

**Wellington Working Papers in
Linguistics**

Volume 12 2000

edited by Elizabeth Pearce

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Internet <http://www.vuw.ac.nz/lals>**

Published 2000

Printed by SecuraCopy
Wellington

ISSN 1170-1978

Wellington Working Papers in Linguistics

Number 12 2001

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A DP analysis of Iaaï noun phrases

Angela Ford

Abstract

This paper provides a comprehensive DP-analysis of Iaaï noun phrases by reanalysing and expanding on a preliminary investigation by Ford (1999). A number of intermediate functional projections are proposed to accommodate the elements in Iaaï noun phrases, namely, a Number Phrase, a Deictic Phrase and two Agreement Phrases. The main findings of the paper are that: N-movement is obligatory in Iaaï DPs; and that D° can only license one overt movement. It is argued that two noun modifiers cannot both occur in the same immediate DP if they have strong features that do not have the option of weakening. This paper also provides evidence that the DP-hypothesis, the Antisymmetry framework, and the Minimalist Program are beneficial for analysing noun phrases in Iaaï.

Introduction

This paper attempts a comprehensive DP analysis of noun phrases in the Austronesian language, Iaaï¹. I am unaware of any published syntactic analyses of Iaaï, in particular about noun phrases. However, an unpublished preliminary investigation of Iaaï noun phrases by Ford (1999), forms the foundation and basis for the current analysis. Ford applied the DP-hypothesis to Iaaï noun phrases and proposed three intermediate functional projections (NumP, QP and DeicticP) to accommodate other elements in the noun phrase. Upon further analysis of the data used in the preliminary report, and due to the acquisition of more revealing and detailed data,² aspects of the preliminary examination are now questionable. This paper addresses these issues and provides what I believe to be convincing evidence for the alternative analyses proposed. This paper also expands and elaborates on the preliminary investigation by examining areas that were not analysed in the preliminary report. Namely, possessives and relative clauses. These two areas prove to be valuable as they provide further information regarding triggering factors for the types of movement

¹ Iaaï is spoken by approximately 2,000 people on the northern-most island of New Caledonia's Loyalty Islands.

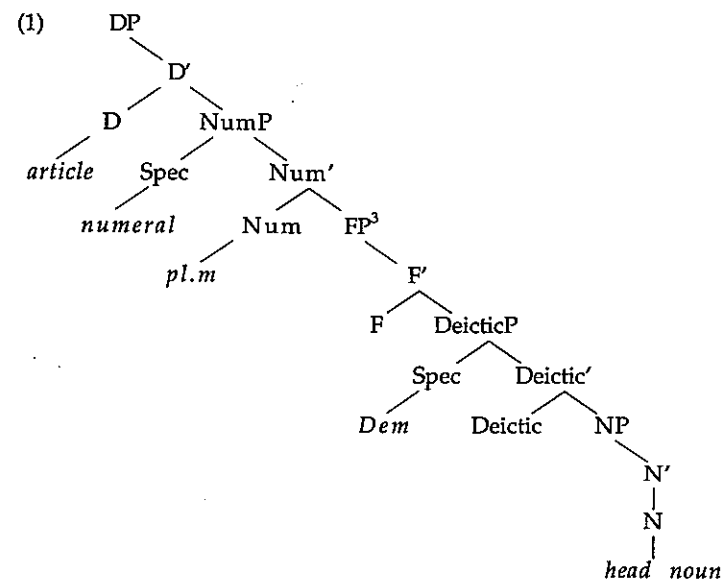
² The data used in this paper was collected as part of a field methods course at Victoria University of Wellington. I would like to thank our native speaker, Samuel Wadjeno, for his time and commitment during my efforts to extract the appropriate data.

exhibited in Iaaï DPs. This examination of possessives and relative clauses, coupled with the re-analysis of other elements in the DP contributes to the comprehensive DP-analysis provided in this paper.

The structure of this paper is as follows: Section 1 provides a summary and overview of Ford's (1999) proposed DP-structure and the corresponding arguments. Section 2 is a syntactic analysis of the elements in Iaaï noun phrases. This section is divided into four subsections that are each based on a particular element (or set of elements) in the noun phrase. It is within these subsections that the relevant problems with the preliminary report will be addressed. Section 3 provides a detailed analysis of complex noun phrases in Iaaï. This involves phrases with combinations of the elements discussed in section 2. This section will show that for particular combinations of modifiers in Iaaï, relative clause constructions are needed. This section proves important as it provides significant information regarding, both the types of movements found in Iaaï noun phrases, and the triggers and target positions for the proposed movements. And finally, section 4 provides a detailed summary and conclusion of the findings and proposals of the paper.

1. Summary of the preliminary structure

The major theoretical assumptions of Ford's (1999) paper were: the DP-hypothesis (Abney 1987); Kayne's (1994) Antisymmetry framework; Chomsky's (1993) Minimalist Program (MP); and Brugè and Giusti's (1996) demonstrative theories. The DP-hypothesis and the Antisymmetry framework influenced the overall syntactic structure proposed by Ford. Assumptions based on the MP, Brugè & Giusti's theories, and the Antisymmetry framework were adopted to support proposed positions of elements, and also to account for, and explain the movements. The preliminary report was centred around deciphering the position of the plural marker (*jee*). Initially, three possible structural representations were presented. Data and theoretical assumptions were then used to argue for one particular structure over the others. (1) illustrates the overall structure proposed by Ford (1999: 11):



The structure in (1) now forms the preliminary underlying structure for this paper. As mentioned in the introduction, a reanalysis of the data used in the preliminary report, and the acquisition of new data, have highlighted some problems with the preliminary analysis. However, these problems are not with the structure in (1) itself, but are with the proposals regarding movement.

Ford (1999: 9) claimed that, in Iaaï, there is a restriction on the demonstrative and numeral co-occurring in the same immediate DP. She accounted for this by assuming Brugè and Giusti's (1996) proposal that all demonstratives raise to Spec,DP to check their [REF] feature with the head of DP through Spec-Head Agreement. To account for the observed post-nominal demonstrative in Iaaï, Ford assumed that the demonstrative procrastinates its movement to Spec,DP until LF if the numeral is present (in Spec,NumP), because, then, Rizzi's (1990) Relativized Minimality would be violated. This, she argued, was the cause of the co-occurrence restriction. However, new data has been acquired which shows that the numeral and the demonstrative can co-occur, thus subverting the above analysis. This issue will be addressed in section 2.3.

The other questionable component of Ford's analysis regards N-movement before Spellout. According to Ford (1999: 6), movement of the

3

This FP was actually a Quantifier Phrase in the preliminary report. However, I have insufficient data on quantifiers to include an analysis of them in this detailed report. Thus this FP is no longer a Quantifier Phrase, but I have maintained the overall structure due to N-movement to this position when the demonstrative is present.

noun before Spellout is required if the demonstrative is in the DP. This movement derives the grammatical surface ordering. Ford proposed that the noun raises to F° via Deictic° when the demonstrative is present. However, she was unable to provide the motivation for this movement, merely stating that the N was raising to check some feature. Ford states that perhaps this highlights a flaw in the proposed structure. I believe that the flaw here is not in the structure itself, but rather in the proposal that N-movement *only* occurs when the demonstrative (DeicticP) is present. Sections 2.3 and 3 will demonstrate that it is more likely that N-movement is obligatory, and the DeicticP is a functional projection that may intervene between the NP and the target position (F° in the preliminary structure in 1).

There are three other components of Iaaï noun phrases which were not investigated in the body of the preliminary paper, but are explored and analysed in this paper. These are relative clauses, possessives, and the determiner (*ta*). These analyses prove to be important, and even necessary, as they provide significant and supportive information that was not previously available or not previously taken into consideration.

2. Syntactic analysis of elements within Iaaï noun phrases

This section examines and analyses four elements in Iaaï noun phrases, namely, determiners (the definite article, *ta*), numerals, demonstratives, and possessives.⁴ The theoretical assumptions adopted in this paper are the same as those in the preliminary report. The DP-hypothesis (Abney 1987) and Kayne's (1994) Antisymmetry framework dictate the overall structure proposed. The DP-hypothesis (and further developments of it) imply that the noun phrase consists of a lexical noun (N) that projects a maximal projection (NP), this is dominated by at least one FP (the DP) which may have possible intermediate FPs. The significant aspects of Kayne's (1994) Antisymmetry framework are that the linear (hierarchical) order of syntactic structures is Specifier-Head-Complement, thus any other linear order is derived through movement, which according to Kayne can be to the left only. Other theoretical assumptions are used to account for movement observations in Iaaï, and will be explained when referred to.

2.1. A reanalysis of *ta*.

As previously mentioned, the article *ta* was not analysed in the preliminary report due to, both, contradictory information from our two main Iaaï sources (the native Iaaï speaker and Ozanne-Rivierre's (1976) grammar), as well as 'surface' complexities in this element's distribution. However, a

⁴ See footnote 1 regarding why quantifiers are not investigated. Adjectives are also not examined in this paper, this is because they always occur in relative clause constructions, and offer very little helpful information to the analysis presented in this paper. There is a diminutive form of an adjective that can occur in the main DP, but again this data does not offer any relevant information for the purposes of this paper.

description of *ta*'s distribution was provided in an appendix. It was suggested here that *ta* might be a plural definite article. Nevertheless, due to uncertainty, it was treated (problematically) as a plural marker in the body of the paper.

(2a, b and c) illustrate that *ke* and *ta* are in complementary distribution.

- | | | | |
|-----|--|--|--|
| (2) | a. <i>ke jee uutap</i>
i.a. p.m. chair
'some chairs' | b. <i>ta jee uutap</i>
? p.m. chair
'the chairs' | c. * <i>ke ta jee uutap</i>
i.a. ? p.m. chair |
|-----|--|--|--|

This suggests that these two elements occupy the same position in the structure. *ke* is an indefinite article (not specified for number). The contrast between the glosses in (2a) and (2b) appears to indicate that *ta* is a definite article. However, (3a and b) illustrate that, in a basic Iaaï noun phrase, definiteness is also interpreted if no article is present:

- | | | |
|-----|---|---|
| (3) | a. <i>uutap</i>
chair
'the chair' | b. <i>jee uutap</i>
p.m. chair
'the chairs' |
|-----|---|---|

According to our native speaker's interpretation of *ta*, there are differences in meaning between (2b) and (3b) in terms of specificity. He states that in (2b) the listener knows which chairs the speaker is referring to, whereas in (3b) the listener does not know the exact chairs being referred to. This interpretation contrasts with that of Ozanne-Rivierre (1976: 182-3) who claims that *ta* is an article with a numerous ('nombreux') interpretation. Thus, according to Ozanne-Rivierre, the difference between (2b) and (3b) regards the amount of chairs involved. (2b) refers to a large group of chairs, while (3b) involves a few. Consequently, based on Ozanne-Rivierre's interpretation of *ta*, it is understandable why she claims that (2c) is actually grammatical. This is where confusion in the preliminary report arose. Our native speaker's interpretation of *ta* is easy to implement into the proposed structure, and fits the rest of the data exhibited in this paper, thus I will adopt his perspective on this.

The fact that *ke* and *ta* are in complementary distribution coupled with our native speaker's interpretation of *ta*, (I believe) provides sufficient evidence that *ta* is a definite article, at least for the dialect of our speaker. The data in (2b) and (4) suggest that *ta* is a plural definite article as it may not occur with the noun alone and it must occur with the plural marker:

- | | |
|-----|----------------------------------|
| (4) | * <i>ta uutap</i>
p.d.a chair |
|-----|----------------------------------|

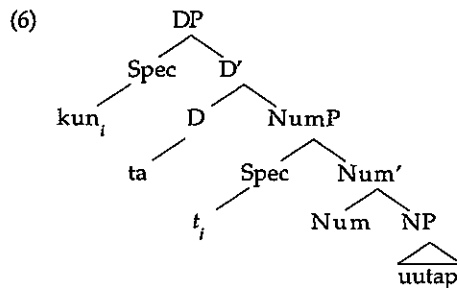
The ungrammaticality of (4) illustrates that *ta* is only a plural definite article. Thus, *ta* will now be treated as the plural definite article. The analysis in this subsection is significant as it has direct implications for other elements analysed in the preliminary report, in particular, the numeral.

2.2 Numerals within the noun phrase.

Although the examples in (2) and (4) suggest that *ta* must co-occur with the plural marker (*jee*), there is one exception to this.⁵ This is when a numeral is present in the immediate DP:

- (5) kun ta uutap
three p.d.a chair
'the three chairs'

The reanalysis of *ta* in the previous subsection now allows for an important observation to be made regarding numerals that was not evident in the preliminary structure. In the underlying structure (1), Ford (1999) positions the plural marker as the head of NumP, and the numeral as its Specifier. Thus to derive the surface order in (5), *kun* must raise above the article (*D'*) to Spec,DP before Spellout. The representation in (6) illustrates this:



According to Minimalist assumptions⁶, because this movement occurs prior to Spellout, it suggests that, in Iaii, the numeral has strong features. However, before we explore what these features are, some important observations regarding the numeral and the plural marker need to be made.

In Iaii, when the numeral is present, the plural marker cannot occur:

⁵ There are indications that there might be another type of exception to this claim. In the data there is one example of the plural form of a word becoming lexicalised. In Iaii, *at* means 'man', *ke at* means 'a/another man', and instead of the predicted form, *ta jee at* for 'people/the men', the actual form is *javèet*. However, this is a one-off lexicalized form, and as such is insufficient evidence to conclusively claim as another type of exception.

⁶ The principles of the MP assumed in this paper are the same as those adopted in the preliminary report. Ford (1999: 7) summarises these as: "The Phonetic Form (PF) is the phonetic representation of a sentence; the Logical Form (LF) is the representation where semantic interpretation occurs; Spellout is a syntactic mapping operation that occurs before PF; all movement is for the purposes of feature checking; agreement takes place through a Spec-Head relationship; and features may be either strong or weak, strong features are checked before Spellout while weak features are checked at LF (Chomsky 1993; Siloni 1997: 167; Culicover 1997: 390-3)."

- (7) a. *kun jee uutap
three p.m. chair
b. ?kun ta jee uutap
three p.d.a. p.m. chair
c. *ta kun jee uutap
p.d.a three p.m. chair

The data in (5) and (7) show that both the Spec and the head of NumP cannot be simultaneously occupied. This can be explained by the fact that when the numeral is present in a noun phrase, the plural marker provides redundant information. Cruse (1984: 2859-60) explains this well, "In English, the plural marker must appear even after numerals and other expressions of numerosity such as *many*, or *a few* [e.g. a few apples], where it might be considered redundant in that it adds no new information. This is not the case in all languages." -- as we have just seen for Iaii. Thus, it seems that it is not a universal condition that forbids both the Spec and the head of NumP to be filled, but rather it is a parameter based on economy and redundancy considerations. Hence the questionability of (7b). (7b) observes the correct surface structure for Iaii, but includes redundant information. This, we may infer, is why our native speaker finds this phrase unusual rather than fully ungrammatical.

The Iaii dialect under consideration distinguishes three degrees of number in nominal expressions: singular, dual, and plural. Like many languages (Cruse 1984), Iaii does not have a singular marker. Although there is a restriction on the numeral and the plural marker co-occurring this is not the case for the dual constructions.

- (8) a. ke li uutap b. li uutap c. lo li uutap
i.a. d.m. chair d.m. chair two d.m. chair
'two chairs' 'the two chairs' 'the two chairs'

Thus presumably, the dual marker (*li*) must not be considered redundant material if the numeral (*lo* 'two') is present, as represented in (8c). (9) illustrates that the numeral must raise to Spec,DP before Spellout for dual constructions too.

- (9) a. lo ta uutap b. lo ta li uutap
two p.d.a. chair two p.d.a. d.m. chair
'the two chairs' 'the two chairs'

Thus, it now seems that all numerals raise to Spec,DP. What is this strong feature that the numeral needs to check? Data illustrating indefinite numeral constructions provide revealing information regarding what this feature might be. (10) illustrates that the indefinite article and the numeral cannot co-occur in the same DP.

- (10) a. *ke kun uutap b. *kun ke uutap
i.a. three chair three i.a. chair

- c. *ke kun jee uutap d. *kun ke jee uutap
 i.a. three p.m chair three i.a. p.m chair
- e. *ke lo li uutap f. *lo ke li uutap
 i.a. two d.m. chair two i.a. d.m. chair

This suggests that there is a clash in the feature specification of the indefinite article and the numeral. Moreover, this clash does not occur if the article is definite (that is, when D° is [+DEF]). This implies that the feature on the numeral must be [+DEF], therefore agreeing with the [+DEF] feature when *ta* is present and clashing with the [-DEF] feature if the indefinite article is present. Thus, the phrases in (10) are ungrammatical due to the derivation crashing at PF.

To use indefinite numeral phrases in Iaii, a relative clause construction is needed:

- (11) a. jee uutap [(ejii) a kun]
 p.m. chair [(there) 3Sg three]
- b. ?ke jee uutap [(ejii) a kun]
 i.a. p.m. chair [(there) 3Sg three]
 ‘(the) three chairs’ (indef. & def.) ‘(some) three chairs’
- c. ke li uutap [(ejii) a lo]
 i.a. d.m. chair [(there) 3Sg two]
 ‘two chairs’

The data in (11) support my proposal that the numeral in Spec,NumP is [+DEF] and checks this strong feature by raising to Spec,DP at PF. If the numeral is in a relative clause, it is predicational and may therefore lack the [+DEF] features which it necessarily has in the Spec,NumP position. For this reason, when the numeral is inside a relative clause the whole larger DP may be indefinite, as in (11c), without giving rise to a feature clash. (11c) is thus grammatical in contrast to (10e) and (10f); and (11b) has intermediate grammaticality in contrast to the ungrammaticality of (10a-d).

Although my arguments in this subsection are well supported by the data, there is still an issue regarding why (11b) is questionable and why (11c) is grammatical. This may be related to my claims that *jee* is redundant material when the numeral is present and *li* is not. However, this issue is beyond the purposes of this paper, thus will not be pursued here. The common way of forming the indefinite construction with numerals is (11a). This phrase can be interpreted as definite or indefinite depending on the pragmatic context, and the position it takes in the wider clause.

The important conclusions of this subsection are that, in Iaii, all numerals must raise to Spec,DP before Spellout. And that, the derivation crashes if there is a clash in the features of the numeral and those on the head of the DP. It was argued that the feature that the numeral is checking

in Spec,DP is [+DEF]. This new analysis of numerals has implications for the analysis of demonstratives presented in the preliminary report.

2.3. Demonstratives within the noun phrase

As mentioned in section 1, the preliminary report claimed that, in Iaii, there is a restriction on the demonstrative and the numeral co-occurring in the same immediate DP. However, new data has been acquired which questions this claim:

- (12) kun ta uutap eang⁷/ele
 three p.d.a. chair here/there
 ‘these/those three chairs’

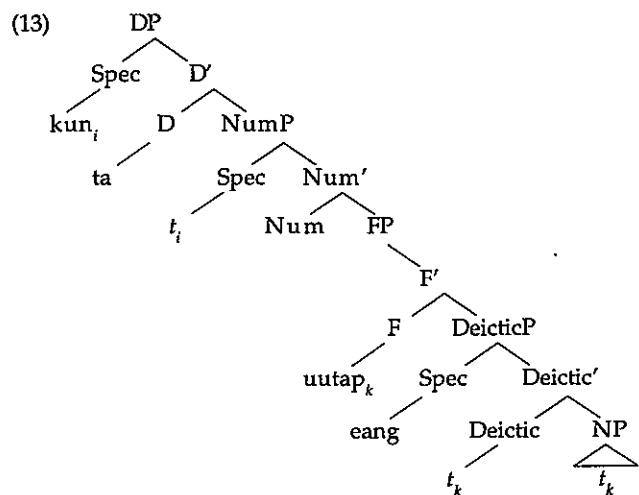
(12) illustrates that the numeral and the demonstrative *can* co-occur in Iaii. The demonstrative raises to check its referential features at LF where it may be adjoined to the Spec,DP filled by the numeral XP at PF.

The co-occurrence restriction assumed in the preliminary analysis was accounted for by assuming Brugè and Giusti’s (1996) proposal that demonstratives always raise to Spec,DP to check their [REF] feature. However, under the new analysis of numerals in section 2.2, the numeral raises to Spec,DP at PF. The demonstrative then raises to check its referential features at LF where it may be adjoined to the Spec,DP filled by the numeral XP at PF. Thus, this new analysis allows for numerals and demonstratives to co-occur within the same DP. The numeral checks its features before Spellout, while the demonstrative checks its features post-Spellout.

The data in (12) has a post-nominal demonstrative. On the assumption that all N-modifiers precede the noun, the surface ordering in (12) must be due to N-movement. I am assuming that this is N-movement as opposed to NP-movement based on Brugè and Giusti’s (1996: 24) claim that the demonstrative “can be crossed by N° movement. Furthermore, it cannot be crossed by XP movement” (emphasis added). Thus the (intermediate) DP structure I propose for (12) is seen below in (13):

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An alternative to *eang* is *aang*. However, it is important to note that, for our speaker, there are slight semantic differences between the demonstratives *eang* and *aang*. *Aang* is used when the item is close to the speaker, while *eang* is something slightly further away, and the speaker usually points to the object while mentioning it. However, it appears that in some contexts their meaning is identical. This distribution observation differs from Ozanne-Rivierre’s (1976: 186) account, which claims that the meaning of these two elements is the same. Thus, Ozanne-Rivierre classifies the two forms as allomorphs and suggests that their distribution is phonetically conditioned, with *eang* after vowels, while *aang* is after consonants or silence. But, note (12) in the text on this point. The various locative/demonstrative forms require further investigation.



Ford (1999) claimed that the noun raised *only* when the demonstrative was present and acknowledged that this movement is hard to motivate on these grounds. I now propose that N *obligatorily* raises to this target head (F°). Thus, post-nominal modifiers must occupy FPs that intervene between the underlying position of the noun (NP) and its target position (F°). We now need to analyse other elements in the DP to see if they provide support for obligatory N-movement. The next subsection provides a detailed analysis of possessive structures used in Iaii.

2.4. Possessives within the noun phrase.

Iaii distinguishes between direct possession and indirect possession. A complex system of classifiers is used to indicate types of possessive relationships if the possessed item is 'indirectly possessed'. That is, if the possessed item is not a 'kinship term, body part or another item closely related to the possessor' (thus not a direct relationship), then a classifier is used to indicate the relationship between the possessor and the possessee (Lynch 1998: 127). Lynch (1998: 126) states that 'many Micronesian and a few Melanesian languages' utilise this type of classification system. (14) illustrates the classifier system in Iaii:

- (14) a. a-n könying b. bele-n trii
 food.CLASS-his/her taro drink.CLASS-his/her tea
 'his/her taro' 'his/her tea (to drink)'

(Examples from Lynch 1998: 127-8)

The examples in (14) show that when a classifier is used, the pronominal suffix is attached to the classifier rather than to the head noun. However, as (15) shows, when there is a direct relationship between the

possessor and the possessed item (therefore there is no classifier), the pronominal suffix is attached to the head noun:

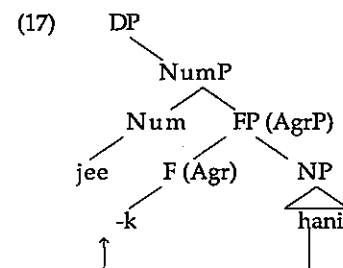
- (15) a. ba-n b. hani-k
 head-his/her sister-my
 'his/her head' 'my sister'

The examples in (15) illustrate movement of the noun, this is because the noun modifier (the possessor) occurs post-nominally. Due to the clitic nature of the pronominal affix, I am assuming that it is a head. The noun must raise to the left of this head to derive the N-Possessive surface ordering.

(16) indicates that the possessive head cannot be in D°, as the noun is raising to a position between the plural marker (Num°) and the functional head containing the clitic.

- (16) a. jee hani-k b. *hani-k jee
 p.m. sister-my sister-my p.m.
 'my sisters'

The structure represented in (17) is a preliminary structure for direct possessive phrases.



For economy reasons I am assuming that the FP that N° is raising to in (17) is the same as the FP in (13). This FP must have N-features which license the movement of the lexical noun (Culicover 1997: 362). I have suggested in the representation in (17) that an appropriate label for this FP is AgrP. This is because, in Iaii, there is strong agreement between pronominal clitics and their bases. The bases have morphophonemic alternations depending on the pronominal affix. However, this labelling is tentative in that further investigation of argument structures and agreement in Iaii main clauses could reveal more specific information about the true nature of this FP and thus an appropriate label. (17) demonstrates that the head noun raises and left-adjoins to the clitic head. Thus providing support for my claim that N-movement is obligatory. In the case of the examples in (14) including the classifier morpheme, the assumption will be that both the classifier and the possessive clitic make up an XP in the Spec,FP. Further

testing of this hypothesis is however required. We now need to investigate indirect possessives to see whether movement is involved in these constructions too.

In Iaa, indirect genitive phrases precede the noun if the classifier has a pronominal suffix attached, as seen above in (14) and below in (18):

- (18) a. anyi-k uutap b. *uutap anyi-k
 general.CLASS-my chair chair general.CLASS-my
 'my chair'

However, if the possessor is a proper noun then the genitive phrase may either follow or precede the head noun:

- (19) a. anyi Poo uutap b. uutap anyi Poo
 general.CLASS Poo chair chair general.CLASS Poo
 'Poo's chair' 'Poo's chair'

The data in (18) and (19) illustrate many things. Firstly, (19b) indicates that N-movement occurs with indirect possessives too. Due to N-movement occurring with demonstratives, direct possessives, and indirect possessives, we now have strong support for my claim that N obligatorily raises (to Agr°) in Iaa DPs. Thus on this assumption, the different surface orderings illustrated in (18) and (19) are derived by the genitive phrase either raising (18a and 19a), or not (19b).

The second factor illustrated in this data is that the genitive phrase with a pronominal suffix may raise above the noun before Spellout. This movement is to check features that the genitive phrase with a proper name may optionally check at Spellout. This phenomenon is also observed in the Polynesian language, Maori (Pearce 1998).

- (20) a. te rongoa a Mere b. taa Mere rongoa
 the medicine GEN Mere the.GEN Mere medicine
 'Mere's medicine' 'Mere's medicine'
- c. taana rongoa
 the.GEN.3sg medicine
 'his/her medicine' (Examples taken from Pearce 1998: 5.)

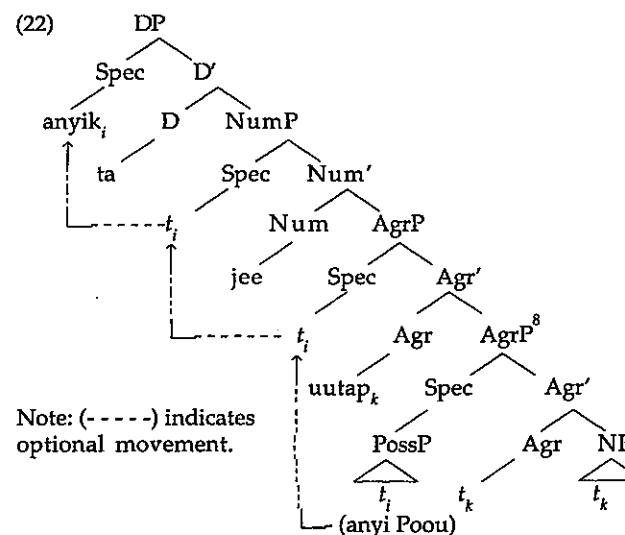
Pearce (1998: 6) states that "the genitive pronoun, [20c] ... usually occurs in the pre-head position (Bauer 1997: 403)" (emphasis added). Thus it is not obvious from her data whether in Maori, the post-nominal genitive pronoun is ungrammatical under certain conditions, or it is just uncommon.

Although Maori and Iaa exhibit similar types of movement with genitive phrases, the target position for the genitive phrase in Maori is different from that in Iaa. Pearce (1998: 10) states that, in Maori, "a genitive-marked constituent can raise to a position ... [above the moved head] but

below the D of the DP". The data in (21) illustrates that, in Iaa, the indirect pronominal genitive phrase can only move to Spec,DP:

- (21) a. anyi-k ta jee uutap
 gen.CLASS-my p.d.a. p.m. chair
 'my chairs'
- b. *ta jee uutap anyi-k
 p.d.a. p.m. chair gen.CLASS-my
- c. *ta jee anyi-k uutap
 p.d.a. p.m. gen.CLASS-my chair
- d. *ta anyi-k jee uutap
 p.d.a. gen.CLASS-my p.m. chair

The only grammatical position for the raised pronominal genitive phrase is above the article (D°), therefore, it must be raising to Spec,DP. The grammaticality ratings in (21) hold if the proper noun genitive phrase, *anyi Poo*, is substituted. However, the proper noun genitive phrase may also occur in the post-head position. (22) illustrates the DP-structure I propose for indirect genitive phrases:



⁸ I am aware that this Functional Projection may well be something other than an AgrP, but because this paper already pushes the strict limitations, and due to the purposes of this paper, I will not further examine the nature of this FP. For the present purposes, the important fact is that it is an FP that contains a PossP as its Specifier.

The Noun obligatorily raises to F° (= Agr) through Head-to-Head movement. If the genitive phrase has a pronominal affix, it must raise to Spec,DP prior to Spellout. If the genitive phrase has a proper noun, then it may raise to Spec,DP before or after Spellout.

If we assume that the genitive phrase is raising to check its [GEN] feature via Spec-Head Agreement with the D°, then the various surface orders can be accounted for by the strength of these features. Thus, the pronominal indirect genitive phrase must have strong features, and the proper noun indirect genitive phrase must have a weak/strong contrast in features. I am not sure on what grounds the specification of these features are based. There may in fact be slight interpretation differences between the pronominal and post-nominal proper noun genitive phrases, further research will reveal whether this is so.

This analysis implies that the genitive phrase containing an indirect pronominal always overtly raises to Spec,DP. However, there is an exception to this: complex possessive constructions containing an initial indirect pronominal do not overtly raise to Spec,DP (of the main DP):

- (23) a. uutap anyi-n hani-k
 chair gen.CLASS-3p.sg sister-my
 'my sister's chair
- b. *anyi-n hani-k uutap
 gen.CLASS-3p.sg sister-my chair
- c. uutap anyi-n hani Poou
 chair gen.CLASS-3p.sg sister Poou
 'Pou's sister's chair'
- d. *anyi-n hani Poou uutap
 gen.CLASS-3p.sg sister Poou chair

This suggests that complex genitive phrases (whether they include pronominal or proper noun constructions) have weak features. However, this creates a major discrepancy in my arguments. How can a pronominal genitive phrase have strong features on one occasion and weak ones on another? The ideal explanation would be one that maintained a consistent feature strength for the same type of constituent. Thus, an alternative explanation for (23) is that all pronominal genitive phrases are strong and overtly raise to Spec,DP, but do not raise from an embedded Spec,DP to a higher Spec,DP. The complex genitive phrase thus checks its feature specifications in the embedded Spec,DP. (And may then proceed to raise to the Spec,DP of the main DP at LF.)

This interpretation raises a further question for GEN feature checking: the contrast between the complex genitives of the type in (23) and the forms with the proper name, as in (19). The former do not raise overtly, whereas the latter raise optionally.

In the case of direct genitives, as in (17), the Spec,AgrP is non-overt. This Spec is in an agreement relation with the head of its phrase containing the overt enclitic pronominal. If the GEN checking requirement applies across-the-board, then the non-overt Spec,AgrP may have the features which force it to raise to Spec,DP at some stage of the derivation to satisfy this GEN checking requirement.

An alternative checking hypothesis would be that in these cases it is the whole XP (the AgrP housing the PossP in its Spec in (22)) that can raise (at LF) to Spec,DP. We would then claim that such XP raising would be valid only for LF-movement. The restriction is that raising to Spec,DP for PF applies only to XPs filling Spec positions. Further evidence for this explanation is the fact that the numeral is in a Spec and raises to Spec,DP overtly, and the demonstrative is in a Spec and raises to Spec,DP covertly. Thus my claim is that an element that raises to Spec,DP at PF must be a Specifier. This is not to say that all Specifiers raise to Spec,DP overtly. However, I do claim that all Specifiers raise to Spec,DP at some point of the derivation. Therefore, on this assumption, although I have claimed that the complex genitive constructions check their features in the embedded Spec,DP, the whole constituent in Spec,AgrP (see (22)) may still raise to the Spec,DP of the larger DP at LF.

These explanations regarding feature checking of genitive phrases in IaaI are quite possibly flawed in detail. And almost definitely need more research for any firm conclusions to be reached. Nevertheless, the extensive exploration of possessive constructions in this subsection has illustrated many important findings. N-movement is obligatory in IaaI DPs. Indirect possessive constructions with a pronominal affix always have a strong [GEN] feature and therefore must raise to Spec,DP at PF. Proper noun indirect genitive phrases raise to Spec,DP at PF if the features are strong, and if they are weak then movement is procrastinated until LF. I have proposed that indirect complex genitive constructions are in an embedded DP, and the Spec,DP of this embedded DP is the target for the genitive phrase to check its strong features, not the Spec,DP of the larger DP. However, in the main DP, the whole Specifier which contains this embedded DP may still raise to Spec,DP at LF. And finally, I have shown that the direct genitive phrase is an extended head, thus does not raise to Spec,DP and PF. I have claimed that in IaaI, only Specifiers can raise to Spec,DP overtly, thus the direct genitive phrase does not raise to Spec,DP overtly as this would involve full XP-movement of a constituent that does not fill a Spec position within the DP.

2.5. Summary of Section 2

This section has demonstrated many important findings. Firstly, *ta* is a plural definite article. This analysis had implications for the reanalysis of numerals. Namely, that numerals must raise to Spec,DP before Spellout. Data illustrating that the indefinite article and the numeral cannot co-occur was used to argue that the feature that the numeral is checking in Spec,DP is its [DEF] feature. The two subsequent subsections also illustrated movement

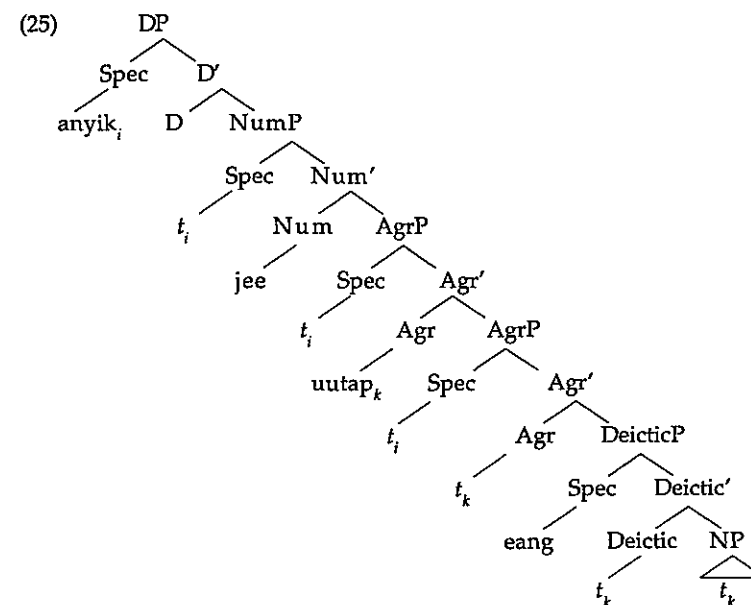
of Specifiers to Spec,DP. That is, the demonstrative (Spec,DeicticP) raises to Spec,DP at LF to check its [REF] feature. And genitive phrases also raise from a Specifier position to Spec,DP to check their [GEN] feature. This movement is obligatory at PF for indirect pronominal genitives (as they always have strong features) and optional for indirect proper noun genitives (as they can have strong or weak features). It was argued that direct genitive phrases do not raise to Spec,DP at PF because they are in a head position. Thus, I proposed that all Specifiers in Iaa, raise to Spec,DP to check their features. It would be ideal to look at other modifiers in the noun phrase to see when they raise to Spec,DP, but unfortunately I have insufficient data on quantifiers and adjectives to draw any relevant findings from them. However, there is still strong evidence presented in this section to support my claim that all Specifiers raise to Spec,DP in Iaa DPs. The next section will investigate what consequences this has for combining all noun modifiers. We have seen that the numeral and the demonstrative can co-occur in the same DP. I will now briefly explore whether the possessive and the determiner can co-occur and if the possessor and the numeral can co-occur. This analysis will provide further information toward a proposed underlying structure of Iaa DPs.

3. Complex noun phrases in Iaa

In section 2.3 it was illustrated that numerals and demonstratives can co-occur in Iaa. (13) represented the proposed structure for those DPs. In Iaa, the genitive phrase and the demonstrative can also co-occur in the main DP, as seen below in (24):

- (24) a. anyi Poou jee uatap eang
 gen.CLASS Poou p.m. chair here
 'the/these chairs of Poou's'
- b. anyi-k jee uatap eang
 gen.CLASS-my p.m. chair here
 'the/these chairs of mine'

In the examples in (24) the demonstrative can either represent general definiteness of the noun phrase, or it can act as a specific demonstrative. Either way the fact remains that the demonstrative and the genitive phrase can co-occur in Iaa. To derive the surface ordering found in (24), the noun raises to Agr^o at PF (see (22)), and then the genitive phrase raises to Spec,DP. However, the functional projection containing the genitive phrase must start out higher in the structure than the DeicticP to enable the grammatical surface order to be derived. If the functional projection containing the genitive phrase was below the DeicticP, the derivation would crash as Rizzi's Relativized Minimality would be violated. This is due to the presence of the demonstrative which can be considered an intervening (relative) governor for the trace of the genitive phrase. Thus I propose that the functional projection containing the genitive phrase is situated higher up the hierarchy than the DeicticP, as represented in (25):



We may now suppose that the demonstrative can move to check its weak [REF] features at LF by long distance movement. Thus, we have now seen that modifiers that need to raise to Spec,DP at PF (numerals and genitive phrases) can co-occur with modifiers that raise at LF (demonstratives). We need to now investigate if two modifiers that both need to raise to Spec,DP at PF can co-occur in Iaa. The examples in (26) illustrate that in fact they cannot co-occur:

- (26) a. *kun anyik ta uatap
 three gen.CLASS p.d.a. chair
 b. *anyik kun ta uatap
 gen.CLASS three p.d.a. chair

This co-occurrence restriction implies that D^o can only license one movement at PF. Thus, the demonstrative can co-occur with another modifier because the demonstrative checks its features at LF. Whereas, the numeral and the indirect genitive phrase cannot co-occur as they both have strong features that need to be checked at PF, and D^o can only license one movement at PF. This is similar to Pearce's (1998: 13-14) proposal for Maori. However, in Maori, the derivation does not crash if both constituents (in her case the demonstrative and the possessive) are present, but rather the constituent that is closer to the target position for feature checking (the demonstrative) raises, and the other constituent (the possessive) then checks its features at LF.

To include both types of modifying expressions with strong features (numerals and genitive phrases) in Iaa, a relative clause construction is used:

- (27) anyi-k jee uutap [(ejii) a kun]
 gen.CLASS-my p.m. chair [(there) which three]
 'my three chairs'
lit: 'my chairs which are three'

(27) also illustrates that there is a preference in Iaa for the possessive to occur in the main DP rather than the numeral. I am uncertain of an explanation for this but I suspect this is because the possessive shares some kind of tighter relationship with the lexical head than the numeral does. The argument structure of Iaa clauses would have to be investigated to confirm or dispute this. An alternative construction is that both modifiers can occur in relative clauses:

- (28) a. jee uutap [a kun] [(ejii) a anyi-k]
 p.m. chair [3Sg three] [(there) which gen.CLASS-my]
 'my three chairs'
lit: 'chairs which are three which are mine'
- b. *jee uutap [(ejii) a kun anyi-k]
 p.m. chair [(there) which three gen.CLASS-my]

I conclude that (28b) is in line with the proposal that Spec,DP can only license one movement at PF. Hence, each modifier with strong features must occur in its own DP in Iaa. (29) supports my argument in section 2.4 that complex genitive phrases are distinct from indirect pronominal genitives: the contrast in the cooccurrence possibilities, (28b) versus (29), shows that these two different kinds of genitives are distinct in their syntax even in predicative positions inside relative clauses. The precise details of the nature of the constructions inside relative clauses, however, need to be further elaborated.

- (29) jee uutap [(ejii) a kun anyin hani-k]
 p.m. chair (there) which three gen.CLASS-3sg sister-my
 'my sister's three chairs'

Here the numeral and the complex genitive phrase can co-occur within the same DP because the genitive phrase *anyin hani-k* is in an embedded relative clause. (30) also offers support for my proposal that proper noun genitive phrases can have strong or weak features.

- (30) jee uutap eang [(ejii) a kun anyi Poou]
 p.m. chair dem [(there) which three gen.CLASS Poou]
 'these three chairs of Pou's'

Because the numeral and the proper noun genitive phrase co-occur in (30), I am assuming that the genitive phrase *anyi Poou* has weak features

when the numeral is present. Chomsky's Minimal Link Condition (1995: 311; cited in Culicover 1997: 353) can account for why it is the numeral that checks its features at PF rather than the proper noun genitive phrase. This condition claims that if two elements can both check off a feature in the head (in our case, D^o), then it is the closer one that moves. Thus in (30), because the numeral is closer to D^o in the underlying structure, it moves to Spec,DP at PF, the complex noun phrase then procrastinates its movement until LF.

In summary, this section has illustrated that in Iaa, D^o can only license one overt movement. Hence, it was argued that each DP in a complex noun phrase can only have one modifying expression with strong features. If the noun phrase needs to include modifiers that both have strong features, and one of these does not have the option of weakening, then a relative clause construction is used. It was argued that both the numeral and the indirect pronominal genitive phrase have strong features that cannot weaken. The indirect proper noun genitive phrase has the option of its features being weak or strong. If a numeral is present in the immediate DP, the pronominal genitive phrase must weaken its features.

4. Conclusions

This paper has illustrated many significant findings. Overall, it supported the conclusion found in the preliminary report that not only are the DP-hypothesis and Kayne's Antisymmetry framework applicable to Iaa noun phrases, but they seem to be the correct frameworks for representing them. It also supported the preliminary report conclusion that, MP principles such as: all movement occurs for the purposes of feature checking; agreement takes place through a Spec-Head relationship; and features are specified for strength (thus dictating their movements), are also beneficial for studying Iaa noun phrases.

The specific findings of this detailed analysis of Iaa DPs are: firstly, that there is obligatory movement of the noun, in Iaa, to a target head (Agr^o in (17), (22), and (25)) above the functional projections containing the genitive phrase and the demonstrative. Thus, this AgrP must be in the most basic DP in Iaa. Secondly, all Specifiers raise to Spec,DP at some point of the derivation. This proposal accounted for the distribution of Noun modifiers in this paper. Noun modifiers with strong features cannot co-occur in an immediate DP unless one of the modifiers features has the option of weakening. Relative clause constructions are needed if two modifiers with strong features are used in a Iaa noun phrase.

I am certain that future research in Iaa will have implications for some of the content of this paper. Due to time limitations with our Iaa speaker, and due to the limitations on this paper, areas that would be beneficial for supporting or disputing the proposals in this paper were not able to be investigated. Influential areas may prove to be, the overall clause structure, case assignment, theta-roles, and specificity and definite

interpretations of IaaI data. However, the detailed analyses of the wide range of data investigated in this paper do provide strong support for the specific proposals put forward in this paper.

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Transitivity, Incorporation and Animacy in IaaI*

Elizabeth Pearce

Abstract

Syntactic incorporation processes are arguably available as an outcome of a particular configurational relation between two heads. In this paper, an analysis of data from two Oceanic languages, IaaI and Fijian, shows that, in an identical syntactic relation, that of verb and direct object, incorporation is dependent on the content of the highest head in the direct object constituent. The heads that incorporate may be Ns or Ds but they must have content which is not purely grammatical or functional. Heads that are purely grammatical or functional do not incorporate. The incorporating heads thus bear intrinsic lexical features. It is possible that the proposed featural content distinctions should be viewed as instantiating the categorial versus ϕ -features divide proposed in Chomsky (1995).

1. Introduction

Transitive verbs in IaaI and in Fijian have distinctions in their morphological form which match with the class of the object and with whether or not the object incorporates to the verb.¹ In this paper I undertake an investigation of the phenomena, focusing on IaaI in which the distinction is three-way, contrasting with a two-way distinction in Fijian. The combined analysis of the data from the two languages leads to the conclusion that object incorporation in these two related languages is determined by the content of the head element of the direct object constituent. In particular, only a head with semantic content can incorporate

* This paper is an extended version of a paper presented at the Australian Linguistic Society 2k meeting held in July 2000 at the University of Melbourne. Thanks to Samuel Wadjeno for his support and for his contributions with respect to the IaaI data. Thanks to my colleagues at VUW for their support in enabling us to mount a Field Methods course, and to Chris Lane, Juan Romero and Patrizia Facioni for helpful comments and discussion. Special thanks to Françoise Ozanne-Rivierre for comments and encouragement and for her generous contribution of IaaI materials. I alone am responsible for any errors of fact or interpretation.

¹IaaI is spoken on Ouvéa in the Loyalty Islands. IaaI and Fijian are both classified as Remote Oceanic languages within Austronesian, with IaaI belonging to the New Caledonia subfamily and Fijian in the Central Pacific subfamily. IaaI is most closely related to other Remote Oceanic languages of the Loyalty Islands and New Caledonia (Tryon 1995, Ross 1995, Grimes et al. 1995).

to the verb. Heads which are purely grammatical or functional are excluded from incorporation.

The first part of the paper identifies and then analyses the syntax of the transitivity alternations in Iaa. Section 2 presents the data showing how there are three classes of direct object matching with a three-way distinction in verb form. This section also provides a sketch of the morpho-phonological alternations in verb form and shows how the linear sequencing evidence leads to the conclusion that incorporation applies in two of the verb classes. Section 3 undertakes the analysis of the syntactic conditions that distinguish between the incorporating and non-incorporating object types. In section 4 the two-way transitive verb distinction of Fijian is compared with the three-way distinction of Iaa. This comparison provides evidence supporting the interpretation argued for in the previous section that articles or Ds with purely grammatical function do not incorporate. The conclusion to the paper is in section 5.

2. Three classes of construction

2.1. Verb form and direct object characterization

The three transitive constructions in Iaa have distinct morphology and distinct types of direct object as shown in (1). The table in (1) shows the different object types in the three constructions. The class labels in (1) are translations of the designations in Ozanne-Rivierre (1976: 134-137). In the remainder of the paper I will refer to the different constructions as 'Class I', 'Class II' and 'Class III'.

(1)	Class	Direct object
I	<i>Determinate:</i>	common noun phrase or non-overt 3rd person or clause complement
II	<i>Personal:</i>	proper name or pronoun
III	<i>Indeterminate:</i>	non-specific noun

The examples in (2) - (6) illustrate the distinctions with the verb *kot* 'hit'.²

(2)a.	<i>A-me kot.</i>	Class I
	3SG-PROC hit	
	'He is hitting something/him/her/it.'	

²Iaa data which is otherwise unreferenced has been supplied by Samuel Ukewea Wadjeno. Referenced sources of Iaa data are identified as follows: Cako me Uny = Pearce and Wadjeno (2000), Ciau = Rivierre et al. (1980), CLO = Sam (no date), Dict = Ozanne-Rivierre (1984), Gram = Ozanne-Rivierre (1976), Gugu = Rivierre et al. (1980), Joël Mau = Ozanne-Rivierre (no date), Moju = Waheo (1989).

I use the orthography detailed in Ozanne-Rivierre (1976, 1984), Lynch et al. (forthcoming). Non IPA vowel symbols are: *â* = /y/, *ô* = /ə/, *û* = /ɔ/. Among the consonants: *tr/dr* are retroflexes and *c/j* are palatal affricates. Non-standard glosses include: COLL = Collective, COMP = Complementizer, COMPL = Complete, DU = Dual, PAUC = Paucal, PF = Perfect, PROC = Process, PROG = Progressive, PUNCT = Punctual, TR = Transitive.

- b. *A-me kot tep.*
3SG-PROC hit rat
'He is killing the rat.'
- c. *A-me kot ke tep.*
3SG-PROC hit INDEF rat
'He is killing a rat.'

- (3)a. *A-me kuc u.* Class II
3SG-PROC hit 2SG
'He is hitting you.'

- b. *A-me kuc Poou.*
3SG-PROC hit Poou
'He is hitting Poou.'

- (4) *A-me xuc tep.* Class III
3SG-PROC hit rat
'He is killing rats./He is rat killing.'

In (2) - (4) the verb *kot* 'hit' has three distinct forms: *kot*, *kuc*, *xuc*. In the Class I construction with *kot*, in (2a) the object is non-overt and has specific interpretation. Similarly, in (2b,c) the object, which is overt, is also specific. In the Class II construction with *kuc*, in (3a) the object is an overt pronoun and in (3b) the object is a proper name. In the Class III construction with *xuc* in (4), the overt object is assigned a non-specific, or kind, interpretation.

The examples in (5) and (6) show contrasting forms with the verb *sumatâ* 'ask': *sumatâ* in Class I and *sumatöö* in Class II. The Class I form *sumatâ* in (5) has a clause complement and the Class II *sumatöö* in (6) has an overt pronoun object.

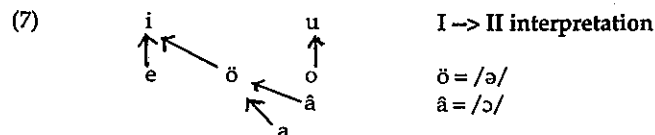
- (5) *sumatâ [me e-me he ka hna but li*
ask that 3SG-PROC go to abandon COMPL DU
gugumelan]
Gugumelan
'(and) ask that he abandon the two Gugumelan' [Gugu 22]
- (6) *A-me sumatöö nya*
3SG-PROC ask 1SG
'He asks me.' [Dict]

To sum up: in the data in (2) - (6) we have seen how the different types of direct object indicated in (1) match up with a three-way distinction in the forms of the transitive verb.

2.2. Phonology

Does the phonology provide clues as to the underlying forms and functions of the verb morphology?

There are a number of complexities in Iaa verbal morphology but some systematic patterns are discernible in the distinctions in the three verb classes. The vowel alternations suggest a harmony consistent with an original /i/ suffix not present in Class I, but present in Class II and sometimes Class III as well. The alternations are schematized in (7), with some examples given in (8).



The vowel alternations for Class I versus Classes II and III in (8) match with the interpretation that is shown in (7) (aside from some length distinctions):

(8)	I	II	III	
	<i>tubwe</i>	<i>tubwii</i>		'cover'
	<i>sö</i>	<i>sii</i>	<i>sii</i>	'cut/slice'
	<i>kot³</i>	<i>kuc</i>	<i>xuc</i>	'hit'
	<i>kotr</i>	<i>kutr</i>	<i>xutr</i>	'wipe'
	<i>dââ</i>	<i>döö</i>	<i>döö</i>	'prick'
	<i>kââtr</i>	<i>köötr</i>	<i>xöötr</i>	'catch'
	<i>kap</i>	<i>köp</i>	<i>xöp</i>	'welcome'

In a large number of cases, the vowels in the Class II and Class III forms are identical (as in (8)), but that this is not always so is apparent from the forms included in (9).

(9)	I	II	III	
	<i>lee</i>	<i>lii</i>	<i>leû</i>	'grill/burn'
	<i>senâ</i>	<i>senöö</i>	<i>sen</i>	'visit'
	<i>an</i>	<i>ön</i>	<i>han</i>	'eat'
	<i>ca</i>	<i>cöö</i>	<i>ce</i>	'attach'
	<i>hna</i>	<i>hnöö</i>	<i>hne</i>	'leave/swallow'
	<i>ûca</i>	<i>ûcöö</i>	<i>hûce</i>	'choose'

³Although the /t~f/ alternation (c = /f/) is also suggestive of palatalization due to an earlier /i/ suffix, as far as I can tell, *kot* is the only Class I verb with final /t/. Some other verbs exhibit a reverse effect:

(i)	I	II	III	
	<i>nooc</i>	<i>nook</i>	<i>hnook</i>	'attach'
	<i>oc</i>		<i>uok</i>	'snatch/pull out/up'

Classes I and II may include a suffix not present on the Class III form:

(ii)	I	II	III	
	<i>vödren</i>	<i>vödriñ</i>	<i>hvëêtr</i>	'carry on the shoulder'
	<i>kânâm</i>	<i>könim</i>	<i>xôn</i>	'bury'

There is, however, some regularity in the shape of the initial consonant in the Class III forms. The spirantization, or fricativization, of the initial consonants in Class III has been shown by Ozanne-Rivierre (1986) to have derived from an earlier reduplication, with loss of reduplicated vowel, leading to initial geminate consonants. The geminates became aspirated, leading to the derivation of the fricatives now observed. The earlier reduplication could have marked an aspectual distinction, which, for the Class III type, could have been associated with an 'activity' meaning: 'killing rats' as distinct from an event interpretation assigned to the other classes: 'killed the rat' (Class I) and 'hit Pouu' (Class II).

The phonological processes indicated in (7) take the Class I form as the base form, suggestive of an *i* suffix increment for Class II (and Class III), for example. It is not inconceivable, however, that an alternative account is available. Whatever the exact origins of the differences in the forms for the three classes, they now appear to be synchronically opaque, given the irregularities for Class III and given that not all transitive verbs show the full range of the morphological alternations.

Thus, although clear and intriguing phonological patterns in the morphological alternations have been detailed in Ozanne-Rivierre (1976, 1986), it is not clear whether these patterns reflect synchronically transparent morpho-syntactic processes. Whilst the patterns are intriguing, especially in terms of evidence for historical reconstruction, in the absence of a systematic synchronic analysis of the phonological alternations, I restrict my focus in this paper to the analysis of the more transparent synchronic morpho-syntactic effects.

2.3. Linear sequencing

Aside from the differences in the morphological forms of the verbs in the three classes and the differences in the object type in each of these classes, there is also a two-way syntactic distinction: in Class I the direct object is separated from the verb, whereas in both Classes II and III the direct object forms a unit with the verb. Thus, for example, an aspectual particle which may be the final element of the verbal group follows a Class II or III object, but precedes a Class I object:

- Class I
- (10)a. *a-me an dhö jee wââ*
 3SG-PROCESS eat PUNCT PL fish
 'he ate the fish'
- b. *dââ but wââ*
 prick COMPL fish
 'Prick the fish!' [Gram 147]
- c. *a-me uny jut anyin ûxaaû*
 3SG-PROCESS take off COMPL his shirt
 'He is taking off his shirt' [Gram 229]

- d. *ke ödra ka hom thidhō wanakat*
and 3PL SIMUL take PUNCT child
'and they took the child' [Ciau 86]

Class II

- (11)a. *me tubwii ödrin but*
and cover 3-PAUC COMPL
'and (it) covers them up' [Joël Mau 12]
- b. *kuc ödrin dō*
strike 3PAUC PUNCT
'Strike them!' [Gram 147]
- c. *a-me ka kuc Pou thibut*
3SG-PROCESS SIMUL hit Pou COMPL
'and he hit Pou' [Moju 97]
- d. *oge oo u dhō*
1SG see 2SG PUNCT
'I've found you' [Cako me Uny 9]

Class III

- (12)a. *a-me han wāā dhō*
3SG-PROCESS eat fish PUNCT
'he ate fish'
- b. *mw-ödrin sitr eet lö kâu*
and-3PAUC make net PUNCT INSTR
'and they made nets with it' [Moju 93]
- c. *me hwenyii ien thidhō me "Oûang"*
COMP give name PUNCT with Oûang
'that (they) called "Oûang"' [Moju 25]

The linear ordering contrast between the Class I examples in (10) and the Class II and III examples in (11) and (12) with respect to the position of the object relative to the aspectual particle suggests that, in the Class II and III constructions, the verb incorporates the head of the direct object whereas in the Class I construction it does not.

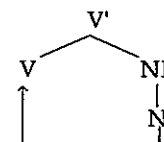
In section 3, I undertake the analysis of the syntactic conditions for such incorporation effects.

3. Constituent structures of direct objects

3.1. Noun Incorporation (N-Incorporation)

Following Baker (1988), Hale and Keyser (1993) and others, we may suppose that the Class III construction may be structurally viewed as an instance of N-incorporation from a simple NP complement, as:

(13)



The surface ordering of the V+N sequence, such as in (12a), is then derived through raising of this sequence out of the VP:

- (14) [IP *a-me han wāā_i/j dhō* [VP *t_j t_i*]] [= (12a)]

The Class III construction in Iaaï does not admit of N modification. In addition to the absence of pre-N articles in this construction, neither pre-nor post-modification may apply:

- (15)a. *A-me kot oong tep.*
3SG-PROC hit little rat
'He is killing the little rat.'
- b. **A-me xuc oong tep.*
3SG-PROC hit little rat
'He is killing little rats'
- (16)a. *A-me kot jee tep ejii adre-me han wāā.*
3SG-PROC hit PAUC rat there 3PAUC-PROC eat fish
'He is killing (the) rats that eat fish.'
- b. **A-me xuc tep ejii adre-me han wāā.*
3SG-PROC hit rat there 3PAUC-PROC eat fish
'He is killing rats that eat fish.'

The diminutive *oong* is one of a restricted set of four modifiers which may precede the N (Ozanne-Rivierre 1976: 184), contrasting with other forms of modification which occur as relative clause constructions. For the grammaticality contrast in (15) and (16), it is seen that only a bare N may be present in the Class III construction. These facts suggest that the incorporating N is merged either as a simple N or within an NP structure as suggested in (13).

If we assume with Hale and Keyser (1993) that a Lexical Relational Structure is associated with the tree-building process applying to a phrase containing the verb *shelve*, for example, in English, then it becomes somewhat of a moot point as to whether we regard the incorporation structure as proposed for Iaaï as lexical or syntactic and/or whether we consider the noun as a simple N or as an N merged in an NP. However, if we regard the Lexicon as the repository of idiosyncratic information, then there is some reason to suppose that, because some Iaaï V-N units are restricted and because others appear not to be, there must be some V-N units which should be treated as lexical compounds whilst other V-N units are formed in the course of the syntactic derivation either as the result of movement after merge of an NP, or as direct merge of a simple N.

There are two kinds of cases of V-N sequences in Iaii which have the hallmarks of being lexical rather than syntactically derived. On the one hand there are V-N sequences which appear to be fixed expressions, and on the other hand, certain V-N combinations can receive a transitivity suffix to then occur with a fully argumental direct object.

Ozanne-Rivierre (1976: 203-4) identifies seven verbs which occur only in a Class III construction: four of these verbs occur only as fixed forms admitting of no other combinations; a further three verbs occur with a variety of Ns:

(17) Fixed V-N expressions

<i>hii nu</i>	'grate coconut'
<i>hune nõng</i>	'chase flies'
<i>hõu ot</i>	'pull out straw'
<i>se kõiö⁴</i>	'go looking for water'

(18) Vs occurring only in V-N expressions

a. <i>bii sahaac/ tõõ/ hwaaban</i>	make tuber cord X's replacement/price
(i) (ii) (iii)	
(i) 'prepare ingredients for pot'	
(ii) 'make rope'	
(iii) 'replace someone'/'pay something'	
b. <i>heleû an/ utõõ</i>	'look for food/wood'
go look for food wood	
c. <i>hook wiiny/ wanakat</i>	'steer the boat'/'transport children'
take rudder child	

[Ozanne-Rivierre 1976: 203-4]

If fixed forms are distinct from free combinations it seems appropriate to encode the distinction between these two types of expressions as lexical versus syntactic. The interpretation that at least some of the V-N units are syntactically derived will also fit with the incorporation account that I will propose for the Class II constructions in which the incorporated element must have lexical and/or semantic content.

The other kind of V-N Class III constructions which indicates that certain of the V-N units could be lexical are those which can take the transitivity suffix:

- (19)a. *A-me xaû wanakat.*
3SG-PROC slap child
'He slaps the child.' [Dict]
- b. *A-me xõûxõû hnyaam.*
3SG-PROC tap.REDUP palm
'He applauds.' [Gram 135]

⁴It is possible that *se* in fact belongs in the (18) group since Ozanne-Rivierre (1984) also lists *se lakeny* 'go looking for yam roots'.

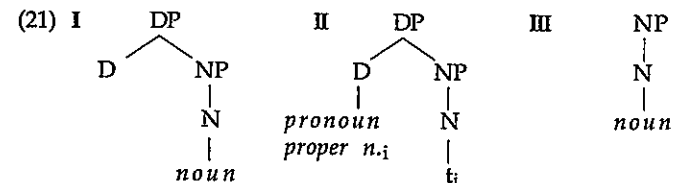
- c. *A-me xõûxõû hnyaam-â ke xumwõng.*
3SG-PROC tap.REDUP palm-TRANS INDEF song
'He applauds a song.' [Gram 135]
- (20)a. *xuc bwõõ*
hit leaf
'spit leaves' (medicinal technique)
- b. *A-me xuc bwõõ-â ke komok.*
3SG-PROC hit leaf-TRANS INDEF sick person
'He treats a patient by spitting leaves.' [Gram 231]

In (19a) *xaû* is the Class I form of the verb 'tap'/'slap', contrasting with the Class III (reduplicated) form *xõûxõû* form in (19b). In (19c) the addition of the transitivity suffix to the Class III V-N unit creates the verb form for the Class I construction including the specific direct object. Similarly in (20) a Class III V-N unit is transitivity in (20b).

In presenting the two examples, (19c) and (20b), Ozanne-Rivierre (1976: 135, 231) states that the transitivity observed in these examples can apply to Class III units in certain cases. Aside from the idiom-like nature of these two examples, if the transitivity process may apply only to certain V-N Class III units, then the argument advanced with respect to the restricted form verbs applies here as well. Namely, the V-N units which can be transitivity would be formed in the Lexicon, whereas the non-transitivity V-N units may be syntactically derived. In the case of the latter interpretation, if the tree building computation does not allow for one head to merge against another head, then the NP solution should be the one adopted.

3.2 Incorporation and referential expressions

In section 3.1 it has been proposed that (non-idiomatic) verb-object units of the Class III construction are derived through the incorporation of the N of a bare NP object. The Class III NP objects are in clear contrast with the full DP common noun phrase objects of Class I. How then do we distinguish syntactically the DP objects of Class I from the objects in Class II which, as pronouns or proper names, should also be DPs? My proposal as to the relevant syntactic distinctions is shown as the contrasting structures for the three types of objects in (18).



In (21), the Class III object is distinct from the objects in both Classes I and II in that it is housed in a simple NP. The objects in both Classes I and II are

DPs rather than NPs, but Class I and Class II differ from each other for the content of their D heads.

The D head in (21II) is shown as containing two different kinds of elements: pronouns or proper names. For the placement of pronouns in the D head position, I follow the arguments of previous work, dating from Postal (1966) and extending to Longobardi (1994) and Uriagereka (1995) among others, that pronouns are Ds rather than Ns. In the case of the proper names, Longobardi (1994) has shown that whilst there are a number of languages in which an N may raise to the D position (see also Giusti 1993, Brugè and Giusti 1996), in some languages such N-to-D raising may be restricted to proper names. The kind of positional evidence that Longobardi adduces in support of his N-to-D raising account can be seen in the Italian dialect of (22).

- (22) Italian
 a. *il mio Gianni*
 the my Gianni
 'my Gianni'
 b. *Gianni mio*
 c. **mio Gianni*

[Longobardi 1994]

For the data in (22), Longobardi argues that when the article is not present the proper name must raise to the D position, accounting thus for the grammaticality contrast (22a)/(22b) versus (22c).

The kind of positional evidence seen in (22) is not available for Iaaï in which the proper name may not ever be preceded by articles, modifiers or possessives (Ozanne-Rivierre 1976: 155). Pronouns and proper names are comparable in this respect in Iaaï (as are also a subset of familial nouns). Since the pronouns and proper names are also parallel syntactically in that both of these kinds of elements may occur as objects only in the Class II construction, I conclude that, in Iaaï, both pronouns and proper names are correctly interpreted as filling the D position. This may be syntactically interpreted as direct merge in D for the pronouns and as raising to D for the proper names.

Importantly, the (21II) interpretation also provides a way for understanding the apparent common syntactic behaviour of the object in Classes II and III. Whereas the N head of the NP constituent incorporates in Class III, in Class II it is the D head of the DP constituent that incorporates. That is, in both classes it is the highest head of the object constituent that incorporates to the verb.

We now have two out of three constructions in which the highest head of the complement incorporates to the verb. Can this account be extended to the remaining Class I construction?

3.3 Class I common noun phrase objects

An across-the-board treatment of head-incorporation for all three classes of construction would require that the D of the DP constituent in (21I) incorporates to the verb. Since there is no visible evidence of such incorporation, such an incorporating D would need to be non-overt. The hypothesis can be stated as follows:

- (23) Generalized Head-incorporation: verb and direct object
 Class I: empty D incorporates
 Class II: overt D incorporates
 Class III: N of NP incorporates.

The extension of head-incorporation to the Class I construction requires that the common noun phrase object has an empty D. Whilst it is the case that the singular definite object has no overt determiner (as in (2b) above), there are other article-like elements which are potential candidates for filling the D position. These are set out in the table in (24).

(24) Articles

	SG	DU	PAUC	PL
Definite	-	<i>li</i>	<i>jee</i>	<i>ta, ta jee</i>
Indefinite	<i>ke</i>	<i>ke li</i>	<i>ke jee</i>	<i>ke ta jee</i>

[Ozanne-Rivierre 1976: 182]

The systematic contrast between the definite and indefinite forms in (24) suggests that, if D is the location for the [+/-def] characteristic, then D is overt *ke* when the phrase is indefinite, but non-overt when the interpretation is definite.

The conclusion that *ke* is in D is supported by the results of a detailed investigation of Iaaï DP-internal structure carried out in Ford (1999). In the dialect that she examined, *ke* and *ta* do not cooccur and the parallel positioning of these two items leads Ford to the conclusion that both are positioned in the D head of the DP. Whilst this conclusion for *ta* is not necessarily applicable to the dialects forming the basis of the study by Ozanne-Rivierre, the conclusion with respect to *ke* lends further support to the view that *ke*, an indefinite article, is situated in D.

Under the analysis that *ke* is in D, the empty D-incorporation hypothesis cannot be maintained, given:

- (25) *ke ka lölö thidhā ke venyā a e hlitr*
 and then pull up PUNCT INDEF eel which 3SG black
hnalimen ke e āhnyikong
 colour and 3SG little
 'and pulled up an eel which was black and little' [CLO 64]

In (25) the common noun phrase object including the *ke* determiner is preceded by the aspectual particle *thidhö* and does therefore not form a constituent with the verb.

We thus conclude that D-incorporation does not apply to common noun phrase objects and that (23I) cannot be maintained as an analysis of the Class I constructions.

3.4 Class I pronoun objects

The common noun phrase is one type of object occurring in the Class I construction. Another type of object in this construction is a non-overt pronoun. The fact that non-overt pronouns are interpreted in Class I constructions, rather than in Class II constructions like their overt counterparts, suggests that the non-overt pronouns do not incorporate (i.e., non-overt pronouns behave like bare Ds).

There is in effect one instance of an overt pronoun occurring in the Class I construction. This is the *wh*-pronoun which has distinct class membership depending on whether it has human reference or not.

The *wh*-pronoun object with non-human reference occurs in the Class I construction whereas a *wh*-pronoun object with human reference occurs in the Class II construction:

- (26)a. *Ieñ u mwe wâ?*
 what 2SG PROC see
 'What do you see?'
 b. *U mwe oo iaa?*
 2SG PROC see who
 'Who do you see?'

[Gram 145]

In (26a), the verb 'see' has the Class I form *wâ* and the non-human object is fronted. In (26b) the verb has the Class II form *oo* (see also (11d)) and the [+human] *wh*-pronoun must immediately follow the verb.

In multiple *wh*-questions, where the direct object with nonhuman reference may fail to prepose, the Class I/Class II distinction is still maintained:⁵

- (27)a. *Iaa a me an ieñ?*
 who 3SG PROC eat what
 'Who is eating what?'
 b. *Iaa a me ðn iaa?*
 who 3SG PROC eat who
 'Who is eating who?'

⁵In both (27a) and (27b) the *wh*-subject is preposed, since the unmarked surface constituent ordering in Iai is VOS.

The verb 'eat' is in the Class I form *an* in (27a), but in (27b) it has the Class II form *ðn*.

The crucial fact that is illustrated by the data in (26) and (27) is that *wh*-pronouns have distinct class membership according to whether or not they have human reference. This means that, for both the *wh*-phrase and the common noun phrase in the Class I construction, we may propose the following generalization:

- (28) The D of the direct object in the Class I construction is non-human referring.

The statement (28) is however inadequate in that it does not take into account the use of the Class I construction with a non-overt object which may or may not be human referring. Taking the non-overt objects into consideration as well, we might rephrase (28) as (28)':

- (28)' The D of an overt direct object in the Class I construction is non-human referring.

The statement (28)' is more accurate than (28) on the assumption that the non-overt 3SG pronoun may have a D head with [+human] features. But we do not have to assume that this is the case if the empty pronoun is merged as a 3rd person expletive, a *pro*, to which further features ([+/-human], [αnumber], . . .) are supplied in the LF component through antecedent binding or through extra-sentential discourse matching. In other words, an overt pronoun can carry [+human] features but the non-overt pronoun does not. The tree building component, in terms of both merge and move, is dependent on the features which are present in the elements of the lexical array. If it is correct to assume that the incorporation takes place prior to the raising of the V into the IP area, following the Phase proposals of Chomsky (1998), this interpretation is consistent with the notion that the computation has access only to features which are available at its *vP* Phase.

In (29a) below the *pro* object of Class I *hadruâ* 'help' is supplied with its [+human] interpretation at LF by antecedent-binding. In (29b) with Class II *hadruöð*, antecedent-binding goes through since the features of the antecedent and the pronoun object are matching (*jee wanakat* and *ðdrin* are both [+human] and [+paucal]).

- (29)a. *Haba daa eang oge-e hadruâ me e gaan.*
 as for boy this 1SG-COMPL help COMP 3SG big
 'The boy that I helped was big.'
 b. *Haba jee wanakat oge-e hadruöð ðdrin me ðdrin*
 as for PAUC child 1SG-PROC help 3PAUC COMP 3PAUC
gaan.
 big
 'The children that I helped were big'

In Iaa, only the non-singular personal pronoun objects are overt. The non-overt pronoun is simply 3rd person and further referential interpretation is supplied through the interpretive component. The 3rd person object pronoun system including *wh*-pronouns is as follows:

(30)	Direct object (3rd person)					
		SG	DU	PAUC	PL	WH
	+human	-	<i>ōdra</i>	<i>ōdrin</i>	<i>ōdra</i>	<i>iaa</i>
	-human	-	-	-	-	<i>ieū</i>

Two further illustrations of the properties of non-overt pronouns are given in (31) and (32). The example in (31) shows the binding of a *pro* object by a [-human] [+paucal] antecedent and in (32) by a grammatically singular collective antecedent:

(31)	<i>Haba jee thaātūnyi oge-e hneū ge usop me</i>
	as for PAUC thing 1SG-COMPL wash with soap COMP
	<i>anyin hinyōk.</i>
	POSS.3SG mother.3SG
	'The things that I washed with the soap are my mother's'

(32)	<i>ōdru-mwe caa hnyi hlingā la-kei Draume me Ihili</i>
	3DU-PROC NEG also kill COLL-subject D. and I.
	<i>ka thāān me an</i> [Gugu 17]
	to cook in oven and eat
	'they (two) did not kill the subjects of Draume and of Ihili in order to roast them and eat them'

In (31) the *pro* object of the Class I *hneū* 'wash' is bound by *jee thāātūnyi* 'things'. In (32), although the understood objects of *thāān* 'cook in oven' and *an* 'eat' are interpreted as both human and plural, both verbs are in the Class I form as the objects refer back to *lakei*, a collective noun with a D lacking the relevant human/number features.

In summary, what we find as the crucial distinction between Class I objects and Class II objects is that the latter, but not the former, must have some intrinsic semantic content. Suppose we then identify the differences in terms of the Class II requirements as follows:

- (33) The D of a Class II construction must be overt and must have semantic content.

The 'semantic' content in (33) may be individual identifying, as in the proper name case, and/or it may have specific 'human' designation, as with the overt pronoun. Functional or quantifying elements such as determiners and *wh*-features do not count as 'semantic' in these terms.

The Class II elements that incorporate to the verb are therefore in some sense contentful, but the elements in Class I, which do not incorporate, although they derive specific reference interpretation, do not manifest other

semantic content. The common characteristic of Classes II and III is that in both of these classes the objects manifest semantic content, whether they are Ds or Ns.

The 'semantic'/'nonsemantic' divide that is intended here would appear to correspond to a lexical/functional divide for specific types of heads and/or features. The array of possibilities, however, may be submitted to a finer grained analysis when we take into account the four-way classification of types of features identified in Chomsky (1995):

- (34) Types of features (Chomsky 1995: 277)
- categorial features
 - ϕ -features
 - Case features
 - strong F, when F is categorial.

Aside from the issue of determining exactly which features fall into which of the types in (34) (Chomsky 1995: 277 notes that "the empirical facts plainly require much closer scrutiny over a far broader range"), the distinctions identified in (34) are cut across by two further properties: (i) the interpretable/uninterpretable distinction and (ii) the intrinsic versus non-intrinsic characteristics of the features themselves.

In the terms of the analysis of the Iaa data, the important distinction is that between intrinsic ('semantic') and non-intrinsic features. With respect to the intrinsic features for pronouns, I propose therefore that [-human] is a marked specification and that [-human] is the unmarked default option.⁶ Number, similarly, may be specifically marked or not. For the relevant incorporating items, these features are categorial. They are also interpretable, but as interpretable features, they make up only a subset of the full range of interpretable features that can occur in a DP (a bare D, notably, whatever its features of definiteness, etc., does not enter into the intrinsic

⁶In terms of the Strong versus Deficient pronoun system advanced in Cardinaletti (1998) and in Cardinaletti and Starke (1999), the human referring overt 3rd person pronouns can only be Strong. If a *pro* (an expletive) is by its nature Deficient (apparently so by its morphology and definitionally so in that its reference is not restricted to human), then the syntax of the Iaa pronoun system seems anomalous in that it is the Deficient pronoun that is aligned with common noun phrases in terms of its inferred position in the PF representation – only strong pronouns incorporate to the verb. We could suppose that the anomaly is only apparent in that the non-independent incorporating behaviour of the strong pronouns is an effect of a process applying *vP*-internally, as distinct from the cliticization processes discussed in Cardinaletti and Starke (1999) which apply at a higher level in the functional structure above the *vP*. A complete analysis of the Iaa pronoun system in terms of the Strong/Deficient parameter must also take into account further sets of forms with distinct properties. Thus, for example, the fully overt 1SG set has the following four-way distinctions:

(i)		1SG forms
	Subject marker	<i>iny/oge-</i>
	Object	<i>-nya</i>
	Independent	<i>inya</i>
	Possessor	<i>-k</i>

characterization). As intrinsic features, these features have to be categorial and yet they are also the kinds of features that may have a role as ϕ -features.

I conclude that the relevant characterization is that the incorporating X^0 must be lexical rather than functional. As a lexical element it necessarily has categorial features. On this basis, IaaI pronouns with [+human] characteristics are lexical elements and not purely functional elements. They therefore do not merge directly in D. An overt pronoun without the [+human] specification, i.e., *ieŭ* 'what', does not have to merge directly in D either, and to that extent such a pronoun can also be lexical, but it still fails to incorporate because it is unmarked for the relevant feature specifications and lacks other semantic content.

The role of lexicality in IaaI incorporation is paralleled in data from Fijian where pronouns can be preceded by determiners.

4. Fijian Class I/Class II

Fijian has a Class I/Class II division, like that of IaaI for what is encompassed by its Class I construction. However, what I will call Class II in Fijian includes a greater number of construction types than does the IaaI Class II, including the equivalent of the IaaI Class III construction. The broad lines of the Fijian Class I/Class II constructions are:

(35) Fijian (Pawley 1986, summarized)

Class I:	definite or specific direct object
Class II:	proper name direct object
	pronoun not taking a marker
	'reciprocal' verb
	passive
	non-specific direct object

I will not attempt here an analysis of the full range of constructions that enter into the Fijian Class II type (for further information on and interpretations of the constructions in different dialects of Fijian, see Churchward 1941, Pawley 1986, Dixon 1988, Alderete 1998, Kikusawa 2000; and for an Oceanic perspective, Clark 1976). I will focus on the points of comparison with IaaI.

The first point to notice is that Fijian Class I/Class II verbs, like in IaaI, have contrasting morphology:⁷

⁷Pawley (1986) argues that the verbal morphology should be analyzed as involving a transitive suffix of the form *i* (the Class II form) and a phonological process eliminating the *i* when the third person marker *a* is added.

(34) Standard Fijian

- | | | |
|----|--------------------------------------|-------------------|
| a. | <i>Au sã rai-ca na gone.</i> | Class I |
| | 1SG PF see-TR ART child | |
| | 'I am watching the child.' | |
| b. | <i>Era rai-ci Jone tiko na gone.</i> | Class II |
| | they see-TR Jone PROG ART child | |
| | 'The children are watching Jone.' | [Pawley 1986: 83] |

Another point about Fijian is that independent personal pronouns in Fijian are accompanied by personal articles. It is therefore of particular interest to observe the behaviour of pronouns with respect to the Class I/Class II divide in Fijian.

In *wh*-questions in Boumaa Fijian, the *wh*-expression may be preposed or it may remain in situ.⁸ This is illustrated in (37) with a 'what' object, which, as in IaaI, appears in the Class I construction in Fijian.

Boumaa Fijian (Dixon 1988: 170-171)

- | | | |
|--------|---|--|
| (37)a. | <i>O aa rai-ca a cava i waa'olo levu?</i> | |
| | 2SG PAST see-TR ART what P road big | |
| | 'What did you see on the main road?' | |
| b. | <i>A cava o aa rai-ca i waa'olo levu?</i> | |
| | ART what 2SG PAST see-TR P road big | |
| | 'What did you see on the main road?' | |

When the object, however, is 'who' the preposed and the in situ *wh*-word have distinct class membership with respect to the sentence construction:

- | | | |
|--------|----------------------------|--------------------|
| (38)a. | <i>O aa rai-ci cei?</i> | 'Who did you see?' |
| | 2SG PAST see-TRANS who | |
| b. | <i>O cei o aa rai-ca?</i> | 'Who did you see?' |
| | ART who 2SG PAST see-TRANS | |

When the personal article is not present, as in (38a), the construction is Class II, as indicated by the verb form *rai-ci*. On the supposition that *cei* raises to the empty D position and is then incorporated to the verb in (38a), the contrast with the preposed *o cei* in (38b) indicates that the construction in (38b) is a Class I construction because the overt article is a D lacking the necessary semantic content for incorporation to take place. If the interpretations arising out of (38a) and (38b) are identical, then we would want to assume that the D function is present in both cases, rather than to infer that the D head might be lacking in (38a) but present in (38b).

A further point that is illustrated by the examples in (37) versus (38) is that Fijian has a distinction between common and personal articles. In (37a,b) the common article *a* precedes *cava* 'what', whereas in (37b) *cei* 'who' is preceded by the *o* personal article. The personal article is used with

⁸The facts are parallel, but with some variations in other dialects of Eastern Fijian. For Standard Fijian, see Churchward (1941).

pronouns (but not with *cava*) and proper names and the common article with common nouns. These observations lead us to interrogate more closely the data in (38) which Dixon presents as the only grammatical forms for the 'who' object question. In particular, we may ask: what is the basis for the ungrammaticality of:

(39) *O aa rai-ci q cei? ?

That is, if *o*, as the personal article, must check a [+human] feature, we might consider that the [+human] checking requirement of the article could qualify the article as an incorporating Class II head. The fact that this possibility appears not to be available is in tune with the analysis that we have proposed with respect to Iai that the incorporating head, as well as having features like [+human], must be lexical.

5. Conclusion

The analysis that I have presented proposes that the three-way distinction in constructions with transitive verbs in Iai is a function of the content of the highest head in the direct object constituent with the distinctions:

- (40) **Direct object heads**
 Class I: D (or C for clauses) head without lexical semantic content
 Class II: D head including lexical semantic content
 Class III: N head.

For the Fijian data examined, the two-way Class I/Class II divide is accounted for under the same descriptive parameter, except that Fijian Class II collapses together the Iai Classes II and III.

Since the [+human] feature can be the crucial determinant of semantic content for a pronoun in D, it would appear that lexically based humanness is grammatically distinct from any such features residing in a purely functional element.

Incorporation to a V is a *vP*-internal process involving a head with intrinsic semantic features. The semantic requirement is fulfilled by a head containing a lexical N or by a pronoun with the [+human] feature, but not by a purely functional head with a [+human] feature for checking.

The two languages, Iai and Fijian, which have been taken into consideration in the analysis put forward in this paper are not closely related within the Oceanic family. It would clearly be of interest to investigate parallel phenomena in other languages, both within and beyond Oceanic, to see if the proposals of this paper stand up or if they need to be reassessed and/or modified. Another aspect of the available data which has only been touched on here, is that of how analyses of data from languages such as Iai may inform theoretical schemas of pronominal systems constructed in large

part on the basis of data from European languages (Beukema and den Dikken 1999, van Riemsdijk 1999).

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Uny me Cako: Iaaï text

Elizabeth Pearce and Samuel Ukewea Wadjeno

Abstract

Uny me Cako (Turtle and Gorilla) is an Iaaï text told by Adjounyiop Semwy Rachel, wife of Waneux Doh (Lebanona) Hwadrilla Wabay, Iaaï to Samuel Ukewea Wadjeno.

Introduction

This story has been written according to what I could remember from what I was told when I was around five or six. The story happens in this way, but we've got to know that each tribe, each island in New Caledonia may have the same story but with different characters, different beginnings, different endings, different ways of telling it, etc. -- S.U.W.

TEXT¹

1. Buba Semwy: Mojuu!
story
A story!

Ukewea: Öii!!!

2. B.S.: Hnyi ke ūen, Uny me Cako,²
in a time Turtle and Gorilla
Once upon a time, Turtle and Gorilla,

Uke: Öii!!!

3. B.S.: ödru-mwe ū-kalō!³
3DU-PROG RECIP-touch
they were playing hide-and-peek.

Uke: Öii!!!

4. B.S.: Cako, a-me haa köö Uny
Gorilla 3SG-PROG say to Turtle
Gorilla, he says to Turtle

Uke: Öii!!!

5. B.S.: 'Uny, u-mwaa ioo elööm nya!'
Turtle 2SG-PROG try find 1SG
'Turtle, try and find me!'
- Uke: Öii!!!
6. B.S.: Ke Cako a-me ölö hnyi ban iogova,⁴ me
then Gorilla 3SG-PROG go up in top fruit tree and
ixölö gaa Uny
hide from Turtle
*Then Gorilla goes up into the top of the fruit tree and hides
from Turtle.*
- Uke: Öii!!!
7. B.S.: Hwaaban dö e, me Uny a-me úheleú
after PUNCT 3SG then Turtle 3SG-PROG RECIP.go
me Cako, me oo bi káu edhöö
and look with Gorilla and arrive EXACT to.3SG above
hnyi ban úöö.
in top tree
*When this has been done, then Turtle in turn goes and looks
for Gorilla and finds him in the top of the tree.*
- Uke: Öii!!!
8. B.S.: Uny a-me kuku:
Turtle 3SG-PROG shout
Turtle shouts out:
- Uke: Öii!!!
9. B.S.: 'Oge oo u dhö, oge oo u dhö!'
1SG see 2SG PUNCT 1SG see 2SG PUNCT
'I've found you, I've found you!'
- Uke: Öii!!!
10. B.S.: 'Ka au walaang ang he ka helööm nya,'
ASSERT 2SG now here go to look for 1SG
haingö Uny köö Cako.
says Turtle to Gorilla
'Now you go and look for me,' says Turtle to Gorilla.
- Uke: Öii!!!

11. B.S.: Ke Uny a-me keec me ixölö gaa Cako.
then Turtle 3SG-PROG escape and hide from Gorilla
'Then Turtle escapes and hides from Gorilla.
- Uke: Öii!!!
12. B.S.: Ke Cako a-me höú.
then Gorilla 3SG-PROG count
'Then Gorilla is counting'
- Uke: Öii!!!
13. B.S.: Hwaaban dö e, me Cako a-me ka
now PUNCT 3SG and Gorilla 3SG-PROG EMPH
helööm Uny.
look for Turtle
*Now that is done, and it is Gorilla who goes and looks for
Turtle.*
- Uke: Öii!!!
14. B.S.: Cako a-me fica bi oo köö Uny, me kuku
Gorilla 3SG-PROG fail EXACT arrive to Turtle and shout
bi:
EXACT
Gorilla can't find Turtle, and he shouts out:
- Uke: Öii!!!
15. B.S.: 'Uny löö, u ua? Uny löö, u ua?'
Turtle VOC 2SG where Turtle VOC 2SG where
'Turtle! Where are you? Turtle! Where are you?'
- Uke: Öii!!!
16. B.S.: Uny, a-me ixölö hnyi hmelen veto a-me
Turtle 3SG-PROG hide in under stone 3SG-PROG
laba hnyin Cako, me thu hmetu káu:
sit on.3SG Gorilla and answer again to-3SG
'Inya eang! Inya eang!'
1SG here 1SG here
*Turtle is hiding under the stone that Gorilla is sitting on, and
he answers him again: 'I'm here! I'm here!'*
- Uke: Öii!!!

17. B.S.: Cako, a-me hngehgele me caa oo Uny
Gorilla 3SG-PROG look around and not see Turtle
bi.
EXACT
Gorilla, he looks around, but he just can't see Turtle.
- Uke: Öii!!!
18. B.S.: 'Uny löö, u ua? Uny löö, u ua?'
Turtle VOC 2SG where Turtle VOC 2SG where
'Turtle! Where are you? Turtle! Where are you?'
- Uke: Öii!!!
19. B.S.: 'Inya eang! Inya eang!'
1SG here 1SG here
'I'm here! I'm here!'
- Uke: Öii!!!
20. B.S.: 'Uny löö, u ua? Uny löö, u ua?'
Turtle VOC 2SG where Turtle VOC 2SG where
'Turtle! Where are you? Turtle! Where are you?'
- Uke: Öii!!!
21. B.S.: Cako a-me tehvelöng me löng bi,
Gorilla 3SG-PROG listen attentively and listen EXACT
me haba hwa mwede me ûheeny ejii
and as for noise of make noise and come from below
hnyikânâ, ke a-me caa tremêngâ
beneath the ground then 3SG-PROG not understand
bi.
EXACT
Gorilla listens carefully and listens again, and there is a noise
being made coming from below the ground. He does not
understand at all.
- Uke: Öii!!!
22. B.S.: Cako a-me hngele he ka wâ ohmëëkiny.
Gorilla 3SG-PROG look go to see testicle.3SG
Gorilla looks down at his testicles.
- Uke: Öii!!!
23. B.S.: 'Uny löö, u ua? Uny löö, u ua?'
Turtle VOC 2SG where Turtle VOC 2SG where
'Turtle! Where are you? Turtle! Where are you?'

- Uke: Öii!!!
24. B.S.: Uny a-me thu bi: 'Inya eang! Inya eang!'
Turtle 3SG-PROG reply EXACT 1SG here 1SG here
Turtle replies: 'I'm here! I'm here!'
- Uke: Öii!!!
25. B.S.: Cako, a-me bwele he ka wâ ohmëëkiny me
Gorilla 3SG-PROG look go to see testicle.3SG and
haa bi kâu: 'U kaa mwede hmetu but
say EXACT to.3SG 2SG when make noise again COMPL
ââu,⁵ me u-mwe wâ veto eang, oge-me
in a moment then 2SG-PROG see stone this 1SG-PROG
he ka tho kâu bâm.
go to break to.3SG head.2SG
Gorilla looks down at his testicles and says to them: 'If you start
making a noise again just now, then you see this stone, I am
going to break your head with it.'
- Uke: Öii!!!
26. B.S.: 'Uny löö, u ua? Uny löö, u ua?'
Turtle VOC 2SG where Turtle VOC 2SG where
'Turtle! Where are you? Turtle! Where are you?'
- Uke: Öii!!!
27. B.S.: 'Inya eang! Inya eang!'
1SG here 1SG here
'I'm here! I'm here!'
- Uke: Öii!!!
28. B.S.: Cako, a-me puco ka ohmëëkiny me haa kâu:
Gorilla 3SG-PROG speak to testicle.3SG and say to.3SG
'U-nee ka mwede hmetu but ââu, me
you-if EMPH make sound again COMPL again then
oge-me he but he ka kuc u.'
1SG-PROG go COMPL go to hit 2SG
Cako speaks to his testicles and says to them: 'If you start
making a noise again, then I really am going to hit you.'
- Uke: Öii!!!
29. B.S.: 'Uny löö, u ua? Uny löö, u ua?'
Turtle VOC 2SG where Turtle VOC 2SG where
'Turtle! Where are you? Turtle! Where are you?'

Uke: Öii!!!

30. B.S.: 'Inya eang! Inya eang!'
1SG here 1SG here
'I'm here! I'm here!'

Uke: Öii!!!

31. B.S.: Ke Cako a-me kap i-veto, me kot
then Gorilla 3SG-PROG lift up SPEC-big stone and hit
kâu ohmëëkiny me hōi kualö bi dhö
to.3SG testicle.3SG and fall back EXACT PUNCT
hotoon-ai. Ke a-me mök cu.
behind.3SG-towards then 3SG-PROG die INGR
*Then Gorilla lifts up a stone and hits his testicles with it and he
tumbles over backwards. And he is dead.*

Uke: Öii!!!

32. B.S.: Ke Uny a-me ta but hnyi hnen
then Turtle 3SG-PROG enter INVER in place.3SG
hna ixölö, me hluma, hlumöö Cako a-a
place of hide and laugh and laugh at Gorilla 3SG-PERF
tho hmetoo bi ohmëëkiny.
break again EXACT testicle.3SG
*Then Turtle comes out of his hiding place laughing, laughing
at Gorilla who has smashed up his testicles.*

Uke: Öii!!!

33. B.S.: Wale but ee bongu Cako me Uny, bongon
there is COMPL there story Gorilla and Turtle story
anyidru akalö.
POSS.3DU hide and seek.
*That is the story of Gorilla and Turtle, the story of their game of
hide-and-peek.*

NOTES

Iaai is a Melanesian Oceanic language spoken by some 2,000 inhabitants of Uvea, the northernmost of the three main islands of the Loyalty group. The most complete descriptions of Iaai are to be found in two works by Françoise Ozanne-Rivierre, a grammar (1976) and a dictionary (1984). An earlier description, Tryon (1968) is also a useful source, but it contains a number of inaccuracies. Maddieson and Anderson (1994) give an account of acoustic properties of sounds in Iaai.

The orthography has its origins in a Bible translation (Hadfield 1901). We follow the modern version of the orthography as set out in Ozanne-Rivierre (1984 (1976)). (See also Wahéo and Wahéo (1987) for further discussion.) In the text, we have, however, also adopted the convention of including hyphens to mark distinct inflectional morpheme boundaries, which are not otherwise present in the orthography.

- Glosses:
Person and aspect: 1/2/3SG/DU = 1st/2nd/3rd singular/dual; PROG = progressive; PERF = perfect
Particles: COMPL = completed; INVER = inverse; PUNCT = punctual; EXACT = exactly; ASSERT = assertive; INGR = ingressive; EMPH = emphatic; VOC = vocative
Other morphemes: RECIP = reciprocal; POSS = possessive; SPEC = specific.
- cako*: 'gorilla': The gorilla is native to West Africa. We have not found an Austronesian form which could provide a source for this word. If it is a borrowing, one may possibly think of French *Jacquot* /ʒako/ or English *Jacko* /dʒæko^u/.
- akalö* 'play hide and seek': Thanks to Françoise Ozanne-Rivierre for her assistance in the identification of this item (and see also Ozanne-Rivierre 1984: 75).
- iogova* 'fruit tree': This word appears to include both the prefix *i-*/(*û-*) 'tree of' and the prefix *o-* 'fruit' (cf.: *ogum* 'candlenut' and *iogum* 'candlenut/candleberry tree'). In the text, *iogova* serves as a generic term for 'fruit tree'.
- ââu*: A variant of *êâu* 'in a moment'/'just now'/'tout à l'heure' (Fr.) (Françoise Ozanne-Rivierre, personal communication).

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What is tense?*

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Abstract

This paper questions our assumptions about what tense is and suggests a fresh perspective from which we might investigate tense in the future. In particular, I show how what is first defined as tense becomes associated with less temporal and non-temporal notions and factors in the course of developing a theory of tense in Torii (2000). It is as if we started off with tense but ended up with "something else", though we were surely following the same object of investigation. This may suggest that what we call tense is not only concerned with time but also with "something else" or even that what we call tense is in fact this "something else", which is somehow related to the notion of time as well. An obvious question then is what that "something else" would be. Combined with Ludlow's (1999) insights, I briefly sketch a possible correlation between evidentiality and tense/aspect.

1. Introduction

Tense is generally understood as a grammatical category that indicates the time of a situation such as past, present, and future. Such an understanding about tense is based on an assumption that time is justifiably divided into past, present, and future, which is in turn based on an assumption that time flows from the past toward the present and the future. Although this certainly reflects our ordinary ways of talking and thinking, "psychological reality" cannot be taken to justify the truthfulness of such assumptions. The problem is that we cannot perceive things as they are "in themselves," since the mind is actively involved in organizing our experience (Ludlow 1999: 4).

An alternative view (sometimes called "presentism") suggests that there are no past or future times (or events); what makes something past or future is how the world stands right now (e.g., Merleau-Ponty 1962, Ludlow 1999). With such a view, that is, if there are no past or future times, what are the past tense and the future tense doing in our grammar? Thus, as soon as we realise that we don't know exactly what time is, our understanding about tense gets shaky too. In fact, we might need to neutralise our conception that tense indicates the time of a situation such as past, present, and future, if we want our investigation to illuminate what tense is as it is "in itself" rather than as we perceive it is.

This paper raises this issue that what we have been calling tense may not be what we have been thinking it is. It does so in particular by reviewing how a theory of tense is developed in Torii (2000). Torii's tense theory was primarily motivated by her interpretations of *wa-* and *ga-*subjects in Japanese, and therefore developed in order to account for the phenomena concerning *wa/ga-*subjects. An interesting consequence of investigating tense in

* I would like to thank the audience at the presentation of this paper at Victoria University of Wellington, and Elizabeth Pearce for reviewing the draft version of this paper. Usual disclaimers apply.

connection with *wa/ga*-subjects was that although it was first defined as tense, it became associated with less temporal and non-temporal notions and factors, as the analysis advanced.

The analysis starts from the Reichenbachian model with reference to times such as Speech Time, Event Time, and Reference Time. In the course of analysis, however, we are led to abandon reference to times and instead employ concepts such as an anchor to a world and an anchor to a spatiotemporal location. Furthermore, when it comes to examining subordinate clauses, the two Tenses that I propose in our syntactic representation get associated with factors such as factivity and the distinction between propositions and states of affairs. We thus find ourselves at a place where the notion of time or temporality is hardly evident. It is as if we started off with tense but ended up with "something else", though we were surely following the same object of investigation.

This may be taken as suggesting that what we call tense is not only concerned with time but also with "something else" or even that what we call tense is in fact this "something else", which is somehow related to the notion of time as well. An obvious question then is what that "something else" would be. Combined with Ludlow's (1999) insights, I shall briefly sketch a possible correlation between evidentiality and tense/aspect.

2. The re-analysis of Reichenbach (1947)

My analysis of tense starts from the re-analysis of Reichenbach (1947). Basically, within the Reichenbachian framework, a tense is represented as a complex of three temporal entities (or 'times'), temporally ordered with respect to one another (whether one precedes, follows, or coincides with the other(s)). The first, denoted by S, refers deictically to the utterance time and is, therefore, called "speech time". The second, E denotes the time of the event instantiated by the predicate of the clause and is, therefore, called "event time". The third, R stands for "reference time" and serves as a 'point of view' (particularly for perfect tenses). The basic English tenses, for example, are given the following representations in (1), where a line between two points signifies that the leftmost point is interpreted as temporally earlier than the other and a comma signifies that two points are contemporaneous (Hornstein 1990).¹

(1) present	S, R, E	present perfect	E _ S, R
past	E, R, S	past perfect	E _ R _ S
future	S, R, E	future perfect	S _ E _ R

(Hornstein 1990: 15, based on Reichenbach 1947: 290)

Firstly, I observe a split in the uses of R. R aligned with E and R separated from E are of distinct nature. Secondly, I contemplate the notion of S. By taking S to refer to a time recognized as the present in the discourse, I expand its coverage so that it stands in place of R in perfect tenses. In

¹ There are actually 13 possible distinct combinations of S, E and R, of which 6 are represented in (1).

addition, I divide the present tense representation into two so that R is necessarily either aligned with S or aligned with E in all representations.

2.1. Observe a split in the uses of R (R = E and R ≠ E)

Let us first observe a split in the uses of R. R used in the perfect tenses clearly stands for the notion of "point of view" in the semantics of perfect tenses. For example, in interpreting a sentence like *He had left*, we necessarily recognize the existence of a reference point, apart from the time of speech (S), with respect to which the time of the event of John's leaving (E) is located. That reference time is represented as R and mediate between S and E, as seen in (2b) below.

- (2) a. John had left.
b. E _ R _ S

On the other hand, R used in the simple tenses such as past and future does not have its own place and a clear function as a "point of view". For example, a future-tense sentence *John will leave* simply tells us that the time of the event of John's leaving is after the time of utterance. There is no apparent need for R. In such a case, R is stuck together with E, or taken to be simultaneous with E, as seen in (3b).

- (3) a. John will leave.
b. S _ R, E

The R's in (2b) and (3b) above are of distinct nature. To distinguish them, Bertinetto (1986), for example, narrows down the use of the term 'R' only to refer to the kind of R found in the perfect tenses and introduces 'L' ('event localizing function') to refer to the other kind of R found in the simple tenses. According to Bertinetto, while 'R' fixes the internal reference which is intrinsically (intensionally) required for semantic interpretation, 'L' chronologically specifies the location of E extrinsically (extensionally) as it is not intrinsically required.

2.2. Expand the coverage of S (R = S and R ≠ S)

2.2.1. S as the "now" point

Let us now contemplate the notion of S. It has been pointed out (e.g., Hornstein 1990) that S, besides referring deictically to the speech time, in some contexts can also refer to a certain time specified by other sentences in the discourse or can connect the tense representation of a subordinate clause with that of the main one. I take the view that S refers to a time recognized as the present in the discourse, which is typically the utterance time, but in narrative types of contexts, other temporal moments can be recognized as the present as an outcome of other sentences in the discourse establishing a 'pseudo-present'. A typical example of 'pseudo-present' is observed in the following narrative.

- (4) It was 1812, just before the Battle of Borodino. The anticipation of the coming struggle is palpable. Napoleon has just woken. He is getting

ready to inspect the troops and see that they are ready for the battle that will determine the fate of Europe.

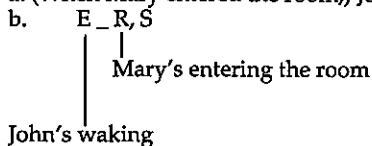
(Hornstein 1990: 11)

With the view that S refers to a time recognized as the present in the discourse, we represent the temporal interpretation of *Napoleon has just woken* as "E_S, R" (or alternatively "S, R > E"), using S not to refer to the speech time but to refer to the 'pseudo-present'. But notice that this is exactly the representation of present perfect, which is what is actually used in this narrative and which is therefore what it is supposed to represent. One might object that such an account loses the distinction between historical present, which is in fact past, and real present. However, that is what our languages do or what we do by the use of our languages.

2.2.2. Possibly implicit when-clause fixing S

Now consider past and future perfects. Past and future perfects necessarily occur with a subordinate clause or in a context which specifies the "now" point that serves as a point of view required for the perfect interpretation. Crucially, they cannot occur in isolation. For example, a sentence *John had just woken* necessarily occurs with a possibly implicit subordinate clause such as *when Mary entered the room*, which designates the "now" point.² If we take S to represent the "now" point, which may or may not be the actual speech time, the time at which Mary entered the room is S. Thus, the temporal interpretation of *John had just woken* is represented as in (5b), which is no different from the representation of present perfect.

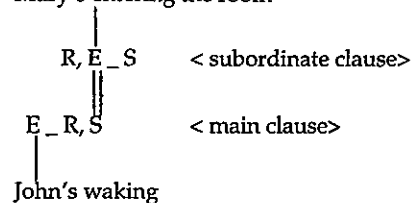
(5) a. (When Mary entered the room,) John had just woken.



Certainly, this S is not the time at which the sentence is uttered, and that is why R was needed in the Reichenbachian system. However, the fact that the S in the representation (5b) is distinct from the actual time of speech can be (and perhaps should be) captured in the relation between the main and subordinate clauses. As shown in the two level representation in (6b) below, the main clause S corresponds to the subordinate clause E, i.e., the time of Mary's entering the room, which is located prior to the 'real' S.

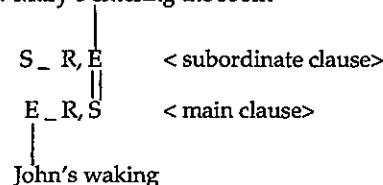
² The presence of an implicit subordinate clause is assumed even in a sentence with a temporal adverb such as *At 5 o'clock John had (just) woken*. In fact, a temporal adverb is a prime example of an implicit subordinate clause. (See Ludlow (1999) for his treatment of temporal adverbs.) That is, 'at 5 o'clock' is 'when standard time systems indicate 5 o'clock' or something like that. Essentially, temporal adverbs are interpreted according to standard time and calendar systems that we employ. Although we may be hardly aware of them, there are many tacit understandings, for example, about what a day is, what a week is, and how time and date may differ depending on what part of the globe you are standing on. We might conceive

(6) a. (When Mary entered the room,) John had just woken.
 b. Mary's entering the room



Similarly, future perfect can be (and perhaps should be) represented with the same perfect representation, which is connected with a different collateral representation, as seen in (7b) below.

(7) a. (When Mary enters a room,) John will have just woken.
 b. Mary's entering the room



Note that the traditional representation for past perfect, E_R_S, can be seen as an amalgamation of the two levels of representation in (6b) above, and that the three distinct representations, S_E_R, E_S_R and S_E_R, which in fact have to be assigned to future perfect are derived when the two-level representation in (7b) is collapsed into single-level.³

Crucially, as a result of using S as the "now" point, which serves as a temporal anchor, all perfect tenses, whether present, past, or future perfect, are represented identically as E_R,S (or equivalently E_S,R). This captures the common essential semantics of the present, past, and future perfect, while the differences are accounted for by distinct collateral representations appropriately connected to the identical core representation (as seen in (6) and (7) above).

2.2.3. Divide the present tense representation

Another major modification I propose to make to the Reichenbachian tense representations is to divide the present tense representation into two distinct

³ The three distinct representations, E_S_R, S_E_R, and S_E_R, assigned to the future perfect in the Reichenbachian system have been criticized as "an artefact of the notation rather than a significant fact about language" (Comrie 1985: 26). That is, there seems to be no language which has a distinct morphological realization for each such representation, and yet Reichenbach's system is forced to distinguish the three representations. As a solution to this problem, Comrie (1985) and Hornstein (1990) propose splitting the three-place relation into two distinct relations between S and R and between R and E and representing the future perfect as (S_R) • (E_R) (where the symbol • denotes relational composition). By introducing two distinct relations, a direct relationship between E and S is underspecified. The two-level representation in (7b) above essentially achieves the same. That is, the subordinate clause S

representations, as shown in (8) below. (Accordingly, I divide the semantics of the present tense into two, which will be discussed later in 2.5 below.)

- (8) a. (R, S), E
 b. S, (R, E)

Importantly, I distinguish the uses of comma inside and outside the parentheses. I maintain Reichenbach's original meaning of a comma, i.e., a temporal relation of overlap or simultaneity, for that used outside the parentheses, but not for a comma used inside the parentheses. The comma used to connect R with E or S inside the parentheses does not represent a temporal relation, but a certain function, which will be defined in 2.4 below.

2.3. New tense representations

With all these modifications described above, our tense representations necessarily have an R that is attached to either S or E. If you return to the Reichenbachian representations in (1) above, the present tense representation is now divided into two, one with R that is attached to S and the other with R that is attached to E. The past and the future tense representations originally have R attached to E. And the present, past, and future perfect now have an identical representation which has R attached to S. Notice that R no longer has its own place as a 'time' that stands in a certain relation to other times. Essentially, each representation has just two 'times', S and E, which are connected by a certain relation, and R is attached to either S or E for some reasons.

I assume three possible relations to connect S and E; E precedes S, S precedes E, and S coincides with E. Although Reichenbach represented these relations linearly as seen above and in (9a) below, I propose to represent them with topological relations, 'after', 'before', and 'overlap' with the notations shown in (9b).

- (9) a. E_S S_E S, E
 b. S>E S<E S, E

As a result of using topological relations rather than linear orders, the positions of S and E remain unchanged. That is, S is necessarily on the left hand side of a relation, whereas E is necessarily on the right hand side. Certainly, it is also a logical possibility to fix E on the left hand side and S on the right hand side. However, I take it that the left position signifies a reference point with respect to which what is on the right hand side is temporally located, and crucially it is S that functions as a reference point and E is located in a certain relation to S.⁴

To these S-E relations in (9b) above, R is added to attach to either S or E. Here I propose to put R at another level, as shown in (10) below. This way, we

⁴ This is important especially when it comes to the syntactic representation of tense. As will be discussed in 4.1.1 below, Zagana (1990) and Stowell (1994a,b) take the view that tense is a relation between two times, one of which is given and serves as a reference point, with respect to which the other is located. They syntactically express this in the phrase structure of tense, in which the time serving as a reference point appears in the external argument position of Tense, whereas the other time appears in the internal argument position, and Tense temporally locates its internal argument in relation to its external argument.

can keep the core of a tense representation as a simple temporal relation between S and E, to which R is aligned with either S or E at another level.

- (10)
$$\begin{array}{ccc} S > E & S < E & S, E \\ | & | & | \\ R & R & R \\ \langle \text{Past} \rangle & \langle \text{Future} \rangle & \langle \text{Present} \rangle \\ \\ S > E & S < E & S, E \\ | & | & | \\ R & R & R \\ \langle \text{'Hot news' perfect} \rangle & \langle \text{Proximate future} \rangle & \langle \text{Progressive} \rangle \end{array}$$

Crucially, depending on whether R is aligned with E or S, the same S-E relation gives rise to distinct temporal and aspectual interpretations. For example, "S > E" gives rise to the past tense interpretation when R is aligned with E, and the 'hot news' perfect interpretation when R is aligned with S.⁵ But why is that? Some explanation is in order.

2.4. R as viewpoint aspect

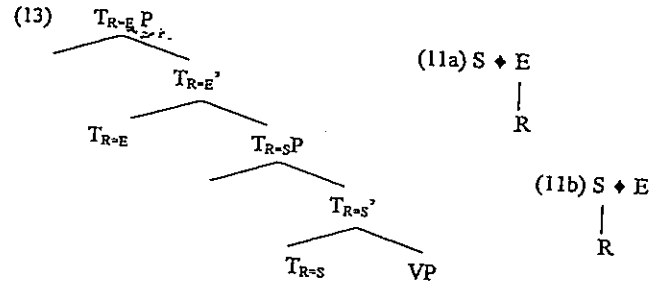
An R aligned with S designates the time of speech as the time of reference. More precisely, it designates a temporal point recognized as the "now" point in the speech context as a reference point. A situation is viewed and described precisely from the perspective of this punctual temporal point referred to by S and designated by R as a reference point. On the other hand, an R aligned with E designates the time of the situation (referred to by E) as the time of reference.

Now, assume that a situation is made up of axis plus cross-section, following Jackendoff's (1996) decomposition of situation. That is, we see a situation as being created by moving a cross-section along a time axis. On this assumption, an R aligned with S points to a single point on the time axis and cuts out a cross-section of a situation intersecting at that point. On the other hand, an R aligned with E spans the whole length of the time axis and therefore leaves a situation undecomposed. Thus, depending on whether it is aligned with S or E, R puts a cross-section of a situation or the whole of a situation into focus. In this sense, R is like the lens of a camera, as Smith (1991: 91) draws an analogy that a viewpoint is like the lens of a camera. While the lens of a camera focuses a scene to make it visible to the receiver, R as a viewpoint focuses the situation talked about in a sentence. Information in focus has the status of 'visibility'. Only visible information is asserted.

2.5. The interpretations due to 'R aligned with S' and 'R aligned with E'

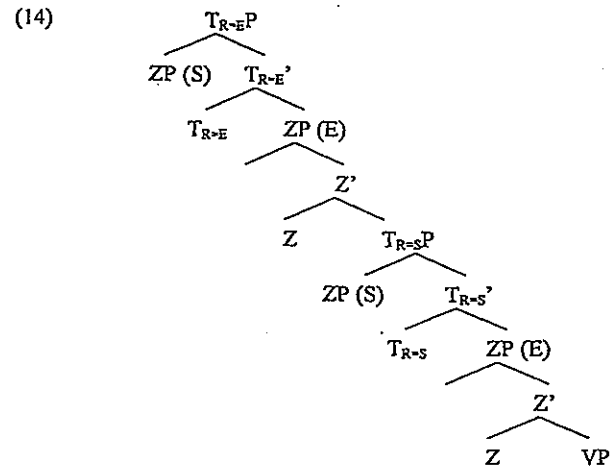
We are now ready to explain why the same S-E relation can give rise to two distinct interpretations depending on whether R is aligned with E or S. Let us start with the relation 'S > E' that can give rise to the past tense interpretation and the 'hot news' perfect interpretation. The representation 'S > E' signifies that the time of an event is located before the time of speech. With R aligned

⁵ The term 'hot news' is due to McCawley (1971). It refers to a particular interpretation of the English perfect, i.e., the 'just' reading as in *Napoleon has just woken*, though the English perfect has a few (or several) distinct interpretations (the number depends on analyses).



As shown in (13), I assume that $T_{R-E}P$ dominates $T_{R-S}P$, mainly because $R = E$ focusing the whole of a situation should have wide scope over $R = S$ focusing a cross-section of a situation.

There is a question of whether to assume that a tense phrase is a dyadic predicate of two time-denoting arguments, as Stowell does. If we adopt the analysis of tense as a dyadic predicate as it is, we need to postulate time denoting phrases, which Stowell calls ZPs, in both external and internal argument positions of $T_{R-E}P$ and $T_{R-S}P$, as shown in (14) below.



The syntactic projection of the external argument of T is required in Stowell's analysis for a PRO argument, which accounts for the shifting of the denotation of the reference time in embedded contexts. (Note that the term reference time is used here to refer to the time in relation to which the event

in his office at the (future) time (p.c. with Stowell).⁶ However, with the extended notion of "S" I propose as a deictic element which refers to a time recognized as the "now" point in the discourse, the control analysis for the shifting of its denotation is not necessary. It simply picks a time recognized as "now" in each context, which is in an embedded context the time of the event described in the higher clause. As for the syntactic projection of the internal argument, its repetitive occurrence in (14) above appears rather redundant. In the interest of economy and on the basis of lack of evidence for the existence of those time denoting phrases, I rather assume simply that each tense phrase defines the relation between S and E, without having S and E syntactically represented as arguments. That is, I assume that an articulated tense structure looks like (13) above rather than (14).

3.3. EP and WP

Having thus postulated the two functional projections, $T_{R-S}P$ and $T_{R-E}P$, making up a tense structure, I further argue that $T_{R-S}P$ and $T_{R-E}P$ are the projections of the event-place and the world-place respectively. Firstly, the semantic content of T_{R-S} is comparable with an anchor to a spatiotemporal location. When a clause is anchored to a spatiotemporal location, it is interpreted as being bounded at that spatiotemporal location, and the situation described in such a clause is taken as spatiotemporally bounded or eventive. I assume a variable standing for a spatiotemporal location, e , which may or may not occur in the event-place E . (It is a little confusing, but the event-place E should not be confused with the event time E .) The occurrence of an event variable e in the event-place E signifies that there exists an event at a particular spatiotemporal location. Thus, e occurs in E depends when a clause describes an eventive or stative situation.

Secondly, the semantic content of T_{R-E} is comparable with an anchor to a world. I use the notion of an anchor to a world as a way of encoding a definite event time, which is a time already talked about or somehow established as the topic time in the discourse. The point can be illustrated by Partee's (1973) famous example, *I didn't turn off the stove*. To quote Partee, '[w]hen uttered, for instance, halfway down the turnpike, such a sentence clearly does not mean either that there exists some time in the past at which I did not turn off the stove or that there exists no time in the past at which I turned off the stove. The sentence clearly refers to a particular time - not a particular instant, most likely, but a definite interval whose identity is generally clear from the extralinguistic context' (p. 602-603). Such a topic time understood in the discourse in fact fixes a context, in which the described situation is interpreted to take place, and in which the truth of a sentence is to be evaluated. I take a particular context as a particular world, which is made up of and transcends or subsists beyond spatiotemporal locations. I assume a variable standing for a world, $_w$, which may or may not occur in the world-place W . The occurrence of a world $_w$ in the world-place W signifies that a clause is anchored to a particular world in which its truth is to be evaluated. Thus, the occurrence of $_w$ in W depends on whether a clause is to be evaluated for the truth. When a sentence is anchored

⁶ Elizabeth Pearce (p.c.) has pointed out for me that the example sentence has an alternative reading that Max will give a book to the girl who is in his office now (but may not necessarily be there later on).

to a context fixed by a $_$ but not to a punctual spatiotemporal location e , it is interpreted as describing a spatiotemporally unbounded situation (in the sense that it is not bounded at a punctual spatiotemporal location). Such an interpretation corresponds to that of "R aligned with E".

Now, as functional heads, the two Tenses I postulate are expected to be always present in the phrase structure of a clause, but the semantic interpretations of "R aligned with S" and "R aligned with E" cannot be both present at a time. If we assume that the semantic content of the two Tenses are "R aligned with S" and "R aligned with E", it would not be plausible to have them both in a single clause. However, with the assumption that the two heads represent the world-place and the event-place, in which a world and a spatiotemporal location may or may not occur, they are not mutually exclusive. A world and a spatiotemporal location stand in the part-whole relation: a world contains a spatiotemporal location, or a spatiotemporal location is part of a world.

In accordance with these redefinitions, the upper tense phrase first postulated as $T_{R=E}P$ is renamed as WP , and the lower tense phrase first postulated as $T_{R=S}P$ is renamed as EP .

3.4. Configurations of tense structure

3.4.1. Root clauses

Although W and E are assumed to be always present in the phrase structure of a clause, depending on whether they hold their variables $_$ and e respectively, we get different configurations of tense structure. For root clauses, I assume the following two possible configurations.

- (15) a. $[_{WP} [_{W^{\omega}} [_{EP} [_{E} _]]]]$ "R aligned with E"
 b. $[_{WP} [_{W^{\omega}} [_{EP} [_{E} e]]]]$ "R aligned with S"

While E may or may not hold e since a clause may describe an eventive or a stative situation, root W necessarily holds $_$ because what is said in root clauses is necessarily evaluated for its truth. The configuration (15a) with $_$ but without e characterizes stative or individual-level sentences, which are anchored to a world but not to a spatiotemporal location. It is thus responsible for the "R aligned with E" interpretation. On the other hand, the configuration (15b) with both $_$ and e characterizes eventive or stage-level sentences, which are anchored to a spatiotemporal location and also to a world (since they are to be evaluated for the truth too). It is thus responsible for the "R aligned with S" interpretation.

Note that the semantic interpretations of "R aligned with E" and "R aligned with S" do not derive directly from the respective heads in this system. Rather, it is the configuration of the temporal structure as a whole that determines the semantic interpretation. That is, the $R=E$ interpretation is due to the configuration (15a), and the $R=S$ interpretation is due to the configuration (15b) above.

Another point to note is that $_$ and e are not occupants of syntactic positions, W and E . The presence or absence of $_$ and e makes W and E syntactically active or inactive. Therefore, the configurations in (15) above are more appropriately represented with + and - values specified for W and E , as in (16) below.

- (16) a. $[_{WP} [_{W^{+}} [_{EP} [_{E^{-}}]]]]$ "R aligned with E"
 b. $[_{WP} [_{W^{+}} [_{EP} [_{E^{+}}]]]]$ "R aligned with S"

3.4.2. Subordinate clauses

For subordinate clauses, some other configurations are identified.

3.4.2.1. Subordinate W

Firstly, the occurrence of $_$ in W is not guaranteed in subordinate clauses, because what is said in subordinate clauses is not necessarily evaluated for its truth. Compare (17) and (18) below, for example. In (17), it is presupposed to be true that Mary had left. That is, (17) entails that Mary had left. On the other hand, in (18) it is not presupposed to be true that Mary had left. John could think, hear, or assert so even when Mary had not left.

(17) John regretted/remembered/was glad that Mary had left. <factive>

(18) John thought/heard/asserted that Mary had left. <non factive>

Those subordinate clauses which are presupposed to be true are not to be evaluated for their truth, simply because they are presupposed to be true. In (17) above, there is only one evaluation of truth for the entire sentence, i.e., whether it is true that John regretted it, remembered it, or was glad about it. If ω occurs only when the clause is to be evaluated for its truth, then that factive clauses are not to be evaluated for their truth suggests that they do not have their own ω . Still, for the truth to be presupposed, there must be a context in which it is presupposed. It seems that factive clauses are presupposed to be true in the context in which the main clause assertion is to be evaluated. I assume that factive clauses are anchored to the context fixed by the main clause ω , lacking their own ω . In this sense, factive clauses are parasitic on the main clause ω . I assume that their W is specified as anaphoric ($W_{[ana]}$) and controlled by the ω in the higher (i.e., main clause) W .

Turning to the subordinate clauses which are not presupposed to be true as seen in (18) above, I assume that those clauses are to be evaluated for their truth independently of the main clause. Notice that in (18) above we can have two separate truth values for the main clause and the subordinate clause. That is, it can be true or false that John thought so, heard so, or asserted so, irrespective of whether it is true or false that Mary had left. And it can be true or false that Mary had left, irrespective of whether it is true or false that John thought so, heard so, or asserted so. This suggests that there are two separate truth evaluations; one for the truth of the main clause and the other for the truth of the subordinate clause. Since the truth can be evaluated only in a certain context, each clause must have an anchor, ω , which specifies the context of evaluation. That is, both the main clause W and the subordinate clause W have their own ω s. The main clause and the subordinate clause are anchored to respective context sets, in which their truths are evaluated. Presumably, the main clause is anchored to and evaluated in the current discourse context set, which consists of the intension of all the previous assertions in the discourse, plus various entailments of those assertions, plus various other salient propositions shared by the interlocutors. On the other

hand, the complement clause is evaluated in the context set fixed by the main clause predicate, i.e., John's thought-set, heard-set, assertion-set, and so on.

Another case is identified with complement clauses of perception verbs such as *see*, *hear*, and *feel*, as seen in (19) below. Lewis (1976) claims that the truth of the complement clauses of this class of verbs is "implied". Karttunen (1970: 335) also observes that excluding the possibility of mistaken perception, *see*, *hear*, *feel* and other similar verbs appear to express a sufficient condition for the truth of the complement sentence. In other words, if it is true that one *sees/hears/feels* S, S is normally taken as true, where S is the complement sentence. In this, implication appears similar to presupposition. A difference is, however, that while '*see/hear/feel* S' entails 'S', 'not *see/hear/feel* S' does not entail 'S', though presupposition is defined to require both 'A' and 'not A' entail 'B' (e.g., Suzuki 1993: 14).

(19) I saw mummy kissing Santa Claus.

Essentially, while presupposition is committed to the truth, implication seems noncommittal about the truth. Since it is noncommittal, I assume that an implied clause is not even parasitic on the main clause ω (like a presupposed clause) but totally lacks an anchor to a world. That is, W in an implied clause is specified with - and totally deactivated.

3.4.2.2. Subordinate E

Let us now turn to the specifications of E in subordinate clauses. Three distinct cases can be illustrated by the examples in (20).

- (20) a. The sheriff considers Billy dead.
 b. The sheriff saw Billy dead.
 c. The sheriff wants Billy dead. (Svenonius 1994: 115)

The complement clause of a so-called epistemic verb in (20a) exemplifies individual-level clauses. Individual-level clauses are assumed to have $E_{[-]}$ as they totally lack a spatiotemporal location. The complement clause of a perception verb in (20b) exemplifies stage-level clauses. Stage-level clauses are assumed to have $E_{[+]}$ (with a spatiotemporal location e). The complement clause of a so-called emotive verb in (20c) exemplifies subordinate clauses which are neither precisely stage-level nor individual-level. Those subordinate clauses describe abstract states of affairs with an unspecified spatiotemporal location, as opposed to concrete states of affairs with a specified spatiotemporal location described by stage-level clauses. That is, while what is seen by the sheriff in (20b) above is a concrete state of affairs at a particular spatiotemporal location, what is wanted by the sheriff in (20c) is an abstract state of affairs at an *unspecified* spatiotemporal location, i.e., a type of situation or a situation-type. For those subordinate clauses describing abstract situation-types, I assume an unspecified spatiotemporal location e_{un} occurring in their E.

In addition, I observe that (at least some) factive clauses seem to be interpreted as describing situation-types. For example, in (21) below, even though there seems to exist a particular event understood as being talked about in the current discourse, the speaker rather abstracts away from the where and when of the situation and only refers to a kind of situation. What is

said to be strange in (21a) is a kind of situation characterized by John's being late, and what surprised the speaker in (21b) is a kind of situation in which John says such a thing.

- (21) a. It's strange that John should be late. (John is usually on time.)
 b. I was surprised that John should say such a thing.

While this may be considered as an effect of having a modal *should*, the use of *should* in these complement clauses seems to depend rather on the level of formality and even when we opt not to use *should*, the subtle abstractness with which a described situation is interpreted still seems observable.

Related to this is gerundive (or gerundial) constructions in English. Kiparsky and Kiparsky (1970) show that factive predicates but not non-factive predicates allow gerundial constructions, as shown in (22).

- (22) a. His being found guilty is tragic. <factive>
 b. *His being found guilty is sure. <non-factive>
 c. I regret having agreed to the proposal. <factive>
 d. *I believe having agreed to the proposal. <non-factive>

Interestingly enough, Barwise and Perry (1983) use gerundive nominals to illustrate a situation-type. With the examples (23a-b) below, they show that gerundive nominals are often used to refer to general types of events, whereas what they call derived nominals in (23c-d) refer to specific situations or events. The hashes indicate that the sentences are odd, because the particular events referred to with derived nominals are not the sort of things that can "always mean" something or "always upset" someone.

- (23) a. Cat hair being in the butter always means a cat is in the house.
 b. Jackie's biting Molly always upsets the Perrys.
 c. #That hair in the butter always means a cat is in the house.
 d. #The situation when Jackie bit Molly always upsets the Perrys. (Barwise and Perry 1983:77)

If factive predicates are related with gerundive constructions as shown in (22) above and gerundive constructions are related with situation-types as shown in (23) above, factive predicates and situation-types are expected to have some connection. This also suggests that factive clauses describe situation-types.

3.4.2.3. Subordinate tense structure

Combining the three possible specifications of subordinate W, i.e., [ana], [+], and [-], identified in 3.4.2.1 above and the three of subordinate E, i.e., [-], [+], and [un], identified in 3.4.2.2 above, I detect four distinct configurations for subordinate tense structure as shown in (24), though they are not meant to be exhaustive.

- (24) a. factive proposition [WP [W[ana]] [EP [E[un]]]]]]
 b. non-factive proposition [WP [W[+]] [EP [E[-]]]]]]
 c. concrete states of affairs [WP [W[-]] [EP [E[+]]]]]]
 d. abstractstates of affairs [WP [W[-]] [EP [E[un]]]]]]

4. No more reference to times

Interestingly and significantly, although I refer to those representations in (24) above as configurations of tense structure, the notion of tense or temporality has been hardly evident in the discussions trying to identify them in the previous sections.

I certainly started off with tense when I began a re-analysis of the Reichenbachian model. We were dealing with three times, S, E, and R. However, firstly, the status of R was questioned. In my analysis, R was necessarily either aligned with S or aligned with E. Such an R does not have its own place as a 'time' that stands in a certain relation to other times. In effect, R was rendered not to refer to a time but to represent a function. In the syntax, the two types of R were represented as two distinct functional categories. Moreover, to further define the semantic content of these functional categories, I have employed more abstract notions such as an anchor to a world and an anchor to a spatiotemporal location. With those newly employed concepts, reference to R aligning with S or E has essentially been abandoned.

When R was rendered not as a time but as a function and removed from the core tense representation, tense was represented as a simple relation between S and E, with three possible relations ('before', 'after', and 'overlap') to connect them. However, to represent this relation between S and E in the syntax, I have opted to treat it as a whole pack. Instead of representing S and E as arguments of tense which defines a relation between the two arguments as in Stowell (1994a,b), I assumed that the whole set is conveyed by a tense morpheme. In other words, a relation between S and E was not taken to be syntactically derived but rather to be a primitive. Such an analysis essentially denies the need to make reference to S and E.

Thus, I have made a significant shift from an approach to tense that appeals to reference to times to another that has no reference to times. What we have got instead of reference to times are notions such as an anchor to a world and an anchor to a spatiotemporal location, which are associated with factors such as factivity and the distinction between propositions and states of affairs. It is almost like we started off with tense but ended up with something else.

This may be taken as suggesting that what we call tense is not only concerned with time but also with "something else", or even that what we call tense is in fact this "something else", which is somehow related to the notion of time as well.

5. Ludlow (1999)

Such an implication of Torii's (2000) tense theory coincides with what Ludlow (1999) suggests as one of the possible consequences of his tense theory. To make a long story short, Ludlow argues for a theory of tense without reference to times (as opposed to typical Reichenbachian tense theories with reference to times) mainly for semantical and metaphysical reasons. Essentially, Ludlow's theory of tense is made up of basic temporal morphemes (PAST, PRES, FUT) that are predicates taking proposition-like objects as their arguments and a (possibly implicit) when-clause, as seen in (25). (They are supposed to be representations at LF.)

- (25) Past : PAST [S] when PAST [...]
 Present: PRES [S] when PRES [...]
 Future: FUT [S] when FUT [...]

(Ludlow 1999: 119-120)

Note that compared with my analysis of tense, Ludlow's absolute tenses, PAST, PRES, and FUT, correspond to the relations between S and E treated as primitives. And a when-clause in Ludlow's tense theory appears strikingly similar to an anchor to a context or to a particular world, — occurring in the world-place *W* in my analysis. Essentially, a when-clause packs the information understood in the discourse. For example, Partee's (1973) famous sentence, *I didn't turn off the stove*, has a when-clause such as 'when I left the house', or 'when you told me to'.⁷ This is just how I introduced the notion of an anchor to a world as a way of encoding a definite event time, which in effect fixes a context in which the truth of a sentence is evaluated. While Ludlow assumes a when-clause to be present in every sentence, I assume an anchor to a world to be present in every sentence in my analysis. (Remember that an anchor to a world is necessarily present in root clauses.) This leaves an anchor to a spatiotemporal location in my analysis without being matched with a counterpart in Ludlow's analysis. It is probably because an anchor to a spatiotemporal location is more concerned with aspect than tense, and Ludlow's tense theory does not seem to cover that.

Returning to Ludlow's analysis, a crucial point is that it does not need reference times in the future or in the past. Such an analysis of tense without reference to times may suggest that there are no future, no past, and indeed no tense in our grammar, says Ludlow. The possibility of eliminating the notion of tense as a grammatical category altogether is not as outrageous as it might sound, considering that many natural languages don't have tense morphemes, as Ludlow points out. Even in English, what gets called future tense (i.e., *will*) looks like modality and purported past-tense morphemes are usually dead ringers for perfect aspectual markers (i.e., the '-ed' morpheme, which is taken to show that the event in question has culminated.) The so-called tense morphemes not only look like something else but also act like something else. For example, there is a notorious fact that the past tense does not behave like past tense in counterfactuals (e.g., *If I had a million dollars ...*). It has also been observed that the future tense is used not so much to express the future but to express possibility or uncertainty. For instance, in spoken standard Italian, if one wants to say "I am going to the theatre tomorrow", one says (26) and not (27). If the future is used, it is most likely being used to express possibility or uncertainty.

- (26) Vado al teatro domani
 (go-1SG-PRES to the theatre tomorrow)
- (27) Andrò al teatro domani
 (go-1SG-FUT to the theatre tomorrow)

⁷ It is important that such a when-clause does not refer to a time, but expresses a general proposition (at least general in the sense that the proposition is not dependent upon particular times or events described therein), according to Ludlow. That is, 'when' does not mean "at the same time". It is understood as being more fundamental than the conception of simultaneity.

Moreover, Ludlow points out that in languages with evidentials (which range from Native American languages to Bulgarian), morphemes which have the function of indicating something about the source of the information that we have for our claim are found in complementary distribution with whatever resources these languages have for expressing the past. The point is that this perhaps suggests that what we are taking to be tense morphemes or aspectual markers might actually be evidentials. Ludlow cites a set of examples from Izvorski (1997) to show that the present perfect in many languages in fact expresses a kind of evidentiality. The examples in (28) all express a meaning akin to "I apparently/evidently arrived."

- (28) a. Turkish
 gel -mis -im
 come PERF 1SG
- b. Bulgarian
 Az sam dosal
 I be-1sg, PRES come-P.PART
- c. Norwegian
 Jeg har kommet
 I have-1SG, PRES come-P.PART

(Ludlow 1999: 162)

6. Evidentiality and tense

The suggested correlation between evidentiality and tense/aspect appears particularly inspiring to me. A sort of distinction that evidentials indicate, i.e., whether we have first-hand evidence for our claim or our evidence is based on second-hand testimony, strikes me as somewhat akin to what I tried to differentiate by distinguishing between 'R aligned with S' and 'R aligned with E'. So, let me return to those two types of R. (The thing about S, E, and R is that although they are no longer needed to be referred to theoretically, they still provide us with a useful language. Note, however, that S, E, and R are not primitives in my formula but that 'R aligned with S' and 'R aligned with E' are.)

An 'R aligned with S' designates the "now" point (S) as the point of reference or testimony (R). That means that the truth is to be evaluated "right here" "right now". It is basically for a vivid dynamic situation happening "right here" "right now". This seems to mean that the speaker has first-hand evidence for his/her claim right at the time and place of speech. Essentially, first-hand evidence is based on direct experience or direct perception, and therefore it is only available for what is actually happening "right here" "right now".

On the other hand, an 'R aligned with E' designates the time of a situation (E) as the time of reference or testimony (R). That means that the truth is to be evaluated at the time of situation, though it is practically not possible. For example, consider a past-tense proposition *John went to a private school*. How do we go back to the time of situation to evaluate the truth? What we do in reality to evaluate the truth of a past-tense proposition is to rely on

we do in reality to evaluate the truth of a past-tense proposition is to rely on relevant information that is currently available. Importantly, however, any available information concerning the truth of a past-tense proposition would be necessarily second-hand simply because there cannot be first-hand evidence based on direct experience or direct perception for a past-tense proposition. This is true even if you have fossil bones right in front of you as the evidence for a proposition *Dinosaurs roamed the Earth*, or have a stained shirt as the evidence for a proposition *I spill ink*. These are only traces, and traces are second-hand by nature. As this suggests, I conjecture that an 'R aligned with E' indicates that our evidence is based on second-hand testimony or second-hand information, while an 'R aligned with S' indicates that there is first-hand evidence.

Recall now that there are three distinct S-E relations to be qualified by either 'R aligned with S' or 'R aligned with E' (cf. 2.5 above). Qualified by 'R aligned with S', they give rise to the "hot news" perfect, the proximate future, and the (dynamic) progressive interpretations. These interpretations associated with 'R aligned with S' are all in fact claims about a vivid situation "right here" "right now" and based on first-hand evidence such as direct experience and direct perception. They all express a kind of evidential meaning, "apparently/evidently", just like the present perfect in (28) above.

On the other hand, when 'R aligned with E' qualifies the S-E relations, they give rise to the past tense, the future tense, and the (static) present tense interpretations. Just like a past-tense proposition, e.g., *John went to a private school*, which cannot be based on first-hand evidence, as discussed above, a future-tense proposition *John will go to a private school* and a present-tense proposition *John goes to a private school* cannot have first-hand evidence since they are not claims about what is actually happening "right here" "right now". (In this, the (static) present tense is strictly differentiated from the (dynamic) progressive interpretation.) Thus, all the simple tenses, past, future, and present, are dependent on second-hand information or second-hand testimony for evidence.

One of the problems expected to arise with such a view is the treatment of temporal adverbs such as *tomorrow* and *last week*.⁸ How do those temporal adverbs depend on evidentiality? This problem seems to relate to some of the issues that Ludlow (1999) deals with, but which I have not touched upon in the discussions above. Firstly, Ludlow sees a temporal adverb as an implicit *when*-clause, as mentioned in footnote 2 above. Essentially, temporal adverbs are interpreted according to standard time and calendar systems that we employ. Although we may be hardly aware of them, there are many tacit understandings, for example, about what a day is, what a week is, and how time and date may differ depending on what part of the globe you are standing on. We might conceive that all these assumptions are packed in implicit *when*-clauses. So, 'tomorrow' for instance is taken as 'when it is one day after according to standard time and calendar systems that we employ' or something like that. Crucially, treated as *when*-clauses, temporal adverbs are not considered as referring expressions, despite the fact that they are often assumed to refer to times or days. According to Ludlow, a *when*-clause expresses a general proposition (at least general in the sense that the proposition is not dependent upon particular times or events described therein), as noted in footnote 7 above. Another related issue is that such a (possibly implicit) *when*-clause assumed to be present in every sentence serves

⁸ I thank Elizabeth Pearce (p.c.) for pointing this out to me

to demarcate the context in which the temporal truth of a sentence is claimed and interpreted to hold. That is, our claim that a certain event is past, present, or future is valid only at a time specified by a *when*-clause. The temporal truth of a sentence is thus very much dependent on the content of a *when*-clause, which is, to reiterate, supposed to express a general proposition.

7. Conclusion

In this paper, I have shown how what was first defined as tense became associated with less temporal and non-temporal notions and factors in the course of developing a theory of tense in Torii (2000). The analysis started from the Reichenbachian model with reference to times such as Speech Time, Event Time, and Reference Time. As the analysis advanced, however, we were led to abandon reference to times and instead employ concepts such as an anchor to a world and an anchor to a spatiotemporal location. Furthermore, when it comes to examining subordinate clauses, the two Tenses that I proposed were associated with factors such as factivity and the distinction between propositions and states of affairs. We thus found ourselves at a place where the notion of time or temporality was hardly evident. It was as if we started off with tense but ended up with "something else", though we were surely following the same object of investigation.

This may be taken as suggesting that what we call tense is not only concerned with time but also with "something else" or even that what we call tense is in fact this "something else", which is somehow related to the notion of time as well. An obvious question then is what that "something else" would be. Combined with Ludlow's (1999) insights, I have briefly sketched a possible correlation between evidentiality and tense/aspect.

Although these are only suggestive, I trust that this paper has pointed to a possible new direction in which we might steer our way in an attempt to understand what tense really is.

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