP to a higher left-specifier (SpecSubP?), a movement for which there is no independent motivation.

Why should Malagasy exhibit successive XP-adjunction to PivP and TopP? In addressing this question, I begin by reviewing evidence to show that the position of the external argument in Malagasy is the same as the position of preverbal topics in verb-second (V2) languages such as German, Dutch, and Icelandic—and that in general the architecture of the C-domain is essentially the same in verb-second languages as in Mala-

gasy. Building on this analogy, I suggest that predicate-fronting in Malagasy is motivated by the same lexical requirements that trigger successive head movement (T-to-C raising) in V2 clauses. In short, Malagasy may be thought of as the XP-movement analogue of a V2 language.

To account for movement into the C-domain, I propose the following analysis: Adopting Chomsky and Lasnik's (1995) notion of *L-relatedness*, I argue that L-related categories such as T and Asp differ from non-L-related categories such as Top and Piv in that the former are interpretable at LF while the latter are uninterpretable. Thus, whenever Top^0 and Piv^0 license elements in their specifiers (and thus contribute to the semantics by allowing topics, wh-phrases, etc., to establish scope over the rest of the clause), TopP and PivP need to be 'supported' by a constituent bearing an interpretable categorial feature in order to be visible at LF. This requirement causes Top and Piv to attract the categorial feature of TP into their checking domains.

Malagasy resembles the verb-second languages in that the attraction of the categorial feature of TP happens in the overt syntax. However, in the case of V2 languages, [T] attraction takes the form of successive X^0 -adjunction (T^0 adjoins to Piv^0 , which adjoins to Top^0), whereas in Malagasy it takes the form of successive XP-adjunction (TP adjoins to PivP, which adjoins to TopP). This difference in how [T] attraction is spelled out is explained in terms of an independent morphological difference between the two language types: I suggest that when a bundle of features α is attracted overtly into the checking domain of a feature, α will carry along the minimum amount of phonological material necessary to prevent the derivation from crashing at PF (Chomsky's 'generalized

pied-piping' approach to overt movement). I formalize this as a pair of constraints, *Economy of Displacement* and *Morpho-Syntactic Integrity*:

(4) *Economy of Displacement*

When a feature F attracts a compatible feature F' into its checking domain, copy the smallest feature bundle containing F' allowed by Morpho-Syntactic Integrity.

(5) *Morpho-Syntactic Integrity*

When a feature bundle $fb(F')$ is copied, the following conditions must hold:

- i. $fb(F')$ is a visible syntactic constituent ($X^{0\max}$ or XP).
- ii. All of the phonological features associated with a morphological word must all be spelled out in the same copy of $fb(F')$.

In V2 languages, the complex head T^0 (containing the verb) forms a discrete morphological unit, and may thus raise into the C-domain by itself without violating PF constraints. In Malagasy, by contrast, the tense morpheme in T^0 is a proclitic, which attaches to the verb stem in the morphological component. The smallest syntactic constituent which also forms a discrete morphological unit is thus TP. Hence, in order to ensure convergence at both PF and LF, the categorial feature $[T]$ must pied-pipe TP when it raises into the C-domain.

This chapter is organized as follows: In 4.1 I review some previous proposals concerning Malagasy clause structure, ranging from the right-specifier structure of Guilfoyle, Hung, and Travis (1992) to the 'cascade' structure proposed by Pensalfini (1995), and discuss some of the empirical problems with these analyses. Then in 4.2 I present the alternative analysis in (3) above, and illustrate it with several sample derivations. In sec-

tion 4.3, I discuss the structural parallels between predicate-initial Malagasy clauses and verb-second clauses, and lay out my analysis of [T] feature attraction. Finally in 4.4, I discuss the above-mentioned empirical evidence for the predicate-raising story, pertaining to the position of the question particle *ve* and the presence of EA-initial order in certain kinds of embedded clauses.

4.1. Previous accounts of Malagasy clause structure

Malagasy is traditionally characterized as a VOS language on the basis of sentences such as (6):

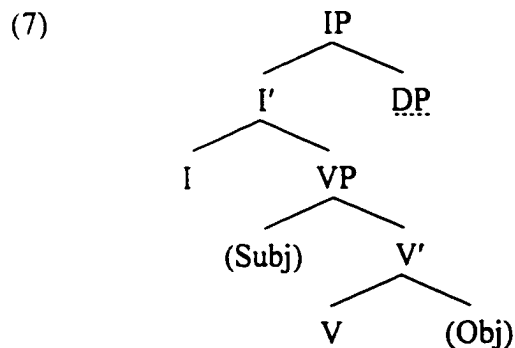
- (6) Mamono akoho amin'ny antsy ny.....mpamboly
 NomP.kill chicken with-Det knife Det farmer
 "The farmer kills chickens with the knife"

Concerning the underlined constituent in (6), whether one regards this constituent as a *subject* or a *topic* (see 3.1.1), the fact that it occurs at the right edge of the clause is typologically unusual. Languages with subject-final basic word order (VOS, OVS) are statistically rare (Greenberg 1963, et al.), while languages in which the topic is consistently clause-final are, to the best of my knowledge, unattested (topics being almost always associated with the left periphery of the clause).¹ The question of how Malagasy word order is derived is thus of general theoretical interest, especially in light of Kayne's

¹ A potential exception that I am aware of is Turkish, in which constituents that carry an existential presupposition optionally occur at the right-periphery of the clause, following the verb, as discussed by Kural (1997). However, Kural is quick to point out that postverbal constituents in Turkish do not function as topics—that is, they do not identify the participant of whom the sentence is predicated, as EAs in Malagasy do. Instead, they merely provide background information. Topics in Turkish occur at the left-periphery, as in other languages.

(1994) Antisymmetry Theory, and other theories which seek to explain cross-linguistic word order variation in derivational terms rather than in terms of directionality parameters on phrase structure (Moro 1997, Fukui & Takano 1998, Haider 1994, 2000, Brody 1997, 2000, Frank & Kuminiak 2000, et al.).

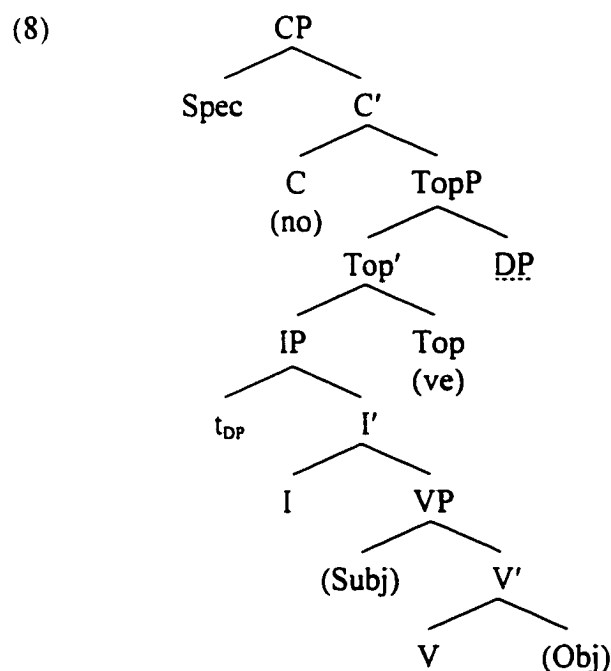
Within the Principles and Parameters literature, the earliest explicit proposals concerning the phrase structure of Malagasy are found in Guilfoyle, Hung, & Travis (1992) (GHT). Adopting the VP-internal subject hypothesis, GHT argue for the structure in (7), first discussed in 2.4. Here, I' corresponds to the PredP constituent, while the EA is licensed in the specifier of IP. Notice that IP projects its specifier to the right. By assuming specifier-final order in IP, GHT simultaneously explain why the verb (which raises to I⁰) is clause-initial, immediately preceding the predicate-internal agent phrase (in SpecVP), and why the EA is clause-final.²



Subsequent researchers have expanded the structure in (7) to account for phenomena which GHT do not discuss. For example, MacLaughlin (1995) posits the structure in (8)

² In a footnote, GHT suggest that the difference in constituent order between VP and IP may be due to a directionality parameter setting for Malagasy, according to which *lexical* projections take their specifiers on

below. As in GHT, the EA is licensed in the specifier of IP. Unlike GHT, however, MacLaughlin assumes that the EA subsequently raises to the specifier of an A'-projection, TopP, located between CP and IP. (It is TopP rather than IP which has its specifier on the right.) Positing additional structure above IP gives MacLaughlin extra head positions to host the yes/no question particle *ve* (in Top⁰) as well as the focus particle *no* (in C⁰).³



the left while *functional* projections take their specifiers on the right. However, they acknowledge that the language-internal evidence for this proposal is limited.

³ Assuming that TopP has *complement-head-specifier* order turns out to be crucial for MacLaughlin (1995), who argues for an account of wh-extraction restrictions in Malagasy in which the external argument position is treated as an escape hatch for movement of wh-phrases into SpecCP, thereby accounting for the blocking effect discussed in 3.4.

In order to prevent an object wh-phrase from raising into SpecCP without first being promoted to the EA position, MacLaughlin proposes that IP is an inherent barrier for antecedent-binding, due to the fact that it is selected by the next higher head (Top⁰) in the 'non-canonical' direction for the language (cf. Cinque 1990). In this way, MacLaughlin indirectly links the wh-extraction restrictions in Malagasy to the right-peripheral position of the EA in SpecTopP.

Notice that MacLaughlin's structure, and the GHT tree upon which it is based, are both incompatible with Kayne's (1994) Linear Correspondence Axiom (LCA), according to which phrase markers in all languages conform to the order *specifier-head-complement*, and rightward movement and adjunction are disallowed. It is worth considering whether the right-peripheral position of the external argument can be accounted for in some way other than by assuming that it raises into a right-specifier.

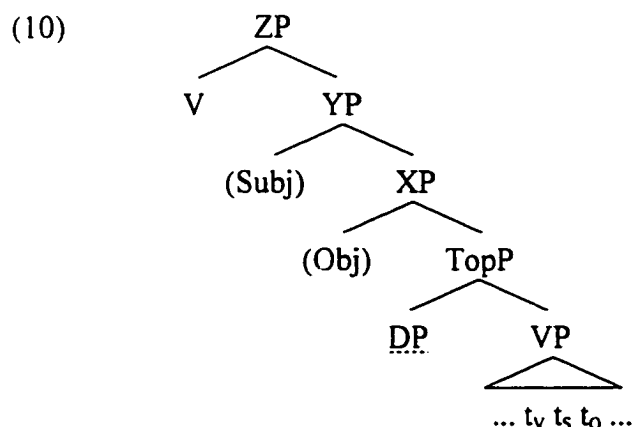
In a footnote, MacLaughlin speculates that the order in (6) could be derived through a two-step process whereby the EA extracts from the predicate phrase and raises into a left-specifier, after which the predicate phrase raises over the EA to a higher left-specifier. This is shown schematically in (9): Here the subject raises out of PredP, which then fronts, yielding surface VOS order (cf. Kayne 1994, p. 36 for a similar proposal):

- (9) a. [ZP [YP [PredP **S V O**]]]
 b. [ZP [YP **S** [PredP *t_S* **V O**]]]
 c. [ZP [PredP *t_S* **V O**] [YP **S** *t_{PredP}*]]

The question of how to reconcile Malagasy word order with the constraints imposed by the LCA has been pursued independently in work by Robert Pensalfini and myself (Pensalfini 1995; Pearson 1995, 1996b, 1997, 1998; cf. also Rackowski & Travis 2000). Here I briefly discuss Pensalfini's proposals.

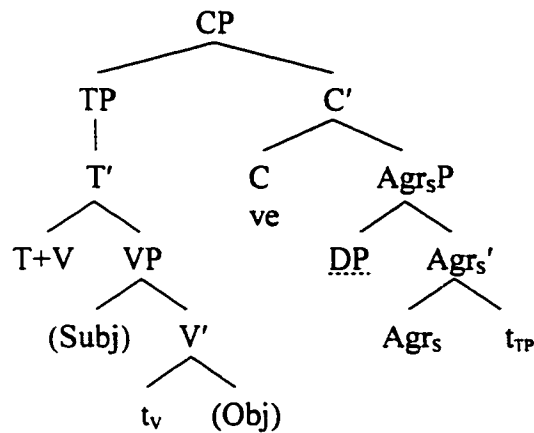
Pensalfini actually considers two alternative LCA-compatible analyses, one of which involves phrasal movement of the predicate over the external argument, as in (9), and the other of which involves a 'cascade' structure (cf. Pesetsky 1995), in which the

external argument is asymmetrically c-commanded at spell-out by the verb and its dependents, as in (10):



Pensalfini's first proposal is illustrated by the tree in (11): He assumes a projectional hierarchy along the lines of Chomsky (1995, chapter 3) and Bobaljik & Jonas (1996), where the tense features and case/agreement features of finite INFL are manifested on separate heads, T and Agr_s. The EA raises to the specifier of Agr_sP to check case, after which TP (= PredP) raises to the specifier of CP, deriving the correct surface order. Under this analysis, particles such as *ve* are located in the head of CP, rather than the head of TopP, as in MacLaughlin's structure (Pensalfini does not discuss where the focus marker *no* would appear in (11)).

(11)



Pensalfini ultimately rejects the structure in (11) on the grounds that it raises too many conceptual problems. For example, Pensalfini objects to (11) on the grounds that there is no obvious reason why the TP remnant should need to move to SpecCP. Moreover, raising the TP over Agr_sP creates a surface configuration in which the EA does not c-command its trace (in violation of the Proper Binding Condition). Thus, he claims, it is necessary to assume that the TP reconstructs into its base position at LF, which makes the problem of motivating TP-raising all the more difficult. However, this objection does not seem especially compelling. For a start, it is not at all clear that the Proper Binding Condition (a constraint on representations) has any place within a purely derivational framework, such as the Minimalist framework assumed here. Furthermore, the empirical evidence for at least some cases of remnant movement—and of the reconstruction of moved remnants—appears to be quite strong (cf. Müller 1998, for example). Thus, whatever explanation we offer for remnant movement, it is clear that our theory must accommodate this phenomenon somehow.

As a further objection to (11), Pensalfini argues that (proper binding aside) TP would need to reconstruct in order to allow the T+V complex to raise out and adjoin to Agr_S⁰ at LF, in violation of a constraint proposed by Collins (1993), prohibiting derivations in which an XP reconstructs merely in order to permit a head to raise out of it to check a feature. However, this objection stems from secondary assumptions about the structure in (11) for which no rationale is given. Pensalfini offers no evidence that the external argument occupies the specifier of an Agr head, nor does he explain why the T+V complex must adjoin to this head at LF. On the contrary, as I showed in chapter 3, there is considerable evidence that the EA is sitting in an A'-position rather than a case/agreement position.

As an alternative to his TP-raising analysis, Pensalfini proposes a 'cascade' structure for Malagasy of the sort shown in (12), in which the surface word order is derived through standard head-adjunction and specifier-to-specifier movement rather than pied-piping:

(12) [Agr_{SP} Agr_S [TP T [Agr_{OP} Agr_O [MoodP Mood [TopP Top [VP ...]]]]]]

Here, as in (11), the subject and object are generated within VP. Whichever dependent of the verb is selected as the EA raises into the specifier of TopP, located immediately above VP, while the other arguments and adjuncts raise higher up into case-checking positions (SpecAgr_{OP} for non-externalized objects, SpecTP for non-externalized subjects). Finally,

the verb undergoes head-to-head movement, ending up in Agr_s^0 by spell-out. Force-related particles like *ve* are located in the specifier of MoodP, which dominates TopP.⁴

While this analysis accounts for the basic word order facts in a straightforward way, the structure in (12) is problematic on a number of fronts. For a start, (12) makes incorrect predictions about constituency. As I showed in 2.1, the predicate phrase, consisting of the verb and its non-externalized dependents, is treated as a constituent for purposes of coordination (the relevant examples are repeated in (13) below). In (12), however, the verb does not form a constituent with its non-externalized dependents to the exclusion of the EA in SpecTopP.

- (13) a. Misotro toaka sy mihinam-bary Rakoto
 NomP.drink rum and NomP.eat-rice Rakoto
 “Rakoto is drinking rum and eating rice”
- b. Henon-dRabe sy nojeren-dRajaona ny...mpihira gasy
 heard-Rabe and Pst-AccP.watch-Rajaona Det folksinger
 “The folksinger, Rabe heard (him) and Rajaona watched (him)”

(12) is also suspicious on typological grounds. There is a general consensus in the literature that topicalized constituents and force-related features/morphemes are situated in high functional projections within the C-domain of the clause (Chomsky 1977, 1981, 1995; Rizzi 1997; and many others). Thus, the idea that topics and question particles in Malagasy would occupy low positions within the I-domain (below tense- and case/agree-

⁴ The primary empirical motivation for the structure in (12) appears to be the fact (noted in 2.1) that certain kinds of adverbials and embedded clauses may follow the EA. Lacking features to check, these elements would remain in VP. I turn to the issue of post-EA constituents in 4.2.2 and 4.2.3.

ment-related projections) seems improbable. Pensalfini justifies his low placement of TopP by drawing a parallel between it and the F(ocus)P projection of Hungarian, which various authors have argued to be situated immediately above VP (e.g., Horvath 1986, Kiss 1994). However, even if the Hungarian analysis is correct (Koopman & Szabolcsi 2000 and Szalai 1999 argue that FP is actually above TP), FP is quite different from TopP in Malagasy, both syntactically and semantically. The constituent occupying the EA position in Malagasy represents old information (the *topic*, or *theme*, of the clause), while the Hungarian focus position is associated with new information (the *comment*, or *rheme*). SpecFP in Hungarian is the locus of focused constituents and *wh*-phrases, which are prohibited from occurring in the EA position in Malagasy.

A further problem with the cascade structure in (12) is that it would require us to make unorthodox stipulations about binding and reconstruction in Malagasy, not unlike the stipulations required by GHT's split-subject analysis (section 3.2.2). Consider a simple reflexive sentence like (14), where the EA binds an anaphor inside the predicate:

- (14) Manaja ny tenany i.....Tenda
 NomP.respect Det self-3 Det Tenda
 "Tenda respects himself"

According to the cascade analysis in (12), the external argument *i Tenda* raises from the specifier of VP to the specifier of TopP to check a topic feature, while the anaphor *ny tenany* raises from the complement of V^0 to the specifier of Agr_oP to check an agreement feature. This means that the anaphor locally c-commands—and consequently A-binds—its antecedent at spell-out. In order to avoid violations of Binding Conditions B and C, the anaphor would have to reconstruct into its base position below the antecedent at LF.

However, SpecAgr_oP is an A-position, from which reconstruction of an anaphor is generally assumed to be impossible (see 3.2). We would thus need to stipulate that reconstruction from an A-position is possible in Malagasy but not in other languages.

Moreover, notice that if we switch the positions of the anaphor and antecedent, the sentence becomes ungrammatical:

- (15) * Manaja i Tenda ny...tenany
 NomP.respect Det Tenda Det self-3
 “Himself respects Tenda”

If *i Tenda* in (15) is sitting in an A-position from which it asymmetrically c-commands the EA *ny tenany* (and if the anaphor is within the binding domain of its antecedent, as seems reasonable to assume), it is unclear why this sentence should be ungrammatical. To explain the unacceptability of (15) within the cascade theory, we would need to stipulate not only that reconstruction from a case position is *possible* in Malagasy, but that it is *obligatory* (while being impossible, or at least optional, in other languages). As I remarked in 3.2.2, stipulations of this sort run counter to the spirit of the Minimalist program, which seeks to eliminate all reference to language-specific binding principles (cf. Chomsky 1995, chapter 3)

Alternative analyses of the facts in (14)–(15) seem almost as unappealing: To avoid having to impose language-specific parameters on binding or reconstruction, we might argue that the EA raises covertly from its surface position to the appropriate agreement position. However, while this operation would create the correct hierarchical configurations at LF, it would necessitate movement from an A'-position (SpecTopP) to an A-position (SpecAgr_oP, SpecTP), a type of operation that is generally ruled out.

In addition to these problems, the cascade analysis is also incapable of dealing with the facts presented in 4.4 below, pertaining to the position of the external argument in embedded clauses and the placement of the yes/no question particle *ve*. I therefore conclude that Pensalfini's cascade analysis—or indeed any analysis of EA-final order in which the external argument is c-commanded by elements inside the predicate phrase, as in (10)—cannot be made to work. Instead, I will argue for a pied-piping analysis more in the spirit of the TP-raising structure in (11). I turn to the details of this analysis in the next section.

4.2. An XP-movement analysis of Malagasy word order

Here I will argue for a derivational account of Malagasy word order which, like Pensalfini (1995), is compatible with Kayne's LCA, but which avoids the empirical problems of Pensalfini's analysis. Under my account, the right-peripheral position of the EA is derived through leftward movement of the predicate phrase to a position above the EA. In particular, I will argue that the constituent consisting of the verb complex and its dependents (TP) raises and adjoins to PivP, after which PivP raises and adjoins to TopP, ending up to the left of the EA in SpecTopP at spell-out. In 4.2.1 I lay out the details of this analysis and illustrate it with some sample derivations. Then in 4.2.2–4.2.3 I consider the position of other right-peripheral elements, including sentential adverbs and extraposed complement clauses, before moving on to the issue of empirical and conceptual motivation in 4.3 and 4.4

4.2.1. Deriving EA-final order through phrasal adjunction

Before proceeding to the analysis, let me first review some assumptions about Malagasy phrase structure, as established in chapters 2 and 3 (see especially sections 2.3.3 and 3.1.3). For simple transitive clauses, I adopt the projection hierarchy shown in (16), with the surface positions of the EA, verb, and PredP-internal subjects and objects indicated:

- (16) [SubP [TopP EA [PivP [TP [EP V [AspeP (Subj) [vP [AsprP (Obj) [VP]]]]]]]]]]

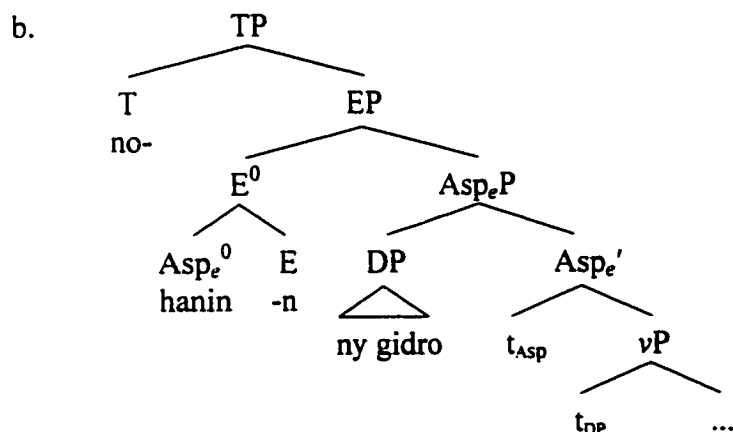
Starting at the top of the structure in (16) and working down: As discussed in 3.1.3, I assume that the C-domain of the clause is comprised of (at least) three separate projections, SubP, TopP/WhP, and PivP. The head of SubP is the locus of complementizers such as *fa* “that” and *raha* “whether, if/when”, which always occur leftmost in embedded clauses:

- (17) a. Fantatro [*fa* namaky ny boky ny mpianatra]
 known-Lnk-1s that Pst-NomP.read Det book Det student
 “I know that the student read the book”
- b. [*Raha* vonoinareo aho], dia inona no soa ho azonareo?
 if AccP.kill-2p 1s Top what Foc good Irr got-Lnk-2p
 “If you kill me, what good will you get (from it)?”

The specifier of TopP provides the landing site for the EA, while the specifier of PivP is the locus for abstract case ‘agreement’ (i.e., the voice morphology on the verb is determined by the abstract case of the constituent which raises to/through the specifier of this projection). TopP alternates with WhP, which hosts wh-operators in relative clauses, pseudoclefts, and *dia*-topic constructions (sections 3.4.1–3.4.3). The element in the specifier of TopP/WhP must form a chain with an element in the specifier of PivP.

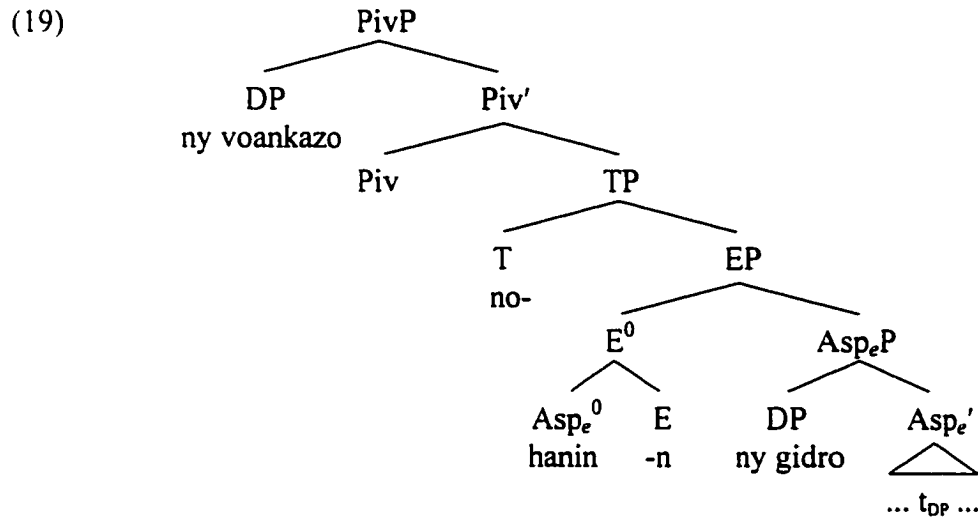
TP marks the upper boundary of the verbal domain of the clause (the *predicate phrase*). Within TP, subjects and objects are generated in VP-shells, and raise to aspectual projections in order to check their case features. As discussed in 2.3.3, I assume that the verb stem raises as far as the EP projection, immediately below the tense morpheme in T^0 , which attaches to the verb as a proclitic at PF. In non-NomP clauses, the verb stem adjoins to the linking morpheme *-n*, generated in E^0 . Immediately right-adjacent to E^0 is the specifier of Asp_eP , in which abstract nominative case is checked. Consider the tree in (18b), which illustrates the structure for the verb complex *nohanin'ny gidro* in (18a). This verb complex is comprised of the past tense marker *no-*, the AccP verb stem *hanin* (< *han* “eat” + *-in*), the linking morpheme *-n*, and the non-externalized subject *ny gidro* “the lemur”:

- (18) a. Nohanin'ny gidro ny...voankazo
 Pst-AccP.eat-Det lemur Det fruit
 “The lemur ate the fruit”



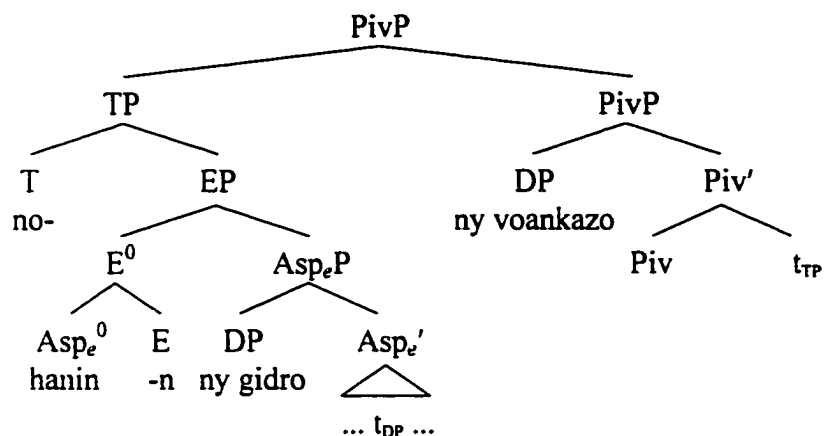
Based on the structure in (16), the surface order of the clause, where the external argument in SpecTopP occupies a right-peripheral position, may be derived straightforwardly

by means of successive XP-adjunction, as follows: Take the sentence in (18a) as an example. We begin at the point in the derivation where T has merged with Asp_eP to form TP, as in (18b). Piv then merges with TP to form PivP, after which Piv attracts the external argument *ny voankazo* “the fruit” into its specifier to check its [op] feature, producing the structure in (19):



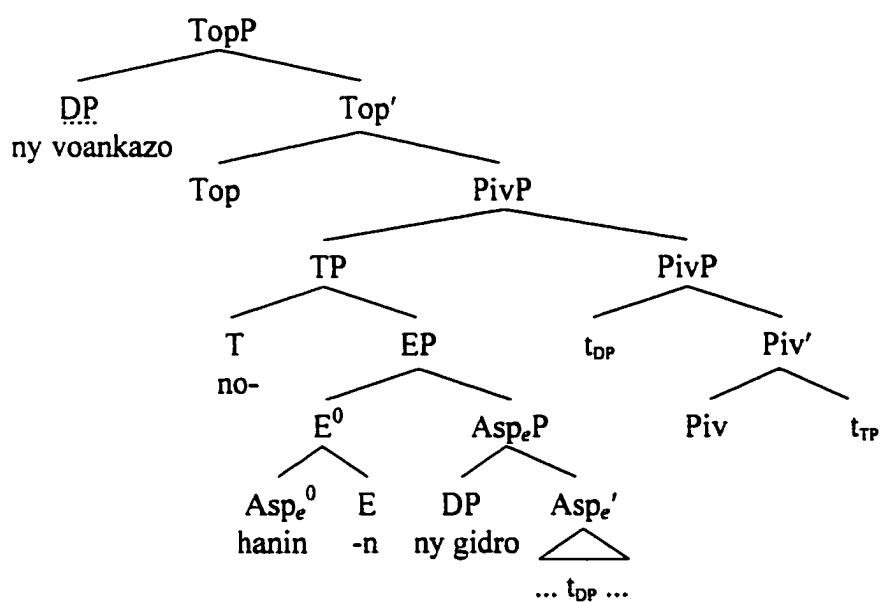
Next, the TP *nohanin'ny gidro* “eaten by the lemur” (containing the trace of the EA) raises to adjoin to PivP, as in (20). This causes the predicate to invert with the EA (I discuss the reasons for this movement in 4.3):

(20)

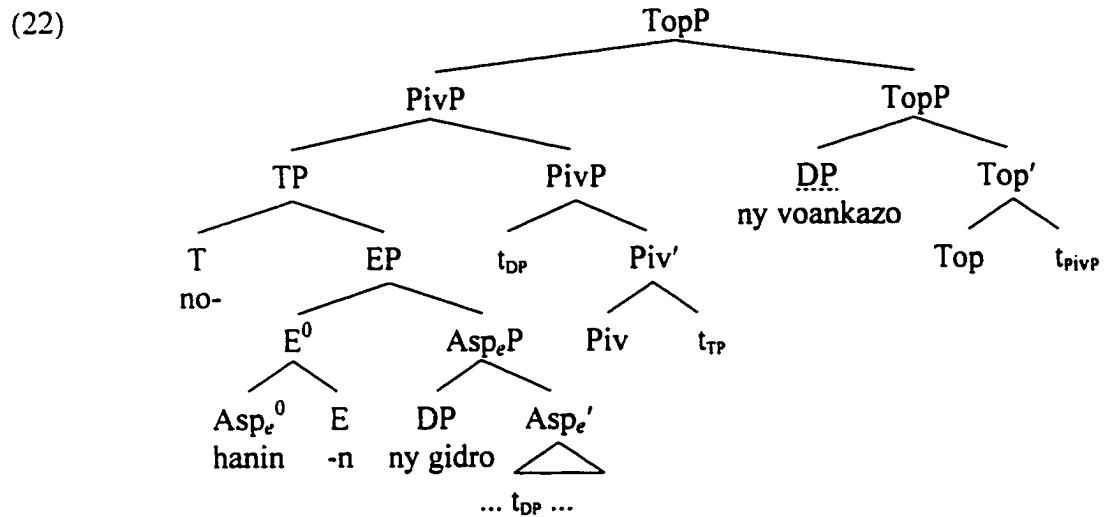


The resulting structure then merges with Top to form TopP, and the EA is attracted again (this time by the [D] and [op] features of Top⁰), causing it to raise into the checking domain of TopP. The result is the structure in (21):

(21)



Finally, PivP raises and adjoins to TopP, creating the surface configuration in (22), in which the predicate phrase precedes the EA (again, I discuss the motivation for adjunction in 4.3).⁵

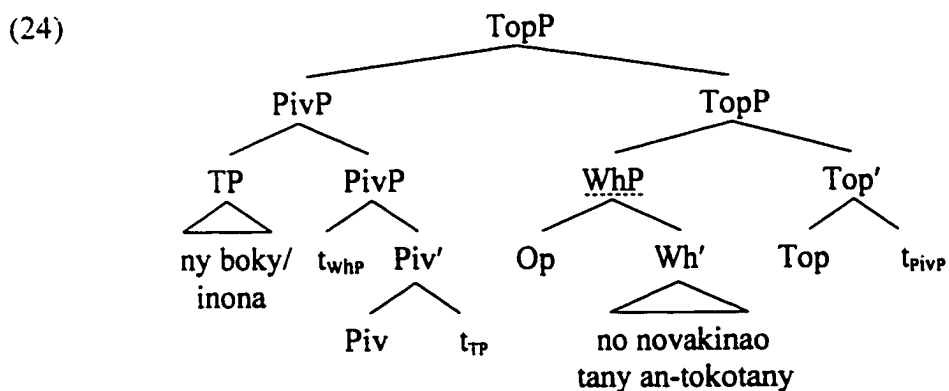


This process of successive XP-adjunction also derives the correct order in wh-questions and sentences involving constituent focus. As discussed in 3.4.2, such sentences take the form of pseudoclefts, in which the focused constituent or wh-phrase is contained within the matrix PredP, while the EA position is occupied by a constituent containing a null operator, which is interpreted as a headless/free relative. (23a-b), for example, have the structure in (23c) (the meaning is literally something like “That which you were reading in the garden [was] {the book / what}?”):

⁵ Notice that in this two-stage derivation, where TP adjoins to PivP and PivP adjoins to TopP, the EA and predicate phrase undergo inversion twice. This double adjunction is necessary in order to derive the correct surface order in cases of long-distance externalization, as discussed below.

- (23) a. Ny boky no novakinao tany an-tokotany?
 Det book Foc Pst-AccP.read-2s Pst-there Obl-garden
 "It's *the book* that you were reading in the garden"
- b. Inona no novakinao tany an-tokotany?
 what Foc Pst-AccP.read-2s Pst-there Obl-garden
 "What were you reading in the garden?"
- b. [_{PredP} {ny boky / inona}_i] [_{WhP} Op_i no novakinao t_i tany an-tokotany]_i

The left-peripheral position of the wh/focus constituent is explained straightforwardly by the fact that it is contained within the predicate phrase, which raises leftward over the position in which the external argument is licensed (PivP adjoins to TopP). The tree structure for (23a-b) is thus essentially the same as in (22): The only important differences are that the TP constituent contains the clefted element (*ny boky* "the book" or *inona* "what"), while the specifier of TopP is occupied by a free relative constituent of category WhP, *no novakinao tany an-tokotany* "(that which) you read in the garden":



Having illustrated the basic predicate-fronting analysis, let me turn to a more complicated example, one involving long-distance externalization, as in (25):

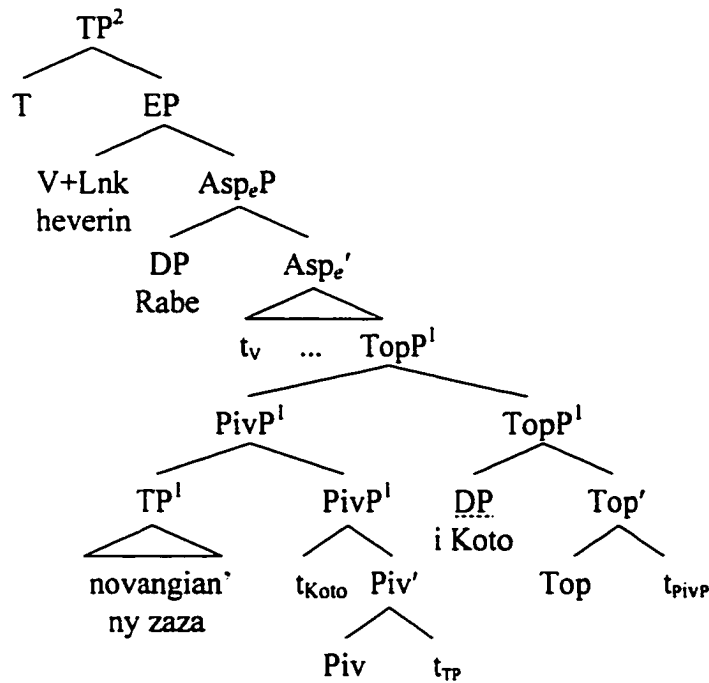
- (25) *Heverin-dRabe novangian'ny zaza i.....Koto*
 AccP.think-Rabe Pst-DatP.visit-Det child Det Koto
 “Koto, Rabe thinks the child visited (him)”

The principal complication here involves the fact that the EA, *i Koto*, pied-pipes the embedded clause into the matrix SpecPivP position, and then extracts from the clause and raises on to the specifier of the matrix TopP, as discussed in 3.3.2.⁶ Meanwhile, the matrix predicate (*heverin-dRabe*) raises and adjoins to PivP, after which PivP (*heverin-dRabe* plus the embedded clause remnant in SpecPivP, *novangian'ny zaza*) raises and adjoins to TopP, deriving the correct surface order. I go through this derivation step by step immediately below:

We begin at the point in the derivation prior to the attraction of the embedded TopP to the matrix SpecPivP: The embedded clause is constructed according to the steps in (18)–(22) above, and the resulting structure is selected by the matrix verb *hever* “think”. After the merger of the matrix verb with its subject, and the addition of the Asp_eP and TP layers, the result is the structure in (26):

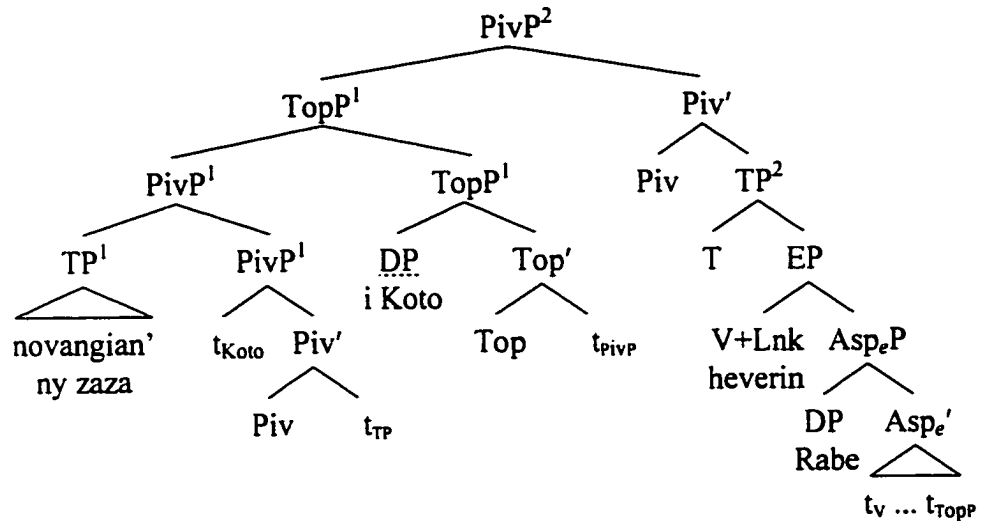
⁶ Recall that the reason why *i Koto* extracts from the embedded clause, instead of pied-piping the clause to SpecTopP, is that Top⁰ has a [D] feature to check. Thus, while the specifier of PivP can host any element with an [op] feature, the specifier of TopP is restricted to constituents of category DP.

(26)



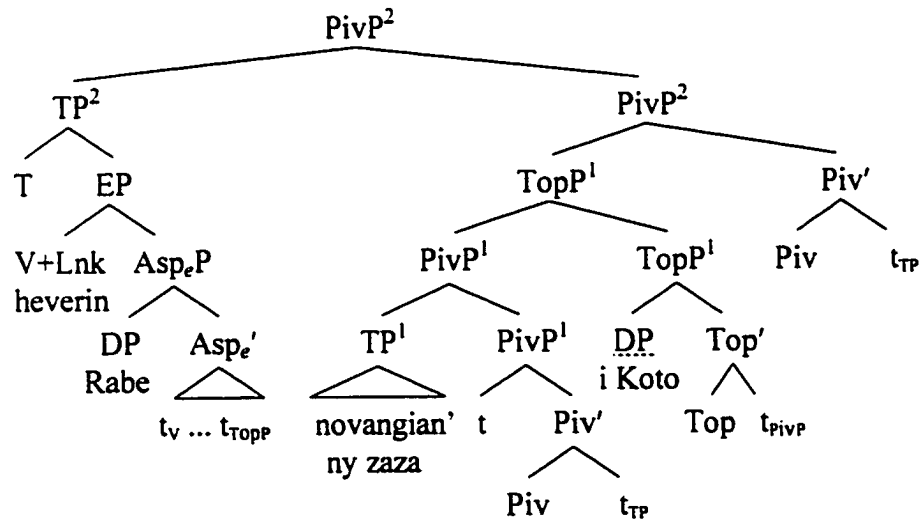
Next, the structure in (26) combines with Piv to form the matrix pivot phrase (identified below as $PivP^2$, to distinguish it from the embedded pivot phrase, $PivP^1$). The matrix Piv then attracts the embedded clause ($TopP^1$), which raises to become the specifier of $PivP^2$, as in (27). Since $TopP^1$ is the complement of the matrix verb, licensed in the specifier of Asp_eP , this move triggers accusative-pivot voice marking on the matrix verb, as discussed in 3.3.

(27)



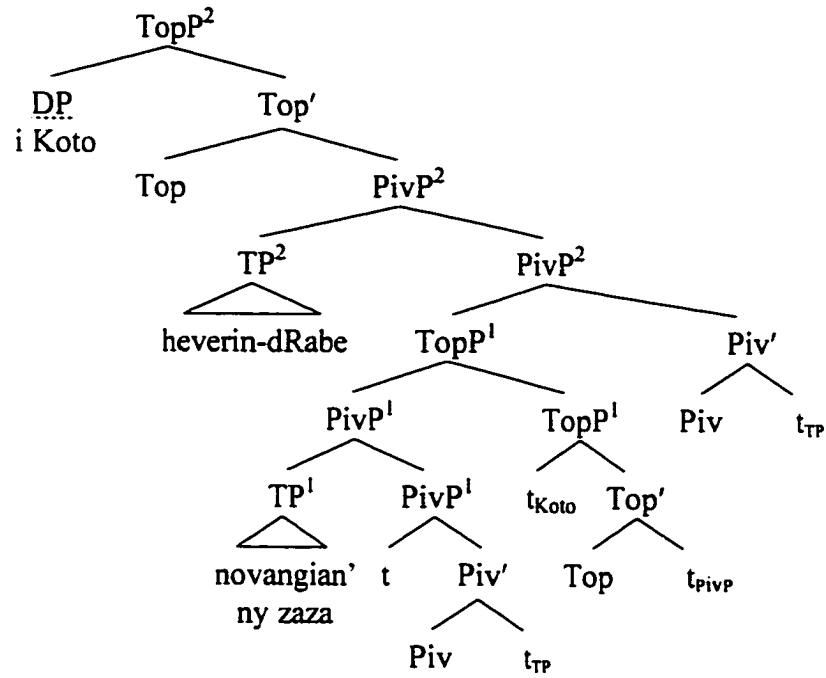
The matrix TP (TP²) then raises to adjoin to PivP², just as in simple clauses (cf. (20)), resulting in the structure in (28):

(28)



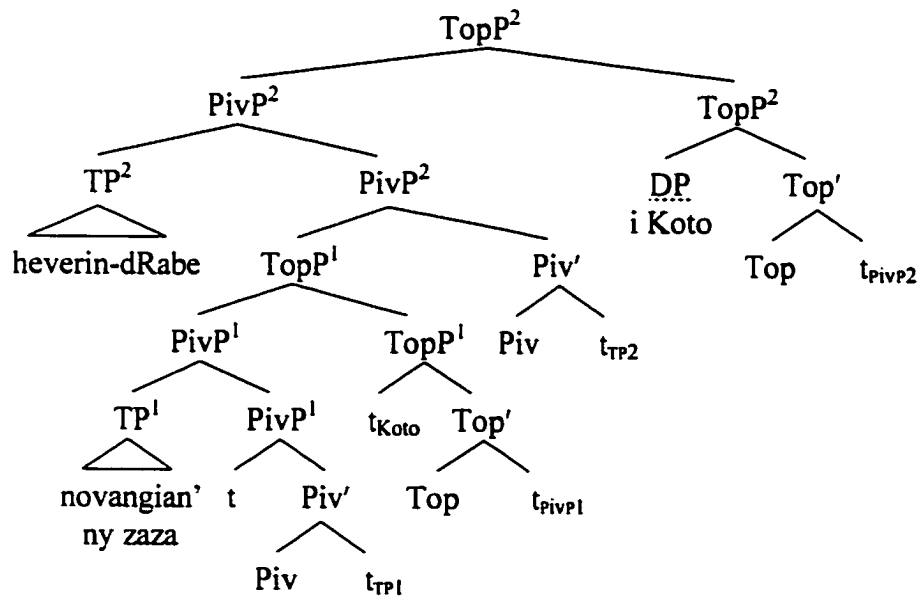
PivP² in (28) then merges with Top⁰ to form the matrix TopP (TopP²). Top⁰ then attracts the closest constituent containing both an [op] and a [D] feature, namely *i Koto*, which raises to become the specifier of TopP² (29):

(29)



Finally, $PivP^2$ raises and adjoins to $TopP^2$, producing the correct surface order, where the predicate phrase *heverin-dRabe novangian'ny zaza t* “Rabe thinks that the child visited *t*” precedes the external argument *i Koto*:

(30)



Before discussing the further details of this analysis, I offer some speculations on the position of other right-peripheral elements in the clause. In 4.2.2, I consider the position of sentential adverbs and clause-final PPs. Then in 4.2.3 I discuss extraposed clauses.

4.2.2. The position of clause-final adverbials

Recall from 2.1 that certain sentence-level adverbs, such as *omaly* “yesterday” generally occur outside the predicate phrase, following the EA, as illustrated in (31) (where *ve* marks the right edge of the predicate phrase):

- (31) *Namaky ny boky ve ny.....mpianatra omaly?*
 Pst-NomP.read Det book Qu Det student yesterday
 “Was the student reading the book yesterday?”

Locative expressions such as *tany am-pianarana* “in school” may also occur in this position, as shown in (32a), adapted from Rajemisa-Raolison (1971). However, while sentential adverbs like “yesterday” almost always occur in this position, locatives also frequently occur inside the predicate phrase, as in (32b):

- (32) a. *Nanoratra taratasy ny.....zazavavy tany am-pianarana*
 Pst-NomP.write letter Det girl Pst-there Obl-school
 “The girl wrote a letter in school”
- b. *Nanoratra taratasy tany am-pianarana ny.....zazavavy*
 Pst-NomP.write letter Pst-there Obl-school Det girl
 “The girl wrote a letter in school”

The placement of the locative appears to depend on whether or not it is interpreted pre-suppositionally: If it forms part of the background information of the clause, which helps ‘set the stage’ by providing a spatial or temporal context for the event denoted by the pre-

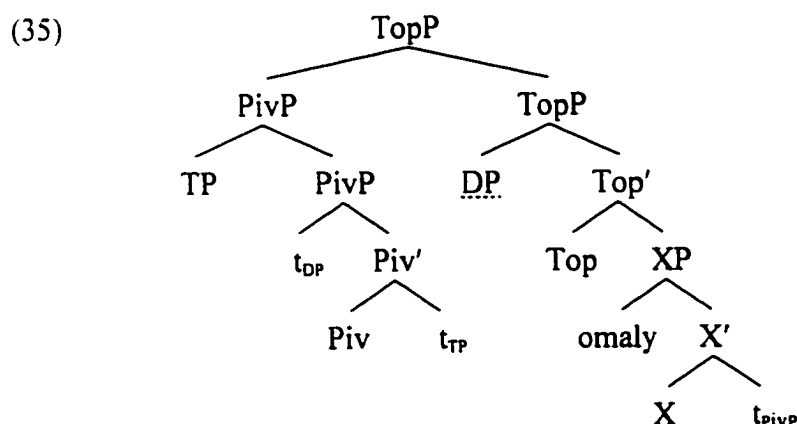
dicade, then it typically appears after the EA. However, if the locative expresses new information, and thus contributes to the assertion part of the utterance, it must appear inside the predicate phrase. Consider the examples in (33a-b), which illustrate the scopal interaction between the locative *tany an-tokotany* “in the garden” and the yes/no question particle *ve*. In (33a), where *tany an-tokotany* is inside the predicate phrase, it is included within the scope of the question operator (the speaker presupposes “Tenda did *x*”, and asks if *x* = “read a book in the garden”). In (33b), *tany an-tokotany* occurs after the EA, and is thus outside the scope of the question operator (the speaker presupposes “Tenda did *x* in the garden”, and asks if *x* = “read a book”).

- (33) a. Namaky boky tany an-tokotany ve i.....Tenda?
 Pst-NomP.read book Pst-there Obl-garden Qu Det Tenda
 “Was Tenda reading a book in the garden?”
 i.e. “Was *reading a book in the garden* what Tenda was doing?”
- b. Namaky boky ve i.....Tenda tany an-tokotany?
 Pst-NomP.read book Qu Det Tenda Pst-there Obl-garden
 “Was Tenda reading a book in the garden?”
 i.e. “Was *reading a book* what Tenda was doing in the garden?”

Malagasy is not the only language in which spatio-temporal locatives and sentential adverbs occur in the immediate neighborhood of topicalized DPs. In Hungarian, for example, such elements generally occur in a preverbal position, right-adjacent to the position to which topics raise (Kiss 1994, Szabolcsi 1997). In (34), for example, the temporal adverb *tegnap* “yesterday” and the stage-setting PP *az órán* “in class” follow the topic *a tanár* “the teacher” and precede the other constituents in the clause:

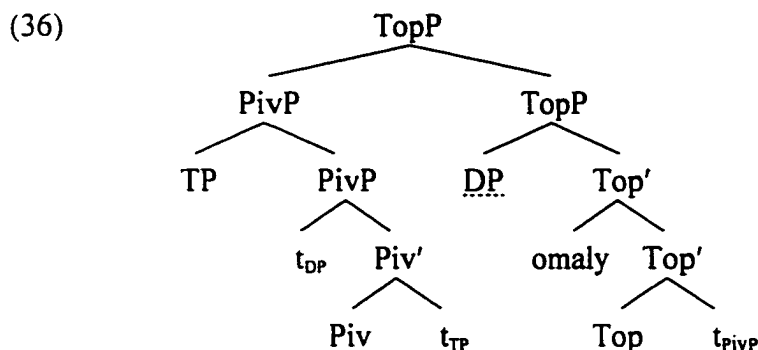
- (34) A tanár *tegnap* az órán minden kérdést megválaszolt
 Det teacher yesterday Det class-on every question-Acc answered
 “Yesterday in class the teacher answered every question”

Within the context of the phrasal-movement analysis presented in the previous section, various approaches to right-peripheral adverbials are possible. One option is to locate these elements in the specifier of a projection XP, which optionally merges below TopP and above PivP, as in (35).⁷ To derive the correct surface order, we would need to assume either that PivP raises from the complement of X⁰ and adjoins to TopP in a single step, as I have indicated in the tree, or that PivP first adjoins to XP, and then extracts from that adjunction structure and raises on to adjoin to TopP, stranding the adverb.

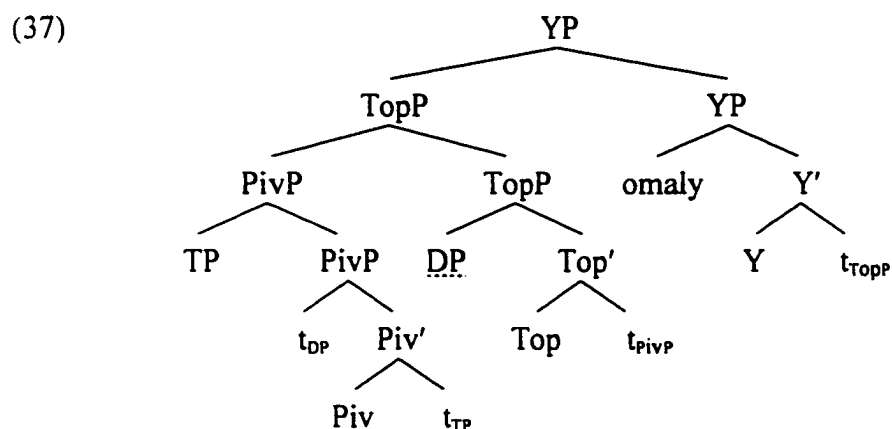


A second option is to assume that TopP may host multiple specifiers (cf. the discussion in 3.4.4), in which case a sentence like (31) would have the structure in (36), where the adverb merges as the inner specifier of TopP while the EA raises to become outer specifier:

⁷ Since it licenses sentential adverbs like “yesterday”, XP is perhaps equatable with one of the high projections in Cinque’s (1999) hierarchy of functional categories, which he posits to explain ordering restrictions among adverbs of different classes.



A finally option is that stage-setting adverbials occupy a higher projection YP, to which TopP raises and adjoins, as in (37):



As it turns out, this third option makes the wrong prediction with regard to the placement of the yes/no question particle *ve*. In 4.4.1 I argue (following Paul 1999) that *ve* is a second-position clitic, which attaches to the right edge of the highest non-projecting XP in the clause. In (37), the highest non-projecting XP is TopP. We thus predict that in a question containing both an EA and a following adverbial, *ve* will occur between the EA and the adverbial. However, this prediction is not borne out; instead, *ve* precedes the EA, as shown in (38):

- (38) a. * Namaky ny boky ny.....mpianatra ve omaly?
 Pst-NomP.read Det book Det student Qu yesterday
 “Was the student reading the book yesterday?”
- b. Namaky ny boky ve ny.....mpianatra omaly?
 Pst-NomP.read Det book Qu Det student yesterday
 “Was the student reading the book yesterday?”

The analysis in (37) is therefore ruled out. Of the two remaining analyses, (36) is more parsimonious than (35) from the perspective of movement, insofar as it allows us to derive the correct surface word order by means of a simple ‘roll-up’ structure, where each maximal projection raises and adjoins to the next higher one. For this reason, and for additional reasons to be discussed in 4.3.1, I will opt for the analysis in (36), according to which TopP may host multiple specifiers.

4.2.3. The position of extraposed clauses

In addition to stage-setting adverbials like *omaly* “yesterday”, complement and adjunct clauses routinely occur at the right edge of the clause, following the external argument, as illustrated in (39):

- (39) a. Manantena i.....Tenda [fa hamono ny akoho Ranaivo]
 NomP.hope Det Tenda that Irr-NomP.kill Det chicken Ranaivo
 “Tenda hopes that Ranaivo will kill the chicken”
- b. Tsy maintsy nandalo amin’ny lavabato izy [vao tonga tany]
 necessary Pst-NomP.pass in-Det cave 3 before arrive there
 “They had to pass through a cave to get there [lit. before arriving there]”
- c. Taitra izy roalahy [nahare izany vaovao izany]
 surprised 3 two-male Pst-NomP.hear that news that
 “The two men were surprised to hear the news”

This is highly suggestive of CP extraposition in English and other languages, traditionally analyzed in terms of rightward movement. Under Kayne's (1994) Antisymmetry theory, rightward movement is ruled out in principle. However, the effects of rightward movement may be obtained through a succession of leftward movements: For example, the order in (39) can be derived by first extracting the CP from the predicate and raising it into some left-peripheral position, above PivP but below TopP (40a), then raising the EA into SpecTopP (40b), and finally raising PivP (containing the matrix verb and the traces of the CP and the EA) to adjoin to TopP (40c). The result is a structure not unlike (35), where the CP complement occupies a position analogous to that of sentential adverbs like *omally*.

- (40) a. $[_{XP} CP_i [_{PivP} EA V t_i]]$
 b. $[_{TopP} EA_j [_{XP} CP_i [_{PivP} t_j V t_i]]]$
 c. $[_{TopP} [_{PivP} t_i V t_j]_k [_{TopP} EA_j [_{XP} CP_i t_k]]]$

However, while sentential adverbs are either generated in a high scopal position, or plausibly move there because of their association with the presuppositional content of the clause, it is not obvious what would motivate CPs to raise out of the predicate phrase, other than the need to obtain the correct surface word order.

An alternative treatment of CP extraposition is suggested by the copy theory of movement (cf. Chomsky 1995, chapter 3). According to this theory, the attraction of a constituent X into a checking domain Y involves not the displacement of X into Y, leaving a trace, but the creation of a copy of X which merges Y. A movement chain is thus comprised of a pair of identical feature bundles, one in the base position and the other in

the checking position. In order to prevent multiple copies from being spelled out, a deletion rule applies at PF to erase redundant phonological features from multi-member chains.

The properties of this deletion rule are poorly understood. In paradigmatic cases, it is the features of the head of the chain which are retained at PF, while the features of the tail are deleted, as in (41) (*forward deletion*). However, it is also in principle possible to delete the features of the head and retain the features of the tail (*backward deletion*). Although the status of backward deletion is controversial, a number of authors (e.g., Pesetsky 1998) have suggested that covert movement involves just such a mechanism. For example, (42a) might have the structure in (42b), where the tail of the quantifier-raising chain is pronounced, while the head of the chain is deleted. According to this approach, the difference between overt and covert movement is not a matter of timing—before spell-out versus after spell-out—but of the way in which chains are interpreted at PF—pronunciation of the head versus pronunciation of the tail (cf. Chomsky 1998 for a similar view).

- (41) a. Which movie does Andrea most want to see?
 b. [which movie]_i does Andrea most want to see [~~which movie~~]_i ?
- (42) a. The professor talked to each student about the reading
 b. [~~each student~~]_i the professor talked to [each student]_i about the reading

Wilder (1995) takes this approach one step further, arguing that in certain cases it is possible to perform forward deletion on part of a higher copy and backward deletion on the complementary part of a lower copy, yielding a situation in which different portions of a

constituent are pronounced in different links of the chain (I will refer to this as *discontinuous deletion*). He argues that a number of phenomena may be explained in terms of discontinuous deletion, including CP and PP extraposition in English and German.

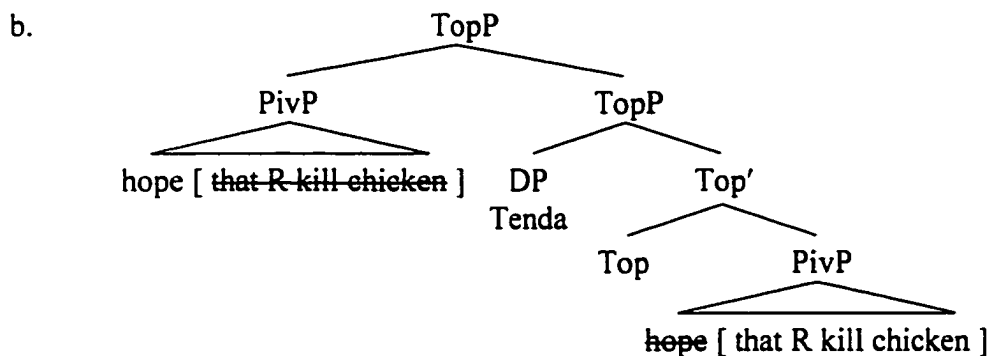
Consider the examples in (43) below, taken from Hinterhölzl (1998), who adopts and develops Wilder's analysis: In keeping with Kayne's LCA, Hinterhölzl argues that German is head-initial, and that OV order is derived through leftward movement of the object above the highest surface position of the verb (cf. Zwart 1993 on Dutch). Thus the direct object DP *ein Buch über Chomsky* "a book about Chomsky" starts out to the right of the verb and raises leftward, perhaps to check its case feature. In (43a), where the DP appears to the left of the verb, object raising followed by forward deletion derives the surface order straightforwardly. In (43b), however, where the PP modifier is stranded to the right of the verb, the surface order is obtained by applying forward deletion to *ein Buch* and backward deletion to *über Chomsky*, as in (43c), causing the PP to be pronounced in the tail position of the movement chain.

- (43) a. Hans hat *ein Buch über Chomsky* gekauft
 Hans has a book about Chomsky bought
 "Hans bought a book about Chomsky"
- b. Hans hat *ein Buch* gekauft *über Chomsky*
 Hans has a book bought about Chomsky
 "Hans bought a book about Chomsky"
- c. Hans hat [*ein Buch über Chomsky*]; gekauft [~~*ein Buch*~~ *über Chomsky*];

If we adopt the discontinuous deletion strategy of Wilder (1995), then the right-peripheral position of CPs in Malagasy can be taken to follow straightforwardly from the fact that

the predicate phrase raises leftward over the position of the EA. Consider the example in (39a), repeated below as (44a): The PivP constituent, containing the matrix verb and its CP complement, raises and adjoins to TopP. At spell-out the verb is pronounced in the moved position of PivP, to the left of the EA *i Tenda*, while the CP is pronounced in the base position of PivP, to the right of the EA (44b):

- (44) a. Manantena i.....Tenda [fa hamono ny akoho Ranaivo]
 NomP.hope Det Tenda that Irr-NomP.kill Det chicken Ranaivo
 “Tenda hopes that Ranaivo will kill the chicken”



Of course, introducing a mechanism which selectively deletes subparts of copies at PF would render the phonological component much more powerful than is generally assumed. In order to avoid massive overgeneration, we would need to establish principled constraints limiting the application of discontinuous deletion. For example, we would need some way to rule out derivations in which the DP complement of a NomP verb is spelled out in the base position of PivP, yielding the ill-formed VSO order in (45) as a PF-variant of (46):

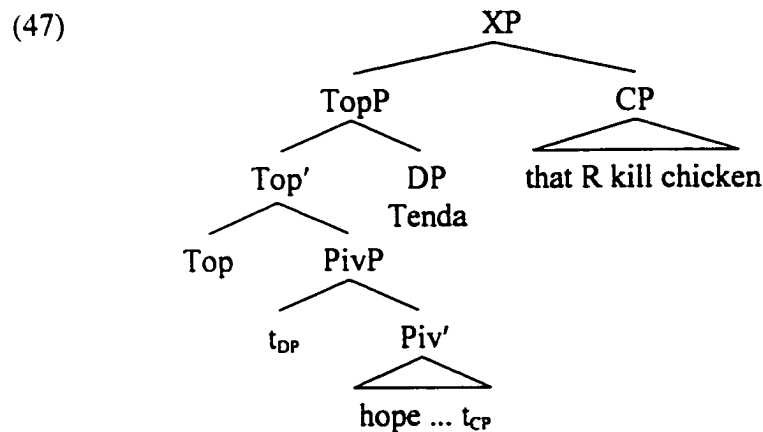
- (45) a. * Namono Raso_a ny akoho
 Pst-NomP.kill Raso_a Det chicken
 “Raso_a killed the chicken”

- b. [TopP [PivP namono ~~ny akoho~~] [TopP Rasoa [PivP ~~namono ny akoho~~]]]
- (46) a. Namono ny akoho Raso
 Pst-NomP.kill Det chicken Raso
 “Raso killed the chicken”
- b. [TopP [PivP namono ny akoho] [TopP Raso [PivP ~~namono ny akoho~~]]]

How can we constrain discontinuous deletion to rule out (45) while allowing (44)? Wilder suggests that the answer may lie in the mapping between syntactic structure and the prosodic hierarchy. Specifically, he proposes that backward deletion may only apply to strings which form prosodic constituents of a particular type (more generally, PF deletion of redundant phonological features must create strings which can be properly parsed by the prosody). Applying this idea to Malagasy, we might speculate that CP complements form prosodic units of the appropriate kind to the exclusion of the verbs that select them, whereas DP complements do not.

I will leave a full consideration of CP extraposition for future research. What is important here is that, with regard to the general issue of selecting between the predicate-raising analysis of Malagasy word order argued for here and the alternative analysis in which the EA occupies a right-specifier (cf. the tree in (2)), the extraposition facts are either neutral on the question, or weigh in favor of the predicate-raising analysis. If the partial deletion approach to extraposition can be made to work, then the placement of the CP to the right of the EA merely reflects the base position of the fronted predicate phrase. On the other hand, if we adopt the right-specifier account, we have no option but to assume that the CP extracts from PivP and raises rightward to a high position in the

clause, above TopP, as in (47). We are then left with the problem of explaining this movement, which seems to have no motivation other than to derive the correct surface word order.



Summarizing section 4.1, I showed that the right-peripheral position of the external argument can be successfully obtained via movement. Specifically, I posited a two-step derivation, where the constituent containing the verb complex and its dependents (TP) raises and adjoins to PivP, which then raises and adjoins to TopP (containing the EA in its specifier). I also suggested how the positions of other right-peripheral elements such as sentential adverbs and CPs could be accommodated within such an analysis, either by positing additional movements, or by appealing to Wilder's (1995) discontinuous deletion approach to extraposition (or both).

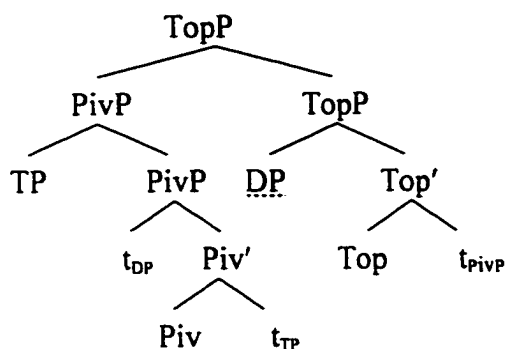
Having laid out the basics of the predicate-raising analysis, I now turn to the issue of conceptual and empirical motivation. In 4.3, I consider the question: Why does the predicate raise over the EA? My answer to this question involves a theory of movement and feature checking which equates predicate-raising with T-to-C movement in verb-se-

cond languages. Then in 4.4 I discuss empirical support for the predicate-raising analysis over the right-specifier analysis: I show that the predicate-raising analysis allows for a simpler statement of the rule governing the placement of the yes/no question particle *ve*, and also correctly predicts the existence of EA-initial order in embedded clauses.

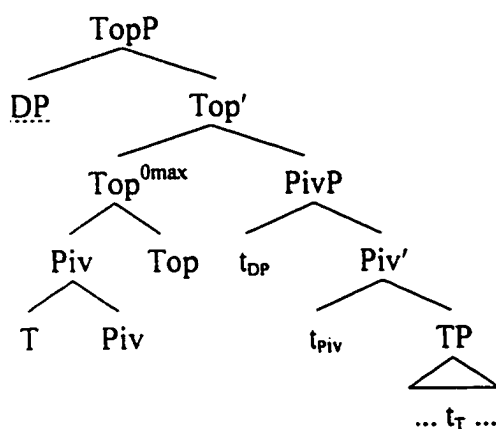
4.3. Predicate-initial order and verb-second order

In this section I argue that the structure of the left-periphery of the clause in Malagasy is essentially identical to that of the Germanic verb-second languages (specifically, those of the Yiddish/Icelandic subtype, which exhibit V2 order in both matrix and embedded contexts). Moreover, in both language types the attraction of a categorial feature of the TP projection into the C-domain of the clause triggers overt movement. However, Malagasy differs from the verb-second languages with regard to the amount of phonological material which the [T] feature carries with it when it raises: In V2 languages, [T] raises as part of the complex head containing the finite verb, T^{0max} . T^{0max} undergoes successive head movement to adjoin to Top^0 , and is thus spelled out to the right of the constituent in SpecTopP. In Malagasy, by contrast, head movement is unavailable for independent morphological reasons (as discussed in 4.3.4), and so the maximal projection TP raises and adjoins to TopP, causing the predicate phrase to be spelled out to the left of the constituent in SpecTopP. The structures which I will be arguing for are illustrated in (48a-b):

(48) a. *Malagasy*



b. *Germanic (verb-second)*



Thus, I conclude, predicate-initial order and verb-second order are arrived at in essentially the same way—modulo the choice between XP-movement and X^0 -movement, which is significant only at PF.

I begin in 4.3.1 by reviewing the evidence for equating the EA position in Malagasy with the position occupied by preverbal topics in V2 clauses (i.e., fronted XPs lacking focus or wh-features). Then in 4.3.2 I lay out the details of the my analysis for unifying Malagasy predicate-fronting with verb-second. In 4.3.3 I suggest that T(P)-raising is motivated by the need for the projections in the C-domain to inherit a lexical feature from

TP, so as to become part of the extended projection of the verb. Finally in 4.3.4 I address the question of why attraction of the [T] feature requires XP-adjunction in Malagasy, while V2 languages make use of X^0 -adjunction. I speculate that this might have to do with independent morphological differences between the two language types: In V2 languages, the phonological features of T^{0max} constitute a discrete morphological unit, and may thus extract from TP (or, more accurately, be copied into a higher position) without violating PF constraints barring the movement of sub-word constituents. In Malagasy, by contrast, T^{0max} does not form a morphological unit, and so it must pied-pipe the entire TP in order to prevent the derivation from crashing at PF.

4.3.1. The structure of verb-second clauses

In 3.1.2, and elsewhere in chapter 3, I discussed a variety of distributional parallels between the external argument position in Malagasy and the preverbal topic position in Germanic V2 languages. For instance, in both language types the position in question is subject to a general EPP-like requirement (with exceptions). Recall also that EAs, like Germanic topics, obey a definiteness requirement—or, more exactly, a specificity requirement. Compare the Malagasy examples in (49) with their Icelandic counterparts in (50):

- (49) a. Novidin-dRajaona ny...boky
 Pst-AccP.buy-Rajaona Det book
 “Rajaona bought the book”
- b. * Novidin-dRajaona boky
 Pst-AccP.buy-Rajaona book
 “Rajaona bought a book”

- (50) a. Bókina keypti Jón
book-the bought John(Nom)
“John bought the book”
- b. ?? Bók keypti Jón
book bought John(Nom)
“John bought a book”

Malagasy EAS and Germanic topics also behave similarly with regard to how they interact with binding, as discussed in 3.2.3. For example, both exhibit reconstruction effects: A pronoun contained within a fronted/externalized object may be bound by a distributive QP subject subject, as shown in (51a) for Malagasy and (51b) for German:

- (51) a. Novangian'ny mpianatra tsirairay_i ny.....rainy_i omaly
Pst-DatP.visit-Det student each Det father-3 yesterday
“His_i father, each student_i visited yesterday”
- b. Seinen_i.....Vater hat jeder Student_i gestern besucht
his.Acc father has every.Nom student yesterday visited
“His_i father, every student_i visited yesterday”

However, both externalization in Malagasy and topic-fronting in German exhibit an ‘anti-weak crossover effect’, whereby movement of a QP over a c-commanding constituent containing a pronoun facilitates a bound interpretation of the pronoun:

- (52) a. * Namangy ny mpianatra tsirairay_i ny.....rainy_i omaly
Pst-NomP.visit Det student each Det father-3 yesterday
“His_i father visited each student_i yesterday”
- b. * Sein_i.....Vater hat gestern jeden Studenten_i besucht
his.Nom father has yesterday every.Acc student.Acc visited
“His_i father visited every student_i yesterday”

- (53) a. (?) Novangian'ny rainy_i ny mpianatra tsirairay_i omaly
 Pst-DatP.visit-Det father-3 Det student each yesterday
 "Each student_i, his_i father visited yesterday"
- b. Jeden Studenten_i hat gestern sein_i Vater besucht
 every.Acc student.Acc has yesterday his.Nom father visited
 "Every student_i, his_i father visited yesterday"

Finally, as is well known, topic-fronting in verb-second languages is mutually exclusive with wh-fronting. This is illustrated in (54) for Icelandic:

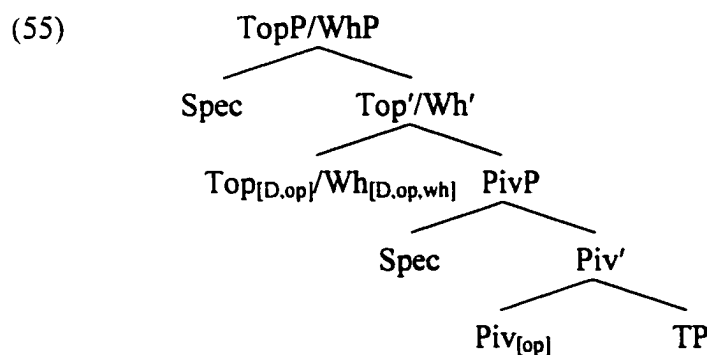
- (54) a. Bókina hefur Steingrímur gefið Maríu
 book-the.Acc has Steingrímur.Nom given Maria.Dat
 "The book, Steingrímur has given to Maria"
- b. *Hverjum* hefur Steingrímur gefið bókina?
 who.Dat has Steingrímur.Nom given book-the.Acc
 "To whom has Steingrímur given the book?"
- c. * *Hverjum* bókina hefur Steingrímur gefið?
 who.Dat book-the.Acc has Steingrímur.Nom given
 "To whom, the book, has Steingrímur given?"

As I discussed in section 3.4, a similar restriction holds in Malagasy (although in the latter case externalization is blocked by a null operator rather than an overt wh-phrase). I argued that this blocking effect is responsible for the restrictions on voice found in relative clauses, pseudoclefts, and *dia*-topic constructions.

On the basis of these parallels, I assume that Malagasy EAs and preverbal topics in Germanic are licensed in the same position. Starting from this assumption, I will argue in this section that the structure of the C-domain in Germanic V2 languages is fundamentally the same as the structure of the C-domain in Malagasy (cf. the tree in (1)). Once this has been established, I go on to argue (in 4.3.2–4.3.3) that the word order differences be-

tween Malagasy and the verb-second languages follow from a simple difference in how the features of the C-domain are checked by the features in TP: In the case of verb-second languages, feature checking is accomplished by means of head movement, while in the case of Malagasy it is accomplished by means of phrasal movement—specifically, successive XP-adjunction, producing a ‘roll-up’ structure.

According to the standard account of verb-second, which goes back to den Besten (1977), the verb raises to C^0 , while the preverbal constituent fills the specifier of CP. The restriction of the SpecCP slot to one constituent is what derives the second-position status of the verb (but see Travis 1991b for a different view). However, if we assume that the C-domain is actually comprised of a series of functional projections (Rizzi 1997, et al.), then the traditional analysis will need to be modified. Müller & Sternefeld (1993), Zwart (1993), Koopman (1996), Branigan (1998), and others, have argued for various theories involving a multi-layered C-structure for verb-second languages. Here I propose the structure in (55) below, which borrows elements from Müller & Sternefeld, Zwart, and Koopman, and which (not coincidentally) closely follows the C-structure I posited in chapter 3 for Malagasy.



The C-domain consists of at least two layers, a TopP/WhP layer and a PivP layer. Topics are licensed in the specifier of TopP, while wh-phrases are licensed in the specifier of WhP. As in Malagasy, I assume that topics are attracted by the uninterpretable scopal feature [op] of the Top head, which also includes an uninterpretable [D] feature (but see below). The Wh head also possesses uninterpretable [D] and [op] features, but in addition it includes an uninterpretable interrogative feature [wh]. It is the combination of [op] and [wh] which causes the Wh head to attract a wh-phrase into its specifier. Top and Wh may be thought of either as featural variants of a single functional category (like the perfective and imperfective variants of the aspectual head Asp) or as distinct categories which happen to be mutually exclusive in the same clause.⁸

⁸ Zwart (1993) argues that WhP and TopP are both projected in the clause (with Wh selecting TopP), and that the mutual exclusivity of wh-phrases and topics in verb-second languages is due to independent constraints. As evidence that wh-movement and topicalization target distinct specifier positions, he notes that while wh-movement out of a wh-island is strictly ungrammatical in languages like German (i), topicalization out of a wh-island is generally acceptable, producing at worst a mild subadjacency violation for some speakers (ii) (examples originally due to Fanselow 1991; cf. also Müller & Sternefeld 1993):

- (i) * Was_i kannst du dich nicht erinnern [wer t_i repariert hat] ?
 what can you yourself not recall who repaired has
 ‘‘What don’t you recall who repaired (them)?’’
- (ii) ? Radios_i kann ich mich nicht erinnern [wer t_i repariert hat]
 radios can I myself not recall who repaired has
 ‘‘Radios, I don’t recall who repaired (them)’’

The failure of the wh-phrase to block extraction of the topic in (ii) can be explained, Zwart argues, if we assume that long-distance wh-movement and long-distance topicalization make use of different intermediate landing sites for successive-cyclic movement: SpecWhP and SpecTopP, respectively.

To explain why wh-phrases and topics cannot co-occur in the same clause, Zwart makes the following assumptions: First, the specifier of TopP is occupied not by the topic itself, but by a null operator linked to the topic, which is adjoined to TopP, as in (iii-a). Second, adjunction to TopP is impossible if WhP contains a filled specifier, as in (iii-b). (Since WhP contains a filled specifier if and only if it has a [wh] feature to check, this may involve a constraint against [wh] heads selecting a complement to which a topic has been adjoined.) Sentences such as (ii) are allowed under this theory, since nothing is adjoined to the embedded TopP projection.

- (iii) a. [TopP DP_i [TopP Op_i Top⁰ [AgrP ... t_i ...]]]

The complement of WhP/TopP is a lower C-projection containing an uninterpretable [op] feature, which attracts either a topic or a wh-phrase into its specifier. For the sake of consistency, I will call this projection PivP, even though the term *pivot* has no real meaning in languages without Philippine-style voicing systems. (As *PivP* is merely a Malagasy-specific mnemonic, other labels, such as Rizzi's (1997) Fin(iteness)P, would be equally appropriate.)

In (55), the C-domain is analyzed as containing (at least) two head positions, Top⁰ and Piv⁰. As evidence for multiple C-heads in Germanic, Zwart and others note that many Germanic languages have complex complementizers. For example, in colloquial Dutch, the interrogative complementizer *of* "if, whether" in embedded questions may be optionally followed by the regular complementizer *dat*, as in (56a). Hoekstra (1992) argues that *of* and *dat* head separate projections. As evidence, he cites sentences such as (56b), in which *dat* is repeated independently of *of* under coordination.⁹ Here we may assume that *of* is generated in the head of WhP (with the wh-phrase in its specifier), while *dat* is generated in the head of PivP, as in (57):¹⁰

- (56) a. Ik vraag wat of dat Jan gedaan heeft
 I ask what if that Jan done has
 "I'm asking what Jan did"

-
- b. * [WhP XP Wh⁰ [TopP DP_i [TopP Op_i Top⁰ [AgrP ... t_i ...]]]]

The structure in (iii-a) is incompatible with my theory of phrase-structure building, in which XP-adjunction plays a special role (see 4.3.3 below). I will thus reject the specifics of Zwart's analysis, although I do not discount the possibility that WhP and TopP are both present in the same clause.

⁹ Tim Stowell (p.c.) informs me that at least some Dutch speakers judge (56b) to be quite marginal, preferring instead to either repeat both *of* and *dat*, or to omit both of them.

¹⁰ Hoekstra (1992) and Zwart (1993) locate *dat* in the head of TopP rather than PivP (see footnote 8).

- b. Ik vraag of *dat* Hardy dik is en *dat* Laurel dun is
 I ask if that Hardy fat is and that Laurel skinny is
 “I’m asking if Hardy is fat and Laurel is skinny”

(57) [WhP wat of [PivP *dat* [TP Jan gedaan heeft]]]

We thus have evidence for projections corresponding to TopP/WhP and PivP in Malagasy. Recall from 3.1.3 that I also posited a third projection above TopP/WhP, namely SubP, in which complementizers such as *fa* “that” are generated. (By assumption, SubP is projected only in embedded clauses containing overt complementizers.) Is there evidence for a SubP layer in the Germanic C-domain as well?

Above I suggested that the complementizer *dat* in Dutch is generated in PivP. By locating *dat* in a low C-projection, we can explain why overt complementizers in Dutch are in complementary distribution with verb-second order in embedded clauses, as illustrated in (58) (see Zwart 1993, Haider, Olsen, & Vikner 1995, and Hallman 1997a for discussion and references):

- (58) a. Jan kuste Marie
 Jan kissed Marie
 “Jan kissed Marie”
- b. Piet zei [dat Jan Marie kuste]
 Piet said that Jan Marie kissed
 “Piet said that Jan kissed Marie”
- c. * Piet zei [dat Jan kuste Marie]
 Piet said that Jan kissed Marie
 “Piet said that Jan kissed Marie”

Verb-second order is derived by adjoining T^0 to Piv^0 , and Piv^0 to Top/Wh^0 , as I will argue below. However, if there is a complementizer in Piv^0 , then T^0 -to- Piv^0 adjunction is

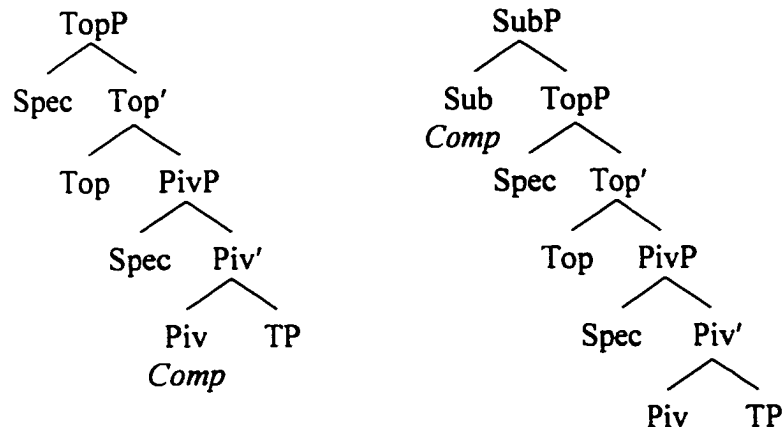
blocked. This analysis can be extended to other Germanic languages which exhibit this mutual exclusivity between complementizers and V2, such as German and the mainland Scandinavian languages. If complementizers are invariably generated in Piv^0 in these languages, then we have little evidence for a SubP projection above TopP/WhP. I will therefore assume that these languages simply lack elements of category Sub in their lexicons.

Of course, there are some Germanic languages in which verb-second order co-occurs with overt complementizers in embedded clauses, as shown in (59) for Icelandic (Rögnvaldsson & Thráinsson 1990). (The same pattern is found in Yiddish.)

- (59) *Jón* harmar [að þessa bók skuli ég hafa lesið]
 Jon regrets that this book should I have read
 “Jon regrets that I have read this book”

If the complementizer fails to block T^0 -to- Piv^0 -to-Top/Wh⁰ adjunction in these languages, then it must be generated in some higher C-projection. The obvious candidate is SubP, the site of complementizers in Malagasy. Thus, within the context of my analysis of the C-domain, we can attribute the difference between the two types of verb-second (Dutch/German/MS versus Icelandic/Yiddish) to the lexical category of the complementizers in these languages. In Dutch, German, and mainland Scandinavian, the complementizer is of category Piv, while in Icelandic and Yiddish (as in Malagasy) it is of category Sub:

(60) *Dutch/German/MS* *Icelandic/Yiddish/Malagasy*



Although I assume that the topic position in Germanic verb-second languages is the same as the EA position in Malagasy, there are some crucial differences between Malagasy externalization and Germanic topic-fronting which need to be addressed. I will consider three such differences here, and tentatively suggest how they might be accounted for in a unified manner.

The first difference between externalization and topic-fronting involves the range of categories which may be targeted by these operations. In Malagasy, the EA position must be filled by an element of category DP, as shown in (61). In the Germanic verb-second languages, however, the categorial restrictions on the preverbal topic position are much weaker: As the German examples in (62) demonstrate, not only DPs, but also PPs and adverbials can occur in this position (these examples taken from Hallman 1997a).

- (61) a. Nandidiana ny mofo ity antsy ity
 Pst-CrcP.cut Det bread this knife this
 "The bread was cut with this knife"

- b. * { Nandidiana / Nandidy } ny mofo amin'ity antsy ity
Pst-CrcP.cut Pst-NomP.cut Det bread with-this knife this
"The bread was cut with this knife"
- (62) a. Hans veröffentlichte heuer in Deutschland ein Buch
Hans published this.year in Germany a book
"Hans published a book this year in Germany"
- b. Heuer veröffentlichte Hans in Deutschland ein Buch
this.year published Hans in Germany a book
"This year Hans published a book in Germany"
- c. In Deutschland veröffentlichte Hans heuer ein Buch
in Germany published Hans this.year a book
"In Germany Hans published a book this year"

A second difference involves the number of elements which may appear outside the predicate phrase. In Malagasy, as we saw in 2.1 and again in 4.2.2, the EA may sometimes be followed by additional constituents, including sentential adverbs and locative expressions (63). In verb-second languages, by contrast, at most one constituent can appear outside the predicate phrase at a given time (where the tensed verb is understood to indicate the left edge of the predicate phrase). This is shown in (64) for German:

- (63) [Namaky ny boky] ny mpianatra *omaly*
Pst-NomP.read Det book Det student yesterday
"The student read the book yesterday"
- (64) a. * Der Student *gestern* [hat das Buch gelesen]
the student yesterday has the book read
"The student read the book yesterday"
- b. Der Student [hat *gestern* das Buch gelesen]
the student has yesterday the book read
"The student read the book yesterday"

A third difference, no doubt related to this second difference, involves the strictness with which the blocking effect (section 3.4) is observed. As I noted above, *wh*-operators and EAs are generally mutually exclusive in the same clause in Malagasy. However, recall from 3.4.4 that when the *wh*-operator belongs to a lexical category other than DP, this mutual exclusivity is relaxed. Thus, for example, it is possible for a PP-operator to co-occur with an external argument inside the free relative constituent of a pseudocleft, as in (65). Here the clefted phrase *tamin' inona* “with what”, which questions the instrument with which the event of killing is carried out, is linked to a PP-operator, while the voice marking on the verb is controlled by the agent *ny mpamboly* “the farmer”.

- (65) Tamin'inona_i [PP-Op_i no *namaky* akoho ny.....mpamboly] ?
 Pst-with-what Foc Pst-NomP.kill chickens Det farmer
 “With what did the farmer kill chickens?”

In verb-second languages, by contrast, topicalization and *wh*-fronting are mutually exclusive even when the *wh*-phrase is a non-DP, as illustrated in (66) for German:

- (66) a. * *Mit welchem Messer der Landwirt hat die Hühnchen getötet?*
 with which knife the farmer has the chickens killed
 “With which knife did the farmer kill the chickens?”
 b. *Mit welchem Messer hat der Landwirt die Hühnchen getötet?*
 with which knife has the farmer the chickens killed
 “With which knife did the farmer kill the chickens?”

Summarizing these differences, the contrast between Malagasy and the verb-second languages amounts to the following: In the verb-second languages, TopP/WhP contains one and only one constituent, which can be of any category (typically a DP, PP, or adverbial).

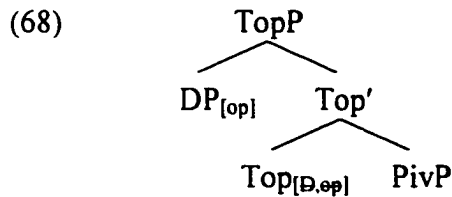
In Malagasy, TopP/WhP contains one and only one DP, and may optionally contain an additional constituent of another category (typically a PP or adverbial).

Here I will suggest a tentative analysis of this difference which appeals to the concept of feature strength. Suppose that the scope feature [op] may be assigned to any semantically appropriate category in the numeration, regardless of its lexical category. We could then capture the difference between Malagasy and Germanic in the following way:

- (67) i. In Malagasy, the [D] feature of TopP/WhP is *strong*.
ii. In the Germanic verb-second languages, the [D] feature of TopP/WhP is *weak*.
iii. In both language types, the [op]/[wh] features of TopP/WhP are *strong*.

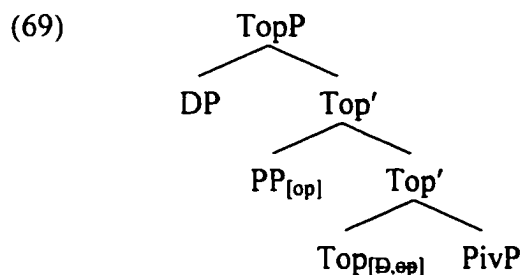
Thus, in Malagasy, overt movement to the predicate-external position will be forced in order to check all of the features of Top (Wh), while in the Germanic languages, overt movement is forced only to check the [op] feature of Top (or the [op] and [wh] features of Wh), while the [D] feature may be checked separately by means of covert movement.

To see how this analysis derives the correct generalization, consider two possible scenarios and how they would play out in the two language types: (a) [op] is assigned to a DP in the numeration, and (b) [op] is assigned to a PP in the numeration. Beginning with scenario (a), where [op] is assigned to a DP: In Malagasy, the DP will be attracted into the specifier of TopP by the strong [D] and [op] features of Top, which are then checked and eliminated, yielding the structure in (68):

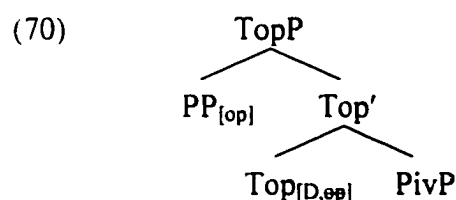


In the verb-second languages, DP-raising is triggered by the strong [op] feature of Top only. The [D] feature of Top is weak, and cannot trigger overt movement; however, once the DP enters the checking domain of Top, it is able to eliminate [D] as well. The result is thus the same as in Malagasy, namely the structure in (68). In both cases, elimination of the [op] feature of Top renders TopP unavailable for any more movements, thus deriving the generalization (true for both Malagasy and Germanic) that the TopP projection can host no more than one DP.

Although the outcome is the same in both Malagasy and Germanic when the [op] feature is assigned to a DP, when it is assigned to a non-DP, such as a PP, the result is different. In Malagasy, the PP is first attracted to the specifier of TopP by the strong [op] feature in Top. However, because the PP does not possess a [D] feature, this first operation only succeeds in eliminating the [op] feature itself, leaving the strong [D] feature of Top unchecked. To make sure this feature is eliminated, then, Top attracts a DP, which raises to become the outer specifier of TopP. This second operation produces the structure in (69), containing two topics, a DP and a PP (cf. the discussion in 3.4.4, 4.2.2):



In the verb-second languages, the PP is attracted to the specifier of TopP to check the strong [op] feature of Top, leaving the [D] feature unchecked, as in Malagasy. However, in this case the [D] feature of Top is weak, and cannot trigger overt movement. Thus, the derivation is able to converge without Top attracting a DP to form a second specifier (instead, the [D] feature of Top is presumably checked via covert feature movement). We are thus left with the structure in (70), in which TopP includes a single specifier containing a topicalized PP.



Aside from this difference in the strength of the [D] feature of Top, there is a fundamental similarity between Malagasy and the Germanic verb-second languages with regard to the structure of the C-domain, and the distributional properties of topics/EAs. Having established this similarity, we can return to the question raised at the end of section 4.2, namely: What triggers predicate-fronting in Malagasy? In the remaining subsections of 4.3, I will argue that predicate-fronting is triggered by the same lexical requirements res-

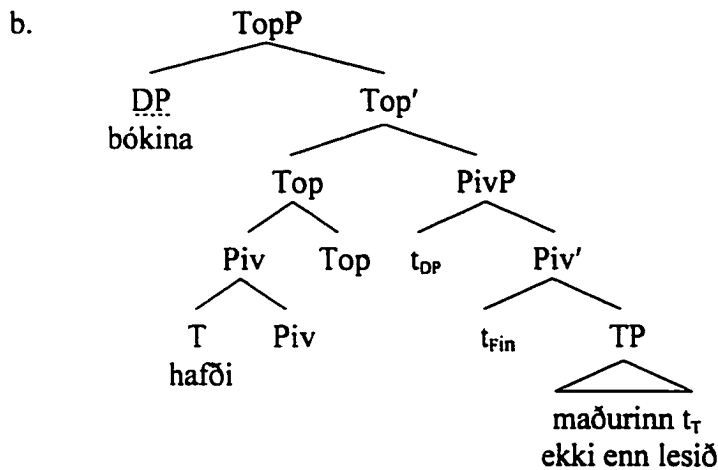
possible for T-to-C raising in Germanic. In effect, then, Malagasy may be thought of as the phrasal-movement analogue of a V2 language.

4.3.2. Malagasy order as the XP-movement analogue of V2

How does the derivation of predicate-initial order in Malagasy compare with the derivation of verb-second in Germanic? Here I will present an outline of the analysis I will argue for, to be refined in 4.3.3–4.3.4.

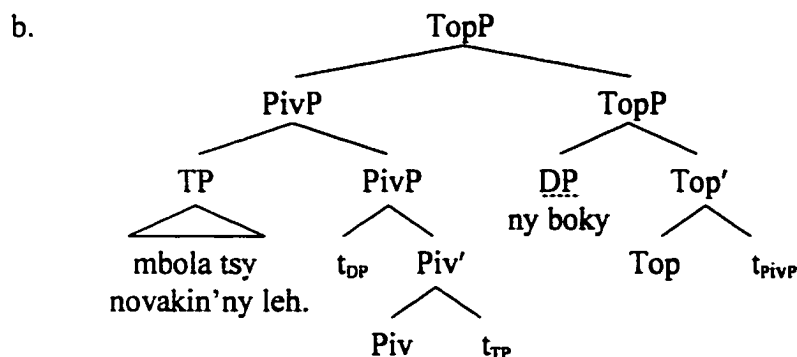
I will tentatively assume that in languages such as Icelandic, Dutch, and German, Piv and Top have strong features which must be checked against a feature in T (but see 4.3.3 for a somewhat different view). This feature checking is carried out by means of successive head movement: T^0 (to which the finite verb or auxiliary has adjoined) raises to adjoin to Piv^0 , which then raises to adjoin to Top^0 , producing the structure in (71b), in which the verb/auxiliary immediately follows the fronted constituent in SpecTopP, as in the Icelandic example in (71a):

- (71) a. Bókin_a hafði maðurinn ekki enn lesið
book-the had man-the.Nom not yet read
“The book, the man had still not read (it)”



In Malagasy, a similar situation obtains: Piv and Top have strong features which need to be checked against T. However, in this case, feature checking is carried out by means of phrasal movement rather than head movement. TP raises and adjoins to PivP, after which PivP raises and adjoins to TopP, producing a ‘roll-up’ structure of the type proposed by Barbiers (1995), Cinque (1996), and others. Since phrasal adjuncts show up to the left of specifiers when the structure is mapped to PF, the adjunction of PivP (containing TP) to TopP ensures that the predicate phrase will precede the EA in SpecTopP, as in (72):

- (72) a. Mbola tsy novakin’ny lehilahy ny...boky
 still not Pst-AccP.read-Det man Det book
 “The book, the man has still not read (it)”



Thus, I claim, the same sequence of feature-checking operations which results in verb-second order in Germanic also derives PredP-initial order in Malagasy. The only significant difference between the two language types is in the kind of movement involved— X^0 -adjunction versus XP-adjunction. I return to the reasons for this difference in section 4.3.4. First, however, I will consider the question of what motivates T^0/TP to raise into the C-domain in more detail.

4.3.3. Raising into the C-domain as lexical feature inheritance

A variety of theories have been proposed to explain verb movement to C in V2 languages. For example, Stowell (1981, 1982) suggests that verb movement is required to support the tense operator, which is generated in the C position (or raises to C by LF). From the C position, the tense operator is able to take scope over the IP, which denotes the event (cf. also den Besten 1989). For Koopman (1994), head movement is motivated by a general requirement that heads be licensed—specifically, she argues that heads have ‘receptors’ which need to be ‘bound’ by a higher head, forcing movement. Thus, T-to-C movement is required so that the C-receptor on T can be bound.

Zwart (1993) proposes an account of T-to-C movement in terms of feature theory. A natural way to formalize T-to-C movement in feature-checking terms would be to stipulate that categories such as Top and C are specified in the lexicon for a [V] feature, which attracts the verb in T^0 . In V2 languages, the [V] feature is strong, forcing overt movement. However, Zwart objects to this approach on the grounds that Top and C are not L-related categories (in the sense of Chomsky & Lasnik 1995, p. 64). The term *L-re-*

lated refers to categories which satisfy morphological requirements of the lexical head (V in the case of clauses, N in the case of DPs, etc.). Thus, in the tree structure assumed here (cf. (16) above), Asp, *v*, and T count as L-related categories, while Piv, Top, and Sub do not. Intuitively, Asp, *v*, and T are present in the clause by virtue of their need to combine with V (correlating in many languages with tense/aspect and agreement morphology on the verb), while Piv, Top, and Sub are required independently of whether or not there is a V in the clause. (This is especially clear in languages like Malagasy, which allows verbless clauses that lack tense/aspect morphology but have a full C-structure.) Zwart argues that while it is plausible to assume that L-related heads like T are inherently specified for a [V] feature, this is much less plausible in the case of non-L-related heads like C.

As a consequence, Zwart proposes that projections in the C-domain inherit their [V] feature from the verb, rather than being lexically specified for it. Under his analysis, [V]-feature inheritance is a consequence of the mechanism responsible for complementizer agreement, which I review briefly below. As various authors have observed, complementizers in many Germanic dialects vary in form according to the person and number of the following subject (Haegeman 1990, Zwart 1993 [and references therein], Shlonsky 1994, Hallman 1997b). Zwart cites the West Flemish examples in (73), from Haegeman:

- (73) a. ... *da-n-k* *ik* *komen*
 that-1s-I I come-1s
 “... that I come”
- b. ... *da-t-j* *ij* *komt*
 that-3s-he he come-3s
 “... that he comes”

- c. ... da-*n-ze* zunder komen
 that-3p-they they come-3p
 "... that they come"

This kind of feature-sharing is problematic, inasmuch as the subject does not stand in a spec-head relation with the complementizer. To solve this problem, Zwart invokes head movement into the C-domain: First, he assumes that the head of TopP selects Agr_sP (rather than PivP, as I assume). The complementizer comes to agree in person and number with the subject by means of a two-step derivation: (a) Agr_s attracts the subject into its specifier, thereby receiving the subject's ϕ -feature specifications via spec-head agreement (74a); (b) Agr_s⁰ adjoins to Top⁰, transmitting the ϕ -features of the subject to the complementizer (74b):

- (74) a. [TopP Comp [Agr_sP DP_i Agr_s [TP ... t_i ...]]]
 b. [TopP Agr_s_j + Comp [Agr_sP DP_i t_j [TP ... t_i ...]]]

Agr_s counts as an L-related head, and thus contains a strong [V] feature which attracts the verb. This [V] feature is inherited by Top⁰ when Agr_s⁰ adjoins to it, and thus attracts the verb into the C-domain.¹¹

Here I will develop an approach to T-to-C movement which resembles Zwart's approach, insofar as I assume that non-L-related projections do not possess a [V] feature, but inherit one as a result of adjunction. However, my theory differs from Zwart's in that

¹¹ In order to force the verb to raise to Top⁰, Zwart must stipulate that Agr_s⁰-to-Top⁰ adjunction happens *before* Agr_s attracts the verb and has its [V] feature deleted.

[V] feature inheritance is motivated by the need to construct an ‘extended projection’ in which all of the projections in the clause share a lexical categorial feature by LF.

As background to this analysis, let us consider the function of head movement in clause structure building: A basic observation about syntactic structure is that the projections which constitute the clause combine with each other in a fixed order—the familiar CP-IP-VP hierarchy which Grimshaw (1991) characterizes as the *extended projection* of the verb. Traditionally, this order is expressed in terms of *c-selection*: C selects a complement of category IP, while I selects a complement of category VP. However, as Svenonius (1994) observes, if we think of c-selection as a dependency between a head and the head of its complement, then the coexistence of c-selection and head-movement in the theory constitutes a formal redundancy: X may c-select YP if and only if it is possible (at least in principle) for Y^0 to move to X^0 without violating the Head Movement Constraint. In light of the feature-checking theory of movement, a natural response to this redundancy is to reduce c-selection to the morphological requirements of heads: For example, to say that Top *c-selects* PivP means simply that Top^0 must merge with PivP so that it can attract the head of PivP into its checking domain in order to check a feature (cf. Koopman 1994 for a similar idea). From this perspective, then, an *extended projection* may be thought of as a hierarchy of heads, each of which needs to attract the head of its complement, with the lowest head in the hierarchy being a lexical head (V in the case of clauses, N in the case of DPs, etc.).

Another basic observation about syntactic structure is that verbs undergo head-to-head movement from the bottom of the clause towards the top—though languages differ

from one another in terms of how high the verb gets before the structure is spelled out (to a low position in English, higher in French, higher still in Irish and Italian). Following Koopman (1994), et al., let us suppose that in all languages the verb raises to the very top of the hierarchy by LF, as it does overtly in at least some languages. Intuitively, then, the verb needs to pass through each of the heads that make up its extended projection before the structure can be sent to the interpretive component.

Why might this be? As a first step, we might argue that each of the heads which make up the extended projection of the verb, in addition to possessing a feature which causes it to attract the head of its complement, also possesses a feature which needs to be checked against the verb. However, this is not so much an explanation as a restatement of the phenomenon. What exactly does it mean to say that a head must check a feature against a verb? The answer, I will argue, depends on the type of category to which the head belongs.

Like Zwart, I adopt Chomsky & Lasnik's distinction between *L-related* and *non-L-related* categories. Whether a projection is L-related or non-L-related depends on whether or not its head has semantic content, as defined in (75):

- (75) i. The categorial feature of an *L-related* projection (TP, AspP, VP, etc.) is interpretable at LF.
- ii. The categorial feature of a *non-L-related* projection (SubP, TopP, WhP, PivP, etc.) is uninterpretable at LF.

I take the distinction in (75) to be more-or-less intuitive. While the T, Asp, and V heads each contribute semantically significant features to the derivation, the heads of the C-do-

main do not. This is not to say that the C-heads do not contribute to the interpretation of the clause. However, their contribution is indirect, resulting from their ability to trigger semantically significant movements. Wh and Top have formal features which attract wh-phrases and topics, respectively, into their checking domains, allowing those elements to take scope. But the Wh and Top heads do not themselves have any semantic content.

Returning to the motivation for V-movement: In the case of L-related projections, V-movement seems to be triggered by the need to create a single complex predicate head at LF, and to satisfy the various lexical requirements of the verb (however we might choose to depict this in terms of feature-attraction). For example, the V raises to *v* so that it can discharge its external θ -role by merging with a DP. Similarly, V raises to Asp so that the event denoted by the verb can combine with an aspectual specification, and so that the adjunction structure $[V+Asp]^0$ can license the abstract case features of the constituent in the specifier of AspP.

However, V-movement into non-L-related projections appears to have a different purpose. Suppose we assume that uninterpretable categorial features are deleted at LF. If so, then a head containing an uninterpretable categorial feature will need to acquire a interpretable categorial feature from some other constituent in order for its projection to be visible at LF. The mechanism by which such a feature is acquired, I will argue, is adjunction: Before a syntactic object can be interpreted, every non-L-related projection in it must enter into an adjunction relation with an L-related projection, thereby becoming L-related 'by inheritance'. For example, in order for the PivP projection to be visible at LF, Piv must attract the closest available constituent whose categorial feature is interpretable,

namely T, causing a copy of T to adjoin to Piv. Once T has adjoined to Piv, PivP inherits its interpretable feature and is reanalyzed as an ‘honorary’ TP.

How does adjunction result in categorial feature inheritance by the target? Since I adopt a strictly derivational, ‘bare phrase structure’ approach to syntactic structure building, I will define adjunction in terms of how the adjoined terms *project*. Projection may be thought of in derivational terms as follows:

- (76) When two terms, α and β , merge to form a third term $\gamma = \{\alpha, \beta\}$, α is said to *project* γ if γ acquires the categorial feature of α .

Chomsky (1995, p. 246) asserts that projection is always asymmetric: When α and β merge to form γ , either α projects or β projects, but not both. Here, however, I will take a somewhat different view. In normal cases of merger—viz., the concatenation of a head with its complement, or the creation of a specifier—only one of the constituent terms projects (where choice of *which* term projects presumably follows from independent principles of bare phrase structure, as discussed in Chomsky 1995, pp. 256-260). However, in the case of adjunction, I will assume that *both* of the constituent terms project simultaneously. That is, when α adjoins to β , the result is a feature bundle which includes the categorial features of both α and β . I express this in terms of the principle in (77):

- (77) i. *Projection under ‘normal’ merger*

When α merges with β to form a new term $\gamma = \{\alpha, \beta\}$, and β is the target, copy the categorial feature of β into γ .¹²

¹² γ may inherit features from α as well under normal merger, just not its categorial feature. For example, when the D’ *s book* combines with the specifier *nobody* to form the DP *nobody’s book*, the [neg] feature of

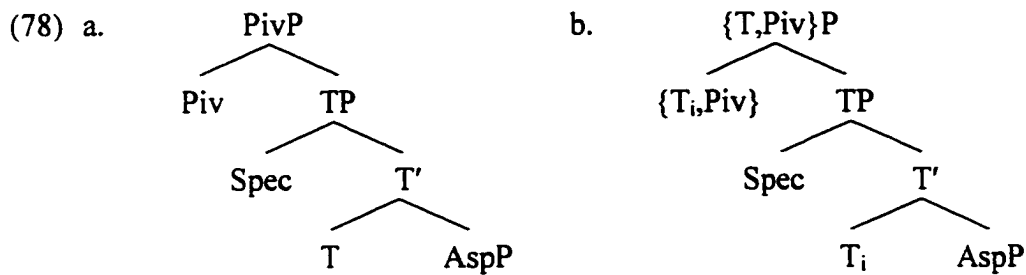
ii. *Projection under adjunction*

When α and β combine to form an adjunction structure $[\alpha/\beta] = \{\alpha, \beta\}$, copy the categorial features of both α and β into $[\alpha/\beta]$.

Although double projection may seem radical, (75ii) is only a minimal modification of the standard view of adjunction: Regular concatenation, such as the merger of a head with its complement, creates a new term out of two previous terms. This new term must be assigned a particular category, and so it inherits the categorial feature of one of its sub-terms. By contrast, adjunction does *not* create a new term, but merely adds features to a pre-existing term. Here I stipulate that the added features include a categorial feature. (I return to this aspect of my theory below, where I address the issue of endocentricity.)

To see how head movement into a non-L-related projection plays out under the above assumptions, consider the case of T^0 -to- Piv^0 adjunction mentioned above: We may begin at the point in the derivation where Piv^0 has merged with TP to form PivP, as in (78a) below. Piv, being a non-L-related category, has an uninterpretable categorial feature. Thus, in order to be visible at LF, the PivP projection must ‘support’ itself by attracting a interpretable categorial feature from lower down in the structure. In accordance with the Minimal Link Condition, Piv^0 will attract the closest such feature, namely the categorial feature of its complement TP. As a result of this feature attraction, the head of TP is copied and the copy is inserted into the structure as an adjunct to Piv^0 , yielding the structure in (78b), in which both T and Piv project.

nobody is inherited by the entire DP (Moritz & Valois 1994). See Cole, Hermon, & Sung (1993) and Pearson (1999) for a broader discussion of feature inheritance/percolation.



Notice that in the tree structure notation employed here, head-adjunction is represented not as the creation of a segment of Piv^0 , but as the replacement of Piv^0 with a new head, $\{\text{T},\text{Piv}\}^0$, containing the categorial features of both T and Piv. Given that the maximal and minimal projections of a category are featurally identical, adjoining T^0 to Piv^0 not only creates a new head, but causes PivP to be reanalyzed as the projection of a doubly headed category, $\{\text{T},\text{Piv}\}\text{P}$.¹³

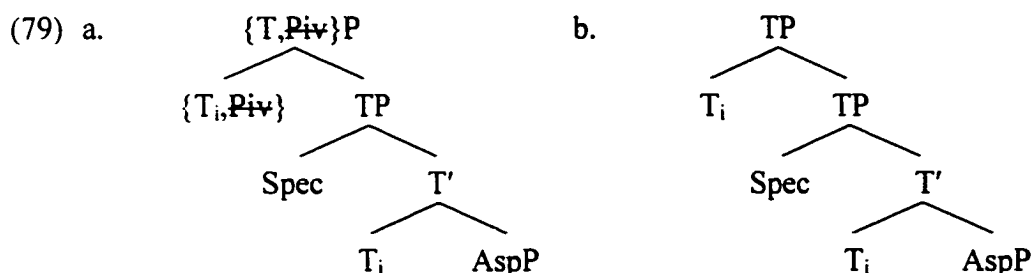
At the end of the derivation (or at the end of the cycle, if we assume cyclic derivations), all of the uninterpretable categorial features must be deleted before the structure can be sent to the interpretive component. In the case of (78b), this means that all of the copies of Piv's categorial feature are deleted, as in (79a). The result is the structure in (79b), where $\{\text{T},\text{Piv}\}\text{P}$ has been converted into a TP projection, headed by a copy of the original T head. In essence, then, adjunction (in combination with the deletion of un-

¹³ Note in passing that this theory may help us resolve an old problem with head movement (discussed by Chomsky 1995 and Kitahara 1995, among others), which is that X^0 -adjunction appears to violate cyclicity. Suppose we derive cyclicity by reformulating Chomsky's Extension Condition along the following lines:

- (i) If K is converted into K' by an operation of Merge/Move, the root node of K' must be non-identical with the root node of K.

The condition in (i) allows both standard cases of cyclic movement, in which Merge/Move creates a new root node, and cases of adjunction, in which Merge/Move changes the root node by adding features to it.

interpretable features) serves to convert a non-L-related projection into a higher ‘shell’ of its L-related complement.¹⁴



Before returning to the comparison of T-to-C movement in Malagasy and the Germanic V2 languages, there is an issue pertaining to the definition of adjunction in (77ii) which needs to be addressed. Notice that according to my theory, the adjunct and its host bear a symmetrical relation to each other with regard to projection—a clear violation of *endocentricity* (the requirement that a projection have a unique head). As far as interpreting syntactic objects is concerned, the creation of doubly-headed projections by adjunction is not a problem when an L-related head adjoins to a non-L-related head, since the categorial features inherited from the non-L-related head are deleted at LF, resulting in an endocentric structure of the type in (79b). But what happens when an L-related head adjoins to another L-related head? In this case, both categorial features are interpretable, and so both will be retained. But if the categorial features happen to be contradictory, then the derivation should crash at LF. To allow for the adjunction of one L-related head to another, I will make the assumption in (80):

¹⁴ It might be possible to extend this theory of double-projection under adjunction from categorial feature checking to feature checking in general, thereby deriving the fact that an interpretable feature must raise

- (80) The categorial features of T, Asp, and *v* are non-distinct from those of V.

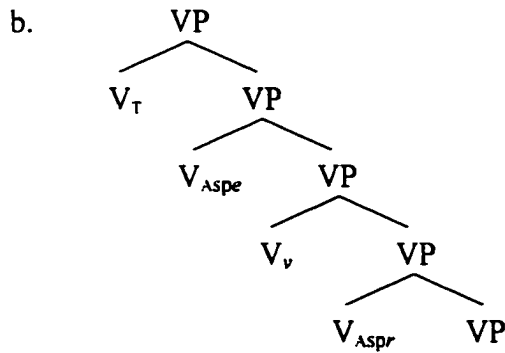
If L-related heads (belonging to the same extended projection) have non-distinct categorial features, then the adjunction of one L-head to another will not create a problem for interpretation (e.g., a phrase projected from a feature bundle containing two categorial [V] features is unambiguously a VP). The intuition behind (80) is that tense and aspect are ‘verb-like’ categories. As mentioned in 2.3.3, Zagana (1990) and Stowell (1995, 1996) treat the T head as a transitive ordering predicate which selects two event-denoting arguments, an analysis which Demirdache & Uribe-Etxebarria (1997) extend to Asp heads. From this perspective, adjoining V to T or Asp is not much different from adjoining one V to another V, as in morphological causatives and applicatives (Baker 1988a/b, Marantz 1993, Ngonyani 1996). We may almost think of the complex of L-related projections from (16), repeated here as (81a), as a series of VP-shells which combine together to form a single complex predicate (81b):¹⁵

- (81) a. [TP T [AspeP Aspe [vP v [AsprP Aspr [vP V]]]]]

and adjoin to an uninterpretable feature in order to check it. However, I will not pursue this possibility here.

¹⁵ Note that the assumption implicit in (80)—namely, that an L-related projection may adjoin to another L-related projection only if they have non-distinct categorial features—creates a problem for syntactic noun-incorporation, which Baker (1988a) analyzes as adjunction of an N head to a V head. Under the theory presented here, I am forced to assume that syntactic noun-incorporation does not involve adjunction, but some other type of merger operation.

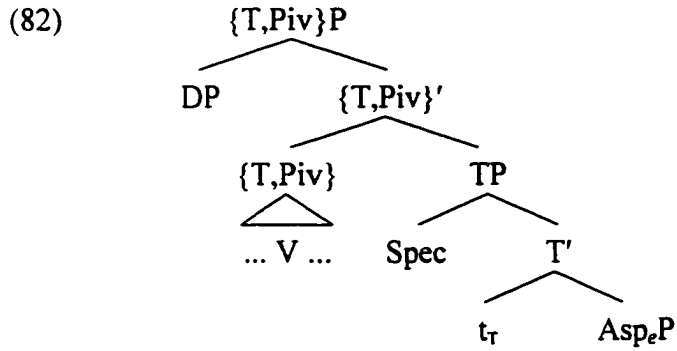
One possible approach is suggested by the work of Drijkoningen (2000), who argues that X^{0max} s have a multilevel internal structure, which includes ‘specifier’ and ‘complement’ positions as well as an adjunction site. Given that syntactic noun incorporation involves the discharging of θ -roles (at least in languages which allow referential nouns to be incorporated), perhaps this operation involves the insertion of a noun into the ‘specifier’ or ‘complement’ of V^{0max} .



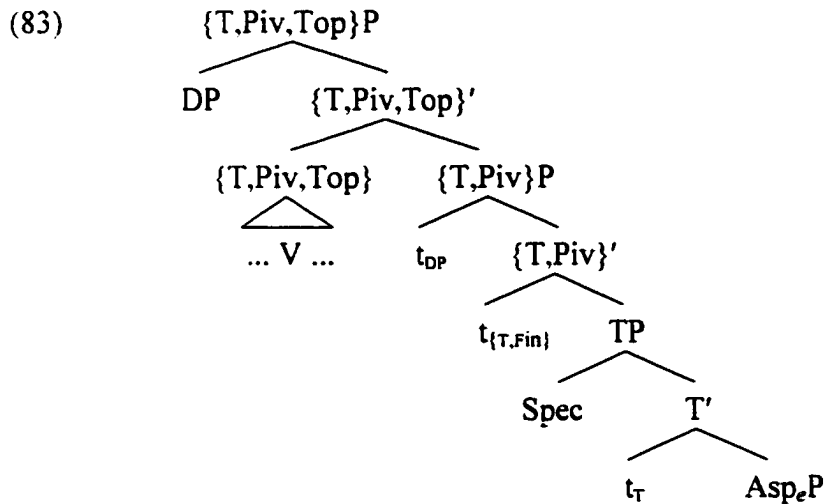
We can now return to the derivation of verb-second order in Germanic, illustrated in (71b) above, and review the steps involved in successive T-to-C movement from the perspective of the theory outlined here.

We may begin at the point in the derivation where Piv^0 merges with its complement TP to form PivP. Piv has two lexical requirements: First, it must attract the topic DP into its specifier to check its [op] feature, and second, it must combine with the interpretable categorial feature of TP. Let us suppose that the operations happen in this order. Thus, the topic DP raises to become the specifier of PivP, after which the categorial feature of TP raises into the checking domain of Piv, causing the PivP projection to be reanalyzed as the ‘mixed’ projection $\{\text{T}, \text{Piv}\}\text{P}$. Since categorial feature inheritance takes place in the overt syntax, the attraction of T to Piv results in the insertion of a copy of $\text{T}^{0\text{max}}$ (containing the tensed verb) as an adjunct to Piv^0 .¹⁶ The result of these two movements is the structure in (82) (here and below I represent movement using traditional trace notation rather than copy notation, so as to make the trees easier to read):

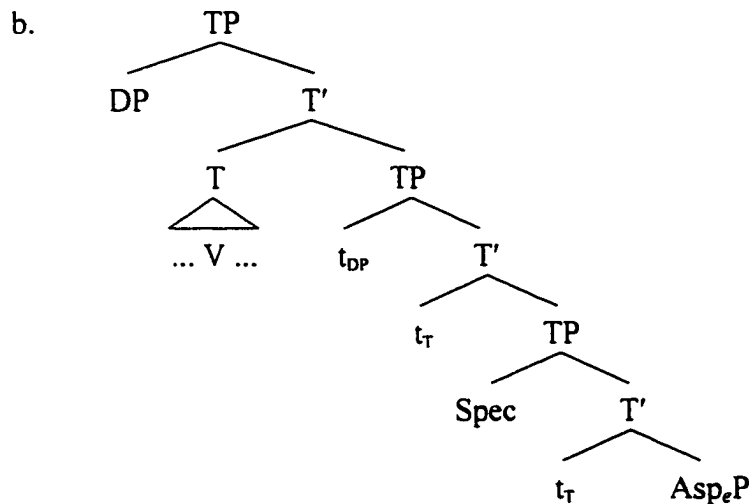
¹⁶ Note that inserting $\text{T}^{0\text{max}}$ into Piv^0 after the DP has raised to SpecPivP does not violate cyclicity as long as we adopt the modification to the Extension Condition in footnote 13: Merger of DP with PivP creates a new root node, while adjunction of $\text{T}^{0\text{max}}$ to Piv^0 alters the featural content of that root node.



Next, Top^0 merges with $\{T, \text{Piv}\}P$ and attracts the DP in $\text{Spec}\{T, \text{Piv}\}P$ to check its [D] and [op] features, causing the DP to raise to become the specifier of $\text{Top}P$. Like Piv, Top has an uninterpretable categorial feature, and consequently must attract the closest interpretable categorial feature into its checking domain. In this case, the closest interpretable categorial feature is the one contained in the mixed head $\{T, \text{Piv}\}^0$. Attraction of T to Top causes $\{T, \text{Piv}\}^0$ (including the verb) to be copied as an adjunct to Top^0 . Once $\{T, \text{Piv}\}$ and Top have combined to form the mixed category $\{T, \text{Piv}, \text{Top}\}$, $\text{Top}P$ is reanalyzed as $\{T, \text{Piv}, \text{Top}\}P$, resulting in the structure in (83).



Finally, all of the uninterpretable categorial features in (83) are deleted. This produces the structure in (84):¹⁷



Predicate-initial order in Malagasy is derived in essentially the same fashion. The only additional assumption which must be made is that adjunction of an L-related category to a non-L-related category can trigger the movement *either* of an X^0 or of an XP, depending on the language. That there should be this option is expected under the Minimalist framework, given Chomsky's conception of overt movement as 'generalized pied-pip-

¹⁷ Recall that in Germanic languages of the Dutch/German type (as opposed to those of the Icelandic type), verb-second word order is blocked in embedded clauses by the presence of an overt complementizer. As I discussed in 4.3.1, we can account for this pattern if we assume that complementizers in Dutch and German are generated in the head of PivP. Then all that is needed is to stipulate that adjunction of T^0 to Piv^0 is blocked if there is already overt material in Piv^0 . (In Icelandic, complementizers are generated in the head of SubP, above TopP/WhP, and thus fail to block verb-second in embedded clauses.)

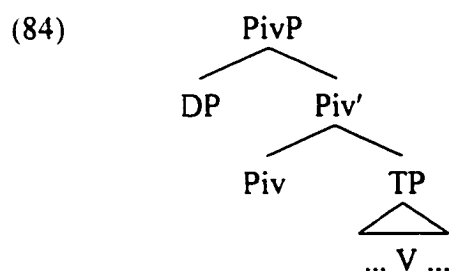
Within the context of the present theory, we can explain why complementizers block T^0 -adjunction by adding the condition in (i):

(i) When a C-projection is lexicalized, its categorial feature becomes interpretable.

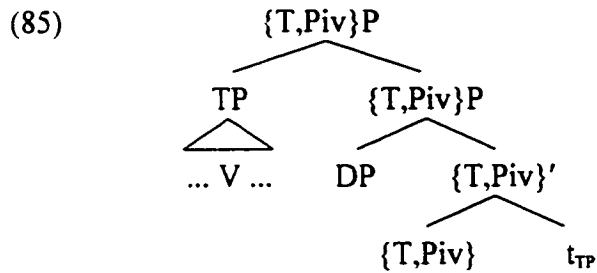
The intuition here is that a non-L-related head containing lexical material is 'strong' enough to avoid being deleted at LF, while an empty non-L-related head must attract lexical material from elsewhere. I leave a detailed consideration of the implications of (i) for future research.

ing', where the amount of phonological material carried along by a moved feature is determined independently of the feature movement itself (see below). As I will suggest in the next section, the crucial property separating TP-adjunction languages like Malagasy from T^0 -adjunction languages like Icelandic is a morphological one: In Icelandic-type languages, the phonological features associated with T^0 constitute a morphologically discrete word, while in Malagasy-type languages, they do not.

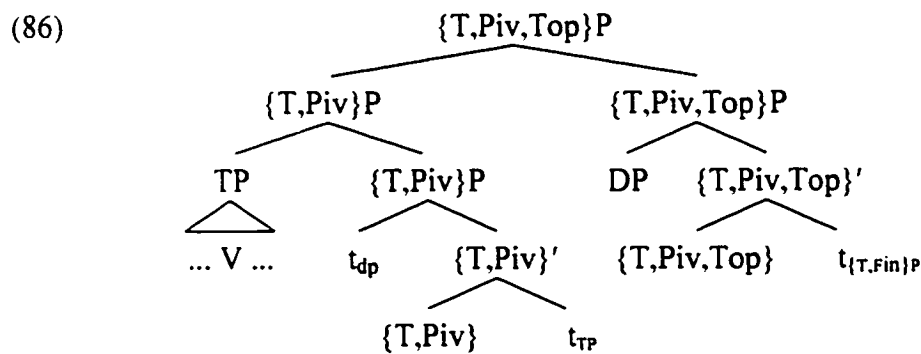
The derivation of the Malagasy structure in (72) above proceeds as follows: Piv^0 selects TP to form PivP, and attracts the EA into its specifier to check its [op] feature:



Being non-L-related, Piv attracts the categorial feature of TP, resulting in the creation of a mixed category $\{T, Piv\}$, leading to the reanalysis of PivP as $\{T, Piv\}P$. As we saw above, in the case of V2 languages like Icelandic, attraction of T by Piv is spelled out as the insertion of a copy of T^{0max} as an adjunct to Piv^0 . However, copying of T^{0max} is ruled out in the case of Malagasy; instead, the entire TP is copied. In accordance with Chomsky's (1995) Uniformity Condition, which requires that each of the copies in a chain have the same phrase structure status, adjunction of an XP must target another XP. Thus, the copy of TP will merge with PivP rather than Piv^0 , resulting in a structure where the TP c-commands the EA:

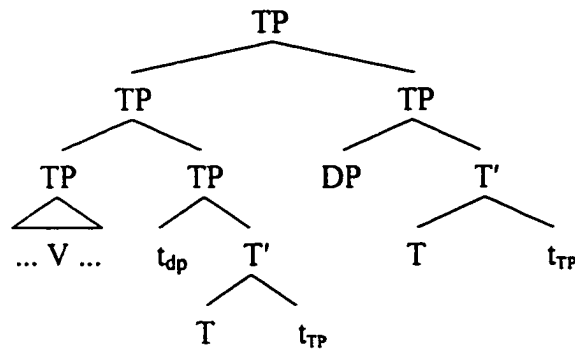


This process is then repeated with the next layer of C-structure. Top^0 selects the constituent in (85) to create TopP , and attracts the DP into its specifier to check its [D] and [op] features. Top then combines with the closest available interpretable categorial feature, located in $\{T, \text{Piv}\}$, and TopP is reanalyzed as $\{T, \text{Piv}, \text{Top}\}P$. This operation causes $\{T, \text{Piv}\}P$ to be copied as an adjunct to TopP , giving the structure in (86):



Subsequent deletion of uninterpretable categorial features produces the structure in (87), in which PivP and TopP have been transformed into higher TP shells:

(87)



4.3.4. Generalized pied-piping and X^0 - versus XP-adjunction

Why does Malagasy make use of XP-adjunction in order to satisfy the requirements of Piv and Top, whereas other more familiar languages make use of X^0 -adjunction? While I do not have a definitive answer to this question, I speculate that this difference may follow from the interaction of phonological/prosodic constraints with general economy principles, as expected under Chomsky's (1995) theory of overt movement as 'generalized pied-piping'.

As I discussed in chapter 1, Chomsky argues that the operation Move is triggered by feature attraction. An uninterpretable feature F must be checked against a complementary interpretable feature F' and eliminated in order for the structure to converge. In order to fulfill this requirement, F attracts the closest available feature bundle containing F' (abbreviated $fb(F')$ below). Assuming the copy theory of movement (cf. section 4.2.3), attraction of F' causes a copy of $fb(F')$ to merge in the checking domain of F .

When the merged copy of $fb(F')$ is spelled out, we say that movement is *overt*, and when the original copy of $fb(F')$ is spelled out, we say that movement is *covert*. There are a number of ways to understand the difference between overt and covert move-

ment. For Chomsky (1995), the difference is one of timing: Under Chomsky's theory, *spell-out* (the mapping of a derivation to PF) is construed as an operation which applies at a certain point in a derivation D, separating out the phonological features of the term constructed by D and sending them to PF for interpretation. Covert movement results when the copying of $fb(F')$ is postponed until after *spell-out* has applied—that is, until after the phonological features of $fb(F')$ have been removed and sent to PF. Overt movement results when $fb(F')$ is copied before *spell-out*, in which case the higher copy includes the phonological features of $fb(F')$. Chomsky refers to this process whereby phonological features are copied along with formal features as 'generalized pied-piping'. Others, including Richards (1997) and Pesetsky (1998), have suggested that the overt/covert distinction is not a matter of timing, inasmuch as overt and covert movements may both take place prior to *spell-out*. Under this theory, the choice of which copy of $fb(F')$ to pronounce must be determined by other factors, perhaps feature strength.

In the case of overt movement, what determines exactly how much phonological material will be copied into the checking domain of the attracting feature F? According to Chomsky, general principles of economy dictate that the copy of $fb(F')$ in the checking domain of F will contain the minimum amount of phonological material necessary for convergence. Given that phonological features are interpreted at PF, we may presume that the constraints on copying them are determined largely by principles of PF (although other factors may be involved as well). Thus, how much phonological material is displaced when a feature is attracted will depend in large part on the interaction of economy and other syntactic principles with independent morphological and phonological

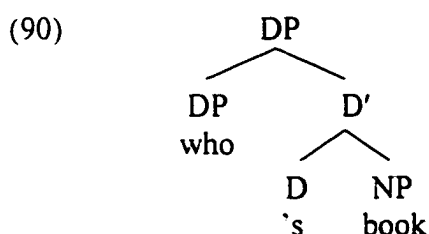
What kinds of constraints are placed on the copying of phonological material?

One such constraint appears to be the following:

- This is the familiar restriction against X^0 -excorporation, reformulated as a condition on PF. Among other things, (88) rules out derivations in which T-to-C adjunction copies the past tense suffix by itself, stranding the verb stem, as in the Swedish example in (89b):

- Plausibly, the constraint in (88) should be extended to include not just *syntactic words* (X^0 s), but also what we might call *morphological words*—that is, strings of two or more linearly adjacent X^0 s which do not form a constituent in the syntax, but which nevertheless function as a unit with respect to PF (perhaps as a result of a post-spell-out *Merger* or *Fusion* operation, which manipulates tree structures by combining adjacent terminal nodes, as in the Distributed Morphology model of Halle & Marantz 1993).

To show that both syntactic and morphological structure play a role in constraining phonological feature copying, Chomsky (1995) gives an example involving wh-movement in English: In wh-questions, the C-domain contains a head with an uninterpretable [wh] feature, which must attract a compatible interpretable feature. Because the attracting [wh] feature is strong in English, the closest constituent containing an interpretable [wh] feature will raise overtly. Suppose that the interpretable feature is contained in the DP in (90), where the possessive determiner 's joins with the wh-phrase *who* at PF to form a single prosodic word *whose*:



If the attracted [wh] feature pied-piped only *who*, stranding 's *book*, the derivation would crash at PF, because 's needs to form a morphological word with *who*. Raising *whose* and stranding *book* is not an option either, since *whose* is not a syntactic constituent, and hence is not visible for copying. Thus the entire DP *whose book* must be copied, this being the smallest unit containing [wh] which is both visible to the syntax and capable of being displaced at PF without breaking up a morphological word. Crucially, all that the uninterpretable [wh] feature cares about is the feature that it attracts. The fact that the attracted feature must drag along the DP *whose book* when it is copied is a consequence of the language-specific morphological properties of the determiner 's, requiring it to form a PF unit with the constituent in SpecDP.

On the basis of examples like this, I propose that the copying of phonological features is minimally subject to the conditions in (91) and (92). (Further refinements in the statement of these constraints, as well as the addition of other constraints, may well be necessary; however, these will suffice for present purposes.)

(91) *Economy of Displacement*

When a feature F attracts a compatible feature F' into its checking domain, copy the minimum $fb(F')$ allowed for convergence (as specified by the Morpho-Syntactic Integrity condition).

(92) *Morpho-Syntactic Integrity*

When a feature bundle $fb(F')$ is copied, the following conditions must hold:

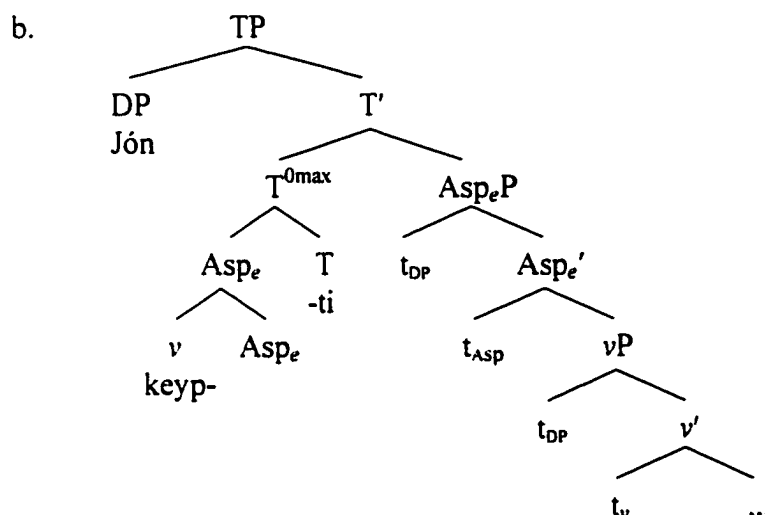
- i. $fb(F')$ is a visible syntactic constituent (X^{0max} or XP).
- ii. If phonological features are copied, the morphological requirements of terminals must be respected. That is, the subparts of a morphological word must all be spelled out in the same copy of $fb(F')$.

Paraphrasing (91) and (92): When a feature F is attracted into a domain D , resulting in the overt merger in D of a syntactic constituent α containing F , α will be the smallest such constituent which also counts as a morphological unit.

Returning to the difference between Malagasy and the Germanic verb-second languages: Notice that in the case of languages like Icelandic, the verb stem combines with tense/aspect morphology in the syntax. Consider a sentence such as (93a). In this sentence, TP is headed by a complex adjunction structure T^{0max} , containing V^0 and Asp_e^0 as well as T^0 , as shown in (93b). T^{0max} constitutes a discrete morphological word, and thus the feature bundle associated with T^{0max} counts as the smallest feature bundle containing

the categorial feature of TP which is both a syntactic unit and a morphological unit. As a consequence, when the categorial feature of TP combines with the categorial feature of Piv to form $\{T, \text{Piv}\}$, $T^{0\max}$ will get copied into the checking domain of Piv, stranding the rest of the constituent in (93b).

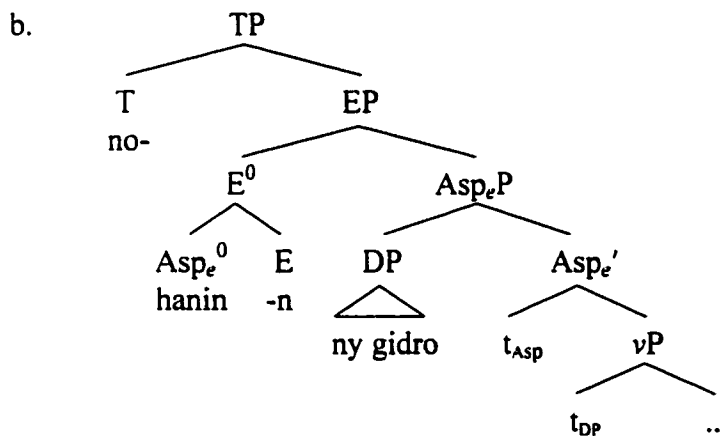
- (93) a. Bókina keypti Jón
 book-the bought John(Nom)
 “John bought the book”



In Malagasy, however, the tense morpheme has a different syntactic status. Recall my assumption from 2.3.3 that the T^0 head does not form a syntactic constituent with the rest of the verb complex. As shown in (94), the verb stem raises as high as the head of EP before spell-out, and only combines with T^0 in the morphological component—perhaps via a rule which merges linearly adjacent terminals under a single X^0 -node, as in Halle &

Marantz (1993).¹⁸ How, then, will the inheritance of the categorial feature of TP by Piv be realized in terms of phonological feature pied-piping? Pied-piping of just the features of T^0 is disallowed, since this would break up a morphological word: The tense marker *no-* is lexically specified as an affix. Pied-piping the features of T^0 and E^0 (containing the tense prefix and the following verb stem) is disallowed as well, since T^0 and E^0 do not form a syntactic constituent. In fact, the minimal syntactic constituent containing the categorial tense feature which also forms a morphological unit is the entire TP. A copy of TP is thus inserted as an adjunct to PivP (and later a copy of PivP is inserted as an adjunct to TopP), as a result of which the predicate phrase is spelled out to the left of the external argument.

- (94) a. Nohanin'ny gidro ny...voankazo
 Pst-AccP.eat-Det lemur Det fruit
 "The lemur ate the fruit"



¹⁸ Within Kayne's (1994) Antisymmetry framework, this appears to be the only way to handle prefixation of a higher head to a lower head.

This analysis predicts that there will be a strong correlation between T^0 - versus TP-adjunction and the order of morphemes within the verb complex:

- (95) i. In languages with *suffixal* tense/aspect morphology, T-to-C movement involves X^0 -adjunction.
- ii. In languages with *prefixal (proclitic)* tense/aspect morphology, T-to-C movement involves XP-adjunction.

In other words, in languages for which attraction of [T] by C-projections is spelled out in the overt syntax, those languages which express tense/aspect by means of suffixes should exhibit head-to-head movement, resulting in either V2 or strict VSO order (depending on whether or not there is also topic-movement into the C-domain). On the other hand, those languages where tense/aspect is expressed by a prefix or proclitic should exhibit successive XP-movement, resulting in right-peripheral subjects or topics in cases where XP-fronting is accompanied by overt DP movement into the C-domain or higher projections of the I-domain.

Although a detailed cross-linguistic comparison remains to be done, there is some promising initial evidence for the correlation in (95). To the best of my knowledge, in all of the major language groups for which VOS (or topic-final) order is attested, either as the basic word order or as a regular alternative to VSO (e.g., Western Austronesian, Polynesian, Mayan), tense/aspect morphology is prefixal or proclitic. For example, in Tzotzil, a Mayan language with VOS basic order, completive and incomplete aspect are marked by means of prefixes and proclitic particles which attach to the left edge of the verb com-

plex. These include the completive prefix *i-* (96a) and the preposition-like incomplete particle *ta* (96b) (examples taken from Aissen 1992a/b):

- (96) a. I-s-man vaj ta ch'ivit li Maruch-e
 Cpl-3.Erg-buy tortilla in market Det Maruch-Encl
 "Maruch bought tortillas in the market"
- b. Ta s-k'an ta x-bat li Xun-e
 Incpl 3.Erg-want Incpl 3-go Det Xun-Encl
 "Xun wants to go"

Clearly more could be said about the theoretical motivations for XP-adjunction in Malagasy, as well as the status of the T^0 - vs. TP-adjunction parameter and its connection to word order variation and morphology. However, in the interests of space, I will let the above speculations stand, and turn to the issue of empirical support.

4.4. Evidence for predicate raising

I now present two pieces of evidence in favor of a phrasal movement account of PredP-initial order, and against an account whereby the PredP remains below the external argument, the latter being situated in a right-peripheral specifier. The first piece of evidence, discussed in 4.4.1, concerns the placement of the particle *ve*, used to mark yes/no questions. Under the predicate-raising analysis, this particle receives a uniform treatment as a second-position clitic, whereas the right-specifier analysis forces us to posit a more complicated distribution. The second piece of evidence, discussed in 4.4.2, bears on a crucial predictive difference between the right-specifier analysis and the predicate-raising analysis: Whereas the right-specifier analysis predicts that the external argument will always follow the predicate phrase, the predicate-raising analysis allows for the possibility that

raising will fail to take place under certain circumstances, resulting in an ‘inverted’ surface order where the external argument precedes the predicate phrase at spell-out rather than following it. As I show in 4.4.2, inverted orders are in fact attested in certain types of embedded clauses.

4.4.1. The question particle as a second-position clitic

In this section I discuss the distribution of the yes/no question particle *ve*, with particular reference to Paul’s (1999) evidence showing that *ve* does not occupy a fixed position in the clause, but should instead be treated as a second-position clitic. I argue that under an analysis which derives predicate-initial order via movement of the predicate phrase over the external argument, the distribution of the question particle may be accounted for by means of a straightforward rule. Descriptively, *ve* attaches to the right edge of the highest XP constituent properly dominated by the root node. In terms of the derivational framework developed in 1.1.3, where c-command is defined in terms of Merge, and where non-maximal, non-minimal projections fail to c-command anything, the *ve*-placement rule may be stated as in (97):

- (97) The question particle *ve* suffixes to the highest c-commanding term in the clause.

By contrast, if we adopt an analysis such as the one in (2) above, in which the external argument is above and to the right of the predicate phrase, the placement of *ve* cannot be accounted for by means of such a simple rule. Instead, a complex rule is needed, which establishes different conditions for different types of structures. Thus, insofar as it allows

for a simpler *ve*-placement rule, the predicate-raising account advocated here is conceptually preferable to the traditional right-specifier analysis.¹⁹

As I discussed in 2.1, *ve* generally occurs at the boundary between the predicate phrase and the external argument. This holds true regardless of how ‘heavy’ the predicate phrase is, as the examples in (98) show.

- (98) a. Matory *ve ny...gidro?*
 NomP.sleep Qu Det lemur
 “Is the lemur sleeping?”
- b. Mamaky ny boky *ve ny...mpianatra?*
 NomP.read Det book Qu Det student
 “Is the student reading the book?”
- c. Amonoan’ny mpamboly ny akoho any an-tokotany *ve ny...antsy?*
 CrcP.kill-Det farmer Det chicken there Obl-yard Qu Det knife
 “Is the knife being used by the farmer to kill the chickens in the yard?”

In existential sentences, which lack an overt EA, *ve* appears at the end of the sentence, as in (99). This example shows that *ve* does not occupy some sort of ‘reverse Wackernagel’ position, linearly preceding the final XP in the clause, whatever that XP may happen to be. Instead, (99) corroborates the generalization that *ve*-placement targets the right edge of the predicate phrase.

¹⁹ In this discussion, I will have nothing to say about the mechanisms of cliticization, or the morphosyntactic status of clitics in general. However, at a minimum I must assume that *ve*-cliticization happens somewhere at the interface between syntactic structure and PF—perhaps at the level of Morphological Structure proposed by Halle & Marantz (1993), or in the construction of prosodic structure, since the rule which governs the placement of *ve* must make reference to both constituency and precedence.

- (99) Nisy entana tonga *ve*?
 Pst-NomP.exist parcel arrived Qu
 “Have any parcels arrived?”
 lit. “Are there parcels which arrived?”

Recall from 3.4.2 that in sentences containing constituent focus, *ve* occurs immediately after the focused constituent and before the particle *no* (100). If we assume that such sentences have the structure of pseudoclefts, where the focused phrase constitutes the matrix predicate while the constituent introduced by *no* is a free relative functioning as the external argument, then the position of *ve* follows from the generalization above: Here, as in (98)–(99), *ve* targets the right edge of the predicate phrase.

- (100) Ny mpianatra *ve* no...mamaky.....ny...boky?
 Det student Qu Foc NomP.read Det book
 “Is it the student who is reading the book?”

Given that the predicate phrase is the portion of the clause associated with ‘new information’ (the *comment* in a *topic-comment* structure), it makes sense from a semantic perspective that *ve* should occur at the periphery of the predicate phrase, inasmuch as this particle acts as an operator which scopes over situations or eventualities. Translating this semantic relation into syntactic terms, we might treat *ve* as a functional head, and characterize its scopal relation to the predicate phrase in terms of selection/feature-checking. For example, in Pearson (1998), I treat *ve* as the head of a projection QuP, which takes PredP as its complement. *Ve* has a question feature [qu] to check against the predicate,

which causes it to attract PredP into its specifier, resulting in the surface order where *ve* appears to the right of the predicate.²⁰

Implicit in this analysis is the assumption that *ve* occupies a fixed position in the clause. For the cases considered so far, where *ve* consistently marks the boundary between the predicate phrase and the external argument, this assumption appears to hold. However, the generalization that *ve* always marks the right edge of the predicate phrase encounters problems when a wider array of sentence types is considered, as Paul (1999) demonstrates.

Notice that in all of the examples considered so far, the predicate phrase is the leftmost constituent in the clause. However, there are other constructions in Malagasy in which the predicate phrase is preceded by one or more other constituents. For example, in the *dia*-topic construction (3.4.3), one or more arguments or adjuncts of the verb are fronted, separated from the rest of the clause by the particle *dia*:

- (101) a. Nanapaka bozaka omaly i.....Bakoly
 Pst-NomP.cut grass yesterday Det Bakoly
 "Bakoly cut the grass yesterday"
- b. Omaly *dia* nanapaka bozaka i.....Bakoly
 yesterday Top Pst-NomP.cut grass Det Bakoly
 "Yesterday, Bakoly cut the grass"
- c. I Bakoly *dia* nanapaka bozaka omaly
 Det Bakoly Top Pst-NomP.cut grass yesterday
 "(As for) Bakoly, (she) cut the grass yesterday"

²⁰ This is similar to Moritz & Valois's (1994) treatment of sentential negation as a spec-head agreement relation between a functional head Neg⁰ and the predicate phrase, which raises into SpecNegP at LF.

If *ve* occupies a fixed position to the right of the predicate phrase, we would expect *ve* to come after *bozaka* in (101b) and sentence-finally in (101c). In fact, however, *ve* occurs between the topicalized constituent and *dia* in both cases:

- (102) a. Nanapaka bozaka omaly ve i.....Bakoly?
 Pst-NomP.cut grass yesterday Qu Det Bakoly
 “Did Bakoly cut the grass yesterday?”
- b. Omaly ve dia nanapaka bozaka i.....Bakoly?
 yesterday Qu Top Pst-NomP.cut grass Det Bakoly
 “Yesterday, did Bakoly cut the grass?”
- c. I Bakoly ve dia nanapaka bozaka omaly?
 Det Bakoly Qu Top Pst-NomP.cut grass yesterday
 “(As for) Bakoly, did (she) cut the grass yesterday?”

Consider also (103a), which contains a constituent topicalized over a pseudocleft construction. Here again, *ve* follows the topicalized constituent and precedes *dia*, as shown in (103b), rather than following the clefted constituent, as we might expect on the basis of examples like (100):

- (103) a. Itỳ antsy itỳ dia i Bakoly no nanapaka bozaka taminy
 this knife this Top Det Bakoly Foc Pst-NomP.cut grass Pst-with-3
 “This knife, it’s Bakoly who cut the grass with it”
- b. Itỳ antsy itỳ ve dia i Bakoly no nanapaka bozaka taminy?
 this knife this Qu Top Det Bakoly Foc Pst-NomP.cut grass Pst-with-3
 “This knife, is it Bakoly who cut the grass with it?”

In order to maintain the hypothesis that *ve* marks the right edge of the predicate phrase, we would have to argue that in clauses containing a *dia*-topic, it is the *dia*-topic which is the main predicate of the sentence. However, there is good evidence to show that *dia*-to-

pics are not predicates. For one thing, unlike clefted constituents, *dia*-topics may not be negated:

- (104) a. *Tsy i Bakoly no nanapaka bozaka omaly*
 Neg Det Bakoly Foc Pst-NomP.cut grass yesterday
 ‘‘It’s not Bakoly who cut the grass yesterday’’
- b. * *Tsy i Bakoly dia nanapaka bozaka omaly*
 Neg Det Bakoly Top Pst-NomP.cut grass yesterday
 ‘‘Not Bakoly, (she) cut the grass yesterday’’

Furthermore, Paul (1999) argues that although the question particle consistently scopes over focused constituents, *dia*-topics may be either inside or outside its scope. Consider (105a), where *ve* follows the focused constituent, *i Bakoly*: Here, *i Bakoly* defines the scopal domain of *ve*, as shown by the fact that (105b), but not (105c), is a semantically appropriate answer to the question (examples taken from Paul 1999):

- (105) a. *I Bakoly ve no manapaka bozaka?*
 Det Bakoly Qu Foc NomP.cut grass
 ‘‘Is it Bakoly who is cutting the grass?’’
- b. *Tsia, i Ketaka no manapaka bozaka*
 no Det Ketaka Foc NomP.cut grass
 ‘‘No, it’s Ketaka who is cutting the grass’’
- c. # *Tsia, i Bakoly no manampirina ny tranony*
 no Det Bakoly Foc NomP.organize Det house-3
 ‘‘No, it’s Bakoly who is putting her house in order’’

Compare (106a), in which *ve* follows a *dia*-topic: Here, the scope of *ve* is not restricted to Bakoly, as it is in (105a). The question does not presuppose that some individual cut the grass and ask whether that individual was Bakoly; rather, it asks about Bakoly whe-

ther she cut the grass, or whether something else happened. That *ve* does not (necessarily) include Bakoly in its scope is demonstrated by the fact that both (106b) and (106c) are legitimate answers to the question. This shows that, contra my assumption in Pearson (1998), it is not the case that *ve* invariably takes scope over the constituent to its left.

- (106) a. I Bakoly *ve* dia manapaka bozaka?
 Det Bakoly Qu Top NomP.cut grass
 “(As for) Bakoly, is she cutting the grass?”
- b. Tsia, i Ketaka no manapaka bozaka
 no Det Ketaka Foc NomP.cut grass
 “No, it’s Ketaka who is cutting the grass”
- c. Tsia, i Bakoly dia manampirina ny tranony
 no Det Bakoly Top NomP.organize Det house-3
 “No, Bakoly, she’s putting her house in order”

In addition to the *dia*-topic construction, there are other constructions in which the predicate phrase does not occur leftmost in the clause. For example, in *contrastive fronting* sentences, illustrated in (107), the external argument precedes the predicate phrase rather than following it. In this construction, two or more clauses are juxtaposed and their external arguments contrasted with one another (Keenan 1976).

- (107) Ny...mpianatra mamaky teny, ny...mpampianatra mihaino
 Det student NomP.read word Det teacher NomP.listen
 “The students are reading aloud, (while) the teachers are listening”

Again, if *ve* targeted the right edge of the predicate phrase, we would expect it to come at the end of the clause in contrastive fronting constructions. However, as Paul (1999) shows, *ve* immediately follows the fronted external argument (example (108a) is from Paul; (108b) is adapted from a text):

- (108) a. Ny mpianatra *ve* mamaky teny, ny mpampianatra *ve* mihaino?
 Det student Qu NomP.read word Det teacher Qu NomP.listen
 “Are the students reading aloud, and the teachers listening?”
- b. lalahy *ve* ho tonga any anefa izahay aza niverina?
 2s Qu Irr arrive there although lex even Pst-NomP.return
 “You will reach that place, even though we [were forced to] turn back?”²¹

Notice that in all of the cases discussed above, *ve* immediately follows the leftmost maximal projection in the clause. On the basis of this observation, Paul concludes that *ve* is a second-position clitic. Her analysis is corroborated by the examples below, where a sentence containing a single *dia*-topic (109a) is contrasted with a sentence containing multiple topics (109b): Notice that when these sentences are converted into yes/no questions, *ve* is placed between the topic and *dia* in (109a), but after the first topic and before the second topic in (109b). These examples demonstrate clearly that *ve* does not occupy a fixed position, but instead targets the right edge of the first XP constituent in the clause, whether that XP is a predicate, a topic, or the first of a string of topics.

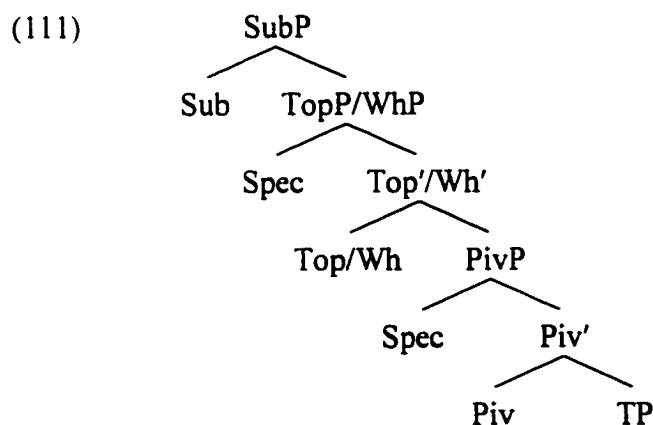
- (109) a. I Ketaka *dia* nandoko ny tranony
 Det Ketaka Top Pst-NomP.paint Det house-3
 “As for Ketaka, (he) painted his house”
- b. Omaly i Ketaka *dia* nandoko ny tranony
 yesterday Det Ketaka Top Pst-NomP.paint Det house-3
 “Yesterday, as for Ketaka, (he) painted his house”
- (110) a. I Ketaka *ve* *dia* nandoko ny tranony?
 Det Ketaka Qu Top Pst-NomP.paint Det house-3
 “As for Ketaka, did (he) paint his house?”

²¹ *lalahy* is an alternative to the regular second person singular pronoun *ianao*, used among men.

- b. Omaly *ve* i Ketaka dia nandoko ny tranony?
 yesterday Qu Det Ketaka Top Pst-NomP.paint Det house-3
 “Yesterday, as for Ketaka, did (he) paint his house?”

As I will now show, treating *ve* as a second-position clitic has different consequences depending on whether we adopt the predicate-raising analysis presented in 4.2, or the right-specifier analysis of Guilfoyle, Hung, & Travis (1992) and MacLaughlin (1995). If we assume that PivP raises leftward to a c-commanding position above the external argument, then the structural criteria which determine the target and direction of *ve*-cliticization may be stated in a unified manner. By contrast, if we assume that the predicate phrase is below the external argument, which occupies a right-specifier position, then a more complicated rule of *ve*-cliticization is required.

Before I discuss the formulation of the *ve*-cliticization rule, let me review some previous assumptions about the structure of the left periphery which will be crucial to my analysis. Recall once more the hierarchy of C-projections which I argue for here:

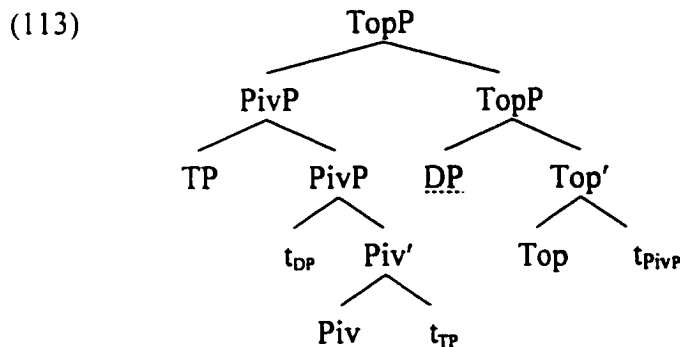


First, I assume that the SubP projection is present only in embedded clauses containing an overt complementizer; otherwise the highest C-projection in the clause is TopP (or

WhP in clauses containing operators; 3.4.1). Secondly, I assume that the contrastive topic particle *dia* heads its own functional projection (referred to simply as DiaP), and that *dia*-topics are base-generated in the specifier of this projection. DiaP takes WhP as its complement, with a null operator in SpecWhP coindexed with the *dia*-topic, as shown in (112) (see also the tree in (116b)).²² Finally, I assume that DiaP is only projected when the particle *dia* is present in the numeration. Thus, DiaP occurs only when it is needed to host a *dia*-topic; otherwise it is absent, and TopP/WhP is the highest projection in the matrix clause.

- (112) [DiaP i Ketaka_i [Dia' *dia* [WhP [PivP nandoko ny tranony]_j [WhP Op_i t_j]]]]

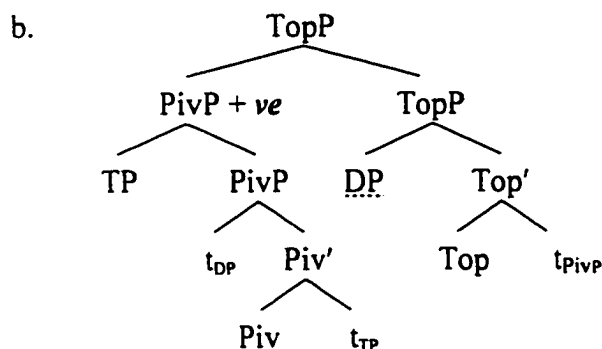
Let us now consider how the rule determining the placement of *ve* would be formulated under different theories for deriving EA-final order in Malagasy. In 4.2 I argued that EA-final order is derived through successive XP-adjunction, producing the roll-up structure in (113):



²² Contrastively fronted external arguments, as in (107)–(108), presumably also occupy the specifier of a left-peripheral projection—perhaps DiaP (with the head position empty), perhaps some other projection. Here, however, I focus my attention on *dia*-topics.

In ordinary predicate-initial sentences (including pseudoclefts), *ve* appears between the predicate phrase and the EA (114a). A straightforward analysis of this would be to assume that *ve* is an enclitic on the PivP constituent which raises over the EA to adjoin to TopP (114b):

- (114) a. Namaky boky *ve* ny....mpianatra?
 Pst-NomP.read book Qu Det student
 “Was the student reading a book?”



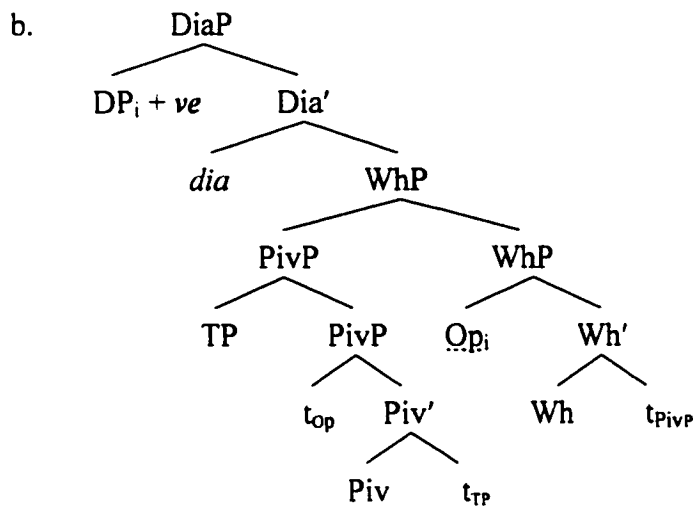
Why might *ve* target PivP in particular? If we assume that segments do not participate in c-command (cf. 1.1.3), then we can characterize PivP as the highest c-commanding term in the clause. (In derivational terms, PivP is the c-commanding input term to the last operation of Merge in the bottom-up derivation of (114b)). We can thus characterize the rule for *ve*-placement in (114b) as follows:

- (115) Suffix *ve* to the highest (final) c-commanding term in the clause.

The rule in (115) turns out to generalize straightforwardly to all of the cases of *ve*-placement considered here. Consider the *dia*-topicalization construction: Here, a DiaP layer is added on top of the structure in (113). In this construction, then, the highest c-commanding term in the clause is not PivP, as in (114b), but the constituent in the specifier of

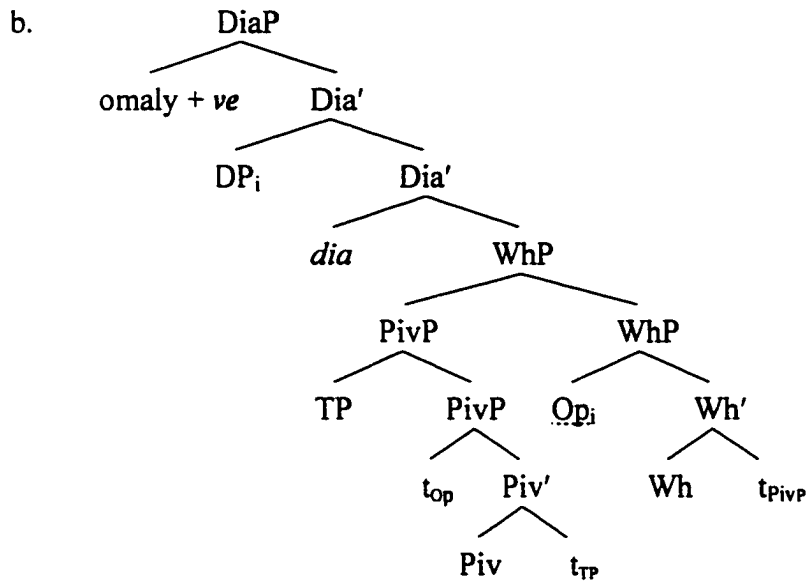
DiaP. Given the rule in (115), we predict that *ve* will be inserted between the constituent in SpecDiaP and the *dia* particle—and this prediction is borne out, as shown in (116):

- (116) a. I Ketaka *ve* dia nandoko ny tranony?
 Det Ketaka Qu Top Pst-NomP.paint Det house-3
 “As for Ketaka, did (he) paint his house?”

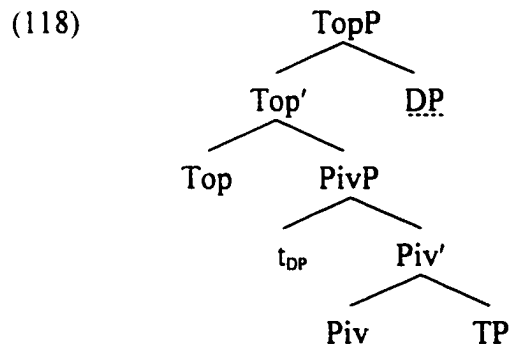


To account for the fact that sentences may have more than one *dia*-topic, we might extend the structure in (116b) by assuming that DiaP can host multiple specifiers, as in (117b). Alternatively, we might argue that DiaP only hosts the lowest (rightmost) topic, while other topics are in the specifiers of higher functional projections (with empty head positions). Either way, the rule in (115) correctly predicts that *ve* will immediately follow the leftmost constituent (117a), this being the highest c-commanding constituent in the clause:

- (117) a. Omaly *ve* i Ketaka dia nandoko ny tranony?
 yesterday Qu Det Ketaka Top Pst-NomP.paint Det house-3
 “Yesterday, as for Ketaka, did (he) paint his house?”



Thus, under the predicate-fronting analysis argued for in 4.2, all cases of *ve*-placement can be accounted for by means of a simple structure-based rule. By way of comparison, consider next how the *ve*-placement rule would have to be stated if we assumed that the EA position is above and to the right of the predicate phrase, as in (118) (cf. Guilfoyle et al. 1992, MacLaughlin 1995):

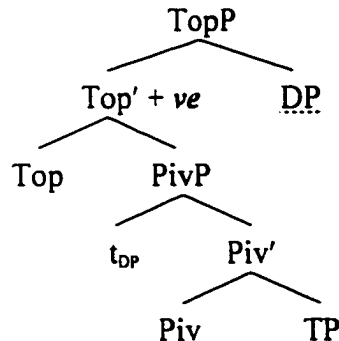


The Minimalist framework which I adopted in chapter 1—in which left-to-right ordering is imposed only at PF, and cannot play a role in the derivation of phrase structures—does

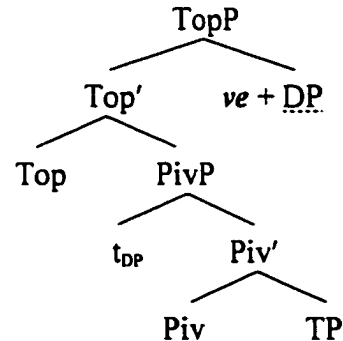
not encompass structures such as (118). I will therefore consider how we might formulate a *ve*-placement rule for (118) in terms of traditional X-bar representations.

If we treat *ve* as a variable-position clitic which targets the left/right edge of a constituent (as seems necessary in light of the data presented above), there are at least two possible rules to consider for (118): In order to ensure that *ve* appears between the predicate phrase and the EA, we could assume either that *ve* cliticizes to the right of the projecting daughter of the root node (i.e. Top'), as in (119a), or that *ve* cliticizes to the left of the highest maximal projection in the clause (where “highest maximal projection” refers to the maximal term immediately dominated by the root node, i.e., the DP in Spec-TopP, as in (119b). (Other analyses are also possible, in which *ve* cliticizes to some lower projection; however, in keeping with the characterization of *ve* as a second-position clitic, I will disregard this possibility here.)

(119) a.



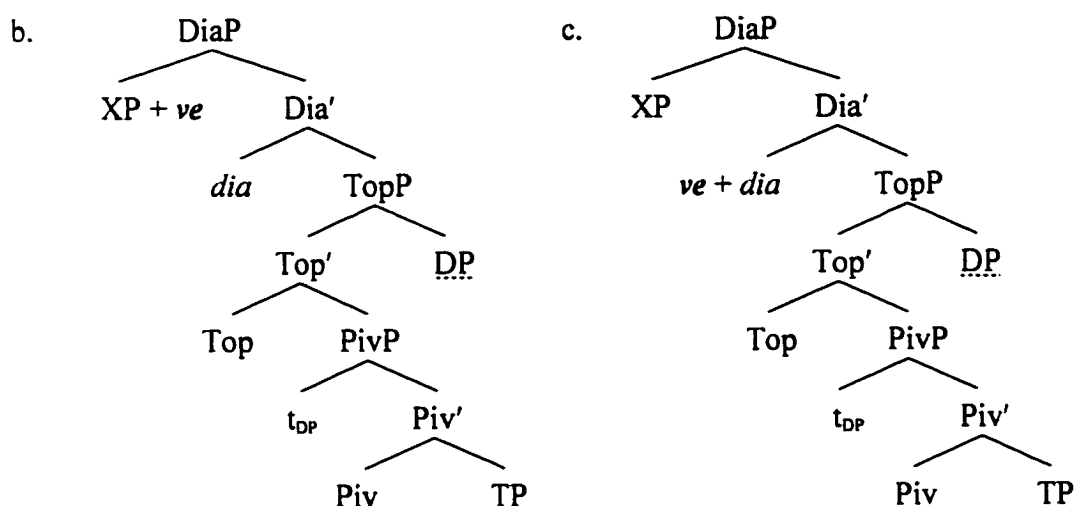
b.



However, neither (119a) nor (119b) carries over in a straightforward way to *dia*-topic and contrastive-fronting constructions, in which *ve* immediately follows the fronted constituent (or the first fronted constituent, if there is more than one) (120a). The formulation in (119a), according to which *ve* cliticizes to the right of the constituent which projects the

root node, incorrectly predicts that the clitic will be right-adjacent to *Dia'* (i.e., sentence-final); while the formulation in (119b), according to which *ve* cliticizes to the left of the highest maximal projection in the clause, incorrectly predicts that the clitic will be left-adjacent to the *dia*-topic (i.e., sentence-initial). In fact, the correct generalization for *dia*-topic and contrastive-fronting sentences appears to be that *ve* cliticizes to the right of the highest XP in the clause, as in (120b), or to the left of *dia* (120c):

- (120) a. Omaly *ve* dia namaky boky ny.....mpianatra?
 yesterday Qu Top Pst-NomP.read book Det student
 "Was the student reading a book?"



In short, if we assume that *DiaP* has its specifier on the left while *TopP* has its specifier on the right, then there is no way to capture the distribution of *ve* in terms of a single structure-based rule of cliticization.

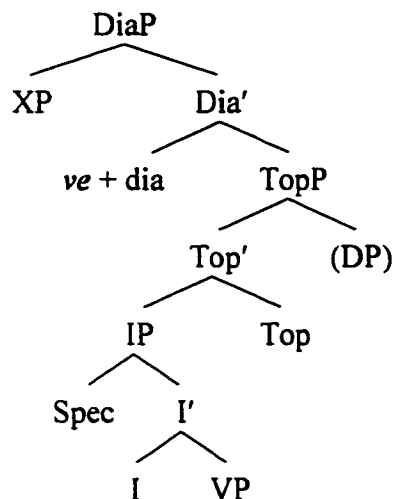
Thus, when we compare the right-specifier account of predicate-initial order with the XP-adjunction account, we see that only the latter allows for a straightforward state-

ment of the distribution of *ve*. I take this as conceptual evidence in favor of predicate-raising.

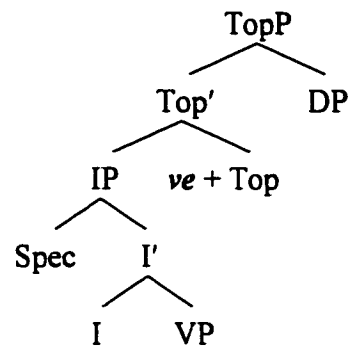
Note that there is a variant of the right-specifier tree which does not present the same problems with regard to *ve*-cliticization, namely the tree argued for by MacLaughlin (1995), mentioned briefly in 4.1. In MacLaughlin's tree, Top^0 selects its complement to the left. Thus, she posits a head position in between the predicate phrase (= IP) and the external argument. Given this extra head position, we could adequately capture the distribution of *ve* if we assumed that it attached to the left of the highest head position in the clause (viz., the head which projects the root node): Sentences containing *dia*-topics are of category DiaP, and thus *ve* will cliticize to the left of *dia*, showing up between the topic and the *dia* particle at spell-out (121a). Sentences which do not contain *dia*-topics are of category TopP; thus *ve* will cliticize to the left of the empty head Top^0 , showing up between the predicate phrase and the external argument at spell-out (121b):²³

²³ For the multiple topic construction in (117a), this would require positing an empty head position in between *omaly* and *i Ketaka*, for which there may or may not be independent evidence.

(121) a.



b.



However, this analysis requires us to stipulate that Top^0 projects a head-final structure while all of the other categories in the language project a head-initial structure. This constitutes a conceptually unappealing language-internal asymmetry for which there does not seem to be any empirical motivation, other than to ensure correct placement of *ve*. I thus set aside this possibility in favor of the predicate-raising structure.

4.4.2. Inverted order in embedded clauses

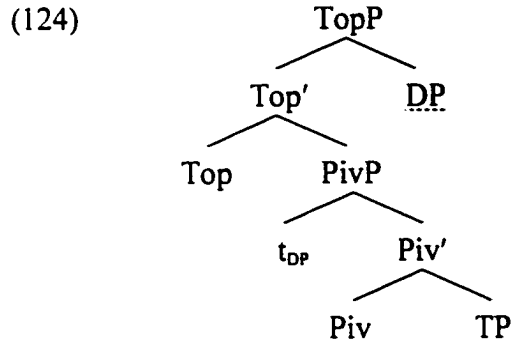
As is well-known, many verb-initial and verb-second languages exhibit word order differences between clause types, such that the verb raises higher in main clauses than it does in (certain kinds of) embedded clauses: In Munster Irish, for example, matrix clauses (and tensed embedded clauses) exhibit VSO order, while non-finite embedded clauses exhibit SVO order (SOV in other dialects). This illustrated in (122a-b) (examples taken from Bobaljik & Carnie 1996):

- (122) a. *Chonaic* Seán an madra
 see.Pst Sean the dog
 “Sean saw the dog”
- b. Ba mhaith liom [Seán a *scríobh* na habairte]
 is good with-me Sean Part write the sentence.Gen
 “I want Sean to write the sentence”

In most verb-second languages, T-to-C raising is blocked in embedded clauses containing an overt complementizer. This is illustrated in (123) for Swedish, where the presence or absence of raising is shown by the relative order of the finite auxiliary and the negative marker *inte*:

- (123) a. Malin *har* inte besökt sin mor
 Malin has not visited 3s mother
 “Malin has not visited her mother”
- b. Jag vet [att Malin inte *har* besökt sin mor]
 I know that Malin not has visited 3s mother
 “I know that Malin has not visited her mother”

If PredP-initial order in Malagasy results from a ‘roll-up’ XP-movement derivation, as I have suggested here, this allows the possibility that, under circumstances similar to those in (122b) or (123b), the predicate phrase might fail to raise over the external argument, resulting in a situation where the EA is spelled out at the left periphery of the clause instead of the right periphery. By contrast, all other things being equal, no such variation in word order is expected under the directionality-based analysis, according to which the EA raises into the right-specifier of TopP, from which it c-commands the predicate phrase at spell-out:



According to this latter structure, how high the verb raises has no impact on the order of the predicate phrase relative to the EA. We thus predict that the EA will be right-peripheral in all clause types.

As I will show in this section, there is in fact evidence for EA-initial order in certain kinds of embedded clauses, including the complements of perception verbs (4.4.2.1) and some kinds of adverbial clauses (4.4.2.2). In order to explain the left-peripheral position of the EA under the analysis in (124), we must assume that the EA raises from Spec-TopP to some higher left-specifier position in these clauses, a movement for which there is little independent motivation.

Before proceeding with the evidence, a word of caution is in order: In attempting to identify potential cases of EA-initial embedded clauses, one must be careful to rule out plausible alternative analyses. For example, consider the raising-to-object construction discussed in 3.5.2:

- (125) Nanantena an'i Noro ho nianatra tsara Rakoto
 Pst-NomP.hope Obj-Det Noro Pst-NomP.study well Rakoto
 "Rakoto hoped of Noro that she studied well"

Here the DP *i Noro* precedes the embedded predicate phrase *nianatra tsara* “studied well”, to which it bears a thematic relation. Thus we might choose to identify (125) as a potential example of EA-initial order in embedded clauses. This was the conclusion I reached in Pearson (1997, 1998), where I argued that (125) has the structure in (126): *i Noro* is the left-peripheral EA of the embedded clause, and thus occupies the embedded SpecTopP position, in which it receives exceptional case from the matrix verb (in the form of the morphological objective case prefix *an-*; cf. section 2.3.1):

(126) Nanantena [_{TopP} *an'i Noro*_i [_{Top'} ho nianatra t_i tsara]] Rakoto

However, subsequent research has shown that this analysis cannot be correct. In 3.5.2, I presented evidence from adverb placement, etc., to show that *an'i Noro* occupies a position within the matrix clause where it receives abstract accusative case (SpecAsp,P), and does not form a constituent with the embedded predicate at spell-out. This leaves us with two alternative analyses: Either *an'i Noro* is generated in the embedded clause and raises into SpecAsp,P by way of the embedded SpecPivP position, as in (127a) (cf. Travis 1991a), or it is base-generated outside the embedded predicate and coindexed with a null operator in the embedded SpecWhP, which in turn forms a chain with the embedded SpecPivP position, as in (127b):

- (127) a. Nanantena *an'i Noro*_i ho [... [_{PivP} t_i [_{Piv'} nianatra t_i tsara]]] Rakoto
 b. Nanantena *an'i Noro*_i ho [_{WhP} Op_i [_{PivP} t_i [_{Piv'} nianatra t_i tsara]]] Rakoto

In 3.5.2 I argued in favor of the analysis in (127b) and against the analysis in (127a), on the grounds that SpecPivP is an A'-position and SpecAsp,P is an A-position, and move-

ment from an A'-position to an A-position is ruled out by the theory. However, regardless of whether (127a) or (127b) is correct, both analyses are neutral with regard to the constituent order in the embedded clause: Since the C-domain of the embedded clause is occupied exclusively by empty categories (traces and/or null operators), it is impossible to tell whether the SpecTopP position is to the left of the predicate phrase, as I assume, or to the right, as in the directionality-based account.

That caveat aside, I believe that there is compelling evidence for the existence of EA-initial order in certain kinds of embedded clauses, where this order is plausibly due to the absence of predicate-raising. I discuss some examples in the following subsections.

4.4.2.1. Complements of perception verbs

The two most common perception predicates in Malagasy are *re* “heard” and *hita* “seen, found”. Typically these function as uninflected adjectival ‘root passives’ (cf. 2.4.1), forming transitive clauses in which a DP denoting the experiencer maps to the PredP-internal subject position while the DP theme maps to the EA position, as in (128a) and (129a). However, *hita* and *re* may also take derivational morphology to form NomP verbs in which the experiencer is the EA and the theme is the direct object, as in (128b) and (129b).²⁴

- (128) a. Ren'ny zaza ny...alika
 heard-Lnk-Det child Det dog
 “The child heard the dog”

²⁴ The uninflected forms in (128a)/(129a) appear to be more common, the inflected forms being confined to situations in which the experiencer is especially salient, or in which the NomP voice is required for purely structural reasons (e.g., in relative clauses where the experiencer is the relativized argument).

- b. Nahare ny alika ny...zaza
 Pst-NomP.hear Det dog Det child
 “The child heard the dog”
- (129) a. Hitan’ny vehivavy i.....Naivo
 seen-Lnk-Det woman Det Naivo
 “The woman saw Naivo”
- b. Nahita an’i Naivo ny...vehivavy
 Pst-NomP.see Obj-Det Naivo Det woman
 “The woman saw Naivo”

In addition to taking individual-denoting themes, as in (128)–(129), perception verbs may also take event-denoting themes, comprised of a DP pivot followed by a predicate phrase. When the perception verb is in the NomP form, the DP receives morphological objective case-marking (shown by the presence of *an-* on *Rabe*):

- (130) a. Nahare an-dRabe niditra tao an-trano ny...zaza
 Pst-NomP.hear Obj-Rabe Pst-NomP.enter Pst-there Obl-house Det child
 “The child heard Rabe enter the house”
- b. Nahita an-dRabe namaky boky ny...mpampianatra
 Pst-NomP.see Obj-Rabe Pst-NomP.read book Det teacher
 “The teacher saw Rabe read(ing) a book”

Notice that the embedded predicate phrase follows the DP *Rabe* of which it is predicated. Do the examples in (130) constitute a case of EA-initial order in embedded clauses? Superficially, these sentences look very much like the raising-to-object sentence in (131a) below, except that the particle *ho* is absent. In 3.5.2 I argued that the raising-to-object construction has the structure in (131b), where *ho* is the head of a small clause selected by the matrix verb, which takes the objective case-marked DP as its subject and a free relative (containing an operator-variable chain) as its complement. Perhaps perception pre-

dicates have the same structure, except that the head of the small clause is phonetically null for some reason. If so, then *Rabe* in (130) is not the EA of the embedded clause (that role being filled by a null operator), in which case we would have no evidence for EA-initial order in perception complements (cf. the discussion of (126) above).

- (131) a. Mihevitra ny ankizy ho manaja an-dRakoto Rabe
 NomP.think Det children NomP.respect Obj-Rakoto Rabe
 “Rabe believes of the children that (they) respect Rakoto”
- b. Mihevitra [_{XP} ny ankizy [_{X'} *ho* [_{whP} Op manaja an-dRakoto]]] Rabe
 lit. “Rabe believes the children (to be) (ones who) respect Rakoto”

However, it turns out that the construction in (130) has very different properties from the raising-to-object construction in (131). Recall from the discussion in 3.5.2 that in raising-to-object sentences, the matrix object may be separated from the embedded clause by an adverb which modifies the matrix verb, as in (132b), showing that the matrix object does not form a constituent with the embedded clause at spell-out. (The fact that (132b) is slightly marginal when compared to (132a) can be attributed to a general preference among speakers for ordering manner adverbs before [+specific] direct objects; compare the judgements in (132) with those in (133).)

- (132) a. Nilaza *tamin-katezerana* an-dRabe ho mpangalatra Rasoa
 Pst-NomP.say Pst-with-anger Obj-Rabe thief Rasoa
 “Rasoa said angrily of Rabe that (he was) a thief”
- b. ? Nilaza an-dRabe *tamin-katezerana* ho mpangalatra Rasoa
 Pst-NomP.say Obj-Rabe Pst-with-anger thief Rasoa
 “Rasoa said of Rabe angrily that (he was) a thief”

- (133) a. Namono *tamin-katezerana* ny akoho ny...mpamboly
 Pst-NomP.kill Pst-with-anger Det chicken Det farmer
 “The farmer killed the chicken angrily”
- b. ? Namono ny akoho *tamin-katezerana* ny...mpamboly
 Pst-NomP.kill Det chicken Pst-with-anger Det farmer
 “The farmer killed the chicken angrily”

By contrast, the pivot of the embedded verb in a perception complement may not be separated from the embedded PredP by a matrix adverb. Consider the negative polarity adverb *intsony* “any more”. When perception verbs occur in simple transitive (NomP) clauses, *intsony* generally follows the direct object, although it may marginally precede it if the object is [+specific], as shown in (134) (cf. Rackowski 1998, Rackowski & Travis 2000, Pearson [in preparation] for discussion and analysis):

- (134) a. ? Tsy mijery *intsony* ny namany izy ireo
 Neg NomP.watch anymore Det friend-3 3p
 “They are not watching their friends anymore”
- b. Tsy mijery ny namany *intsony* izy ireo
 Neg NomP.watch Det friend-3 anymore 3p
 “They are not watching their friends anymore”

When we replace the DP object *ny namany* “their friends” with the clausal complement *ny namany miady* “their friends fighting”, we get the results shown below: The preference is for *intsony* to follow *ny namany miady* (135c), although it may marginally precede this string (135a). However, it is barred from intervening between the DP and the verb (135b).

- (135) a. ? Tsy mijery *intsony* ny namany miady izy ireo
 Neg NomP.watch anymore Det friend-3 NomP.fight 3p
 “They are not watching their friends fight anymore”

- b. * Tsy mijery ny namany *intsony* miady izy ireo
 Neg NomP.watch Det friend-3 anymore NomP.fight 3p
 “They are not watching their friends fight anymore”
- c. Tsy mijery ny namany miady *intsony* izy ireo
 Neg NomP.watch Det friend-3 NomP.fight anymore 3p
 “They are not watching their friends fight anymore”

I take this as evidence that *ny namany miady* forms a constituent at spell-out, and has the same basic distribution as a nominal complement.

As further evidence that the embedded predicate may form a constituent with the preceding DP in perception constructions but not in raising-to-object constructions, consider the following facts pertaining to externalization of embedded elements. As I discussed in 3.5.2, the object of a raising-to-object verb such as *mihevitra* “think” may be promoted to the matrix EA position, triggering the appropriate voice morphology on the verb. Compare (136a) below, in which *Rasoa* is marked with the objective prefix *an-* and the matrix verb appears in the NomP form, with (136b), in which *Rasoa* has raised to become the EA and the matrix verb appears in the AccP form. (The fact that *Rasoa* is the external argument in (136b) is shown by the placement of the question particle *ve*.)

- (136) a. Mihevitra an-dRasoa ho namono ny akoho [ve] i.....Bao
 NomP.think Obj-Rasoa Pst-NomP.kill Det chicken Det Bao
 “Bao believes Rasoa to have killed that chicken”
- b. Heverin’i Bao ho namono ny akoho [ve] Rasoa
 AccP.think-Det Bao Pst-NomP.kill Det chicken Rasoa
 “Rasoa, Bao believes to have killed that chicken”

Although it is possible to externalize the objective-marked DP by itself, it is not possible to externalize the string consisting of the DP and the embedded predicate phrase to which

it bears a thematic relation, as shown in (137). I take this as evidence that *Rasoa ho namono ny akoho* does not form a surface constituent—or at least, not a case-marked constituent capable of functioning as the external argument of a clause.²⁵

- (137) * Heverin'i Bao [ve] Rasoa ho namono ny akoho
 AccP.think-Det Bao Rasoa Pst-NomP.kill Det chicken
 “Rasoa to have killed the chicken, Bao believes”

With perception verbs, the situation is different. When *hita* “seen” and *re* “heard” occur in the uninflected ‘root passive’ form (cf. (128b) and (129b) above), there are two options with regard to which constituent maps to the EA position: Either the objective case-marked DP is externalized, as in (138b) and (139b), or the string consisting of the DP and the following predicate phrase is externalized, as in (138c) and (139c).²⁶ These two options are distinguished by word order, as well as by the position of *ve*. The contrast between (138c)/(139c) and the ungrammatical sentence in (137) reinforces the conclusion that perception complements have a different structure from raising-to-object complements.

- (138) a. Nahare an-dRabe niditra tao an-trano [ve] i Koto
 Pst-NomP.hear Obj-Rabe Pst-NomP.enter there Obl-house Det Koto
 “Koto heard Rabe come into the house”
- b. Ren'i Koto niditra tao an-trano [ve] Rabe
 heard-Det Koto Pst-NomP.enter there Obl-house Rabe
 “Rabe, Koto heard (him) come into the house”

²⁵ Also ruled out by (137) is the possibility of extraposing the embedded constituent introduced by *ho* over the predicate.

²⁶ In (138c), I underline *Rabe niditra tao an-trano*, suggesting that this constituent has raised to the EA position (similarly for *Rabe namaky boky* in (139c)). If the EA position is confined to elements of category DP, then another possibility to consider is that the constituent is sitting in the position occupied by extraposed clauses (4.2.3), and the EA position is empty, or filled with a null expletive. Whichever analysis we choose, the contrast between (138c) and (137) remains.

- c. Ren'i Koto [ve] Rabe niditra tao an-trano
 heard-Det Koto Rabe Pst-NomP.enter there Obl-house
 "Rabe coming into the house, we heard (it)"
- (139) a. Nahita an-dRabe namaky boky [ve] ny mpampianatra
 Pst-NomP.see Obj-Rabe Pst-NomP.read book Det teacher
 "The teacher saw Rabe reading a book"
- b. Hitan'ny mpampianatra namaky boky [ve] Rabe
 seen-Det teacher Pst-NomP.read book Rabe
 "Rabe, the teacher saw (him) reading a book"
- c. Hitan'ny mpampianatra [ve] Rabe namaky boky
 seen-Det teacher Rabe Pst-NomP.read book
 "Rabe reading a book, the teacher saw (it)"

As a final piece of evidence for the difference in constituency between raising-to-object complements and perception complements, note that they behave differently with regard to clefting possibilities. In the case of perception complements, one may cleft either the DP by itself (140a), or a constituent consisting of the DP and the following predicate phrase (140b). In the case of raising-to-object predicates, only the DP may be clefted (141a); clefting the DP together with the following predicate phrase is impossible (141b):

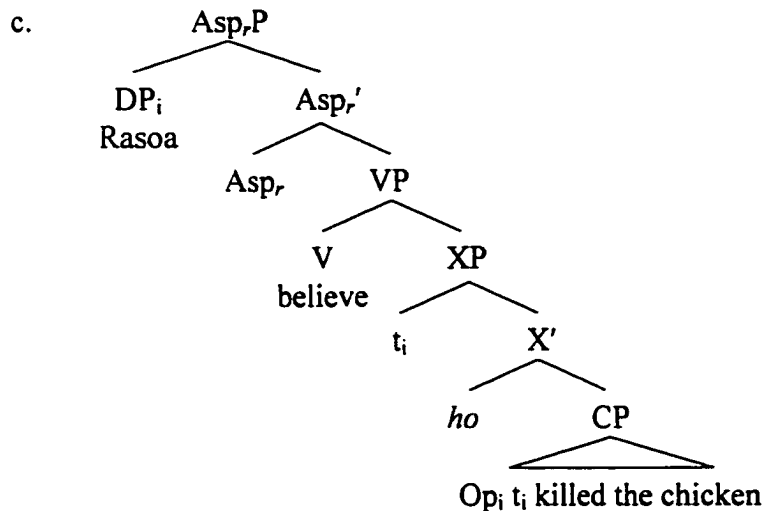
- (140) a. Rabe no hitan'ny mpampianatra namaky boky
 Rabe Foc seen-Det teacher Pst-NomP.read book
 "(The one) who the teacher saw reading a book was Rabe"
- b. Rabe namaky boky no hitan'ny mpampianatra
 Rabe Pst-NomP.read book Foc seen-Det teacher
 "What the teacher saw was Rabe reading a book"
- (141) a. Rasoa no heverin'i Bao ho namono ny akoho
 Rasoa Foc AccP.think-Det Bao Pst-NomP.kill Det chicken
 "(The one) who Bao believes to have killed the chicken is Rasoa"

- b. * Rasoa ho namono ny akoho no heverin'i Bao
 Rasoa Pst-NomP.kill Det chicken Foc AccP.think-Det Bao
 “What Bao believes is (for) Rasoa to have killed the chicken”

Summarizing these observations, it appears that in perception complements the DP forms a unit with the following PredP for purposes of adverb placement, externalization, and clefting; while in raising-to-object constructions, the two do not form a unit.

The difference between the two constructions, I would argue, has to do with what constituent the matrix verb assigns abstract case to. In the raising-to-object construction, the verb assigns case to the DP; while in the perception verb construction, the verb assigns case to the entire complement, a constituent comprised of a DP and a following predicate phrase, which I will provisionally designate αP (more on the identity of this constituent below). Assuming (as in 2.3.3) that the abstract accusative case features of the object are checked in the specifier of Asp_P , dominating the lower VP shell (roughly equivalent to Agr_oP), we can represent this difference in terms of the tree structures in (142c) and (143b) below: Raising-to-object verbs such as *mihevitra* “think, believe” select an XP small clause headed by *ho*, containing a DP in its specifier (3.5.2). This DP extracts from XP and raises to check its abstract case features in $SpecAsp_P$:

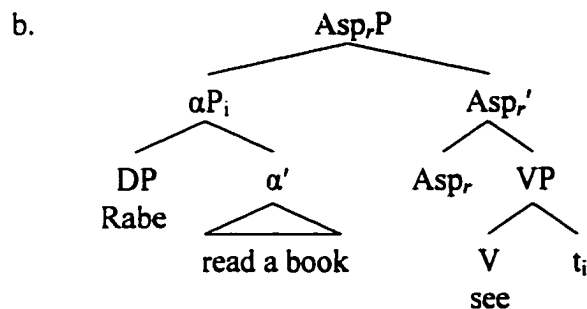
- (142) a. Mihevitra an-dRasoa ho namono ny akoho i Bao
 NomP.think Obj-Rasoa Pst-NomP.kill Det chicken Det Bao
 “Bao believes Rasoa to have killed that chicken”
- b. Heverin'i Bao ho namono ny akoho Rasoa
 AccP.think-Det Bao Pst-NomP.kill Det chicken Rasoa
 “Rasoa, Bao believes to have killed that chicken”



After raising to SpecAsp,P, the DP may raise on to become the external argument of the clause, triggering the insertion of the AccP morpheme *-in*, as in (142b), or it may remain in situ, in which case it will be marked with morphological objective case, as in (142a).

Perception verbs, in addition to selecting an individual-denoting DP complement, may select an event-denoting complement of category α P. This α P constituent bears an abstract case feature which must be checked, and so it raises to SpecAsp,P, yielding the structure in (143b):

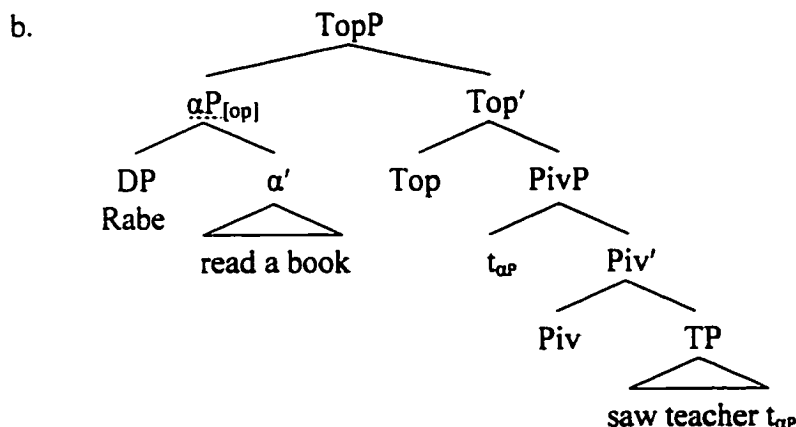
- (143) a. Nahita an-dRabe namaky boky ny...mpampianatra
 Pst-NomP.see Obj-Rabe Pst-NomP.read book Det teacher
 "The teacher saw Rabe read(ing) a book"



If the subject of the perception verb is promoted to the pivot function, triggering NomP marking on the verb, as in (143a) above, then αP remains in SpecAsp,P and receives morphological objective case, which is spelled out on the DP in the specifier of αP . I speculate that the DP receives morphological case via feature sharing with the head α^0 .²⁷

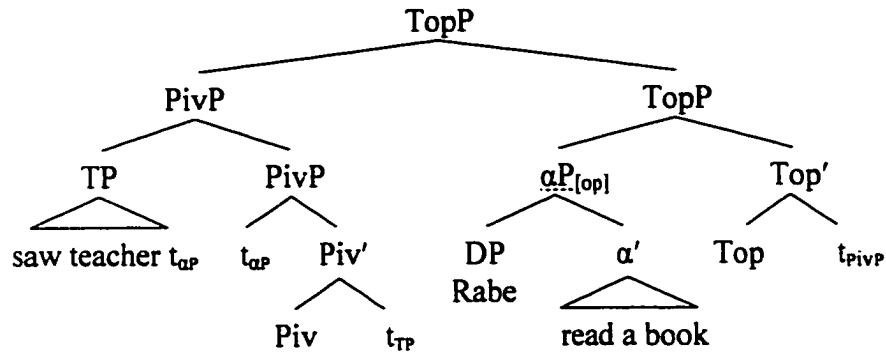
However, if αP is promoted to the pivot function, one of two derivations is possible, depending on whether the scope feature [op] is associated to αP itself, or to the DP in the specifier of αP . In the former case, αP raises to the specifier of the matrix PivP, and then raises on to the specifier of TopP, producing the sentence in (144a). The structure movement of αP to SpecTopP via SpecPivP is shown schematically in (144b); the actual surface structure for (144a) (complete with adjunction of TP to PivP and adjunction of PivP to TopP) is shown in (144c):

- (144) a. Hitan'ny mpampianatra Rabe namaky..... boky
 seen-Det teacher Rabe Pst-NomP.read book
 "Rabe reading a book (is such that) the teacher saw (it)"



²⁷ This may be thought of as a 'post-government' reformulation of ECM in terms of spec-head agreement.

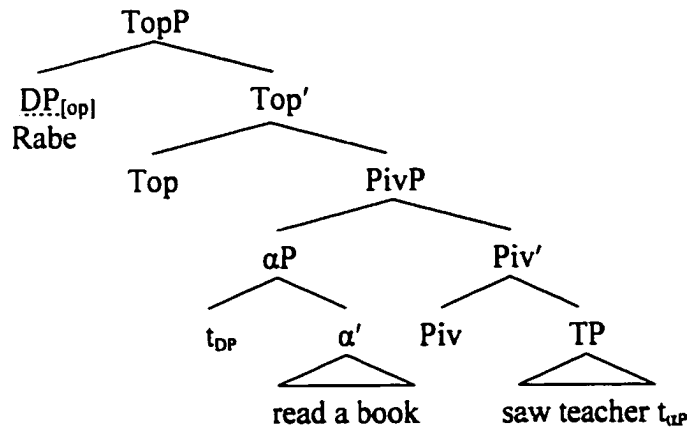
c.

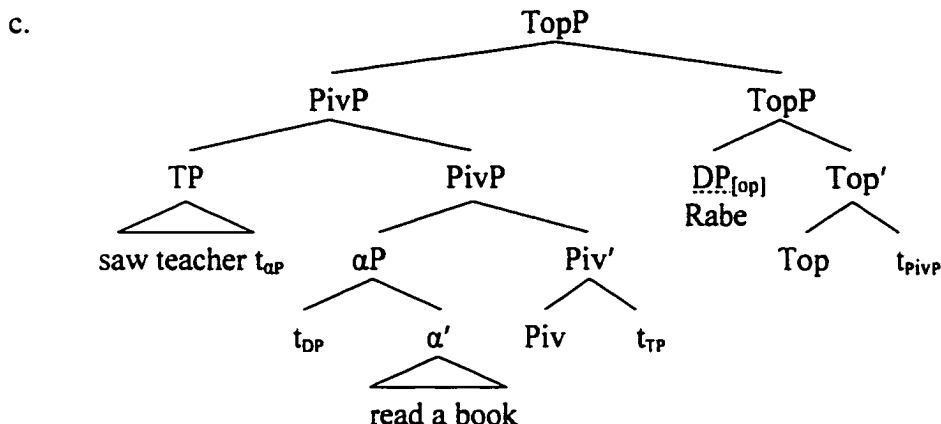


To produce (145a), where the sentence is predicated of the individual *Rabe*, αP first raises to the matrix SpecPivP position, after which the DP *Rabe* extracts from its specifier and raises to SpecTopP (cf. the derivation of long-distance externalization cases discussed in 3.3.2). This is shown schematically in (131b); the actual tree for (145a), in which TP adjoins to PivP and PivP adjoins to TopP to produce the correct surface order, is shown in (131c):

- (145) a. Hitan'ny mpampianatra namaky boky Rabe
 seen-Det teacher Pst-NomP.read book Rabe
 “Rabe (is such that) the teacher saw (him) reading a book”

b.





Let us now consider the identity and internal structure of this αP constituent. As the examples below show, αP resembles a matrix clause, except that the DP constituent corresponding to the external argument is at the left edge of the constituent instead of the right edge:

(146) a. Nitomany ny...alika
 Pst-NomP.cry Det dog
 "The dog was crying"

b. Ren'ny vehivavy [ny...alika nitomany]
 heard-Det woman Det dog Pst-NomP.cry
 "The woman heard the dog crying"

(147) a. Namaky boky ny...mpianatra
 Pst-NomP.read book Det student
 "The student was reading a book"

b. Hitan'ny mpampianatra [ny...mpianatra namaky boky]
 seen-Det teacher Det student Pst-NomP.read book
 "The teacher saw the student reading a book"

Given the predicate-raising analysis which I argued for in 4.2, a plausible hypothesis is that the bracketed constituents in (146b) and (147b) are complete clauses, presumably of

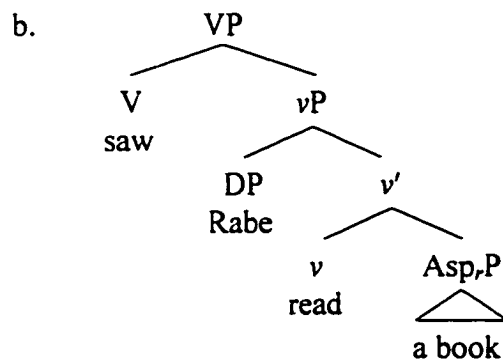
category TopP, which differ minimally from the matrix clauses in (146a) and (147a) in that the predicate phrase fails to raise over the EA—in the same way that non-finite verbs fail to raise over the subject in Irish (cf. (122)). If empirical support can be found for this hypothesis, we can take this as strong evidence in favor of the predicate-raising analysis, and against the right-specifier analysis, which predicts that the EA should follow the predicate phrase in all clause types (whether matrix or embedded).

There are two basic questions which must be answered about the α P constituent: First, what lexical category does it belong to? Secondly, does the surface order DP + PredP reflect the order of these constituents in the base, or is the surface order derived from a more basic predicate-initial order by means of DP-fronting? Here I will consider four alternative analyses: (a) α P is a VP (or some other truncated predicative category); (b) α P is a DP containing a modifying relative clause; (c) α P is a full clause in which the EA has been fronted (presumably to SpecSubP) from its normal right-peripheral position; (d) α P is a full clause in which the EA occupies SpecTopP and the predicate has failed to undergo fronting. I will show that the evidence points towards option (d).

Consider the example in (143a), repeated below as (148a): On analogy with English, one might suppose that perception verbs in Malagasy do not select full CP complements, but rather ‘truncated’ clauses (or small clauses) of some sort. Suppose, for example, that α P is of category ν P, as shown in (148b), in which case *Rabe* is not an EA, but a VP-internal subject. If this analysis were correct, then the fact that perception predicates exhibit DP + PredP order would have no bearing on the choice between the predicate-

raising analysis and the right-specifier analysis, since both theories assume that VP-internal subjects occupy a left-specifier.

- (148) a. Nahita an-dRabe namaky boky ny mpampianatra
 Pst-NomP.see Obj-Rabe Pst-NomP.read book Det teacher
 “The teacher saw Rabe read(ing) a book”



However, it seems unlikely that αP is a vP , since the embedded verb is marked for tense. Even if we assume that tense-marking in this case represents a kind of ‘case agreement’ with the matrix verb, rather than the morphological realization of a T^0 head in the embedded clause, we run into problems if we try to analyze *Rabe* as a VP-internal subject rather than an EA. As shown in (149), predicates embedded under perception verbs may take the full array of voice forms, allowing notional subjects, objects, and obliques to function as pivots, just as in main clauses:

- (149) a. Ren’ny zaza [Rabe namono akoho tamin’ny antsy]
 heard-Det child Rabe Pst-NomP.kill chicken Pst-with-Det knife
 “The child heard Rabe killing chickens with a knife”
- b. Ren’ny zaza [ny akoho novonoin-dRabe tamin’ny antsy]
 heard-Det child Det chicken Pst-AccP.kill-Rabe Pst-with-Det knife
 “The child heard the chickens being killed by Rabe with a knife”

- c. Ren'ny zaza [ny.....antsy namonoan-dRabe akoho]
 heard-Det child Det knife Pst-CrcP.kill-Rabe chicken
 "The child heard the knife being used by Rabe to kill chickens"

Thus, *Rabe* in (148) must be an EA (in SpecTopP) rather than a VP-internal subject (in SpecvP). This in turn means that α P must be a larger constituent than vP, something large enough to include TopP. We can therefore set aside the truncated clause analysis of perception complements.

However, there is another possible analysis of α P which, if correct, would render perception complements irrelevant to the question of whether the predicate-raising or right-specifier analysis of EA-final order is correct. Recall from 3.4.1 that relative clauses in Malagasy follow the head noun, and do not require an overt relative clause marker (the wh-operator *izay*, sometimes used to introduce relative clauses, is optional and usually omitted). Furthermore, the voice marking on the embedded verb reflects the grammatical function of the noun being relativized—e.g., if the notional subject of the embedded verb is being relativized, then the verb will occur in the NomP form, and if the direct object is being relativized, the AccP or DatP form will be used, as shown in (150):

- (150) a. ny zazalahy namangy ahy an-tsekoly omaly
 Det boy Pst-NomP.visit 1s Obl-school yesterday
 "the boy who visited me at school yesterday"
- b. ny zazalahy novangiako an-tsekoly omaly
 Det boy Pst-DatP.visit-1s Obl-school yesterday
 "the boy who I visited at school yesterday"

Notice how the DPs in (150) resemble the bracketed α Ps in (149): Each consists of a nominal phrase headed by a determiner, followed by a predicate phrase whose verb agrees

in voice with the nominal phrase. Given this resemblance, it is conceivable that the bracketed strings in (149) are not clausal complements at all, but DP complements containing relative clauses. Consider (151a) below: The two possible analyses for the bracketed constituent are given in (151b-c) (under the latter analysis, the sentence may be translated “The teacher saw the student who was reading the book”):

- (151) a. Hitan’ny mpampianatra [ny mpianatra namaky boky]
 seen-Det teacher Det student Pst-NomP.read book
 “The teacher saw the student reading the book”
- b. *Clausal analysis:* [_{TOPP} [_{DP} ny mpianatra] [_{PIVP} namaky boky]]
- c. *DP analysis:* [_{DP} ny mpianatra [_{WhP(rel)} namaky boky]]

One way to decide between the clausal analysis and the DP analysis is to determine whether the predicate phrase *namaky boky* “read a book” is internal to the noun phrase containing *mpianatra* “student”, as in (151c), or external to it, as in (151b).

Fortunately, Malagasy provides a handy test for detecting the left and right edges of a DP, namely the so-called *framing demonstrative* construction. As I mentioned in 2.3.1, demonstrative determiners in Malagasy, such as *ity* “this (one)”, are generally spelled out as a pair of copies, the first of which occurs at the left edge of the DP, and the second of which occurs at the right edge of the DP. This construction is illustrated in (152). Crucially, the second copy of the demonstrative always occurs at the right edge of

the DP, regardless of how ‘heavy’ the DP is. Note in particular that it must follow a relative clause, as shown in (152c-d):²⁸

- (152) a. *ity* boky *ity*
 this book this
 “this book”
- b. *ity* boky mena *ity*
 this book red this
 “this red book”
- c. *ity* boky novakin’ny mpianatra tany an-tokotany *ity*
 this book Pst-AccP.read-Det student Pst-there Obl-garden this
 “this book which the student was reading in the garden”
- d. * *ity* boky *ity* novakin’ny mpianatra tany an-tokotany
 this book this Pst-AccP.read-Det student Pst-there Obl-garden
 “this book which the student was reading in the garden”

Returning to (151): If *namaky boky* “read a book” were a relative clause modifying *mpianatra* “student”, we would expect the second copy of a framing demonstrative to follow *boky*. On the other hand, if *namaky boky* were the predicate of an embedded

²⁸ The proper syntactic treatment of framing demonstratives has received little attention within the literature. One possible analysis is illustrated in (i): (a) The demonstrative determiner is generated in the head of Dem(onstrative)P, which takes NumP (containing the NP) as its complement. (b) NumP raises into the specifier of DemP to check number agreement on the demonstrative (recall from 2.3.1 that demonstratives are the only elements in Malagasy which mark number concord with nouns). (c) The demonstrative raises to D⁰, leaving behind a pronounced copy in Dem⁰. The fact that the second copy obligatorily occurs at the right edge of the DP follows from the fact that its complement, NumP, has raised past it. (For a slightly different proposal, see Zribi-Hertz & Mbolatianaivalona 1999).

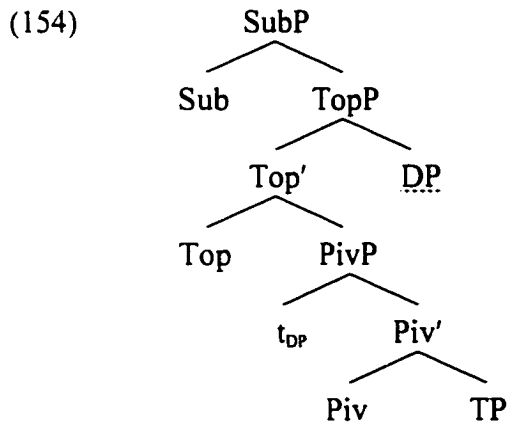
- (i) a. [DemP *ity* [NumP boky mena]]
 b. [DemP [NumP boky mena]_i *ity* t_i]
 c. [DP *ity*_j [DemP [NumP boky mena]_i <*ity*>_j t_i]]

clause (with *ny mpianatra* acting as the EA of that clause), then we would expect the second copy of the demonstrative to come immediately after *mpianatra*.

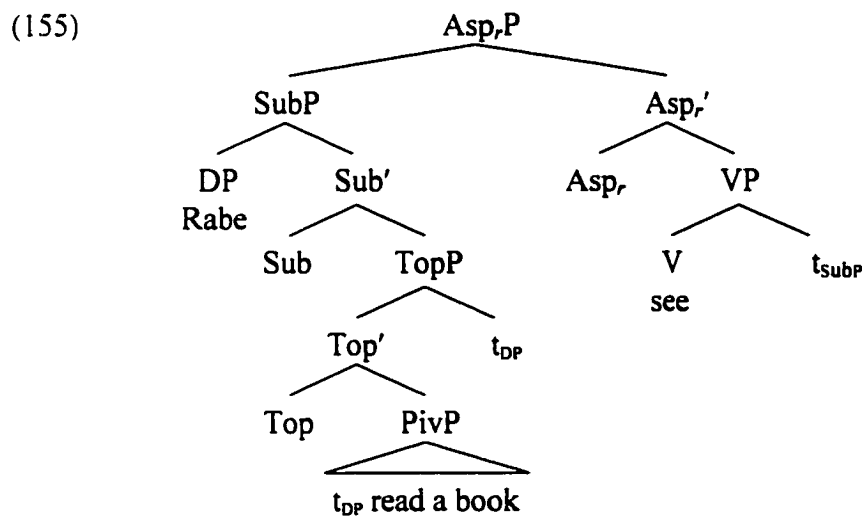
As it turns out, both possibilities are attested, with the expected difference in interpretation. In (153a), *ity mpianatra namaky boky ity* is construed as an individual-denoting DP complement of the verb, with *namaky boky* functioning as a relative clause modifying *mpianatra*. In (153b), *ity mpianatra ity namaky boky* is construed as an event-denoting clausal complement of the verb, where *ity mpianatra ity* is the EA and *namaky boky* is the predicate phrase:

- (153) a. Hitan'ny mpampianatra [*ity*.....*mpianatra*.....*namaky*.....*boky*.....*ity*]
 seen-Det teacher this student Pst-NomP.read book this
 "The teacher saw this student who was reading a book"
- b. Hitan'ny mpampianatra [*ity*.....*mpianatra*.....*ity*.....*namaky*.....*boky*]
 seen-Det teacher this student this Pst-NomP.read book
 "The teacher saw this student read(ing) a book"

Having ruled out the vP analysis and the DP analysis, we can now conclude that α P has the structure of a full clause. However, the question still remains as to whether the order EA + PredP reflects the base order of these elements, or whether it is derived via leftward movement of the EA from a position to the right of the predicate phrase. Let us suppose for the sake of argument that the right-specifier structure in (2), repeated below as (154), is correct: The EA merges to the right of its target Top' to form TopP, and thus c-commands the predicate phrase (PivP) at spell-out.



EA-initial order in perception complements may be derived if we make the following stipulations: (a) Perception verbs select clausal complements of category SubP. (b) In order for the morphological case features of the SubP complement to be realized overtly on its EA (cf. the discussion of the tree in (143b)), that EA must raise into the specifier of SubP, as in (155).²⁹ Assuming that the specifier of SubP is located to the left of Sub⁰, movement from SpecTopP to SpecSubP derives the correct surface order.

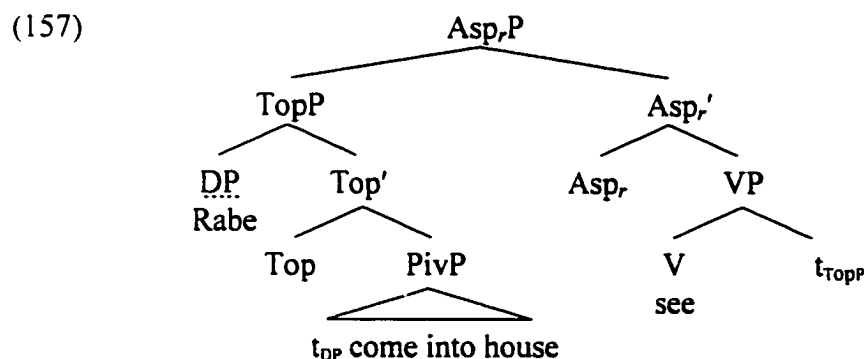


²⁹ This analysis recalls Massam (1985), who argues that exceptionally case-marked nominals raise to the SpecCP of the ECM complement in order to receive case from the verb under government.

However, if DP-raising were motivated by the need to spell out the morphological case of SubP, we would expect EA-initial order to be confined to situations in which the clause receives morphological case. And yet EA-initial order is also found in other contexts, such as when the clause is clefted (156). Here, the clause is (part of) a predicate, and thus presumably does not need case.

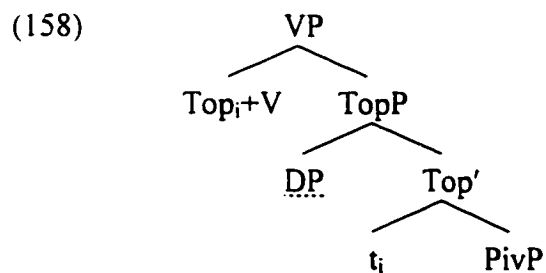
- (156) Rabe namaky boky no hitan'ny mpampianatra
 Rabe Pst-NomP.read book Foc seen-Det teacher
 “What the teacher saw is Rabe reading a book”

In light of this difficulty—not to mention the various conceptual problems with the right-specifier analysis in general, mentioned earlier in this chapter—I will assume that the EA does not raise to SpecSubP, but remains in SpecTopP (which occurs to the left of its head, as do all specifiers in the language). The fact that the EA precedes the predicate phrase is due to the fact that PivP fails to adjoin to TopP. Thus, in place of the structure in (155), I propose the structure in (157) for clausal complements of perception verbs:



It is unclear why PivP should fail to adjoin to TopP in perception complements. Here I will explore one possibility, suggested by the analysis in 4.3.3. There I argued that PivP adjoins to TopP in order to transmit an interpretable categorial feature from TP, allowing

PivP and TopP to be converted into TP shells at LF, after their uninterpretable categorial features have been deleted. Perhaps in the case of perception complements, TopP is able to inherit an interpretable categorial feature in some other way, rendering adjunction of PivP to TopP unnecessary. One possibility is that TopP is licensed through incorporation of Top^0 into the head of the verb that selects the complement, as in (158). (This analysis is inspired by Koopman (1994), who argues that ‘truncated’ clausal complements are licensed via head-incorporation into the verb which selects them.) Since the links in a movement chain share features, adjunction of Top^0 to V^0 allows the interpretable categorial feature of the verb to be transmitted to the trace of Top^0 (really a lower copy), which then projects a categorially mixed phrase, $\{\text{Top}, V\}P$, capable of being interpreted at LF.³⁰



4.4.2.2. Adverbial clauses

EA-initial order is found not only in the complements of perception verbs, but in other embedded contexts as well. For example, there are certain kinds of adverbial clauses in

³⁰ The idea that head-adjunction causes the two heads to project categorially non-distinct projections is reminiscent of Baker's (1988a) Government Transparency Corollary and Chomsky's (1995, chapter 3) characterization of equidistance. In all three cases, movement of a head X to adjoin to a head Y causes the minimal domains XP and YP to be reanalyzed as a single minimal domain.

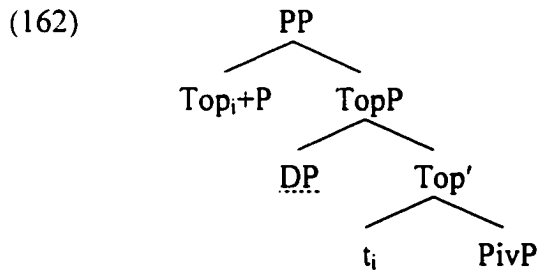
which the external argument comes immediately after the subordinator instead of in its normal position at the end of the clause. This is shown below for clauses introduced by *(t)amin* ‘when’ (159b) and *satria* ‘because’ (160b). For comparison, the corresponding matrix clauses are given in (159a) and (160a).

- (159) a. Mbola nipetraka tany Antsirabe izy.
 still Pst-NomP.live Pst-there Antsirabe 3
 ‘He was still living in Antsirabe’
- b. Faly Rabe [tamin’ [izy mbola nipetraka tany Antsirabe]]
 happy Rabe Pst-when 3 still Pst-NomP.live Pst-there Antsirabe
 ‘Rabe was happy when he was still living in Antsirabe’
- (160) a. Mamaky boky ny....rainareo
 NomP.read book Det father-2p
 ‘Your father is reading a book’
- b. Aza mitabataba [satria [ny....rainareo mamaky boky]]
 Neg.Imp NomP.make.noise because Det father-2p NomP.read book
 ‘Don’t make noise because your father is reading a book’

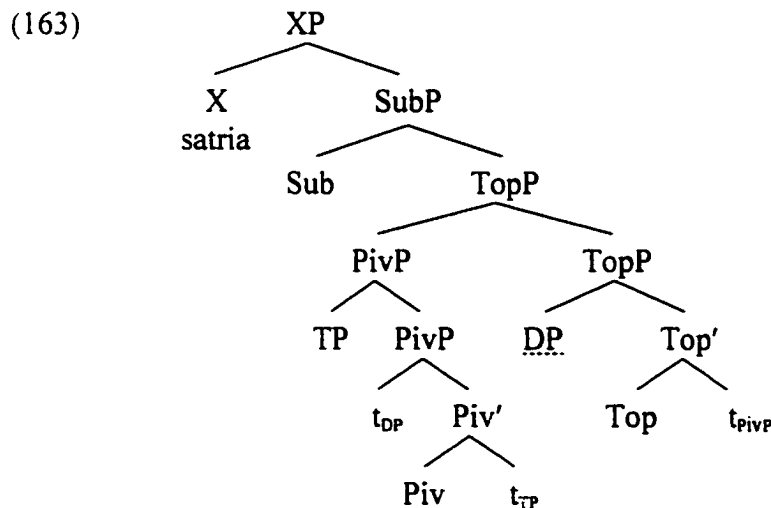
With certain subordinators this inverted order is optional: Keenan (1976) observes that the external argument may either precede or follow the predicate phrase in clauses headed by *satria*:

- (161) a. Tsy miasa androany Rabe [satria [ny....vadiny marary]]
 Neg NomP.work today Rabe because Det spouse-3 NomP.sick
 ‘Rabe isn’t working today because his wife is sick’
- b. Tsy miasa androany Rabe [satria [marary ny....vadiny]]
 Neg NomP.work today Rabe because NomP.sick Det spouse-3
 ‘Rabe isn’t working today because his wife is sick’

The analysis which I will offer for EA-initial order in adverbial clauses is essentially the same as for complements of perception verbs. In both cases, the head of TopP receives an interpretable feature by raising and incorporating into a lexical head which selects it, rather than by attracting PivP. For adverbial clauses, the lexical head is the subordinator—e.g., the preposition *tamin* 'in the case of (162b):



With regard to the optionality of EA-initial order with subordinators like *satria*, we might speculate that such subordinators optionally select a full SubP complement, which blocks incorporation of Top⁰ into *satria*. When a SubP is selected, PivP adjunction is necessary in order to license TopP:



Summarizing section 4.4.2: We saw that perception verbs such as “see” and “hear” may take event-denoting clausal complements in which the EA is spelled out to the left of the predicate phrase (with no evidence that it has raised to this position from some lower position to the right of the predicate phrase). A similar ordering is found optionally in certain kinds of adverbial clauses, such as those headed by *satria* “because”. EA-initial order in embedded clauses is unexpected under the right-specifier analysis proposed by Guilfoyle, Hung, & Travis (1992) and MacLaughlin (1995), where EAs are always above and to the right of the predicate phrase. However, the existence of EA-initial order is fully consistent with the analysis argued for in this chapter, according to which the normal EA-final order found in matrix clauses results from leftward movement of the predicate phrase over the EA.

4.5. Summary of chapter 4

In this chapter I presented an LCA-compatible analysis of word order in Malagasy. In 4.1 I reviewed some previous accounts of Malagasy clause structure, focusing on the work of Pensalfini (1995). Then in 4.2 outlined my analysis, in which surface word order is derived by means of successive XP-adjunction to projections within the left-periphery: TP adjoins to PivP, which then adjoins to TopP (with the EA in its specifier), creating a ‘roll-up’ structure in which the predicate phrase precedes the EA.

In 4.3 I considered the conceptual motivation for XP-adjunction. I reviewed evidence for equating the EA position in Malagasy with the preverbal topic position in V2 languages such as Icelandic, and argued that the left-periphery has essentially the same

structure in both language types, with some minor differences in the strength of the [D] feature in Top^0 . On the basis of this parallel, I suggested that XP-adjunction is motivated by the same lexical requirements that trigger head-adjunction (T-to-C raising) in V2 languages. I argued that whereas L-related projections have interpretable categorial features, non-L-related projections have uninterpretable categorial features. Thus when non-L-related heads such as Top^0 and Piv^0 attract constituents into their specifiers (thereby contributing to the semantics by establishing scopal relations), TopP and PivP must be 'supported' by a constituent bearing an interpretable categorial feature in order to be visible at LF. In order to satisfy this requirement, Top and Piv attract the closest interpretable categorial feature (namely that of T) into their checking domains.

In Malagasy, as in the V2 languages, attraction of the categorial feature of T takes place in the overt syntax. However, in the case of V2 languages, attraction triggers successive head-adjunction (T^0 adjoins to Piv^0 , which adjoins to Top^0), whereas in Malagasy, head-adjunction is unavailable, and so XP-adjunction is employed instead. I speculated that this difference is due to independent morphological properties: In the case of the verb-second languages, T^0 forms a discrete morphological unit; whereas in Malagasy it does not. Hence movement of T^0 in Malagasy would cause the derivation to crash at PF, forcing TP-movement.

Finally in 4.4, I presented evidence for deriving EA-final order by means of leftward predicate raising. In 4.4.1 I discussed the distribution of the yes/no particle *ve*. I showed that if we adopt the analysis of Malagasy word order presented in 4.2, we can characterize *ve* as an enclitic which attaches to the right edge of the highest c-command-

ing projection in the clause. In 4.4.2 I discussed word order in embedded clauses: If the EA occupies a right-specifier position from which it c-commands the predicate phrase, as in Guilfoyle et al. (1992), then we predict that it will follow the predicate phrase in all cases. However, if the predicate phrase raises leftward over the EA, as I argued here, we allow for scenarios in which this movement fails to take place, in which case the EA will surface to the left of the predicate. I show that EA-initial order is in fact attested in certain types of embedded clauses, such as *because*-clauses and the complements of perception verbs.

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