Malagasy Phrase Structure and the LCA[1]

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Some of the ramifications of Kayne's (1994) Antisymmetry proposal and Linear Correspondence Axiom (henceforth LCA) pose interesting problems for the analysis of Topic-final languages such as Malagasy. The aspects of Kayne's analysis that will be of interest here are specifically the following: all languages have underlying VP-structure in which the subject occurs in the specifier of the VP and the object as sister to V; Within any XP, the specifier occurs to the left of X' and the complement to the right of X; there is no structural distinction between specifiers and adjuncts, and any given XP may contain one and only one specifier (adjunct); movement is always to the left; hierarchy determines linear ordering so that if element Y occurs to the right of element Z then Y is lower than Z.
Assuming the LCA and Antisymmetry proposals to hold, I will attempt to account for the word order facts of Malagasy. First I claim that Malagasy is a bona fide topic-final language, and not simply a subject-final language like Gilbertese. I will then consider several previous analyses of Malagasy before proceeding to discuss two proposals within the Antisymmetry framework. The conclusion is a negative one; that the word order facts, including placement of adjuncts, cannot be adequately accounted for within Kayne's framework.

1. Malagasy

Malagasy has traditionally been called a VOS language. However, I will claim that it is actually VSO with an obligatorily-filled final topic position. Consider the sentences in (1).

1. a) Mividy ny vary ho an'ny ankizy ny lehilahy
ATop-buy the rice for the children the man
"The man buys the rice for the children."

b) Vidin' ny lehilahy ho an'ny ankizy ny vary
TTop-buy the man for the children the rice

c) Ividianan' ny lehilahy ny vary ny ankizy
XTop-buy the man the rice the children
(Keenan 1976)

Traditionally, sentences of the kind displayed in (1a) have been called 'active', and the corresponding (b) and (c) sentences different 'passives'. Under such an analysis, the phrase-final NP is the grammatical subject. Such 'passive' constructions differ from canonical passives, however. There is no 'absorption' of case, and the agent does not become optional or appear in a prepositional phrase. Instead it occors obligatorily in the immediate post-verbal position. The existence of two different 'passives', one of which can raise prepositional obliques to grammatical subject, also differs from canonical passives[2].
Contrast this with Gilbertese, a VOS language which, as demonstrated in (2), displays a construction with the properties of a canonical passive.

2. a) e ware-ka te boki te ataei
3s read-3s the book the child
"The child read the book."

b) e ware-ka-ki te boki (iroun te ataei)
3s read-3s-PASS the book by the child
"The book was read (by the child)."
(Shelly Harrison, p.c.)

Evidence that the phrase-final NP in Malagasy clauses is a topic rather than the grammatical subject comes from reflexive binding. Only the logical subject (not the topic) can bind a reflexive, irrespective of which argument is the clause-final one. This is seen in (3).

3. a) Mamono tena$_i$ hoan'ny zanaka [ny ray aman-dreny rehetra]$_i$
kill-ATop self for the children the parents all
"All parents kill themselves for (their) children."

b) Amonoan' [ny ray aman-dreny rehetra]$_i$ tena$_i$ ny zanaka
kill-XTop the parents all self the children
"All parents kill themselves for (their) children."

c)**Amonoan' ny ray aman-dreny rehetra tena$_i$ [ny zanaka]$_i$
kill-XTop the parents all self the children
(Keenan 1993)

A further interesting fact of Malagasy is that only the clause-final topic can be extracted by wh-movement, irrespective of its

grammatical role (as seen in (4) through (6)). Appealing to the accessibility hierarchy (Keenan and Comrie, 1977) does not explain this, but only re-states the question. A theory of Malagasy phrase-structure should explain this extraction asymmetry.

4. a) *Iza no mividy ny vary ny lehilahy?
who COMP STop-buy the rice the man

b) *Iza no vidin' ny lehilahy ny vary?
who COMP TTop-buy the man the rice

c) Iza no ividianan' ny lehilahy ny vary?
who COMP XTop-buy the man the rice
"Who was bought rice (for) by the man?"

(Guilfoyle, Hung and Travis 1992)

5. a) *Inona no mividy ho an'ny ankizy ny lehilahy?
what COMP STop-buy for the children the man

b) Inona no vidin' ny lehilahy ho an'ny ankizy?
what COMP TTop-buy the man for the children
"What did the man buy for the children?"

c) *Inona no ividianan' ny lehilahy ny ankizy?
what COMP XTop-buy the man the children

6. a) Iza no mividy ny vary ho an'ny ankizy?
who COMP STop-buy the rice for the children
"Who bought the rice for the children?"

b) *Iza no vidina ho an'ny ankizy ny vary?
who COMP TTop-buy for the children the rice

c) *Iza no ividianana ny vary ny ankizy?
who COMP XTop-buy the rice the children
(MacLaughlin 1995)

Finally to the ordering of adjuncts in Malagasy. Adverbs and most adjuncts precede the final NP (which I am calling a Topic), as opposed to Gilbertese where adjuncts generally follow the clause-final subject. However, causal and (some) temporal obliques follow the final NP.

7. a) Nodakan' i Paoly [tamin' ny lohany] [ho ao amin' ny but] ny baolina
TTop D Paul with the his-head into the goal the ball
"The ball, Paul kicked into the goal with his head."

b) *Nodakan' i Paoly ny baolina [tamin' ny lohany] [ho ao amin' ny but]
*Nodakan' i Paoly [tamin' ny lohany] ny baolina [ho ao amin' ny but]

c) Tsy lasa [niaraka tamin' i Jaona] i Paoly [noho i Jeanne]
Neg gone with D John D Paul because-of D Jeanne
"Paul did not leave with John because of Jeanne."

d) *Tsy lasa i Paoly [noho i Jeanne] [niaraka tamin' i Jaona]

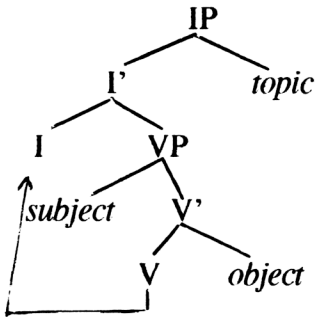
(Randriamasimanana 1986)

2. Previous Analyses

A. Guilfoyle, Hung and Travis (1992)

Guilfoyle et al. suggest that Malagasy's topic position is [Spec, IP] but that this Specifier position is to the right of its sister, whilst specifiers in the language are otherwise to the left of their sisters, as in (8). Whichever argument is the topic raises to [Spec, IP] where it receives NOM case. If the subject is not the topic it remains in [Spec, VP] and receives case there. The Verb raises to I overtly, and this gives rise to the basic word order facts of Malagasy.

8.



This analysis is clearly incompatible with any theory which requires specifiers within a given language to occur uniformly to one side or the other of their sister X'. It departs from standard

Case theory in that if an available case is not checked on an NP, the sentence will not crash. This problem could be circumvented by employing a variant of the case theory developed by Chomsky in his recent lectures (Fall 1994), where a distinction is made between features which are interpretable at the interface levels (and therefore need not be checked off) and those which are not (and therefore need to be checked off). One might propose that whilst the case features of the inflectional element associated with the Topic position are both strong and uninterpretable, thus giving rise to obligatory overt movement to this position, the case features associated with the head that checks case of the element in [Spec, VP] are interpretable and therefore need not be checked off at any stage. They can be checked off, however, in order to satisy the requirements of NPs, which may have uninterpretable case features. This departs from Chomsky's proposal in that it is not solely the demands of the inflectional heads that are causing NPs to enter checking relations (it is also a departure in that it allows checking in configurations other than Spec-Head, but the analysis is readily restatable in these terms)[3].
Furthermore, this analysis does not explain the previously mentioned extraction asymmetry, whereby only topics can be made subject to wh-extraction.

B. Bittner and Hale (1994)
Bittner and Hale (1994) also propose a structure similar to that in (8). For them, however, case is a matter of a local relationship involving a case governor and a visible case competitor. Verbal morphology assigns case (ACC, ERG, or both), causing raising of NPs to positions within the domains of these elements. The final (topic) NP is always NOM and in [Spec, IP].
In sentence (1a) the morphology assigns ACC case, which causes raising of the theme/patient to a position nearest the V (in I) to receive this case. The oblique argument receives its case from the P that introduces it, whilst the agent remains in its original position and recieves no case (which for Bittner and Hale means that it surfaces as NOM).
In sentence (1b) the verbal morphology assigns ERG case which causes the agent to raise to be next to V/I. The oblique gets case from its P as before, and the case-less NP in this case is the theme/patient.
The case of (1c) is most attractively acccounted for by Bittner and Hale's theory. The verb is inflected with both the morpheme that it bore in (1a) and that which it bore in (1b). As a result it

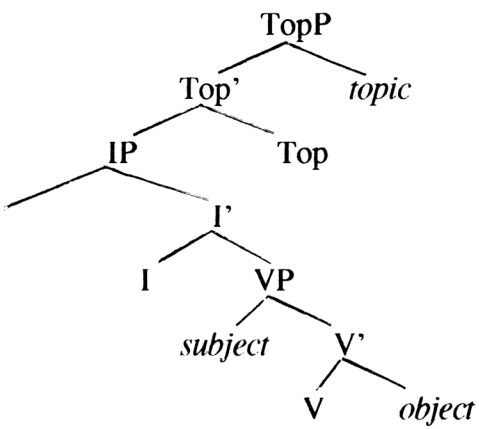
can assign ACC to the patient/theme as well as ERG to the Agent, both of which raise to be near I. In order for the assignment of these cases to be possible, however, there must be a K(case head)-less NP visible to I, and this function is served by the oblique in [Spec, IP]. Note that the oblique argument is not introduced by a Preposition when it occurs in this phrase-final position.

This approach, however, is once again incompatible with any theory which requires specifiers within a given language to occur uniformly to one side or the other of their sister X'. This approach also fails to account for the extraction asymmetry betwen topics, which can be extracted, and all other elements, which may not.

C. MacLaughlin (1995)

This analysis is basically an advance on Guilfoyle et al (1992) which allows the extraction asymmetry to be explained. MacLaughlin proposes the structure in (9):

9.



The Topic argument raises to [Spec, TopP]. The extraction asymmetry is accounted for in terms of the requirement on the trace of the extracted element that it be properly governed. Proper government can be realised in one of two ways, either by antecedent binding or by antecedent government. If anything but the Topic is extracted from the structure in (9), neither of these requirements can be met. IP will serve as an intrinsic barrier to antecedent-binding (in the sense of Cinque 1990), as it is not lexically selected (by Top) in the canonical direction (it is selected in the leftward direction while the canonical direction for Malagasy is rightward). The XP in [Spec, TopP] (i.e. the topic)

serves as a minimality barrier to A' antecedent government from [Spec, CP].
In further defense of the structure in (9), note that the functional head Top, can be realised overtly. In certain kinds of sentences, notably yes/no questions and exclamations, a particle is found immediately before the phrase-final topic, as in (10).

10. a) Nanome vola an-dRabe ve ianao?
gave money ACC-Rabe ? 2sg
"Did you give money to Rabe?"

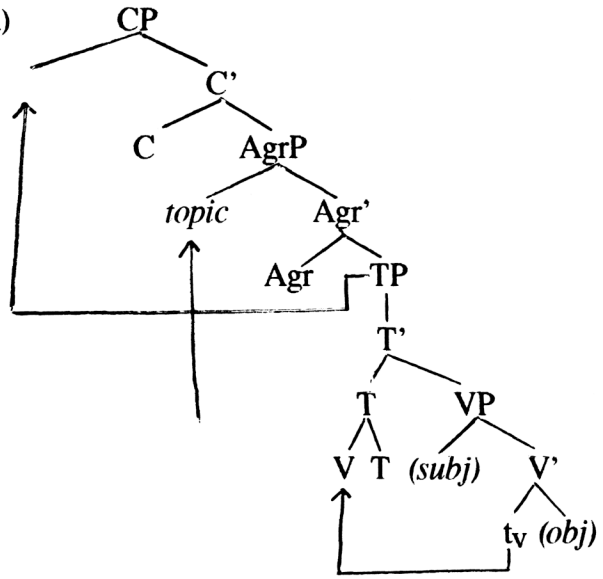
b) Manasa ramba anie Rasoa!
wash clothes ! Rasoa
"Is Rasoa ever washing clothes!"

c) Miasa androany angaha Rabe?
work today ?? Rabe
"Could it be that Rabe is working today?"
(MacLaughlin p.c.)

Whilst this explains the extraction asymmetry, it is no more compatible with a theory which requires all specifiers to occur on the same side of their sisters than were the previous analyses discussed herein.

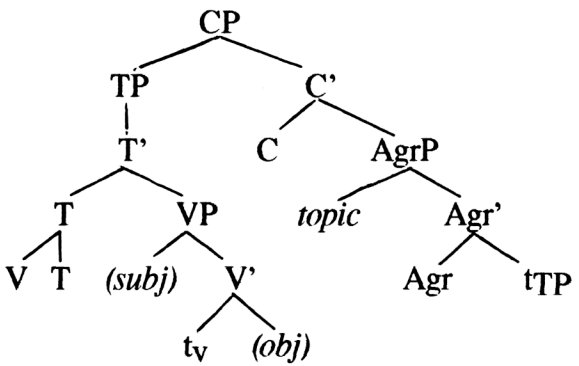
D. TP Raising
Pursuing a suggestion made by MacLaughlin (1994, footnote 5; p.c.) the following analysis involves only leftward movement and achieves topic-finality by first raising the topic out of the VP to a case position and then raising TP over the topic, as shown in (11). This analysis is fuly compatible with Kayne's (1994) system.

11. a)



The topic first moves to the position in which it checks NOM case, while the verb raises only as far as T, as in (11a), above. then, as indicated in (11b), TP raises to [Spec, CP].

b)



Under this analysis, a wh-question is actually a cleft, involving a projection (such as a FocusP or similar) above CP. That particle which was observed in pre-topic position in questions and exclamations, exemplified in (10), would be considered a complementizer under this analysis[4].

This analysis of basic Malagasy word order is not only compatible with Kayne's (1994) LCA, but also explains the extraction asymmetry quite neatly. Everything but the topic is within an XP that is in a specifier position. Such an XP, like a

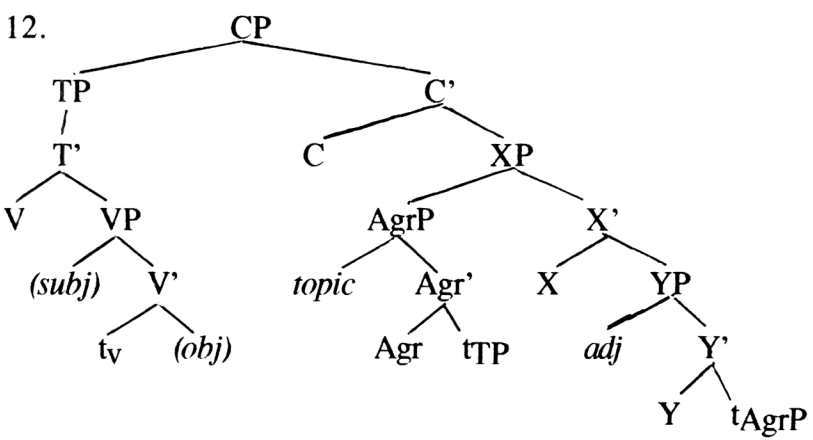
subject, forms an island for extraction. However, such CED effects are reportedly weak cross-linguistically, and we would not expect a CED violation such as this to result in the total unacceptability of the structure to (apparently) *all* speakers of the language.

Several problems remain with this analysis. Motivating the obligatory raising of TP to [Spec, CP] is by no means a trivial matter. It could be argued that C agrees with T, and this agreement relation requires some form of checking between T and C. If this were the case, then T could not raise directly to C, there being an AGR head between them which is later required for the checking of verbal features. Perhaps then the relation is somehow satisfied by raising the maximal projection fo T to the specifier of CP.

Note that the raising of TP to [Spec, CP] creates an illicit relatioship between the topic, in [Spec, AgrP] and its trace in the higher TP. In order to resolve this, LF re-lowering of TP to its original position is mandated for all clauses of Malagasy. This re-lowering is also required so that the V+T complex can raise to Agr. Collins (1993) argues that precisely this kind of operation, lowering of a previously raised element so that another element can raise out of it for reasons of checking, is illicit.

There is also the further problem of the surface order of adjoined elements. As shown in (7), some adjuncts follow the topic, whilst others precede C and the topic. Clause-final adjuncts can be explained within the Antisymmetry system by postulating more functional projections between CP and AgrP, as in (12):

12.



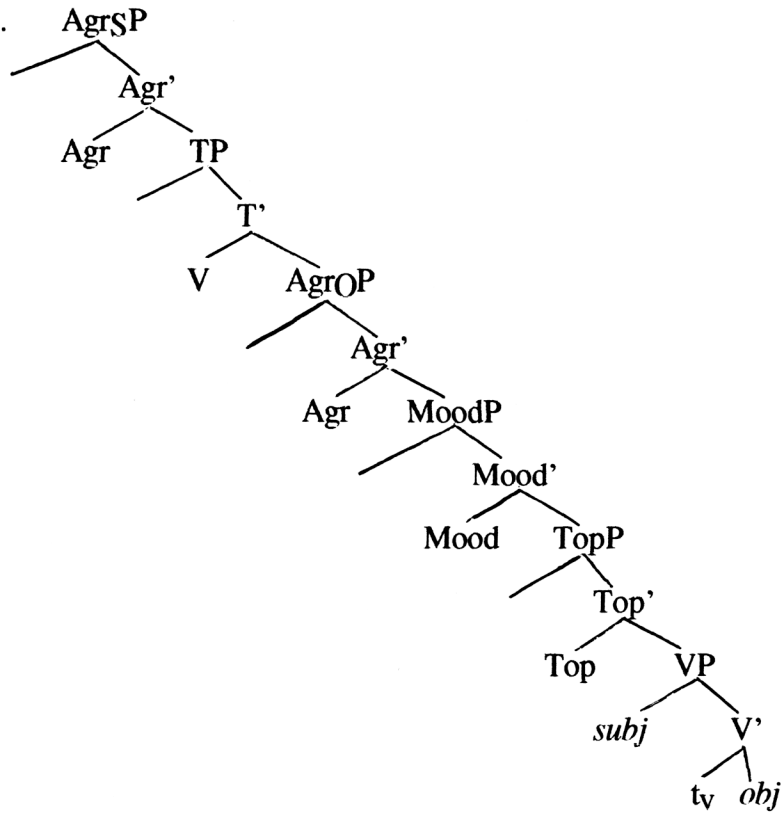
The adjunct is generated in the specifier of YP, and the raising of TP to [Spec, CP] is followed by the raising of AgrP to adjoin to XP. This results in the correct ordering for this class of adjuncts, but what of the adjuncts that immediately precede C and the topic? There is no position to which such an adjunct could possibly adjoin. One is driven to the undesirable conclusion that TP actually raises to the specifier of a functional projection higher than C and that these adjuncts are found in [Spec, CP] on the surface.

3. An Alternative Proposal - Malagasy as Irish-type VSO

As displayed in the sentences of (1), the order of constituents in a Malagasy sentence when an oblique bears the topic function is V>S>O>oblique. There is a sense, then, in which Malagasy could be considered a VSO language with the addition of an obligatory topic-final position. One possible analysis for Malagasy phrase structure would then be that given to the structure of Irish by Bobaljik and Carnie (1994). According to this analysis, the subject raises to [Spec, TP] to receive its case rather than to [Spec, AgrS], whilst the verb raises through all the functional heads up to AgrS.

In order to capture the topic-final phenomenon within Kayne's framework in an Irish-type VSO language I posit a functional projection which checks the case of the topic in its specifier and is located immediately above the VP, as in (13)[5].

13.



Non-topic arguments move overtly (object to [Spec, AgrO], subject to [Spec, TP]) while the Topic moves to [Spec, TopP]. The verb checks its agreement features with the theta-features of the topic NP in [Spec, TopP], giving rise to verbal agreement with the semantic role of the topic, and then raises through the functional heads to the highest Agr. Benefactive arguments, such as those in (1) would require an Agr projection below Agr_O but above Mood, and would move out of the VP, where they would be generated below the object, perhaps in a shell-like structure, to the specifier of this Agr head for case-checking[6].

The particles analysed as Top in MacLaughlin (1995) and C in MacLaughlin (1994b) are here considered to be mood particles that are generated in [Spec, MoodP], an A' position. The particles cannot be generated in the Mood head itself, as movement of the verb through this position cannot leave the particle behind (due to the requirements of the Head Movement Constraint and Incorporation). The generation of such a head in an A' specifier position is not a novel idea, and has been

suggested, for instance by Laka (1990) for negative particles. Charles Randriamasimanana (p.c.) has agreed that these particles do to some degree indicate the mood of the clause.

Wh-movement can now be construed as standard A'-movement to [Spec, CP], with /no/ a complementizer.

Within Kayne's framework adjuncts will be dealt with by proposing further functional projections, but in the structure proposed in (13) these projections can be accommodated. Causal and temporal obliques, which occur clause-finally, occur in the specifier of a functional projection between VP and TopP, whilst all other adjuncts, which precede the topic and the Mood particle, occur in the specifier of a functional projection between MoodP and Agr_OP. As an intersting aside it should be noted that Oka (1993) has proposed that adjuncts, like arguments, must enter into checking relations. Unlike arguments, which do so by raising to the specifier position of a functional projection, however, adjuncts enter into checking relations by adjoining to functional projections. The system proposed by Oka is incompatible with Kayne as it stands, there being no distinciton between specifiers and adjuncts for Kayne, but the system described here is probably the closest thing to a translation of Oka's idea into Kayne's framework.

In order to avoid a crash it cannot be assumed that both Agr heads as well as Top are present in all clauses, as this would result in too many case checking heads for the number of NPs in the clause. If the agent is the topic, then the clause lacks a higher Agr (Agr_S); if the object is the topic, there will be no lower Agr (Agr_O). Only when an oblique serves as the topic will both core Agrs be projected. This is no different from supposing that, in a language like English, an intransitive clause involves only one Agr projection.

Note, however, that the system I have proposed, whilst able to account for the adjunction facts as well as the general word order, does not provide an immediate explanation for the extraction asymmetry, unlike the analyses presented in sections (2C-D). It has been suggested to me (David Pesetsky, p.c., Hubert Truckenbrodt, p.c.) that an explanation for the extraction facts may be found within my analysis in the agreement relation between verb and topic. The basic idea is that the only argument that may be extracted is the one with which the verb agrees. Perhaps there is a requirement that the verb agree with the extracted element, but that morphologically this agreement occupies the same slot as the V's thematic agreement with the

topic. As a result, only the topic could be extracted and still satisfy this requirement.

Conclusion and Avenues of Further Inquiry

Both of the analyses considered here that are compatible with Kayne's Antisymmetry framework and his Linear Correspondence Axiom suffer from severe problems. The TP-raising analysis (section 2D) does not appear to able to account for the appearance of all adjuncts, whilst the proposal in section 3 does not readily account for the fact that only the clause-final topic may be wh-extracted. The problems with the TP-raising analysis can be resolved by suggesting that certain kinds of adjuncts occur in [Spec, CP], which seems undesirable on general grounds, whilst the problems with the analysis in section 3 might be resolved by recourse to some notion relating overt verbal agreement with extraction.

There is a further difference in the predictions that these two approaches make, related to the hierarchical position of the topic argument with respect to other arguments in the clause. In the structure proposed in (13) the topic is c-commanded by the other arguments, whilst this is not the case with the structure proposed in (11). Within the TP-raising proposal, in fact, the topic will c-command the other arguments at LF once TP has re-lowered to its original position (as it must in fact do for several reasons, see discussion in section 2). I am currently seeking evidence from pronominal co-reference in order to decide which arguments c-command which others, but such evidence is not readily available in the literature on Malagasy. One of the problems involved in collecting such data is that a pronominal cannot occur in the clause-final topic position (in a matrix clause at least; control constructions get very messy with pro-drop being obligatory in some cases). Any attempt to construct sentences such as 'He handed John's friend (over) to Bill' must utilise a form of the verb other than the Agent=Topic form irrespective of the referent of the pronoun (Randriamasimanana, p.c.).

Notes

[1]A version of this paper appeared in Pensalfini, Rob and Hiro Ura (eds) *Papers in Minimalist Syntax,* published by MITWPL. I would like to thank Dawn MacLaughlin, Charles Randriamasimanana, David Pesetsky, Noam Chomsky, Michael Brody, Andrew Carnie, and Hiro Ura for useful comments and revisions.

[2]David Pesetsky (p.c.) points out that one of the two 'passives' might be somewhat like the unaccusative alternation with some predicates in English:

a) Bill bought this book for ten dollars.
b) This book was bought for ten dollars (by Bill).
c) Ten dollars buys this book (*by Bill).

Again Malagasy differs from English in that the agent, which is optional in (b) and prohibited in (c) above, remains a full-fledged argument of the verb.

[3]Hiro Ura (p.c.) has suggested an alternative whereby non-Topic subjects may have their case features checked off in [Spec, VP]. In this case we keep the notion that it is the Inflectional heads whose demands are causing movement, but it deviates from Chomsky's proposal in allowing case-checking of a governed NP to occur in that NP's base position.

[4]Noam Chomsky (p.c.) has pointed out a notational variant of MacLaughlin's proposal which replaces her TP with IP and Agr with TOPIC (her C would be some kind of FOCUS position). Under this proposal the topic would raise to an A' position after having checked case in the usual manner. I do not explicitly consider this proposal here, but it has some of the same problems as MacLaughlin's own analysis.

[5]Structures like this have previously been proposed for Hungarian (with focus above VP, Horvath 1985, Kiss 1992), among other languages, to account for the position of wh-phrases and the like.

[6]Note that the length of some of the movements involved, even given V raising for equidistance, violate the Minimal Link Condition of Chomsky (1993 and following). If we wanted to reconcile Kayne's and Chomsky's proposals we would have to adopt a split-VP hypothesis along the lines of Bobaljik's (1995). The next version of this paper will experiment with this idea.

References

Bittner, Maria and Ken Hale. 1994. 'The Structural Determination of Case.' Rutgers and MIT: ms.

Bobaljik, Jonathan, and Andrew Carnie. 1994. 'A Minimalist Approach to Some Problems of Irish Word Order'. To appear in Robert Borsley and Ian Roberts (eds) *Celtic and Beyond.* Cambridge: CUP

Bobaljik, Jonathan. 1995. *Morphosyntax: the Syntax of Verbal Inflection.* MIT: PhD dissertation.

Chomsky, Noam. 1993. 'A Minimalist Program for Linguistic Theory'. In Kenneth Hale and Samuel Jay Keyser (eds) *The View From Building 20.* Cambridge, Mass.: MIT Press, 1-52

Cinque, Guglielmo. 1990. *types of A'-Dependencies.* Cambridge, Mass.: MIT Press.

Collins, Chris. 1993. *Topics in Ewe Syntax.* MIT: PhD dissertation.

Guilfoyle, Eithne, Henrietta Hung and Lisa Travis. 1992. 'Spec of IP and Spec of VP: Two Subjects in Austronesian Languages.' *NLLT* 10, 375-414.

Horvath, Julia. 1985. *FOCUS in the Theory of Grammar and the Syntax of Hungarian.* Dordrecht: Foris

Kayne, Richard S. 1994. *The Antisymmetry of Syntax.* Cambridge, Mass.: MIT Press.

Keenan, Edward. 1976. 'Remarkable Subjects in Malagasy.' In Charles Li (ed.) *Subject and Topic.* New York: Academic Press, 247-301.

Keenan, Edward. 1993. 'VP Nominative Languages: the Case of Malagasy'. Paper delivered at 6th Biennial Conference on Grammatical Relations, Vancouver.

Keenan, Edward and Bernard Comrie. 1977. 'Noun Phrase *Accessibility and Universal Grammar'. Linguistic Inquiry 8,* 63-99

Kiss, Katalin. 1992. 'NP Movement, Operator Movement, and Scrambling in Hungarian'. ms

Laka, Itziar. 1990. *Negation in Syntax: On the Nature of Functional Categories and Projections.* MIT: PhD dissertation.

MacLaughlin, Dawn. 1995. 'Wh-Movement in Malagasy: An Extraction Asymmetry.' In Akinbiyi Akinlabi (ed.) *Theoretical Approaches to African Linguistics.* Trenton, NJ: Africa World Press, 117-128

Oka, Toshifusa. *Minimalism in Syntactic Derivation.* 1993. MIT: PhD

Randriamasimanana, Charles. 1986. *The Causatives of Malagasy.* Honolulu: University of Hawaii Press.