# DEFICIENCY IN MĀORI PHRASES[1]

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## Abstract

In Biggs (1961, 1969) the phrase units of Māori are conceived of as being made up of two kinds of elements: major versus minor morphemes (Biggs 1961); or bases versus particles (Biggs 1969). The nucleus of the phrase is made up of major morpheme lexical bases which may be preceded and followed by minor morpheme particles. The present paper undertakes an investigation of the syntactic constituency of items within the phrase. Drawing on the notion of syntactic deficiency as advanced in Cardinaletti and Starke (1999), it argues for a syntactically based tripartite division in the types of elements occurring in the Māori phrase. Under this analysis, the nucleus of the phrase is a strong XP, the postperipheral items are deficient XPs and the preperipheral particles are heads.

## 1. Introduction

### *1.1. Goals*

Biggs (1961, 1969) identifies the components of a phrase, a 'contour word' in Biggs (1961), as a systematic unit in the grammar of the Māori sentence. As Harlow (2007: 135) remarks, Biggs' phrase/contour word is 'universally recognized as a fundamental unit in Māori grammar in both phonology and syntax'. My goal here is to investigate the extent to which there can be said to be a correspondence between the components of the phrase that Biggs identifies and their constituency in the syntactic representation.

### *1.2. The Māori phrase*

In the terms of Biggs (1969:18) a Māori phrase 'consists of two parts: a nucleus and a periphery'. The pre- and postperipheral elements are said to be particles and the nuclei are made up of lexical bases. The examples in (1) illustrate the phrasal unit schema for some simple cases:

1. Phrasal unit schema[2]

| | *Preposed periphery* | *Nucleus* | *Postposed periphery* | |
|---|---|---|---|---|
| a. | Ka<br>T/A | pai<br>good | | 'It is good' |
| b. | te<br>the | whare<br>house | nei<br>PROX1 | 'this house' |
| c. | | Haere<br>go | mai!<br>hither | 'Come here!' |
| d. | | Haere!<br>go | | 'Go! |
| | *Particles* | *Lexical bases* | *Particles* | |

[(1a,b,c): Biggs 1969: 18, (1d): Biggs 1961: 15]

In each of (1a,b,c) the phrase has a nucleus consisting of a content word, a lexical base, which is preceded and/or followed by a particle with a grammatical function. Given (1d), it is not a requirement for a phrase to have a periphery. There are also some cases in which a phrase may be made up simply of one or more of the elements classed as peripheral. The discussion of cases of this type is undertaken in sections 2.3 and 2.4.

In the examples in (1) the nucleus consists of a single mono-morphemic lexical item, but a nucleus of a phrase may also combine together two or more content words where a nuclear head is followed by a modifier or a complement, as in the following examples:

2. a. te **wahine** **ātaahua**
   the woman beautiful
   'the beautiful woman' [Biggs 1969: 88]

b. ngā **marae** **hui-nga** **tāngata**
the.PL marae meet-NMZ man.PL
'the meeting grounds' [Biggs 1969: 88]

c. ki te **tuku** **rōku** mai
T/A send log hither
'to send logs here' [Biggs 1961: 48]

In (2c), *rōku* 'log' is understood as the complement of the verb nucleus *tuku* 'send'. The examples (2a) and (2b) both have noun nuclei. In (2a) the noun *wahine* 'woman' is modified by *ātaahua* 'beautiful'. In (2b) the noun *marae* 'marae' is modified by *hui-nga tāngata*, consisting of the nominalized verb *huinga* 'meeting' with the accompanying modifier, another noun, *tāngata* 'men/people'.

In non-rapid speech the phrase is bounded by pause junctures and, as indicated by Biggs' term 'contour word', the phrase then has its own intonation contour (Biggs 1961: 15, Bauer 1993: 559–562, de Lacy 2003). Each phrase is also associated with a unique phrase stress (Biggs 1969: 133, Bauer 1993: 556). A further aspect of the composition of the phrases seen in (1) is that they are made up of a minimum of three moras. Following Bauer (1981), a lexical unit of the nucleus has a minimum of two moras, whereas a particle may consist of a single mora. In the case of the imperative form in (1d), the base in the nucleus conforms to the three-mora schema for the phrase as it has the mora divisions: *ha.e.re*. Where the base in an imperative consists of only two moras, it is obligatorily preceded by a particle, so making up the three-mora count:

3. a. E noho!
T/A sit
'Sit!'

b. *Noho!

Other constructions (not restricted to imperatives) in which the three-mora count is preserved in the absence of an initial particle before the verb are found when the postperiphery has *ana* 'PROG' or *ai* 'anaphoric' following the verb (Biggs (1969: 72).[3]

The syntactic integrity of the phrase is suggested in an observation made in Harlow (2007):

> 'In syntax, not only are phrases coterminous with predicates, arguments and adjuncts, they are also the units in terms of which variation of order within clauses are [sic] to be stated.' [Harlow 2007: 135]

Examples illustrating such ordering variation (with permuted phrases bracketed as '[…]') are shown in the Passive construction in (4) and in the Actor-Emphatic construction in (5).[4]

4. a. I whaka-reri-tia [e Hōne] [ngā kai].
   T/A CAUSE-ready-PASS P Hōne the.PL food
   'The food was prepared by Hōne.'

   b. I whaka-reri-tia [ngā kai] [e Hōne]. [Harlow 2007: 171]

5. a. Nā Rewi [te kūao kau] i whāngai.
   P Rewi the young cow T/A feed
   'It was Rewi that fed the calf.'

   b. Nā Rewi i whāngai [te kūao kau]. [Harlow 2007: 176]

There are thus a number of levels on which the Māori phrase presents as a coherent unit:

6. Māori phrase characteristics:
   a. The units making up the phrase are of two types (particles and lexical bases) and the positional placement of these two types of units conforms to a fixed schema.
   b. The phrase is an intonational unit.
   c. The phrase contains a minimum of three moras (pace the cases pointed to in fn. 2 to be discussed in sections 2.3 and 2.4).
   d. Only phrases can be subject to variable positioning in sentences.

Faced with the coherency of the make-up of the Māori phrase as presented in (6), one is driven to ask to what extent the phrase units so characterized may correspond to a coherent schema in terms of their syntactic structure. A full investigation of this question will require a detailed understanding of the nature of processes involved in the derivation of the surface forms of sentences. My aim in this paper is to bring a contribution to that fuller understanding with an analysis that will focus on the nature of the elements in the postposed periphery.[5] From my analysis of the behaviour of elements in the postperiphery of the phrase, it falls out that there is a need for a tripartite

division in the kinds of items that make up the Māori phrase. The syntactic elaboration that I propose to account for this tripartite division draws on the structural deficiency metric of Cardinaletti and Starke (1999). In terms of the deficiency metric, items in the Māori phrase are heads, full XPs and deficient XPs.

The paper is organized as follows. Section 2 introduces issues that are relevant to the constituency of the Māori phrase with respect to the mapping between the syntax and phonology interfaces. Section 3 develops an account showing how problems in the syntax-phonology mapping algorithm can be handled with reference to the deficiency metric as applied to the composition of the units making up the phrase. Section 4 concludes the paper with an overview of some implications for further investigation of aspects of the syntax of Māori.

## 2. Phrases in the phonology and the syntax

### *2.1. The syntax-phonology mapping*

For an initial picture, let us begin with a view of the syntactic make-up of the phrase by considering the syntactic position of the initial particle with respect to the nucleus.

In the Minimalist conception advanced in Chomsky (1995 and subsequently), the phonological component of the grammar is fed by structural representations formed by sequences of mergings of units interspaced with copyings of units already merged.[6] Using the inventory of processes that are available to it, the phonological component then has the task of translating the structural representations that it receives into phonological representations. In the case of Māori, the mapping between the syntactic representation and the phonological representation must be able to locate phrase units and assign the appropriate contour characteristics to these units.

In Biggs' approach, a sentence is seen as an assemblage of phrase units. Thus he states:

> 'Phrases may fulfil any of four functions in a sentence: subject, predicate, comment or interjection. A phrase (or combination of phrases) which fulfils one of these functions is said to be a constituent of the sentence.' [Biggs 1969: 100]

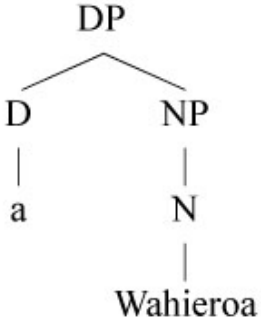
In these terms, a simple transitive sentence such as in (7), thus has the phrase

components:

7. [Ka moe] [a Wahieroa] [i a Kura].
   T/A marry PERS Wahieroa ACC PERS Kura
   PREDICATE SUBJECT COMMENT
   'Wahieroa married Kura.' [Biggs 1969: 102]

In a first consideration of the mapping between the syntax and the phonology that will apply in (7), it would appear that the process is quite straightforward in the case of the subject phrase. Assuming that the personal article *a* is a functional head, which we might view here as the D of the DP, we have a unit:

8.




Supposing that the phonological component can distinguish between a lexical base and a particle,[7] it will pick out the components of the DP as making up a phonological phrase (the N is the lexical base and the D a preceding functional particle) and assign it a phrase contour.

The process will be a little more complicated in the case of the comment phrase, the direct object phrase, in (7). This phrase includes two particles, each heading their own projection:

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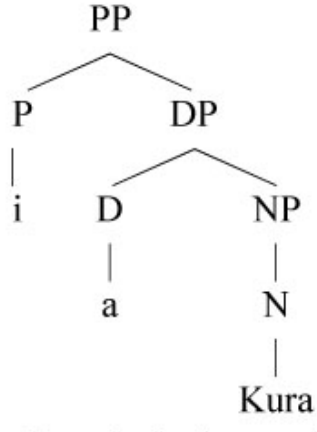
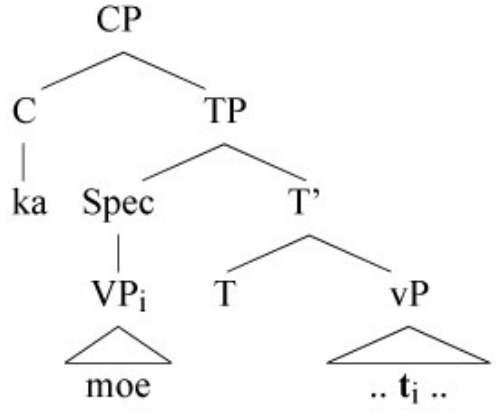



If the phonological mapping process works from bottom-up (top-down is conceivably an alternative; see the discussion in Biggs 1961: 17), we could assume that, after finding the first particle *a*, the translation mechanism will

then check to see if the structure includes a higher left branch bearing a particle, as it does in (9). Such a higher particle will be incorporated in the phonological phrase unit.

We can see that the structural representations in (8) and (9) are coherent as units in that both have one or more higher particle heads and that the material of the nucleus is embedded as a complement to the (lower) head. However, as we approach the mapping that will be required for the predicate phrase of (7), we find that the systematic structural pattern observed in (8) and (9) no longer obtains. Rather than occurring as the complement of the T/A head of the sentence, the verb of the predicate phrase is raised to a left-branch position below the particle head. Whilst there are two possible options in a VSO language as to whether the verb raises by head-movement or by phrasal movement,[8] in either case, in the output structure, the verb does not appear as the lexical head of an XP complement of the particle head. The structure in (10) illustrates this effect with the phrasal movement interpretation (abstracting away from the assumption that the object raises out the VP in which it is initially merged):

10.




In the structure in (10) the raised VP is on the left branch of the complement of the head of its phrase. Under the head-raising approach, the raised V head would also occur on a left branch, but, since it is a head, it will end up under the T in (10). The Māori phrase, therefore, cannot be understood as being structurally manifested uniquely in a head-complement schema as with the structures as shown in (8) and (9).

### *2.2. Phonological phrases and syntax: de Lacy (2003)*

De Lacy (2003) discusses the mapping between the syntax and the phonology in Māori, with a focus on the intonation contours as they are assigned to phonological phrases. In essence, and in agreement with Bauer (1993), each

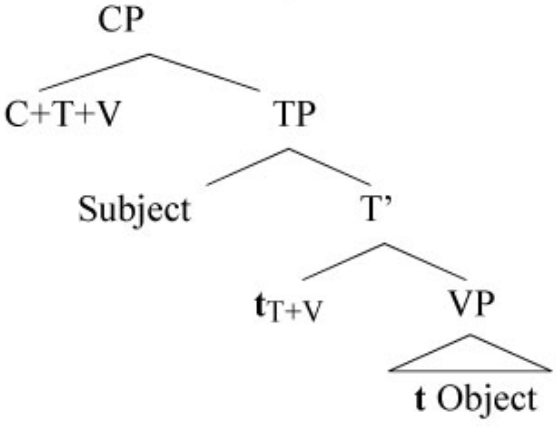
phonological phrase begins with a High pitch which descends gradually to Low at its right edge. In the terms of de Lacy's analysis, the left periphery of the phrase as defined in Biggs (1961, 1969) is not part of the pitch contour that is assigned to the phonological phrases of (7) as shown in de Lacey's interpretation in (11) below. I will henceforth use the acronym 'PPh' to designate de Lacy's concept of the the phonological phrase. Example (11) uses the bracketing '{…}' to illustrate in de Lacey's terms the occurrences of PPhs in (7).

11. Ka {moe} a {Wahieroa} i a {Kura}.

In de Lacey's analysis all open class lexical items are prosodic words and every prosodic word must be assigned to a PPh (de Lacey 2003: 67). Since *moe* in (11) is a verb, it must be in a PPh, as is the case also for the proper name nouns in (11).

The central argument of de Lacy's analysis is that the boundaries of PPhs coincide with both left and right edges of XP constituents, the candidate XPs being restricted to 'lexically headed syntactic phrases (XPs)' (de Lacey 2003: 61). However, in de Lacy's portrayal of the syntactic structure of the VSO clause, it is not however the case that both right and left edges of PPhs must correspond to right and left boundaries of XP constituents. For instance, in the structural representation of the clause, following Sproat (1985), Waite (1989), Collberg (1994), Pearce (1997a,b), Pearce and Waite (1997), de Lacy assumes head-raising of the verb to derive the VSO structure as:

12. de Lacy (2003: 62)




In the terms of de Lacey's treatment of a comparable sentence, the relevant PPh and XP bracketing for (7) is instantiated as:

13. ka {moe} a [$_{NP}$ {Wahieroa}] i a [$_{NP}$ {Kura}]

In (13), both of the PPhs consisting of the proper names conform to the requirement that they have XP (NP) boundaries at both their left and right edges. However, in the case illustrated in (13) the raised verb *moe* has no left or right XP boundaries since it is raised as a head, a V, rather than as a VP.[9] Nevertheless, the raised verb *moe* must be included in a PPh to conform to the further requirement that all Prosodic Words (items which are roots: see below in this section and in section 2.4 on the 'root' designation) must also be contained within a PPh (de Lacy 2003: 67).

In summary, the two conditions applying to the assignment of PPh boundaries are:

14. (i) Both left and right edges of lexical XPs must coincide with PPh boundaries.
    (ii) All prosodic words must be contained within a PPh.

The application of these conditions, can then be understood as applying in two steps. First, left and right XP boundaries are assigned to left and right PPh edges. Second, any remaining prosodic words which are not contained within a PPh must themselves also be parsed into a PPh. In the case illustrated in (13), *moe* can't be included in the PPh to its right because that PPh is closed at its left edge. The verb *moe* will therefore constitute its own PPh.

A problem that arises under de Lacey's analysis concerns the treatment of constructions such as that shown in (15):

15. E {haere ana} a {Hone}.
    T/A go PROG PERS Hone
    'Hone is leaving.' [de Lacy 2003: 69]

In (15), both *haere* and *ana* are prosodic words and must be included in a PPh. These two prosodic words end up in the same PPh because there is an (overarching) constraint on the assignment of PPhs that seeks to minimize PPhs (de Lacey's 2003: 69). This gives the correct result for the intonation contour of a PPh. A problem, however, with cases like (15) is that *ana* has to be counted as a root word in order to count as a prosodic word so that it can be included in a PPh. Whilst de Lacey acknowledges that post-lexical elements like *ana* in (15), *nei* in (1b) and *mai* in (1c) have a somewhat different categorial status from other kinds of roots (they are 'items that are roots but do not head lexical XPs', de Lacey 2003: 69), the designation of these items

as roots seems somewhat forced. As indicated by its gloss, *ana* 'PROG' is an aspectual marker. The other postverbal elements that are parsed into a PPh along with the verb are closed class items which Bauer (1997: 317) classifies into four sets labelled as 'manner', 'directional', 'deictic' and 'emphatic'. Except for *ana*, these particles can occur after lexical heads in general, not just after verbs. Given their roles and the fact they are closed class items, the designation of these items as roots is at odds with a view of the term 'root' as applying to lexical open class items. The root assignment for these items is also at odds with Biggs' labelling of these items as postperiphery particles, as in (1) (see Table 1 below for relevant comparisons).

However, for the parsing mechanism to produce the correct result, it has to be the case that a postperipheral item like *ana* has to have a different status from that of the following particle *a* in (15) — otherwise it would not be assigned into the PPh with *haere*. The question, therefore, is that of whether we can find a principled means of distinguishing between the behaviour of Biggs' preperipheral and the postperipheral elements. In working towards a solution to this question, we will consider some other special effects that arise in the prosodic effects in surface forms.

### 2.3. Pronouns in PPhs

There are two kinds of adjustments that apply in PPh assignments in constructions involving pronouns. As de Lacy observes, in the example in (16), the left-peripheral personal article *a* coalesces with the pronoun *au* of the nucleus, giving rise to the pronunciation: [ki ˈaːu]:

16. Ka {hoki mai} a {Hone i te {kurī} ki {a au}.
T/A return hither PERS Hone ACC the dog P PERS 1SG
'Hone returned the dog to me (here).' [de Lacy 2003: 63, 66]

In this respect, the behaviour of the personal article + pronoun sequence is different from that of the behaviour of personal article + proper name sequence. De Lacy (2000: 8, fn. 5) shows effects comparable to those with *au* for sequences in which the personal article is followed by the personal pronouns *koe* '2SG' or *ia* '3SG' (see also Biggs 1969: 38, 94; Bauer 1993: 577). De Lacey (2000: 8, fn. 5) suggests that the personal article is behaving as a prefix (incorporated under head-adjunction of the pronoun to the article) in these cases.

In another construction involving singular pronouns, the pronoun can incorporate to the PPh to its left. Bauer (1993) and Harlow (2001, 2007) discuss cases in which singular nominative pronouns occur at the right edge in phrases with a verb nucleus. In the examples following in (16)–(18), the '{…}' brackets identify phonological phrase units à la Biggs (1961, 1969).

17. {I haere ia} {ki Kaitāia}.
T/A go 3SG P Kaitāia
'She went to Kaitāia.' [Bauer 1993: 562]

18. {E haere ana au}.[10] *ana au* = [ɐˈnɑːʉ]
T/A go PROG 1SG
'I am going.' [Harlow 2007: 93, fn.27]

19. a. {Kua tae mai} {ia}. 2 phrase stresses: *mai* and *ia*
T/A arrive hither 3SG
'He has arrived.'

b. {Kua tae mai ia}. 1 phrase stress: *mai*
[Harlow 2001: 16]

Harlow (2001: 16) states that the (19b) form in which the pronoun is incorporated into the preceding predicate is more usual than (19a) where the pronoun occurs as an independent phrase. What we see in these examples is that a singular nominative pronoun can occur as a postperiphery item, as in (17), (18) and (19b), or it can act as the nucleus of a phrase, as in (16) and (19a). In effect, the incorporation of the pronouns into the preceding phrase serves to maintain the 'more than two moras' phrase schema. The independent pronoun phrases in (16) and (19a) are, however, in violation of this schema.[11]

### *2.4. Minor morpheme nuclei: Biggs (1961)*

In Biggs (1961) the base versus particle division that is represented in (1) from Biggs (1969) corresponds to a major versus minor morpheme division. In discussing the roles of minor morphemes, Biggs (1961: 19) states that the nucleus slot may be filled by 'a combination of minor morphemes as a base surrogate'. In the terms of Biggs' analysis, nuclei of this type include combinations with a determiner and a postperipheral particle, as with *tēnei* in (20) and the personal pronouns, shown in the paradigms in (21).[12]

20. Ko tēnei.
P the.PROX1
'It is this (one).' [Biggs 1961: 19]

21. Personal pronouns

| | SINGULAR | DUAL | PLURAL |
|---|---|---|---|
| 1 Inclusive | | tāua | tātou |
| 1 Exclusive | au ~ ahau | māua | mātou |
| 2 | koe | kōrua | koutou |
| 3 | ia | rāua | rātou |

In (20) *tēnei* 'this (one)' is bimorphemic, being made up of the determiner *te* combined with the demonstrative *nei* 'PROX1'.[13] In other kinds of uses *nei* is a postperipheral particle, as in *te pukupuka nei* 'this book', but in (20) we see *nei* as a base surrogate nucleus.

For Biggs (1961: 21) the number and person morphemes of the dual and plural pronouns are non-base minor morphemes. Nevertheless, these bi-morphemic pronouns behave as bases in the class of Personals which are preceded by the personal article *a* following the preposition *ki* (for example *ki a rātou* 'to PERS 3PL'). Although they consist of minor morphemes, bound morphemes in this case, the dual and plural pronouns thus occur as base surrrogates. For Biggs (1961: 51) the singular pronouns also count as minor morphemes and thus must be considered to be base surrogates in uses such as seen in (16) and (19a).[14]

Thus it is that, even for Biggs, the simple two-way division suggested in (1) between lexical bases (which can be the nucleus of a PPh) and particles (which cannot be the nucleus of a PPh) does not suffice. In section 3, I will propose an analysis which treats these distinctions in terms of the deficiency metric that is put forward in Cardinaletti and Starke (1999).

### *2.5. Summary: Issues for the syntax-phonology interface*

The discussion in section 2.3 has shown how the double left-right bracketing proposal in de Lacy (2003) needs to be supplemented by the condition (14ii) in order to account for the full range of cases of PPhs whether in derivations with head-movement or with phrasal movement. From the discussion in sections 2.3 and 2.4 we have seen that there are items which do not fit neatly into the

major/minor or the base/particle classifications of Biggs (1961/1969).[15] The kinds of items which do not fall neatly into a two-way classification in the examples that we have seen are represented in the shaded area in Table 1 in terms of the designations in de Lacy (2003) and Biggs (1961).

**Table 1: Item classifications in de Lacy (2003) and Biggs (1961)**

| | DE LACY (2003) | | BIGGS (1961) |
|---|---|---|---|
| | TYPE | PROSODIC WORD | MAJOR/MINOR |
| *haere* 'go' | lexical V root | YES | Major |
| *whare* 'house' | lexical N root | YES | Major |
| *ia* '3SG' | lexical N root | YES | Minor |
| *mai* 'hither' | non-lexical root | YES | Minor |
| *nei* 'PROX1' | non-lexical root | YES | Minor |
| *ka* 'T/A' | non-root | NO | Minor |

For the items that do not behave clearly either as bases or as particles (using the terminology of Biggs 1969), the solution has been to introduce subdivisions applying to these items as shown in the shaded area in Table 1. For Biggs (1961) the minor morphemes falling into the shaded area in Table 1 can be used a base surrogates. For de Lacey (2003) we have a difference between lexical roots and non-lexical roots. Table 1 also shows a non-uniformity in the approaches of Biggs and of de Lacey to the treatment of the singular pronouns, represented here by *ia*. We would like to be able to find a solution which would allow for a more principled means of capturing the apparent three-way distinction in the behaviour of the different kinds of items in their patterning in the composition of PPhs. The section to follow explores how the distinctions might be captured in a formal treatment exploiting the notion of structural deficiency as put forward in Cardinaletti and Starke (1999).

## 3. The deficiency metric

### *3.1. Pronouns*

We have seen that we have evidence in Māori for a contrast in the behaviour of pronouns in terms of their location in PPhs. Whilst the individual pronouns

in Māori have a unique form,[16] it is not unusual for languages to have compositionally distinct pronoun forms with syntactically distinct behaviours. We can consider the implications of such distinctions in the terms of the syntactic make-up of the constituents in which different pronoun forms are housed. We are thus further led to consider whether what we see in Māori as pronouns with segmentally unique forms should be taken as realizing different options in their syntactic constituency.

In a tripartite division of the syntactic make-up of pronouns: strong, weak and clitic, that is proposed in Cardinaletti and Starke (1999) unstressed pronouns are deficient, either weak or clitic. In Italian, for example, the strong/weak/clitic division is manifested (among other differences) in the positions which the different pronouns may occupy, as in the following examples from Cardinaletti (2011):

22. a. Maria ha dato un libro **a** **loro**. Strong
Maria has given a book to 3PL

b. Maria ha dato **loro** un libro. Weak
Maria has given 3PL a book

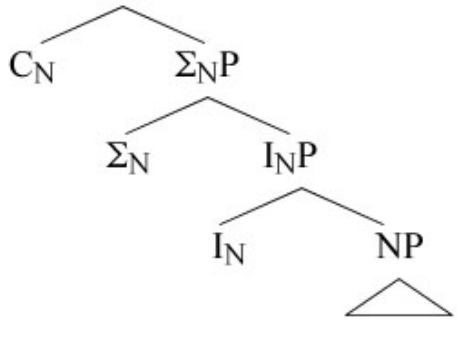
c. Maria **gli** ha dato un libro. Clitic
Maria 3SG.DAT has given a book

'Maria has given them/him a book.' [Cardinaletti 2011: 502]

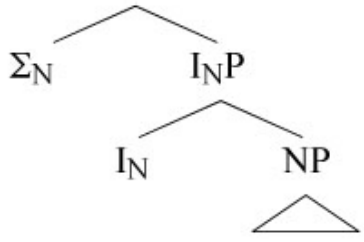
In the Italian case, we see that the pronoun is manifested in a distinct form in accordance with its syntactic position. Cardinaletti and Starke propose that the 'strength' differences correspond to differences in the complexity of constituency of the pronoun XPs:

23. Strong, weak and clitic pronoun structures
(based on Cardinaletti and Starke 1999: 214)

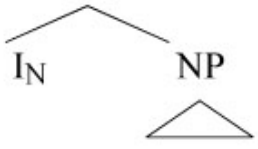
a. Strong pronoun



b. $\Sigma_N P$ Weak pronoun




c. $I_N P$ Clitic pronoun




In the structures in (23), the ΣP (lacking in the (23c) clitic structure) is the locus for prosodic information. The CP and IP layers are respectively peripheral and inflectional layers. Relative strength thus corresponds to relative complexity in structure, with complexity manifested as presence/absence of the different functional layers for the different XP types.

For the data (from European languages) that they examine, Cardinaletti and Starke (1999) provide several tests in support of the three-way distinction: strong, weak and clitic. Among these, one important characteristic that distinguishes clitic pronouns from other kinds of pronouns is that they tend to raise to a high position in the functional structure of the clause (cf. (22c)). Whilst the Māori data does not show in the data covered here the kind of linear placement differences that apply in Italian, what it does show is that there are distinctions in the prosodic outcomes with pronouns. Drawing on the evidence of syntactic distinctions in other languages, it is reasonable to infer that the behavioural distinctions in the Māori pronouns could be aligned in terms of the deficiency metric that has been put forward by Cardinaletti and Starke. Thus, the third person singular form *ia* in Māori would then be understood as entering into at least two possible phrase structures. Indeed, for Cardinaletti and Starke (1999: 180): '[t]he vast majority of known <weak ; strong> pairs are homophonous'.

Whilst it is beyond the scope of the present paper to carry out a detailed investigation of the behaviour of the Māori pronouns in the syntax of the clause, in the absence of any evidence for special positioning for the pronouns in (17)–(19), we take the differing PPh assignments as indicative of the structural distinction as manifested in (23a) versus (23b).[17]

As for the 'substitute bases' of the *tēnei* type, since both the *te* 'the' and *nei*

'PROX1' components count as minor morphemes, at first blush, these cannot be conceived of as having a $C_L$P layer. However, we could suppose that that there is another layer in the structure for *tēnei* if we allow for the inclusion within it of a null NP. Given that modification does not apply to items of the (23b) ΣP type, and given that the *nei* of *tēnei* has a modifying function, it must be that *tēnei* has the more articulated structure of a $C_L$P.

The extension of this analysis to the bimorphemic non-singular pronouns also provides us with the means for accounting for why these pronouns do not appear incorporated to the predicate phrase in examples that are presented in the literature.[18] Non-singular pronouns would thus always be $C_L$Ps.

### *3.2. Deficient adverbs*

In an interesting development of the strong/weak/clitic elaboration as advanced in Cardinaletti and Starke (1999), Cardinaletti (2011) evinces evidence in data from German and Italian for the existence in these languages of deficient adverbs contrasting with strong adverbs. On the analogy with Cardinaletti's findings for these European languages, it is potentially the case that postperipheral adverbial particles, counting as non-base words in Biggs (1961, 1969), should be analyzed as elements in the deficient end of the spectrum. As Cardinaletti (2011: 495, fn.2) notes, for the modal adverbials that she discusses,[19] it is very difficult to find appropriate glosses which would accurately reflect the meaning of these items. The same is true for the Māori post-verbal adverbials, which generally can also occur as modifiers in other kinds of phrases as well (Harlow 2007: 147).[20] In particular, with respect to the manner particles, Biggs (1969) states (see also Mutu 1982, Bauer 1997: 317):

> 'The manner particles are a set of postposed particles, each of which qualifies the meaning of the phrase nucleus with some such meaning as is expressed in English by words like 'very, quite, still, perhaps, on the other hand, indeed'. In no case, however, is there an exact overlap between the meaning of an English word and the meaning of any one of the manner particles, a fact which makes their correct use difficult for English speakers.' [Biggs 1969: 69]

In the proposal that adverbials may be categorially distinct in terms of the strength metric, Cardinaletti's treatment thus goes beyond the two-way distinction for such adverbials, X versus XP, such as assumed in the proposals of Cinque (1999). For Cinque (1999), the spine of the clause is made up

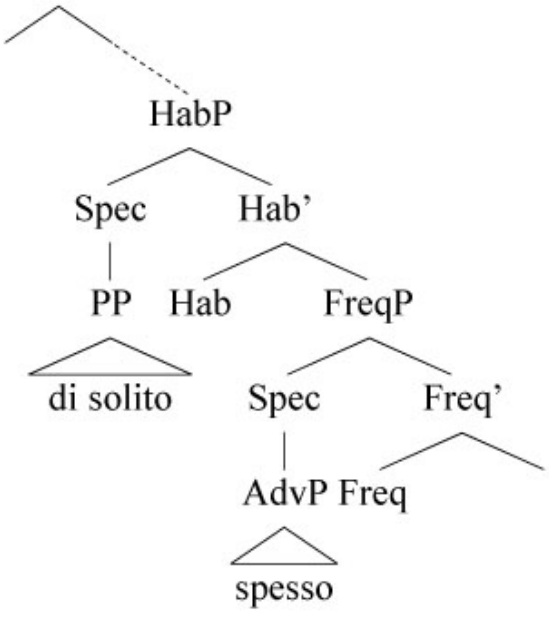
of layers of ordered projections including items having adverbial functions which may occur as heads or as XPs in languages specific cases. For instance, taking the Habitual and Frequentative projections as examples, whereas Italian encodes these functions as XPs, the Papuan language Yareba encodes these functions in affixes:

24. Italian (Cinque 1999: 91)
Mario è **di solito spesso** costretto a rimanere a casa.
Mario is P usual often constrained P remain P home
'Mario is usually often obliged to stay at home.'

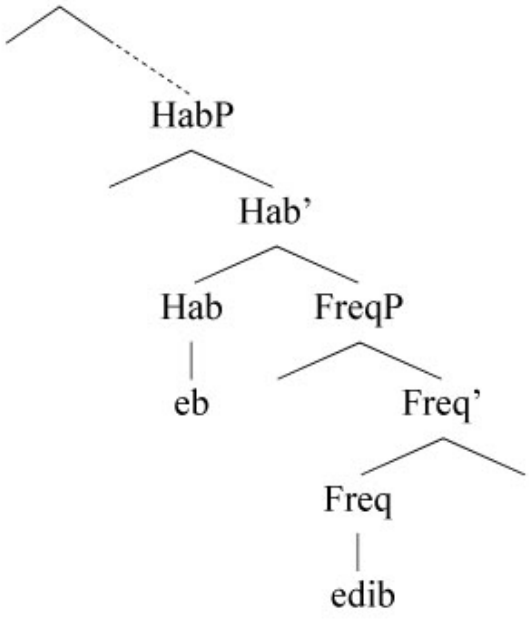
25. Yareba (Cinque 1999: 91, citing Weimer 1972: 61)
yau-r-**edib-eb**-a-su
sit-CM-FREQ-HAB-PRES-3SGM
'He (habitually and repeatedly) sits down.'

The evident XP versus affixal contrast in the forms in these two languages is manifested as distinct merge positions for XPs versus heads in the clause structure as:

26. Italian



27. IP Yareba




In Italian the adverbials are merged as XPs in specifier positions, but in Yareba the adverbials are heads in the spine of the clause structure. The relative hierarchical placement of the adverbials is the same for both languages. In the absence of any displacements in Italian, the surface order shown in (24) directly corresponds to the left-to-right ordering in (26) (as it does also in English). In Yareba, the mirror-image ordering in the surface form in (25) relative to the left-to-right ordering of (27) is derived as the output of successive left-adjunction head raising in the derivation of the surface form.

With Cardinaletti's approach to the treatment of adverbial deficiency in Italian and German, the two-way strong versus weak distinction applies to constituents that are merged into the structure as XPs. The strength difference corresponds to differences in the complexity of the XPs, as shown for pronouns in (23a,b) but, in this case, with Adv labels substituting for the N labels in (23).

According to this scenario, in the consideration of apparently non-lexical base items in the postperiphery of the Māori phrase, it remains to be determined whether such items are best analyzed as heads (of the Yareba type) or as weak adverbials (as with the Italian and German modals).

### *3.3. Postperipheral deficiency*

To the extent that particles in the preposed periphery of the Māori phrase cannot be independent PPhs, they are clearly in contrast with the particles of the postperiphery which are prosodic words occurring within PPhs.

The particles of the preposed periphery have the kinds of functions which are standardly represented as functional heads within their CP/IP and DP structures. The particles of the postposed periphery, however, also have the appearance of at least quasi non-lexical categories. But, given the contrasting behaviour of these two kinds of particles, the 'strength' parameter as represented in the structural distinctions proposed in Cardinaletti and Starke (1999) and Cardinaletti (2011) provides us with a formal means of capturing the behavioural differences.

Recall that in de Lacy's classification all prosodic words contrast with non-prosodic words in that the former are roots and the latter are not. De Lacy (2003: 60) claims that PPhs are headed by major lexical categories. The essential difference between the de Lacy/Biggs approaches as shown in Table 1 is that de Lacy's root/non-root classification cuts across Biggs' (1961) major/minor division. De Lacy differentiates the post-head items which are roots from the pre-head items which are non-roots, whereas for Biggs both of these kinds of items are minor morphemes (particles in Biggs 1969).

If we now allow that postperipheral items in the phrase are conceived of as deficient XPs, we have the means of distinguishing between Major/Lexical Root XPs and the kinds of items that fall into the shaded area in Table 1. All Major/Lexical Root XPs are strong and have the $C_LP$ structure ('L' standing for 'Lexical': N, V, Adv, …) of (23a), but other prosodic words lack the $C_LP$ layer. Under this interpretation, in effect, de Lacey's lexical XPs correspond to $C_LPs$ and prosodic words consisting of non-lexical roots correspond to $\Sigma_LPs$ — along with the assumption of the bipartite classification of the singular pronouns as either $C_LPs$ or as $\Sigma_LPs$.

### *3.4. Deficiency in derivations*

What we have achieved with this analysis is that we have obtained a cross-categorial means of distinguishing between the constituency of lexical versus non-lexical prosodic words. What remains open, however, is the question of the possible subversion of the contrasting constituencies in syntactic processes involving displacements. Thus, whilst we expect that a lexical verb will be merged into a $C_VP$ structure, it is another question as to whether it is the whole of that constituent or part of that constituent that is carried along when the verb is preposed from its base position. In this regard, the linear sequences produced are then subject to two possible bracketing analyses in forms such as (15):

28. a. {[$_{\Sigma P}$ haere] [$_{\Sigma P}$ ana]}
    b. {[$_{CVP}$ haere] [$_{\Sigma P}$ ana]}

In (28b), the left bracket of the PPh is a $C_LP$, but the right bracket is a ΣP, but in (28a) both left and right edges of the PPh are ΣPs. Under de Lacey's approach to the formation of PPhs, if a $C_LP$ equates to a lexical XP, then the bracketing in (28b) gives the wrong output since the right bracket of the $C_VP$ maps to the right edge of the PPh and the ΣP containing *ana* would map to an independent PPh. The structure that is indicated in (28a) would correspond most closely to de Lacey's treatment in which the verb is raised by head movement and the PPh is formed by the condition (14ii) requiring both prosodic words to be mapped into a PPh.

To bring another kind of case into the mix, the examples in (2a-c) showed sequences in which combinations including more than one lexical base make up a single PPh. If each lexical base is a $C_LP$, then the PPh mapping for (2c), for instance, should give the output shown in (29b):

29. a. ki te {tuku rōku mai}
       T/A send log hither
    b. *ki te {[$_{CVP}$ tuku]} {[$_{CNP}$ rōku] [$_{\Sigma P}$ mai]}

According to Biggs (1961: 48), (29a) has a two-base nucleus and constitutes, along with the minor morpheme *mai*, a single phrase unit. However, if both the noun and the verb in (29) count as $C_LPs$, we would expect the PPh mapping process to produce at least two PPhs with the right and left $C_LP$ bracketings marking the boundary between the two PPhs, as in (29b). Whereas the correct mapping for (28b) might allow for the incorporation of the ΣP with the preceding $C_LP$, the role of the $C_LP$/ΣP contrast starts to be undermined if we allow for the ignoring of boundaries between two $C_LPs$.

As I have indicated already in earlier discussion, the actual syntactic constituency at the high end of the Māori clause remains to be fully determined.[21] But suppose that we take the $C_LP$/ΣP as the criterial factor, there are four possible pairings of these kinds of constituents. Adding in cases in which a limited number of closed class modifiers may precede a lexical head (see Harlow 2001: 47–50 for an overview), as in (30), the possible pairings are listed in (31) (where $C_LPs$ are shown as [S]trong and ΣPs are shown as [W]eak):

30. Ko tērā te {tino pukapuka} i whiwhi ahau.
*ko* DET.DIST the very book T/A get 1SG
'That's the very book I received.' [Bauer 1997: 302]

31.

| | | | | |
|---|---|---|---|---|
| a. | S | S | tuku rōku | (29) |
| b. | S | W | haere ana | (28) |
| c. | W | S | tino pukapuka | (30) |
| d. | W | W | ? | |

According to the analysis that I have sketched out in Section 3.1, forms like *tēnei* 'DET.PROX' (and *tērā* 'DET.DIST' in (30)) are $C_L$Ps in that, although in the surface they are made up of a particle followed by a ΣP modifier, they actually include the structure of a non-overt N head.[22] If this analysis is correct and if there are truly no sequences of the (31d) type (i.e., if (28a) is not a correct analysis), then all PPhs must include at least one $C_L$P.

But we are still left with the separation question: especially, how do we know when not to put PPh boundaries in between two $C_L$Ps, as in the (31a) case?

Can we take another tack on the problem and look at the particles that are not included in PPhs as a means of defining the boundaries of PPhs? Biggs (1961), in fact, suggests such an approach, at least as a heuristic, in identifying the edges of phrase units:

> '. . . in any utterance the occurrence of a preposed minor morpheme following a morpheme not classed as preposed marks the boundary of a contour word.'
> [Biggs 1969: 17]

This strategy will produce the correct boundary assignments in most cases, but not for all cases. Thus, in both (32a) and (32b) the subject of the sentence makes up a separate PPh, but only in (32a) is there a initial particle in the subject constituent which can be picked up as marking off the edge of the PPh that precedes it:

32. a. E {kai ana} a {Mere}.
T/A eat PROG PERS Mere
'Mere is eating.'

b. E {kai ana} {rātou}.
T/A eat PROG 3PL
'They are eating.' [Biggs 1961: 17]

In (32a) the personal article preceding the proper name *Mere* provides the particle to induce the closing off of the PPh preceding it. However in (32b) there is no overt particle to justify the closing off of the right boundary of the first PPh. It seems that over and above the Particle/Prosodic word distinction, we still need to to give a role to the syntactic bracketing in the make-up of the clause in order to produce the correct PPh bracketings.

The same consideration applies to the syntactic constituency within nominal expressions, as witnessed in the contrast:

33. a. {tēnei whare}
DET.PROX house
'this house'

b. tō te {māhita} {whare}
DET.POSS DET teacher house
'the teacher's house' [de Lacey 2003: 68]

In (33b) there are two $C_L$Ps and these make up independent PPhs. Whilst we have proposed earlier that a demonstrative like *tēnei* in its use in cases like in (20) should be analyzed as a having the structure of a $C_L$P, in (33a) *tēnei* does not behave like the lexical pre-N possessor agument in (33b). The contrasting PPh assignments in (33a) and (33b) would need to be distinguished in terms of the DP-internal syntax. However, in this case at least we can note that *tēnei* in (33a) cannot itself be assumed to contain the $C_L$P structure in the presence of the N *whare*, since it will here be *whare* which is the overt head of the $C_L$P. (For some discussion of the DP-internal syntax and related issues, see Waite 1994; Pearce 2003.) In summary, there are cases in which a single PPh may contain more than one prosodic word and the mechanisms for delimiting the boundaries of the PPhs in such cases will have to invoke distinctions in the syntactic constituency articulated at some higher level in the architecture of the clause.

This means that we no longer have clarity as to what is proposed as a symmetry in the the undifferentiated right-left bracketing of the PPh boundaries in de Lacy (2003). Furthermore, we have been led to maintain that a PPh has to include a $C_L$P and that the PPh may include one or more $C_L$Ps/ ΣP s within it. The requirements that we have come up with for PPhs are thus as follows:

34. a. ΣPs are contained within a PPh.

b. A PPh includes a $C_L$P (as per the schema in (31).

On the analysis presented here, therefore, we have espoused the view that the PPh must include a $C_LP$, but that it may have a ΣP at its left and/or right edges.

## 4. Some implications

In this study of the syntactic composition of items in Māori phrases we have reached the conclusion that there is at least a tripartite division in the syntactic composition of the kinds of items that can be included in phrases. These are as follows:

35. a. Particles are heads.
    b. Nuclear bases are $C_LPs$.
    c. Postperipheral items (and a more limited range of preperipheral items) are ΣPs.

The requirement that a PPh has to include a $C_LP$ suggests that any movement operations to which such $C_LP$ items are subject must occur as some form of XP/phrasal-movement, rather than as head-movement. The present analysis thus lends support to a phrasal-movement account of verb raising. By the some token, on the assumption that postperipheral items are ΣPs, these must also be involved in phrasal-movement. (As discussed in Pearce (2002), it then seems likely that the mirror-image surface ordering of predicate adverbials indicates that these items participate in iterative roll-up, which we should now view as phrasal rather than as head roll up.)

The central focus of this paper has been on how we might understand the syntactic composition of the kinds of patterns that occur in Māori sentences and that were originally pointed to in Biggs (1961). The investigation of these patterns led us into a consideration of de Lacy's (2003) proposals as to the syntax-phonology mapping algorithm. Our investigation of the status of items in the postperiphery of the phrase (and of some preperipheral items) showed that these kinds of items have an intermediate status in the treatments of both Biggs (1961/1969) and of de Lacy (2003). The proposal that I advance here is that the existence of 'intermediate' categories is catered for in an application of the deficiency metric of syntactic constituency as put forward in Cardinaletti and Starke (1999) and in Cardinaletti (2011). A particular advantage of this proposal is that it provides a means of characterizing the alternating behaviour of the singular pronouns in conformity with findings for other (well studied)

languages. A particular challenge, for this approach, however, is that of determining the extent to which the structural assignments that are applied to individual lexical items are preserved in cases where displacement processes are involved in the derivations. This broad brush solution to the make-up of the phrase in Māori is yet to be applied in a thorough working out of the syntactic derivations. However, I believe that it provides a good starting point both for further understanding of what is involved in the syntactic derivations and for the details of the syntactic composition of individual items.

## Notes

1 I would like to thank two anonymous reviewers for *Te Reo* for suggesting a number of improvements that I have tried to implement in this paper. I would also like to thank Ray Harlow for coming up with an answer to a question that I had and the audience at the New Zealand Linguistic Society conference (VUW, November 2011) where I first tried out some of the ideas that have been developed in what follows in the paper. All errors of interpretation are of course my own.

2 Non-standard abbeviations in the glossing of the Māori forms are: NMZ = Nominalization; PERS = Personal article; PROX1 = Proximate near First Person; T/A = Tense/Aspect.

3 Yet another case of the presence/absence of an initial particle is encountered with initial *ko*-Topics. In the *ko*-Topic construction a fronted nominative noun phrase is preceded by *ko*, as in:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| i. | Ko | te | waka | nā | Koro | i | tārai. |
| | *ko* | the | canoe | *nā* | Koro | T/A | fashion |

'Koro fashioned the canoe.' [Bauer 1997: 503]

However, given that Harlow (2001: 194, fn. 6) states that *ko* can be omitted before a determiner in spoken Māori, the presence of the determiner will preserve the three-mora count in a phrase unit: [Ø — Determiner — X] in which X has only two moras. One further case of phrases consisting of only a two-mora item is discussed in sections 2.3 and 2.4.

4 The bracketing of the two phrases in (4) is also a means of abstracting away from the issue as to which of these two constituents is being displaced in (4a)/(4b). In the case of the Actor-Emphatic construction represented in (5), there are a number of different views as to the nature of the syntax of this construction (for a useful discussion, see Harlow 2007: 175–177). Discussion of the nature of the constructions represented both in (4) and (5) would go beyond the scope of the present paper.

5 In further research on this general topic, I plan to extend the analysis to the consideration of the syntax of items in the preposed periphery.

6 In the Phase theory of Chomsky (2001, 2008), certain of the structural entities so formed are fed in stages to the phonological component. For Chomsky (2008: 143) the phases so defined are said to be CP, vP and possibly DP units. A further extension of what is to be covered in this paper will be to assess the implications for the mapping between the syntax and the phonology in so far as these units are concerned.

7 Abstracting away from the details as to whether this is with reference to features on nodes or as a structural algorithm, or a combination of both.

8 For a recent discussion, see Roberts (2010) and, for a discussion weighing up the relative merits of the V-raising versus phrasal movement for Māori, see Pearce (2002).

9 Alternatively, if the raising of the verb to a higher position in the clause is through phrasal movement (as suggested in Pearce 2002 and, for Niuean, in Massam 2001), rather than through head-movement, then, as represented in (10), we find that the PPh and XP boundaries for *moe* would coincide at both its left and right edges. On this basis, it would seem that PPh/XP correspondence derived as a result of phrasal movement could serve as an argument in support of verb raising by phrasal movement rather than by head-movement. However, it remains to be determined if all such cases that de Lacey discusses would be amenable to a comparable treatment.

10 Harlow does not discuss the phrase phonology that applies in (18). My treatment of (18) as consisting of a single phonological phrase corresponds to that assigned by Harlow to (19b).

As another instance of the (19a) type in which a singular pronoun, receiving major stress, is the nucleus of a phrase is the following example from Hohepa (1967):

i. {Kei te whare} {au}.
at the house 1SG
'I am at the house.' [Hohepa 1967: 11]

11 It may be that the initial stressed vowel of the pronoun PPhs in (19a) and (i) in note 10 is lengthened, but I have not found input on this speculation in my sources.

12 As pointed out by an anonymous reviewer, the singular pronouns also have affixal allomorphs: *-ku* '1SG', *-u* '2SG', *-na* '3SG'. These combine with possessive prepositions and determiners giving rise to forms such as *nōku* 'belong to me', *māku u* 'for me', *tāku* 'my/mine'. Interestingly, as the same reviewer points out: (i) the existence of these forms provides support for the three locations on the 'strength scale' that Cardinaletti and Starke propose, but (ii), for Cardinaletti and Starke, the modification possibility is not supposed to be available for deficient items. However, in these kinds of cases, assuming that these obligatorily affixed forms are heads, the compounded forms would be derived through head raising.

13 As well as the demonstrative set, represented by *tēnei* in (20), other such

combinations with determiners include: *tētahi* 'some', *tēhea* 'which' and singular pronoun forms, such as *tāku* 'my/mine' (as cited in note 12).

14 In Biggs (1969: 53) the personal pronouns are described as 'a special subclass of personals which differ slightly from other personals in the way they are used'.

15 See also the observation of Harlow (2007: 100): 'there is a certain arbitrariness about the base/particle divide'.

16 Pace a dialect distinction for 1SG *au* ~ *ahau*.

17 Cardinaletti and Starke (1999: 160) show a comparable distinction in the behaviour of preverbal strong XP subjects versus preverbal deficient pronouns in French. In the contrasting cases in (i), the strong subjects in (ia) are prosodically independent units, whereas the deficient pronoun subject in (ib) is part of a prosodic unit with the following verb:

i. a. Al/lui mange beaucoup.
Al/he eats a lot

b. Il mange beaucoup.
he eats a lot

In this particular case also there is no (linear) positional contrast in placement of the 3SG pronouns.

18 I leave open here the case of dialectal *ahau* versus *au* '1SG'. The form *ahau* is etymologically *a* 'PERS' + *au* '1SG'.

19 These are forms such as German *doch* 'then', *schon* 'already', *ja* 'affirmative' and Italian *ben* 'indeed', *pur* 'only', *poi* 'then'. Such items as these cannot be modified or conjoined and they are subject to particular constraints on their syntactic positioning. In these respects, their behaviour is distinct from that of open class adverbs.

20 For example, Harlow (2001) cites the examples in (i) in which *tonu* 'still' modifies the verb in (ia) and the noun in (iib):

i. a. E waiata-tia **tonu**-tia ana tēnā waiata i ngā momo
T/A sing-PASS still-PASS PROG that song P the.PL kind
hui katoa.
hui all
'That kind of song is still sung at all kinds of hui.' [Harlow 2001: 93]

b. Ko ētahi o ā rātau waiata nā rātau **tonu** i tito.
*ko* some P DET.POSS 3PL song *nā* 3PL still T/A compose
'Some of their songs they composed themselves.'
[Harlow 2001: 94; citing Kāretu 1974]

21 Lest it be thought that I am failing in not coming up here with a water-tight proposal as to the full syntactic structure of the Māori clause, I note the reservations made by Cardinaletti (1999) with regard to the same problem with respect to pronouns in the better studied Romance and Germanic languages, to quote:

'What is the derived position in which weak pronouns occur, and how

does language variation in this area arise? Ultimately, this amounts to asking what the nature of clause structure of Germanic and Romance languages is. It is evident that the task is huge. Although many proposals have been made, no comprehensive answer has yet been given.' [Cardinaletti 1999: 68]

22 As pointed out by an anonymous reviewer, two of the post-verb directional modifiers, *mai* 'hither' and *atu* 'away' can be used independently as phrase surrogates. Harlow (2007) gives an example of this type, explicitly indicating the absence of expected elements normally making up phrase constituency as follows:

i. [Ø Ø atu] [i a ia]
DIR P PERS 3SG
'apart from him/her' [Harlow 2007: 100]

On the assumption that the bracketing in (i) indicates the presence of two PPhs, it is conceivable that the covert structure analysis applied to nominal expressions (lacking an overt N), may similarly be applied to expressions of this type, which Harlow (2007: 100) terms 'idiomatic'. There is clearly more work to be done in this area.

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