
RESEARCH

Māori subject extraction

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This paper focuses on subject extraction in Māori, the indigenous Polynesian language of New Zealand. Māori has a range of verbal and non-verbal predicate constructions. I argue that, whilst subject topicalisation is generally permitted in all constructions, subject questioning is restricted (see Bauer 1993; 1997). More specifically, I claim that subject questioning is permitted in verbal and prepositional predicate constructions, but prohibited in nominal predicate constructions, all else being equal (see also de Lacy 1999). I adopt and defend a cleft analysis of questions according to which the questioned constituent is the matrix predicate phrase and the matrix subject is a headless relative clause (Bauer 1991; 1993; 1997). I propose that the restriction on subject questioning results from intervention in this headless relative clause. I argue that the C head probes for a nominal feature rather than a traditional A'-feature. Consequently, nominal predicate phrases intervene with A'-movement of the subject, whilst verbal and prepositional predicate phrases do not. My analysis suggests that A'-movement is generally triggered using nominal features in Māori. I discuss this proposal from an emergentist perspective, i.e. one where formal features are not innately pre-specified but rather emerge during language acquisition guided by the Third Factor cognitive bias to "Maximise Minimal Means" (Biberauer 2017; Biberauer & Roberts 2015; 2017).

Keywords: Māori; subject extraction; A'-movement; emergent features; Maximise Minimal Means

1 Introduction

This paper focuses on subject extraction in Māori, the indigenous Polynesian language of New Zealand. Māori is generally described as having accusative alignment with various traces of ergativity (Bauer 1993; 1997; though see Sinclair 1976; Pucilowski 2006 for (split-)ergative treatments), and only subjects are generally accessible for the purposes of relativisation, topicalisation, focus and questioning (Keenan & Comrie 1977; Bauer 1993; 1997). The combination of accusative alignment and subject-only accessibility is important since many of the languages identified by Keenan & Comrie as having subject-only accessibility exhibit ergative alignment, suggesting that these languages may really have absolutive-only accessibility. Māori thus shows that subject-only accessibility is a genuine phenomenon. Nonetheless, as in many other languages, Māori subjects are not equally accessible in all contexts. More specifically, subject questioning/focus is more restricted than subject topicalisation. This paper is primarily concerned with the nature of this restriction.¹

¹ This paper relies heavily on the detailed reference grammars by Winifred Bauer (Bauer 1993; 1997), which themselves draw from the Māori of older texts and older speakers. Bauer (1997: xx) notes that this is quite deliberate: the Māori of younger speakers is typically acquired as a second language, acquired from "semi-speakers", and may show considerable influence from English. I leave for future research an investigation into how the Māori of younger speakers compares with the data reported here, and how the A'-syntax of English may have influenced the A'-syntax of Māori.

Māori has basic VSO order in verbal constructions and Predicate-Subject order in non-verbal constructions, i.e. it is predicate-initial. Non-verbal constructions can be subdivided into two types based on the category of the predicate phrase (prepositional or nominal) following standard practice in the description of Māori (Reedy 1979; Bauer 1993; 1997; de Lacy 1999) and related Polynesian languages (see e.g. Seiter 1980 on Niuean; Mosel & Hovdhaugen 1992 on Samoan; Otsuka 2005 on Tongan). I argue that, whilst subject topicalisation is generally permitted in all types of construction, subject questioning/focus is permitted in verbal and prepositional predicate constructions, but prohibited in nominal predicate constructions (see also de Lacy 1999).

In this paper I argue that de Lacy's (1999) descriptive generalisation is essentially correct and can successfully describe a wider range of Māori constructions. I combine this generalisation with Bauer's (1991; 1993; 1997) analysis of Māori focus/question constructions as clefts in which the questioned constituent is the matrix predicate phrase and the matrix subject phrase is a headless relative clause. I propose an intervention account based on featural Relativised Minimality (Starke 2001; Rizzi 2013) whereby the C head of this headless relative clause probes for a feature shared by both nominal arguments and nominal predicates, which I call [D]. Consequently, a nominal predicate phrase will block the creation of a headless subject relative clause by intervention, whilst a verbal or prepositional predicate phrase will not. The schematic structure of the headless relative clause CP is illustrated below:

- (1) Nominal predicate constructions
 $*[{}_{CP} [{}_{DP} \text{SUBJECT}] C_{[uD]} \dots [{}_{DP} \text{PREDICATE}] \dots t_{\text{SUBJECT}} \dots]$
- (2) Verbal/prepositional predicate constructions
 $[{}_{CP} [{}_{DP} \text{SUBJECT}] C_{[uD]} \dots [{}_{VP/PP} \text{PREDICATE}] \dots t_{\text{SUBJECT}} \dots]$

This analysis also accounts for why only subjects are accessible for focus/questioning: if the C head of the headless relative clause probes for a [D] feature, the subject phrase will act as an intervener for the relativisation of any lower nominal (see also Aldridge 2004; 2008a; b).

- (3) a. $[{}_{CP} [{}_{DP} \text{SUBJECT}] C_{[uD]} \dots V \dots t_{\text{SUBJECT}} \dots [{}_{DP} \text{OBJECT}] \dots]$
 b. $*[{}_{CP} [{}_{DP} \text{OBJECT}] C_{[uD]} \dots V \dots [{}_{DP} \text{SUBJECT}] \dots t_{\text{OBJECT}} \dots]$

As for topicalisation, I propose that the Topic head probes for a feature found only on nominal *arguments*, which I call [X]. Consequently, no predicate phrase acts as an intervener for subject topicalisation. However, the subject phrase will still act as an intervener for the topicalisation of any lower nominal argument, thus accounting for why only subjects are accessible for topicalisation.

I am thus proposing that C and Topic in Māori probe for [D] and [X] features respectively, i.e. features associated with nominal syntax, rather than [REL] and [TOP] features more familiar from analyses of European languages. The choice of feature in triggering A'-movement defines in large part the *extraction profile* of a given language/construction, i.e. the set of elements that is accessible to A'-movement and that intervenes with A'-movement. I discuss this in greater detail in Section 7.

The structure of the paper is as follows: in Section 2, I lay out my assumptions concerning Māori clause structure in neutral declaratives. In Section 3, I describe verbal predicate constructions and introduce the strategies used to question subjects and predicates and to topicalise subjects. In Section 4, I describe various non-verbal predicate constructions in Māori, considering whether it is possible to question the subject, question the

predicate phrase, and topicalise the subject. I also consider the syntactic category of the predicate phrase, i.e. whether it is prepositional or nominal. In Section 5, I discuss how the Actor Emphatic construction, which has received a lot of attention in the Māori and Polynesian literature, fits into the proposed generalisations. In Section 6, I propose that intervention plays a central role in the proposed generalisations, and discuss and develop a formal analysis. In Section 7, I discuss the conceptual underpinnings of the formal analysis, arguing that using nominal features to trigger A'-movement in Māori is consistent with an emergentist approach to formal features (Biberauer 2011; 2017; Wiltschko 2014; Biberauer & Roberts 2015a; b; 2017). Finally, Section 8 concludes.

2 Māori clause structure

Māori has basic VSO order in verbal constructions and basic Predicate-Subject order in non-verbal constructions. Following much work on the syntax of Austronesian and Polynesian languages (see especially Massam 2000; Aldridge 2004; Collins 2017), I assume that the predicate phrase undergoes predicate fronting² to a position higher than the external argument, regardless of whether the predicate phrase is verbal, prepositional or nominal (I will return to the derivation of VSO order shortly).³ This is schematised in (4) (the heads T, F and R are explained below).

(4) $[_{TP} T [_{FP} [_{XP} \text{PREDICATE}] [_{F'} F [_{RP} [_{DP} \text{SUBJECT}] [_{R'} R t_{XP}]]]]]$ (where X = D/V/P)

Tense-Aspect-Mood markers are generally merged in T. They potentially raise to a C-domain position (see Massam 2010 on Niuean; Collins 2017 on Samoan), but as this is unimportant for the present paper, I ignore it here. R stands for Relator, i.e. whichever head mediates the predication relation between the subject (in its specifier) and the predicate (in its complement) (den Dikken 2006; see also Bowers 1993). The predicate, which I have labelled XP in (4), can be one of three categories: VP, PP or DP, yielding verbal, prepositional or nominal predicate constructions respectively. For example, in verbal predicate constructions, the predicate would be a VP and R would be a *v* head (I remain agnostic concerning the exact category of R in non-verbal predicate constructions). Following Collins (2017), F is a functional head between the subject and T, and bears a [PRED] feature which triggers predicate fronting to SpecFP (see Massam 2000; 2010; Aldridge 2004; 2006 for different implementations of the same basic idea). Assuming that the DP subject remains low in SpecRP, this straightforwardly captures the basic predicate-initial order of all Māori constructions.⁴

Further following the work of Massam (2000), Aldridge (2004) and Collins (2017), I assume that Māori's basic VSO order is derived by extracting the object from the VP to a position below the subject prior to (remnant) VP predicate fronting. Assuming that

² I avoid the term *predicate inversion* since the subject extraction profile of these Māori constructions is quite different from the subject extraction profile of English predicate inversion structures. English predicate inversion structures generally do not permit any type of A'-extraction of the subject (see Moro 1997; den Dikken 2006). Furthermore, if any type of A'-extraction of the subject is permitted at all, it is for questioning, not for topicalisation or relativisation (see Williams 2011; Abels 2012). As we will see, Māori is essentially the opposite.

³ For verbal predicate constructions, this may be controversial. Some authors derive verb-initial order via V-raising (Waite 1990; 1994; Pearce & Waite 1997; de Lacy 1999; Pearce 2002) whilst others do so via VP-raising (Bauer 1993; Herd 2003). Nothing about my analysis hinges on this as far as verbal predicate constructions are concerned, though I adopt a VP-raising analysis in this paper (see below).

⁴ Nominal predicates may move on to a higher position as suggested by a range of empirical differences between nominal and non-nominal predicate constructions (see de Lacy 1999). Similar differences, as well as differences between locative and possessive prepositional predicate phrases, can also be found in other Polynesian languages such as Samoan (Mosel & Hovdhaugen 1992; Collins 2017) and Tongan (Otsuka 2006). I leave the investigation of such differences for future research.

subjects do not move, this position would be a SpecvP or adjoined position lower than that occupied by the subject (see Collins 2017).

- (5) a. Step 1: Object extraction
 $[_{VP} [_{DP} \text{SUBJECT}] [_{V'} [_{DP} \text{OBJECT}] [_{V'} \nu [_{VP} \mathbf{V} \mathbf{t}_{\text{object}}]]]]$
 b. Step 2: Predicate fronting
 $[_{FP} [_{VP} \mathbf{V} \mathbf{t}_{\text{object}}] [_{F'} F [_{VP} [_{DP} \text{SUBJECT}] [_{V'} [_{DP} \text{OBJECT}] [_{V'} \nu \mathbf{t}_{VP}]]]]]]$

Something analogous may also be observed with complex non-verbal predicate constructions, i.e. the complement of the head of the non-verbal predicate may appear following the subject. Such splitting is not generally obligatory though it is preferred in many cases (see Bauer 1997: 31, 33, 63–64 for examples and discussion). I illustrate here using a locational construction (see Section 4.2 below) – the subject phrase is bracketed and the (discontinuous) predicate phrase is in bold.⁵

- (6) Locational construction (Bauer 1997: 31)
I raro [tō pukapuka] **i te tēpu.**
 at(PT) under your book at the table
 ‘Your book was under the table.’

I assume that the complement of the head of the predicate phrase moves out of the predicate phrase to a position below the subject prior to predicate fronting, analogous to the derivation of VSO. This is schematically illustrated for (6) in (7).

- (7) a. Step 1: PP extraction from within predicate phrase XP
 $[_{RP} [_{DP} \text{tō pukapuka}] [_{R'} [_{PP} \mathbf{i te tēpu}] [_{R'} R [_{XP} \mathbf{i raro t_{pp}}]]]]]]$
 b. Step 2: Predicate fronting
 $[_{FP} [_{XP} \mathbf{I raro t_{pp}}] [_{F'} F [_{RP} [_{DP} \text{tō pukapuka}] [_{R'} [_{PP} \mathbf{i te tēpu}] [_{R'} R \mathbf{t_{xp}}]]]]]]]]$

3 Verbal predicate constructions

In this section, I describe the verbal predicate construction and introduce the strategies for subject questioning, predicate questioning and subject topicalisation.

3.1 Verbal predicate constructions

Verbal predicate constructions contain a Tense-Aspect-Mood (TAM) marker and a verbal predicate. The subject typically follows the verb. Some examples are given below. Throughout this paper I will place the predicate (phrase) in bold and the subject in brackets (though I will only bold the verb head in verbal predicate constructions) unless stated otherwise. This is intended to aid the descriptions in Sections 3, 4 and 5.

- (8) Adapted from Bauer (1993: 7, ex (29))
 Kua **hoki** [a Hone] ki te kāinga.
 TAM return PERS Hone to the home
 ‘John has gone home.’
- (9) Adapted from Chung (1978: 136, ex (78))
 Ka **haere** [he tangata] ki te moana.
 TAM go a person to the ocean
 ‘A man went to the ocean.’

⁵ The examples in this paper are drawn from a range of sources, some with their own glossing conventions. I have regularised these for convenience based primarily on the glosses in Bauer (1997) (see the list of abbreviations).

(8) has a definite subject, here a proper name. Proper names are generally preceded by a personal particle (glossed as PERS) unless they are preceded by the particle *ko* (see below). (9) has an indefinite subject, here introduced by *he*.

An optional rule called Indefinite Subject Fronting may move an indefinite subject to a position preceding the TAM marker, as in (10).

- (10) Chung (1978: 136, ex (78))
 [He tangata] ka **haere** ki te moana.
 a person TAM go to the ocean
 ‘A man went to the ocean.’

Indefinite Subject Fronting may be used to question the subject (see below).

3.2 Subject questioning

Subject questioning/focus in intransitive verbal constructions may be achieved by *ko*-fronting⁶ (for definite subjects) or Indefinite Subject Fronting (for indefinite subjects), as in (11) and (12) respectively. It is apparently ungrammatical for Indefinite Subject Fronting to be used with *wai* ‘who’ (Winifred Bauer p.c.).

- (11) a. Bauer (1993: 7, ex (29))
 [Ko wai] kua **hoki** ki te kāinga?
 KO Q TAM return to the home
 ‘Who has gone home?’
 b. Winifred Bauer (p.c.)
 [Ko te aha] kua **mahue** i te tamaiti?⁷
 KO the Q TAM leave.behind CAUSE the child
 ‘What has the child left behind?’
- (12) Bauer (1993: 7, ex (30))
 [He aha] kua **mahue** i te tamaiti?
 a Q TAM leave.behind CAUSE the child
 ‘What has the child left behind?’

Subject questioning/focus in transitive verbal constructions is more complicated. Indefinite Subject Fronting is unavailable because, for independent reasons, transitive subjects cannot be *he*-indefinites in Māori.⁸ *Ko*-fronting is available but generally only used in present tense contexts, as in (13).

⁶ A note on the glossing of the particle *ko*: *ko* has several different functions, including introducing foci, topics and equational predicate phrases. The glossing of *ko* is quite variable in the literature so, for concreteness and consistency, I use the following glosses, modifying cited glosses where necessary:

- (i) KO when *ko* introduces a focus or interrogative element.
- (ii) TOP when *ko* introduces a topic.
- (iii) EQ when *ko* introduces an equational predicate phrase, or an appositive nominal.

Whether these are instances of a single *ko* or not is debatable, e.g. Bauer (1991; 1993; 1997) and Pearce (1999) argue that focus- and topic-*ko* are distinct, and Bauer argues that equational-*ko* is distinct from both of these, whilst de Lacy (1999) explicitly conflates topic-*ko* and equational-*ko*. See Massam, Lee & Rolle (2006) for an attempt to unify the different uses of *ko* in Niuean, which also takes into account the different uses of its cognate *ko* in Māori.

⁷ Note that *ko te aha* corresponds to the subject in (11b), not *i te tamaiti*. Similarly *he aha* corresponds to the subject in (12). A more transparent rendering into English would be ‘What has been left behind by the child?’, although the Māori examples involve neuter/stative verbs rather than passives.

⁸ The distribution of *he*-indefinites is restricted in Māori: (i) they can only be subjects, (ii) they cannot be external arguments, and (iii) they always take narrow scope (see Chung 1978; Polinsky 1992; Chung, Mason & Milroy 1995; Pearce 1997; Chung & Ladusaw 2004 for detailed discussion).

- (13) Bauer (1997: 434, ex (2850c))
 [Ko wai] kei te **here atu** i ngā kuri?
 KO Q TAM tie away ACC the.PL dog
 ‘Who is tying up the dogs?’

In past and future tenses, *ko*-fronting is possible but judged rather odd (Bauer 1997: 434). Instead, in these tenses, a construction known as the Actor Emphatic (AE) construction is used, as in (14). The AE construction is discussed in detail in Section 5 where the structure I am assuming for examples like (14) will be made more explicit.

- (14) Bauer (1997: 434, ex (2850a, b))
 a. Nā wai i **here atu** te kuri?
 belong Q TAM tie away the dog
 ‘Who tied up the dog?’
 b. Mā wai e **here atu** te kuri?
 belong Q TAM tie away the dog
 ‘Who will tie up the dog?’

3.3 Predicate questioning

The verb may be directly substituted by *aha*, as in (15).

- (15) Bauer (1997: 431, ex (2836))
 Me **aha** [te waka e tau i tatahi rā]?
 TAM Q the canoe TAM anchor at seaside DIST
 ‘What should be done with the canoe anchored there by the beach?’

3.4 Subject topicalisation

Topicalised subjects may be unmarked and/or in-situ in Māori (Bauer 1993: 236–237; 1997: 654–655). However, this paper will be concerned with topicalisation where the topic constituent is fronted and generally marked with the particle *ko* (glossed as TOP in topicalisation contexts).

- (16) Harlow (2007: 174, from Bauer 1991)⁹
 [Ko Rewi] e **whāngai** ana i te kūao kau.
 TOP Rewi TAM feed TAM ACC the young.of cow
 ‘Rewi is feeding the calf.’

Topic-*ko* is distinct from focus-*ko* in a number of ways, e.g. topic-*ko* constituents are not stressed (unlike focus-*ko* constituents), and topic-*ko* is optional whilst focus-*ko* is obligatory (see Bauer 1991; 1997; Pearce 1999).

4 Non-verbal predicate constructions

Māori has a number of non-verbal predicate constructions, which I introduce in their own subsections. For each construction I consider the following questions: (i) Can the subject be questioned? (ii) Can the predicate phrase be questioned? (iii) Can the subject be topicalised?¹⁰ I will also consider whether the category of the predicate phrase is nominal or prepositional. As above, the predicate phrase will be in bold, the subject in brackets.

⁹ As Bauer (1991) and Harlow (2007) note, this string has two distinct readings. If *Rewi* is topicalised, major sentence stress falls on the verbal predicate phrase. If *Rewi* is focused, heavy stress falls on *ko Rewi*. Only the topic interpretation is relevant here. Note also that *e ... ana* marks progressive aspect.

¹⁰ Bauer (1997; p.c.) states that predicate topicalisation is uniformly impossible in Māori.

4.1 Prepositional possessive constructions

In prepositional possessive (P-POSS) constructions, the predicate phrase is generally agreed to be introduced by a possessive preposition and hence is prepositional. These constructions specify ownership rather than temporary possession, the latter being expressed with a locational construction (Bauer 1997: 32; see Section 4.2 below).

- (17) Bauer (1997: 32, ex (214))
Nō Te Kao [ia].
 belong Te Kao 3SG
 ‘She comes from/belongs to Te Kao.’

- (18) Bauer (1997: 32, ex (215))
Mā Hera [ngā putiputi nei].
 belong Hera the.PL flower PROX1
 ‘These flowers are for Hera.’

The prepositional possessive *n-/m-* forms depend on whether the possessive relation is actual/realised (*n-* form) or future/intended (*m-* form). The use of *-ā* or *-ō* is determined by the A/O-class possessors and is not relevant here (see Bauer 1997: Chapter 26 for discussion and references). This yields four potential forms: *nā*, *nō*, *mā*, *mō*. Two of these forms (*nā* and *mā*) are found in the Actor Emphatic construction as well (see Section 5).

The subject of P-POSS constructions can be questioned, either by *ko*-fronting or by Indefinite Subject Fronting, as in (19a) and (19b) respectively.

- (19) Bauer (1997: 433, ex (2847a, b))
 a. [Ko tēwhea] **mā Rata**?
 KO Q belong Rata
 ‘Which one is for Rata?’
 b. [He aha] **nā Rata**?
 a Q belong Rata
 ‘What belongs to Rata?’

The predicate phrase of P-POSS constructions may be questioned directly, as in (20).

- (20) Bauer (1997: 431, ex (2833))
Mō wai [tō wai]?
 belong Q your water
 ‘Who is your water for?’

The subject of P-POSS constructions can also be topicalised, as in (21) (*ko Wairangi* is an appositive nominal).

- (21) Bauer (1997: 654, ex (4201a))
 [Ko tēnei tangata] **ko Wairangi nō Ngāti-Raukawa**.
 TOP this man EQ Wairangi belong Ngāti-Raukawa
 ‘This man, Wairangi, belonged to Ngāti-Raukawa.’

4.2 Locational constructions

In locational (LOC) constructions, the predicate phrase can denote spatial or temporal location as well as temporary possession, and is generally agreed to be introduced by a preposition (one of *i*, *kei*, *hei*, *ko* and *a*), which is tensed. The predicate phrase of LOC constructions is thus prepositional.

- (22) Bauer (1997: 29, ex (209))
Kei a Hone [taku koti].
 at(PRES) PERS John my coat
 ‘John has my coat.’
- (23) Bauer (1997: 29, ex (210))
I raro i te tēpu [tō pukapuka].
 at(PT) under at the table your book
 ‘Your book was under the table.’

The subject of LOC constructions can be questioned, either by Indefinite Subject Fronting, as in (24), or by *ko*-fronting, as in (25) and (26).

- (24) Bauer (1997: 433, ex (2844))
 [He aha] **kei roto i te kāpata rā?**
 a Q at(PRES) inside at the cupboard DIST
 ‘What is in that cupboard?’
- (25) Bauer (1997: 433, ex (2845))
 [Ko wai] **kei roto i te kāpata rā?**
 KO Q at(PRES) inside at the cupboard DIST
 ‘Who is in that cupboard?’
- (26) Bauer (1997: 433, ex (2846))
 [Ko ēwhea] **kei roto i te kāpata rā?**
 KO Q.PL at(PRES) inside at the cupboard DIST
 ‘Which ones are in that cupboard?’

The predicate phrase of LOC constructions can be questioned directly, as in (27).

- (27) Bauer (1997: 429, ex (2823))
Kei hea [te oka]?
 at(PRES) where the butcher’s knife
 ‘Where’s the butcher’s knife?’

The subject of LOC constructions can be topicalised, as in (28) (*ko Rurunui* is an appositive nominal).

- (28) Bauer (1997: 654, ex (4201b))
 [Ko tōna kāinga] **ko Rurunui i te takiwā o Whare-pūhunga.**
 TOP his home EQ Rurunui at the district of Whare-puhunga
 ‘His home, Rurunui, was in the district of Whare-puhunga.’

4.3 Classifying *hei* constructions

In classifying *hei* (CLS-*hei*) constructions, the predicate phrase is introduced by *hei* (glossed as CLS(FUT) following Bauer 1997). These constructions are used to specify future roles and functions, and can be considered the future-oriented counterparts of classifying *he* constructions (see Section 4.4 below).

- (29) Bauer (1997: 29, ex (207))
Hei kaiako [ia].
 CLS(FUT) teacher 3SG
 ‘She is going to be a teacher.’

The subject of CLS-*hei* constructions can be questioned, as in (30).

- (30) [Ko wai] **hei** **kīngi mō** **te iwi Māori**?¹¹
 KO Q CLS(FUT) king belong the people Māori
 ‘Who is to be king for the Māori people?’

The predicate phrase of CLS-*hei* constructions can be questioned directly, as in (31).

- (31) Winifred Bauer (p.c.)
Hei **aha** [ia]?¹²
 CLS(FUT) Q 3SG
 ‘What is she going to be (when she grows up)?’

The subject of CLS-*hei* constructions can also be topicalised, as in (32).

- (32) Bauer (1997: 156, ex (1070))
 [Ko taku teina] **hei** **kura māhita**.
 TOP my younger.sibling CLS(FUT) school teacher
 ‘My younger brother will be a school teacher.’

In terms of the category of the predicate phrase, *hei* is probably prepositional rather than nominal. *Hei* occurs independently as a future locative preposition, and is not obviously a determiner of any kind in Māori. Therefore, although there is some doubt whether CLS-*hei* and future locative prepositional *hei* should be entirely conflated (see Bauer 1997: 29), it seems plausible to treat the predicate phrase of CLS-*hei* constructions as being prepositional rather than nominal.

4.4 Classifying *he* constructions

Classifying *he* (CLS-*he*) constructions can be considered the non-future-oriented counterparts of CLS-*hei* constructions (see Section 4.3 above), semantically-speaking. Syntactically, however, there are intriguing differences.

CLS-*he* constructions assign objects to classes or sets. The predicate phrase is introduced by *he* (glossed here as classifier CLS following Bauer (1997), though I ultimately conclude that it is the indefinite article, see below).

- (33) Bauer (1997: 28, ex (204))
He māhita [a Hera].
 CLS teacher PERS Hera
 ‘Hera is a teacher.’

- (34) Bauer (1997: 28, ex (205))
He nui [te whare nei].
 CLS big the house PROX1
 ‘This house is big.’

¹¹ This example is taken from a government website (<http://www.teara.govt.nz/mi/waikato-iwi/page-4>). In its original form, given in (i), it is an embedded question.

(i) I te tekau tau atu i 1850, ka wānangatia e ngā iwi o te motu, tae atu ki ērā o Te Wai Pounamu te take, **ko wai hei kīngi mō te iwi Māori**.
 ‘In the 1850s tribes from all over the country, including the South Island, debated **who should be offered the kingship**.’

Its use as a matrix question in natural Māori has been confirmed by Winifred Bauer (p.c.), who also confirmed the gloss and provided the translation.

¹² *Hei aha* questions typically ask about purpose or use, i.e. this example can easily be interpreted as *What use is s/he?* However, in a context such as asking a group of children what they want to be when they grow up, this example on the intended interpretation is probably fine (Winifred Bauer p.c.).

The subject of CLS-*he* constructions cannot be questioned by *ko*-fronting or Indefinite Subject Fronting (unlike the subject of CLS-*hei* constructions). It apparently makes no difference whether the subject is D-linked or not (Winifred Bauer p.c.).

- (35) Winifred Bauer (p.c.)
 *[Ko wai] **he māhita**?
 KO Q CLS teacher
 ‘Who is a teacher?’
- (36) Winifred Bauer (p.c.)
 a. *[Ko tēwhea] **he nui**?
 KO Q CLS big
 ‘Which (one) is big?’
 b. *[He aha] **he nui**?
 a Q CLS big
 ‘What is big?’
- (37) a. Bauer (1997: 432, ex (2843a))
 *[Ko te aha] **he whero**?
 KO the Q CLS red
 (‘What is red?’)
 b. Winifred Bauer (p.c.)
 *[He aha] **he whero**?
 a Q CLS red
 (‘What is red?’)

However, the predicate phrase of CLS-*he* constructions may be questioned directly, as in (38).

- (38) Bauer (1997: 432, ex (2843b))
He aha [te mea whero rā]?
 CLS Q the thing red DIST
 ‘What is the red thing there?’

The subject of CLS-*he* constructions can be topicalised (like the subject of CLS-*hei* constructions), as in (39).

- (39) CLS-*he* construction (de Lacy 1999: 7, ex (18))
 [Ko Hone] **he māhita**.
 TOP John CLS teacher
 ‘John is a teacher.’

The category of the predicate phrase in CLS-*he* constructions is a matter of some controversy. Some authors propose that *he* is a TAM marker in CLS-*he* constructions (Reedy 1979; Waite 1994; see also Harlow 2007), whilst others argue that this *he* is identical to the indefinite determiner *he* (de Lacy 1999). De Lacy (1999: Appendix 2) provides detailed discussion of the arguments and evidence for and against treating *he* in CLS-*he* constructions as a TAM marker or an indefinite determiner. He notes that *he* is independently attested as an indefinite determiner outside CLS-*he* constructions, but is not attested as a TAM marker in verbal predicate constructions, which suggests it is more parsimonious to analyse *he* as the indefinite determiner. Furthermore,

CLS-*he* constructions can only be negated using *ēhara*, which can only be used for non-verbal predicates (Bauer 1997; de Lacy 1999), thus suggesting that *he* is not a TAM marker. I thus adopt de Lacy's (1999) conclusion that *he* in CLS-*he* constructions is the indefinite article (though I continue to gloss it as CLS), and that the predicate phrase is nominal.

4.5 Equational constructions

Equational (EQ) constructions are equational or identificational. The predicate phrase is introduced by *ko* (glossed here as EQ) and there are no TAM markers. *Ko* is incompatible with the personal article *a* (see Bauer 1997: 28), which is generally found with proper names, hence *ko Hera*, not *ko a Hera*, in (40). However, *ko* may appear with a determiner with common nouns, as in (41).

- (40) Bauer (1997: 27, ex (202))
Ko Hera [taku hoa].
 EQ Hera my friend
 'Hera is my friend.'
- (41) Bauer (1997: 28, ex (203))
Ko te pō tika tonu [tēnei].
 EQ the night right indeed this
 'This is certainly the right night.'

The subject of EQ constructions cannot be questioned, either in-situ or with *ko*-fronting, as in (42).

- (42) Bauer (1997: 432, ex (2842))
 a. ***Ko Hata** [a wai]?
 EQ Hata PERS Q
 ('Who is Hata?')
 b. *[**Ko wai**] **ko Hata**?
 KO Q EQ Hata
 ('Who is Hata?')

However, the predicate phrase of EQ constructions may be questioned directly.

- (43) Bauer (1993: 5, ex (13))
Ko wai [tō tātou matua]?
 EQ Q our.INCL parent
 'Who is our father?' (More literally 'Our father is who?')

It is debatable whether the subject of EQ constructions can be topicalised. Consider the example in (44).

- (44) Bauer (1993: 79, ex (320a))
 [**Ko tēnei**] **ko te rōia**.
 TOP this EQ the lawyer
 'This is the lawyer.'

Bauer (1991; 1993) notes that many speakers omit the EQ-*ko* in such examples, resulting in a structure that would be surface identical with an EQ-construction with an unfronted

subject. She also notes that at least some of the speakers who omit the EQ-*ko* consider examples like (44) to be ungrammatical, which is the judgement reported in de Lacy (1999: 7, ex (17)). Therefore, I conclude that subject topicalisation in EQ constructions is unavailable for some speakers but available, albeit perhaps somewhat marginally, for others.

There is considerable debate about the category of *ko* (see Massam, Lee & Rolle 2006 on the category of *ko* in Niuean, cognate with Māori *ko*) with consequences for the category of the predicate phrase in EQ constructions. Bauer (1997: 28) calls *ko* a preposition (see also Massam, Lee & Rolle 2006; Harlow 2007: 152); Pearce (1999) proposes that it is a type of C (with different types of C for the different types of *ko*); Chung & Ladusaw (2004: 61) take EQ-*ko* to occupy T; and de Lacy (1999) argues that it is a topic marker, which is apparently DP-internal. If *ko* is DP-internal or a functional head such as T or C, the predicate phrase would presumably be nominal. If, however, *ko* is a preposition, the predicate phrase would be prepositional.

Massam, Lee & Rolle (2006) argue that Niuean *ko* is a default or expletive preposition in the left periphery of non-argument nominal phrases. Evidence for its prepositional category comes from its shared selectional behaviour with other, oblique prepositions. However, unlike other prepositions, Massam, Lee & Rolle argue that *ko* is not associated with thematic properties and simply serves to introduce non-argument nominals (including predicate nominals, as well as topic and focus nominals in the clausal left periphery). Crucially, for Massam, Lee & Rolle, *ko* on its own does not create a nominal predicate, though the addition of *ko* is a necessary first step. They propose that *ko* marks the nominal as a non-argument and that, in predicate nominal contexts, the *ko*-phrase is then selected by a null light copular verb. In other words, the predicate phrase of an EQ construction would be a verbal phrase containing a light copular verb and a prepositional phrase, which in turn consists of the default/expletive preposition *ko* and a nominal complement.

However, in both Niuean and Māori, *ko* is in complementary distribution with the personal article *a* (Seiter 1980; Bauer 1993; 1997: 28), as mentioned above. This personal article is found on argument nominals and is presumably a determiner (rather than a preposition) of some sort, assuming that core arguments are nominal rather than prepositional. Furthermore, if EQ constructions in Māori actually have a verbal predicate, we would expect that they would be negated with *kāhore*. However, EQ constructions are negated with *ēhara*, which can only be used with non-verbal predicates (Bauer 1997: 464; de Lacy 1999).

For these reasons, I agree that *ko* is in the nominal left periphery, but suggest that it is better treated as a nominal element (higher than the definite article and in complementary distribution with the personal article *a*) rather than a prepositional element. Furthermore, I suggest that the predicate phrase is nominal and does not contain a null copular verb (see also de Lacy 1999).

4.6 Summary

I have described several non-verbal predicate constructions in Māori, and considered whether the subject and predicate phrase can be questioned, whether the subject can be topicalised, and what the category of the predicate phrase is. The results are summarised in (45) (DP = nominal; PP = prepositional; VP = verbal; ? indicates a tentative entry).

(45) Descriptive summary

Construction	Can the subject be questioned?	Can the subject be topicalised?	Can the predicate phrase be questioned?	Category of predicate phrase
Verbal	✓	✓	✓	VP
P-POSS	✓	✓	✓	PP
LOC	✓	✓	✓	PP
CLS- <i>hei</i>	✓	✓	✓	PP
CLS- <i>he</i>	✗	✓	✓	DP
EQ	✗	✓?	✓	DP

The arrangement of (45) reveals some empirical generalisations. We can see that subject topicalisation and predicate phrase questioning are generally permitted in all types of construction. However, subject questioning is restricted. Specifically, subject questioning is permitted when the predicate phrase is verbal or prepositional, but prohibited when the predicate phrase is nominal (see also de Lacy 1999). This will be analysed in Section 6.

Two further constructions are discussed in supplementary file 1, namely existential possessive (E-POSS) constructions and numerical (NUM) constructions. They are treated separately because the category of their predicate phrases is unclear. However, I present suggestive evidence that these constructions are also consistent with the generalisations above.

5 Actor Emphatic constructions

The Actor Emphatic (AE) construction, which is well-known from the literature on Māori and Polynesian languages more generally, is treated separately because the empirical description of subject extraction in this construction is more complicated. Furthermore, whilst the constructions in Sections 3 and 4 are typically thought to be monoclausal in neutral declarative contexts, there is some debate about whether the AE is monoclausal (Waite 1990; Pearce 1999) or biclausal (Bauer 1993; 1997; Potsdam & Polinsky 2012) among other issues (see Waite 1990; Bauer 2004; Potsdam & Polinsky 2012 for overviews).

Descriptively, the AE construction, as the name suggests, emphasises the actor/agent argument. The emphasised agent is expressed in a prepositional phrase introduced by a possessive preposition: *nā* for actual/realised actions, as in (46), and *mā* for future/intended actions, as in (47). These prepositions are the same as those found in P-POSS constructions, though the *-ō* form possessive prepositions which are also found in P-POSS constructions, *nō* and *mō*, are impossible in the AE construction for reasons that need not concern us here – the O-class possessors are also incompatible with the AE construction in Tahitian (Potsdam & Polinsky 2012). The TAM marker co-varies with the tense of the preposition: *i* with *nā*, *e* with *mā*. The internal argument of the transitive predicate is grammatically a subject – it is unmarked and can be topicalised (see below) – but the verb is in active form, i.e. it is not passivised.

- (46) Bauer (1997: 43, ex (243))
Nā Pani i āwhina [a Hera].
 belong Pani TAM help PERS Hera
 ‘Pani helped Hera.’
- (47) Bauer (1997: 43, ex (244))
Mā ngā kaikōrero e mihi [ngā manuhiri].
 belong the.PL speaker TAM greet the.PL visitor
 ‘The speakers will greet the visitors.’

The AE construction is usually only possible with transitive predicates (Waite 1990: 400). Examples with intransitive predicates are attested in corpora but constructed examples are often rejected by native speakers (Bauer 1997: 506).

Following Bauer (1993; 1997) and Potsdam & Polinsky (2012), I adopt a biclausal analysis of the AE construction. Potsdam & Polinsky (2012) show that Māori has two variant orders in the AE construction, which they call AE2 and AE3 (AE1 is a variant attested in Tahitian but not in Māori). In AE2 the subject (the internal argument) follows the verbal predicate, whilst in AE3 it precedes the verbal predicate but follows the prepositional predicate phrase.

- (48) Potsdam & Polinsky (2012: 77, ex (71b, c))
- a. AE2
Nā Pita i tihore [te hipi].
 belong Peter TAM fleece the sheep
 ‘It was Peter who sheared the sheep.’
- b. AE3
Nā Pita [te hipi] i tihore.
 belong Peter the sheep TAM fleece
 ‘It was Peter who sheared the sheep.’

Potsdam & Polinsky (2012) argue that the prepositional predicate phrase, *nā Pita*, is the matrix predicate phrase; that the internal argument, *te hipi*, is grammatically a subject in both AE2 and AE3; and that the TAM marker and verbal predicate, *i tihore*, belongs to an embedded clause (following Chung 1978; Bauer 2004). Evidence comes from negation, relativisation and the distribution of TAM markers, among other things (see Potsdam & Polinsky 2012 for details and references).

Potsdam & Polinsky point out that there is still the issue of whether the grammatical subject *te hipi* is part of the matrix clause or the embedded clause. On the basis of a comparison with the Tahitian AE construction, they propose that the subject is in the embedded clause in AE2, but is raised in AE3 (they do not commit themselves to the exact position of raising). Their analysis as applied to (48) is given in (49); they do not specify how the subject (the internal argument) patterns in terms of constituency in AE3 (see Potsdam & Polinsky 2012: 84) – *ec* stands for ‘empty category’.

- (49) Potsdam & Polinsky (2012: 84, ex (81))
- a. AE2
 [_{pp} Nā Pita] **expletive** [i tihore **ec**_{agt} [_{DP} te hipi]]
- b. AE3
 [_{pp} Nā Pita] [_{DP} te hipi] [i tihore **ec**_{agt} **ec**_{theme}]

It goes far beyond the scope of this paper to attempt to resolve the outstanding constituency issues or how the overt agent and theme relate to the embedded clause. The schematic structures in (49) will suffice for present purposes.

Returning to our description, the AE construction fits the generalisation from above concerning predicate questioning and subject topicalisation, i.e. both of these are permitted. Predicate questioning has in fact already been seen in (14) above, but the examples are repeated in (50) for convenience, now shown with the matrix predicate phrase in bold and the (embedded) subject in brackets.

- (50) Pearce (1999: 260, ex (37))
- a. **Nā wai** i here atu [te kuri]?
 belong Q TAM tie away the dog
 ‘Who tied up the dog?’
- b. **Mā wai** e here atu [te kuri]?
 belong Q TAM tie away the dog
 ‘Who will tie up the dog?’

(51) shows that subject topicalisation is permitted in AE constructions (recall that the grammatical subject corresponds to the internal argument).

- (51) Pearce (1999: 258, ex (27))
 [Ko te tamaiti] **mā te pirihi**mana e kite.
 TOP the child belong the policeman TAM find
 ‘As for the child, it is the policeman who will find it.’

This is one of the most common ways to topicalise internal arguments of transitive predicates in Māori, direct objects typically not being very accessible (see also Section 6.1). The AE construction can also be used to relativise internal arguments (Bauer 1997: 570).

Given that the matrix predicate phrase is prepositional, our generalisation would lead us to expect that *ko*-fronting of the subject for questioning and/or focus would be permitted. However, the empirical facts are somewhat complicated. On the one hand, it is reported that the subject of AE constructions can be focused using *ko*-fronting, as predicted by our generalisation. Two examples are given below (small capitalisation indicates strong stress):

- (52) Bauer (1997: 669, ex (4337))
 [Ko ngā KEA] **nā Hone** i pupuhi.
 KO the.PL kea belong John TAM shoot
 ‘John shot the KEAS.’
- (53) Bauer (1993: 230, ex (928))
 [Ko te KAIAKO] **nā.na** i meke.
 KO the teacher belong.3SG TAM hit
 ‘He hit the TEACHER.’

On the other hand, it is also reported that subject questioning in AE constructions is prohibited, as in (54), which is not predicted by our generalisation.

- (54) Pearce (1999: 259, ex (30))
 *[Ko wai] **nā Hōne** i pupuhi?
 KO Q belong Hone TAM shoot
 ‘Who did Hone shoot?’

Such examples can only receive an echo interpretation, a point I return to below.

Pearce (1999) proposes that subject questioning in AE constructions is prohibited because the PP containing the emphasised agent occupies SpecFocP, the dedicated focus position in the left periphery (see also Waite 1990). This provides a straightforward explanation for why the agent in the prepositional predicate phrase can be questioned, and would correctly rule out examples like (54), though something more would have to be said about (52) and (53), e.g. perhaps these examples involve a different type of focus which targets a distinct and higher focus position. However, there are problems for this type of analysis.

First, Potsdam & Polinsky (2012) note that, if the emphasised agent in the focused PP is A'-moved to SpecFocP or some left peripheral position, it will presumably move across the grammatical subject (the internal argument). Therefore, in cases where the agent is an R-expression and co-indexed with a theme subject, we would expect a Strong Crossover violation. However, Potsdam & Polinsky observe that such examples are grammatical, regardless of the position of the theme subject.

- (55) Potsdam & Polinsky (2012: 81, ex (77a, b))
- a. **Nā Hone_i** i pupuhi [ia_i anō].
belong John TAM shoot 3SG again
'John shot himself.'
 - b. **Nā Hone_i** [ia_i anō] i pupuhi.
belong John 3SG again TAM shoot
'John shot himself.'

Potsdam & Polinsky note a second prediction, namely the theme subject is predicted to be able to bind the representation of the agent in the agent's supposed base position. However, this is not possible.

- (56) Potsdam & Polinsky (2012: 81, ex (78a))
- ***Nāna_i** (anō) [a Hone_i] i pupuhi.
belong.3SG again PERS John TAM shoot
'(John shot himself.)'

The examples in (55) and (56) thus show that the agent (in the predicate phrase) does not undergo obligatory reconstruction and cannot even undergo optional reconstruction to a position below the theme subject. This strongly argues against A'-movement of the predicate phrase, and suggests that the PP is base-generated in a position c-commanding the theme subject.

Could it be that the PP is base-generated in the left peripheral focus position? We have already seen that *ko*-fronting for focus is permitted in (52) and (53) above, although it was pointed out that these may potentially involve different types of focus. However, evidence from time adverbials suggests that the PP predicate phrase is not as high as a left peripheral position. In Māori, time questions require fronting of the question phrase (note that the subject also tends to be fronted in such cases). (57) is an example involving a verbal predicate construction.

- (57) Bauer (1997: 436, ex (2857b))
- A whea [a Hata] **haere** mai ai?
at(FUT) Q PERS Hata move hither PART
'When will Hata come?'

Bauer (1997: 436) points out that time adverbials are commonly fronted in declarative clauses anyway, suggesting that this may be in-situ questioning of an already-fronted time phrase, rather than a fronting-for-questioning strategy.

Now, fronted time adverbials are possible in AE constructions in declarative contexts, as in (58a), but questioning the time phrase is not permitted, as in (58b).

- (58) a. Winifred Bauer (p.c.)
 I te āta nei nā Pita i tihore [te hipi].
 at the morning this belong Peter TAM fleece the sheep
 ‘This morning, it was Peter who sheared the sheep.’
- b. Pearce (1999: 259, ex (29))
 *Inawhea nā Pita i tihore [te hipi]?
 Q belong Pita TAM fleece the sheep
 ‘When did Pita shear the sheep?’

These data suggest that the *position* required for questioning time adverbials is syntactically available in AE constructions, and thus that the ungrammaticality of (58b) results from an independent interpretive property of AE constructions. Supporting evidence for this idea comes from the observation that *ko*-fronting or Indefinite Subject Fronting of an interrogative subject is *syntactically* available, but the result can only be *interpreted* as an echo question (recall (54)).

- (59) Bauer (1993: 16, ex (69a, b))
- a. [Ko te aha] nā Hata i here?
 KO the Q belong Hata TAM tie
 ‘What did Hata tie up?’ (echo interpretation only)
- b. [He aha] nā Hata i here?
 a Q belong Hata TAM tie
 ‘What was it Hata tied up?’ (echo interpretation only)

Therefore, putting this independent interpretive property aside, I conclude that subject extraction in the AE construction is permitted, as expected for a prepositional predicate construction.

6 Analysis

In the previous sections, we concluded that subject topicalisation and predicate questioning are permitted in all constructions, whilst subject questioning is permitted in verbal and prepositional predicate constructions but prohibited in nominal predicate constructions (see also de Lacy 1999). In Section 6.1, I adopt a cleft analysis of questions whereby the questioned constituent is analysed as the matrix predicate, and the matrix subject is analysed as a headless relative clause (see Bauer 1991; 1993; 1997; Potsdam & Polinsky 2011). I will argue that subject questioning in nominal predicate constructions is ruled out by intervention of the nominal predicate phrase, as detailed below. In Section 6.2 I discuss an alternative type of proposal to the restrictions on subject questioning, which I dub the complementary distribution analysis, arguing that it is too restrictive, whilst in Section 6.3 I discuss some potential problems for a cleft analysis, ultimately concluding that they are not particularly severe.

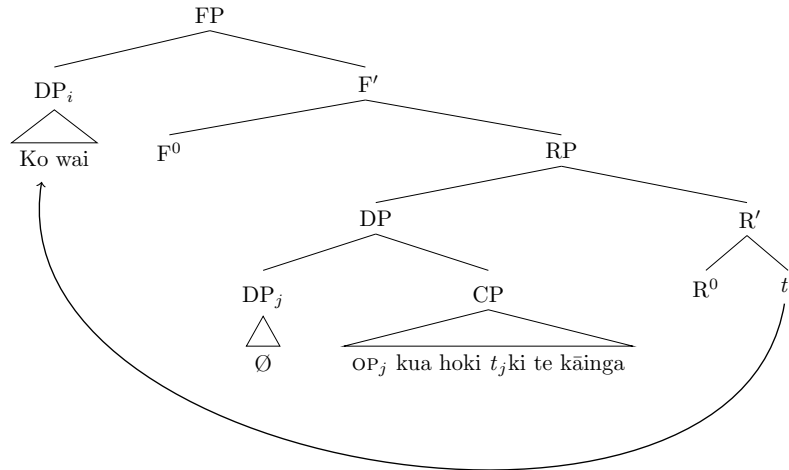
6.1 Cleft and intervention analysis

There is an emerging consensus that (DP-)questions in Māori and many other Polynesian and Austronesian languages are biclausal (Chung 1978; Bauer 1991; 1993; 1997; Paul 2001; Aldridge 2004; 2013; Potsdam & Polinsky 2011, among many others). I will focus on Bauer’s (1991; 1993; 1997) proposal as it relates specifically to Māori.

Bauer suggests that subjects in Māori cannot be questioned in general. When it looks as if a subject has been questioned, she proposes that we are actually dealing with a cleft

structure: the questioned constituent is the matrix predicate phrase (not the subject), whilst the matrix subject consists of a headless relative clause. I illustrate this using a verbal predicate construction, adapting it to the clause structure I am assuming (see Section 2).

- (60) a. Kua **hoki** [a Hone] ki te kāinga.
 TAM return PERS Hone to the home
 ‘John has gone home.’
- b. [Ko wai] kua **hoki** ki te kāinga?
 KO Q TAM return to the home
 ‘Who has gone home?’



The DP *ko wai* is analysed as a nominal predicate phrase: it originates as the complement of R and moves to SpecFP (see Section 2). The DP subject is in SpecRP and consists of a null relative clause head, DP \emptyset , plus the relative clause CP. Within this CP, there is null operator movement from the subject position to the left periphery (indicated by $OP_j \dots t_j$).

The question now is why this cleft structure is unavailable with nominal predicate constructions, i.e. why can the predicate phrase in the headless relative clause CP not be nominal?

I propose that the problem is intervention. To form a grammatical cleft, a grammatical relative clause CP must be formed. In subject clefts, the subject inside the CP moves to SpecCP. This is permitted when the predicate phrase is verbal or prepositional, but is prohibited when the predicate phrase is nominal. In terms of featural Relativised Minimality (Starke 2001; Rizzi 2013), this can be captured by saying that C probes for a feature shared by both subjects and nominal predicates, which I will call [D]. This is schematised below (note that the DP subject is not pronounced within the CP at all). Recall that I am assuming that movement of the predicate phrase to SpecFP is triggered by a [PRED] feature (see Section 2), so the DP subject does not intervene with movement of the DP predicate phrase.

(61) Nominal predicate constructions

$$*[_{CP} [_{DP} \text{SUBJECT}] C_{[uD]} [_{TP} T [_{FP} [_{DP} \text{PREDICATE}] F [_{RP} t_{\text{subject}} [_{R'} R t_{\text{predicate}}]]]]]]$$

(62) Verbal and prepositional predicate constructions

$$[_{CP} [_{DP} \text{SUBJECT}] C_{[uD]} [_{TP} T [_{FP} [_{VP/PP} \text{PREDICATE}] F [_{RP} t_{\text{subject}} [_{R'} R t_{\text{predicate}}]]]]]]$$

Crucially, C probes for [D] rather than a more “traditional” A'-feature such as [REL] or [WH].¹³ If C had a [REL] or [WH] feature, then it is unclear why a subject with such a

¹³ By “traditional” A'-feature, I mean a feature which is optionally present on an element and, when present, is involved in A'-movement (see e.g. van Urk 2015).

feature could be attracted across a non-nominal predicate phrase but not across a nominal one (unless one were to stipulate that nominal predicate phrases have a [REL] or [WH] feature too).

This analysis makes further predictions. If C probes for [D], we predict that subjects should block movement of direct objects in transitive verbal predicate constructions. This prediction is borne out, and may provide a formal featural account of those systems like Māori where only subjects are accessible to A'-movement (Keenan & Comrie 1977). Observe that subject relativisation is possible using a gap strategy, as in (63).

- (63) Bauer (1997: 566, ex (3703))
 ... kua tata ki te taha o **te toka rangitoto**_i [e tū ana i i te ara]
 TAM near to the side of the rock scoria TAM stand TAM at the path
 '... [she] neared the side of the scoria rock which was standing in the path'

In contrast, the direct object of a canonical transitive cannot be relativised using the gap strategy.¹⁴

- (64) Bauer (1997: 569, ex (3716))
 *Ka mōhio ahau ki **te tangata**_i [i kōhuru a Hone i].
 TAM know I to the man TAM murder PERS John
 ('I knew the man that John murdered.')

Instead, another relativisation strategy must be used. One option is to make the internal argument the subject, either by passivisation or by using an AE construction, then relativising the subject. A second option is to use *ai* or a deictic, effectively to serve as a resumptive element. This can either be as part of a possessive-relative construction (see (66) below), or on its own (just using a resumptive is rejected by many older speakers) (Bauer 1997: 570–572).

Similarly, whilst subject focus *ko*-fronting using a gap strategy is perfectly acceptable, as in (65b), direct object focus *ko*-fronting with a gap strategy is not permitted – one of the strategies mentioned above must be used instead, e.g. the possessive-relative construction, as in (66).

- (65) Bauer (1997: 665, ex (4315))
 a. I kite a Hone i te tāhae.
 TAM see PERS John ACC the thief
 'John saw the thief.'
 b. **Ko HONE** i kite i te tāhae.
 KO John TAM see ACC the thief
 'It was John who saw the thief.'

- (66) Bauer (1997: 666, ex (4316))
Ko te KŌAUAU t.ā Hone i tohu ai.
 KO the flute the.of John TAM save PART
 'It was the flute that John saved' (More literally 'That which John saved was the flute')

Importantly, the particle *ai* is obligatory in examples like (66) (see Bauer 1997: 375–389 for detailed discussion of *ai*). Pearce (1999) suggests *ai* is an operator-bound clitic whilst

¹⁴ Relativisation with a gap strategy cannot be used with the direct object of canonical transitive verbs, though it can be used with the direct object of experience verbs (Bauer 1997: 568–569). However, Bauer (1997: 200; see also Bauer 1984) notes that canonical transitives and experience verbs frequently differ in their syntactic behaviour. Reedy (1979) treats experience verbs as intransitive.

Herd, Macdonald & Massam (2011) call it a resumptive pronoun. I thus assume that these constructions do not involve movement of the direct object. If C probed for a [REL] or [WH] feature, we would incorrectly predict direct objects to be able to move across DP subjects, as they can in English, for example.

Another prediction made by this analysis is that non-DPs cannot be questioned via fronting/clefting. This generally seems to be correct. Oblique DPs are questioned in-situ. This applies to notional indirect objects, locative arguments and comitative arguments, as the following examples illustrate.

- (67) Bauer (1997: 435–436, ex (2854))
- a. I pātai te māhita ki a wai?
TAM ask the teacher to PERS Q
'Who did the teacher ask?'
 - b. I haere atu a Rewi i Rotorua ki hea?
TAM move away PERS Rewi from Rotorua to Q
'Where did Rewi go to from Rotorua?'
 - c. Kua kite.a a Rona me ngā aha?
TAM see.PASS PERS Rona with the.PL Q
'What is Rona seen with?'

Time questions constitute a possible exception as these require fronting. However, as mentioned in Section 5, time adverbials are typically fronted in declarative contexts anyway, so it is not clear that this is fronting-for-questioning as opposed to in-situ questioning in an already fronted position (see also Section 6.2 below). Similarly, reason questions may involve fronting, but reason adverbials are also typically fronted in declarative contexts with resumptive *ai* (Bauer 1997: 376, 436–437). Reason questions may also be questioned in-situ, like other obliques, as in (68), or can be formulated as nominal predicate constructions where the questioned constituent is the predicate phrase and the subject phrase is the noun *take* 'reason' followed by a relative clause, as in (69).

- (68) Bauer (1997: 437, ex (2858))
Tangi ana a Tohe ki te aha?
cry TAM PERS Tohe to the Q
'Why is Tohe crying?'
- (69) Bauer (1997: 437, ex (2859))
[He aha] [te take [i reti ai e Māui te rā]]?
CLS Q the reason TAM lasso PART by Maui the sun
'Why did Maui lasso the sun?'

If C probed for a [REL] or [WH] feature, it would be unclear why obliques cannot be fronted for questioning more generally. The only obliques that can be fronted for questioning seem to be fronted for reasons independent of interrogativity, suggesting that these may in fact be questioned in-situ.

What about the questioning of predicate phrases? Again, this seems to take place in-situ. In the case of verbal predicate constructions, this can be seen from the fact that the questioned predicate follows the TAM marker, as in (70), repeated from above.

- (70) In-situ questioning of verbal predicate
Me aha [te waka e tau i tatahi rā]?
TAM Q the canoe TAM anchor at seaside DIST
'What should be done with the canoe anchored there by the beach?'

Bauer (1997: 581–582) states and illustrates that it is possible to relativise the nominal within a prepositional predicate phrase using a resumptive pronoun (see Section 6.3 below). Furthermore, she explicitly states that the predicate phrases of EQ and CLS-*he* constructions, which we have argued are nominal, cannot be relativised on, but they can be questioned. This is consistent with the hypothesis that predicate questioning takes place in-situ. If this were not the case, we might expect predicate questioning to involve resumption or to be impossible, both contrary to fact.¹⁵

6.2 Complementary distribution analysis

I have proposed that subject questioning in nominal predicate constructions is ruled out due to intervention by the nominal predicate phrase. However, there is an alternative type of approach in the literature, which I dub the complementary distribution analysis.

The guiding intuition of complementary distribution analyses is that subject questioning/focus is prohibited in constructions where the predicate phrase itself occupies the focus position. Consequently, in such constructions the predicate phrase and the questioned/focused subject are competing for the same position. For example, de Lacy (1999) proposes that nominal predicate phrases occupy SpecCP, the position also targeted by question movement in his analysis, whilst prepositional predicate phrases occupy a lower position (de Lacy adopts a V-raising analysis for verbal predicate constructions). Consequently, subject questioning is prohibited in nominal predicate constructions, but permitted in prepositional (and verbal) predicate constructions. In contrast, predicate questioning is permitted in all constructions either because the predicate phrase already occupies the question position SpecCP (as with nominal predicates) or because the predicate phrase is able to move there (as with prepositional predicates). Similarly, subject topicalisation is permitted in all constructions because topicalisation targets SpecTopP, which is distinct from and higher than SpecCP.¹⁶ The intuition here is thus akin to Pearce's (1999) analysis of the AE construction discussed in Section 5. De Lacy's (1999) analysis is schematically represented below (_ indicates available positions in the left periphery).¹⁷

- (71) a. Nominal predicate constructions
 [_{TopP} _ Top [_{CP} [_{DP} PREDICATE] C [_{TP} ... [_{DP} SUBJECT] ...]]]
- b. Prepositional predicate constructions
 [_{TopP} _ Top [_{CP} _ C [_{TP} ... [_{PP} PREDICATE] ... [_{DP} SUBJECT] ...]]]

However, there are problems with this analysis. First, if nominal predicates occupy a left peripheral focus position, we might expect them to be obligatorily focal/emphasised. However, whilst nominal predicates can be emphasised (typically by means of emphatic stress (Bauer 1997: 668–669)), this is not obligatory.

Second, the analysis of nominal predicate constructions in (71a) predicts that no element other than the nominal predicate can be questioned. However, time questions are

¹⁵ Note that this implies that nominal predicate phrases are “defective interveners” for subject movement to SpecCP: nominal predicate phrases intervene in the Probe-Goal relation between C and the subject phrase, but they themselves, like predicate phrases in general, cannot undergo movement to SpecCP.

¹⁶ De Lacy (1999) claims that subject topicalisation is not permitted in the EQ construction (a nominal predicate construction). He argues that the nominal predicate phrase independently moves from SpecCP to SpecTopP in EQ constructions, hence blocking both subject questioning and subject topicalisation.

¹⁷ Note that, although de Lacy (1999) and Pearce (1999) propose monoclausal structures, there is nothing inherently monoclausal about a complementary distribution analysis. One could easily imagine such an analysis that holds entirely of the embedded clause in a biclausal structure.

permitted. This is shown in the following examples (the baseline declarative in each case comes from <https://teara.govt.nz/mi/biographies/3n5/ngata-apirana-turupa>):¹⁸

(72) CLS-*he* construction (Winifred Bauer p.c.)

- a. Mai i te tau 1892 **he minita** [a Kara] **nō** te hither from the year 1892 CLS minister PERS Carroll belong the **kāwanatanga Rīpera**.
government Liberal
'From the year 1892 Carroll was a minister in the Liberal government.'
- b. Nō hea [a Kara] **he minita nō** te **kāwanatanga Rīpera**?
belong Q PERS Carroll CLS minister belong the government Liberal
'When was Carroll a minister in the Liberal government?'
- c. I ēwhea tau [a Kara] **he minita nō** te **kāwanatanga Rīpera**?
in Q.PL year PERS Carroll CLS minister belong the government Liberal
'In which years was Carroll a minister in the Liberal government?'

(73) EQ construction (Winifred Bauer p.c.)

- a. Nō te mutunga o 1899 **ko ia** [te minita mō ngā belong the end of 1899 EQ 3SG the minister belong the.PL take Māori].¹⁹
affairs Māori
'From the end of 1899 he was the minister of Māori affairs.'
- b. Nō hea [ia] **ko te minita mō ngā take Māori**?
belong Q 3SG EQ the minister belong the.PL affairs Māori
'When was he the minister of Māori affairs?'

The availability of time questions in nominal predicate constructions thus suggests that the nominal predicate does not occupy the question position in the left periphery.

6.3 Potential problems for a cleft analysis

I am assuming a cleft analysis following the emergent consensus in the literature. However, there are a couple of apparent problems with analysing the CP as a relative clause which need to be addressed. One problem is that, if the CP is a type of relative clause, it must be a headless subject relative. However, Harlow (2007: 175) points out that, although headless relative clauses are independently attested in Māori, they are not independently attested with *subject* relativisation. Headless relative clauses are only found with the so-called possessive-relative strategy (see also Bauer 1997: 583–584). In this strategy, the subject of the relative clause appears as an A-class possessor (in bold) modifying the relative head, either in post-nominal (74a) or pre-nominal (74b) position (the relative clause is in brackets).

¹⁸ Note that in the interrogative examples the subject phrase also tends to be fronted to a position preceding the predicate phrase. This resembles the so-called *bodyguard construction* in various other Austronesian languages (Keenan 1976; Aldridge 2004; 2013). In Māori, such fronting is found with time adverbials, questions, negation and in some subordinating contexts. However, whilst such fronting is preferred, it is not obligatory (see Chung 1978; Bauer 1993; 1997; Pearce 1997; de Lacy 1999). The optionality of subject fronting speaks against a possible analysis suggested by an anonymous reviewer whereby, in examples with time adverbials, the predicate phrase would remain low, allowing the time adverbial to occupy the position that the predicate phrase would otherwise have occupied.

¹⁹ Winifred Bauer (p.c.) points out that *ko ia* may also be parsed as a topicalised subject, in which case the predicate phrase is *te minita mō ngā take Māori* with the *ko* of the predicate phrase being dropped, which modern Māori speakers often do.

- (74) Bauer (1997: 570, ex (3716f, g))
- a. Ka mōhio ahau ki te tangata a Hone [i kōhuru ai].
TAM know I to the man of John TAM murder PART
'I knew the man that John murdered.'
- b. Ka mōhio ahau ki t.ā Hone tangata [i kōhuru ai].
TAM know I to the.of John man TAM murder PART
'I knew the man that John murdered.'

In cases like (74b), the relative head may be null, yielding a headless relative clause, as in (75) (I assume *ai* is a resumptive pronoun, see Section 6.1).

- (75) Bauer (1997: 583, ex (3759))
- Ko t.ā taku ringa [i ngaki ai] me waiho tēnā ki a au.
TOP the.of my hand TAM cultivate PART TAM leave that to PERS me
'What my hand has cultivated, that should be left for me.'

However, in all other relative clauses, the relative head must be overt. This includes cases of subject relativisation, which uses the gap strategy rather than the possessive-relative strategy, as in (76) and (77), a verbal and a prepositional predicate construction respectively (the (relativised) subject is in bold).

- (76) a. Baseline verbal predicate construction (Bauer 1997: 567, ex (3703a))
E tū ana **te toka rangitoto** i te ara.
TAM stand TAM the rock scoria at the path
'The scoria rock was standing in the path.'
- b. Subject relativisation (Bauer 1997: 566, ex (3703))
... kua tata ki te taha o **te toka rangitoto**_i [e tū ana **i** i te ara]
TAM near to the side of the rock scoria TAM stand TAM at the path
'... [she] neared the side of the scoria rock which was standing in the path'
- (77) a. Baseline LOC construction (adapted from (77b))
Kai runga **nga ārani** i te rākau.
at(PRES) top the.PL orange at the tree
'The oranges are on the tree.'
- b. Subject relativisation (Winifred Bauer p.c., from Ngata Dictionary: 403)
Kua pirau **nga ārani**_i [kai runga **i** i te rākau].
TAM rot the.PL orange at(PRES) top at the tree
'The oranges on the tree are rotten.'

Therefore, if the CP in the cleft structure is a relative clause, we would have to say that it is a headless *subject* relative clause and thus that headless *subject* relative clauses are only permitted in cleft constructions (see also Seiter 1980 on Niuean, and the discussion of pseudo-cleft analyses in Potsdam & Polinsky 2011). Nevertheless, this problem is arguably not particularly serious because the null relative clause head is easily recoverable from the *syntactic* context in cleft constructions, namely from the questioned constituent in the main clause predicate phrase.

A second type of problem with analysing the CP as a relative clause concerns the prediction that, in principle, it should be possible to cleft any element that can be relativised. However, there appear to be cases where relativisation is possible but clefting is not. As mentioned in Section 6.1, it is possible to relativise a nominal phrase embedded within a predicate phrase provided that a resumptive pronoun is used, but clefting such a nominal phrase is not permitted (thanks to Winifred Bauer for discussion of these examples).

- (78) a. Baseline LOC construction (adapted from Bauer 1997: 581, ex (3750a))
Kei te whare [taku whaea].
 at(PRES) the house my mother
 ‘My mother is at the house.’
- b. Relativisation of nominal inside predicate phrase (adapted from Bauer 1997: 581, ex (3750))
te whare [kei reira taku whaea]
 the house at(PRES) there my mother
 ‘the house where my mother is’
- c. Clefting of nominal inside predicate phrase
 #/*[Ko tēhea whare] kei reira taku whaea?
 KO Q house at(PRES) there my mother
 (‘Which house is the one where my mother is?’)
- (79) a. Baseline P-POSS construction (adapted from Bauer 1997: 582, ex (3752a))
Nā te tupuna [taua patu].
 belong the ancestor that weapon
 ‘That weapon belonged to the ancestor.’
- b. Relativisation of nominal inside predicate phrase (adapted from Bauer 1997: 582, ex (3752))
te tupuna [nā.na taua patu]
 the ancestor belong.3SG that weapon
 ‘the ancestor whose weapon it was’
- c. Clefting of nominal inside predicate phrase
 #/*[Ko wai] nā.na taua patu?
 KO Q belong.3SG that weapon
 (‘Who was the one whose weapon it was?’)

However, there is an issue here: are the cleft constructions in (78c) and (79c) ungrammatical or infelicitous (hence #/*)? If they are ungrammatical, then relativisation and clefting exhibit different syntactic behaviour. However, it could also be that such examples are grammatically well-formed but always blocked by the option of questioning the nominal in the predicate phrase directly.

- (80) Direct questioning of the nominal inside the predicate phrase
- a. **Kei tēhea whare** [taku whaea]?
 at(PRES) Q house my mother
 ‘Which house is my mother in?’
- b. **Nā wai** [taua patu]?
 belong Q that weapon
 ‘Whose weapon was it?’

To summarise, I have discussed some potential problems for analysing the CP of the cleft as a relative clause and concluded that none of them are particularly severe.

6.4 Topicalisation movement

As shown in Sections 3, 4 and 5, subject topicalisation in Māori is permitted in all constructions. Assuming that subject topicalisation in Māori involves movement (a point I discuss below), this implies that no predicate phrase intervenes. Consequently, the Topic

head must probe for a feature only found on argument phrases (or on referential phrases, as an anonymous reviewer suggests), which I will call [X].

Further evidence suggests that, like [D], [X] is also a nominal feature. First, if [X] is generally found on nominal arguments, we predict that subjects will intervene with topicalisation of any lower arguments in verbal predicate constructions. This prediction is borne out. Whilst subject topicalisation with a gap strategy is fine, direct object topicalisation with a gap strategy is ungrammatical (Bauer 1993; 1997; Pearce 1999).

- (81) Pearce (1999: 251, ex (7))
- a. Baseline verbal predicate construction
I **kite** [te pirihihana] [i te tamaiti].
TAM find the policeman ACC the child
'The policeman found the child.'
 - b. Subject topicalisation
[Ko te pirihihana] i **kite** i te tamaiti.
TOP the policeman TAM find ACC the child
'The policeman found the child.'
 - c. Object topicalisation
*[Ko te tamaiti] i **kite** te pirihihana.
TOP the child TAM find the policeman
(‘The child, the policeman found.’)

Similarly, oblique arguments cannot be topicalised using a gap strategy. (82) illustrates this using the *by*-phrase of a passive.

- (82) Pearce (1999: 252, ex (8))
- a. Baseline verbal predicate construction (from Hohepa 1967: (42))
I **kite.a** [te tamaiti] [e te pirihihana].
TAM find.PASS the child by the policeman
'The child was found by the policeman.'
 - b. Subject topicalisation (from Hohepa 1967: (43))
[Ko te tamaiti] i **kite.a** e te pirihihana.
TOP the child TAM find.PASS by the policeman
'The child was found by the policeman.'
 - c. Oblique topicalisation
*[Ko te pirihihana] i **kite.a** te tamaiti.
TOP the policeman TAM find.PASS the child
(‘The policeman, the child was found by.’)

This thus suggests that [X] is a feature generally found on nominal arguments, and argues against equating [X] with a dedicated A'-feature such as the more familiar [TOP].

Finally, although an embedded subject can be topicalised (via fronting) *within* its own clause, Bauer (1997: 657) notes that even subjects cannot be readily topicalised *from* an embedded clause. This suggests that subject topicalisation is effectively clause-bounded, which would be unexpected if the feature driving topicalisation were a dedicated A'-feature like [TOP].²⁰

²⁰ The subject of certain types of embedded clause can be topicalised, however. This is true of the AE construction (see Section 5) and negative contexts, both of which are argued to be biclausal in Māori (negators in Māori are argued to be verbs which embed a clause (see Hohepa 1969; Chung 1970; 1978)). However, these are also the sorts of construction which permit so-called *subject raising* (Chung 1978; Bauer 1997; Potsdam &

So far, I have been assuming that Māori topicalisation is derived by movement. However, an anonymous reviewer asks whether topicalisation might involve base-generation instead. I propose that Māori subject topicalisation is derived by movement, whilst non-subject topicalisation involves base-generation. Furthermore, I propose that base-generated topicalisation is quite unusual in Māori.

All subject topicalisation examples thus far have involved a gap strategy, but subject topicalisation with resumption is also attested (Bauer 1993; 1997; Pearce 1999), as in (83).

- (83) Bauer (1993: 222–223, ex (903))
 A: Kei te aha a Hone?
 TAM Q PERS John
 ‘What is John doing?’
 B: [(A) Hone], kei te ruku.ruku kōura ia.
 PERS John TAM dive.DUP crayfish 3.SG
 ‘John, he’s diving for crayfish.’

However, Bauer (1993: 236) notes that such “left-dislocated” topics are “by no means a regular phenomenon, and many parallel examples are rejected by consultants”.

Non-subject topicalisation generally requires a resumptive pronoun or even a full resumptive noun phrase (Pearce 1999: 252; Bauer 1997: 657–659). (84) involves topicalisation of a possessor.

- (84) Bauer (1997: 659, ex (4223))
 [Ko Ponga ia], kāhore kau he kupu kōtahi mā.na.
 TOP Ponga CONTR NEG EXCL a word one belong.3SG
 ‘As for Ponga, however, he didn’t say a single word.’

But again, Bauer (1997: 657) notes that examples of non-subject topicalisation are “few and far between”. Topicalisation with resumption thus seems to be quite unusual in Māori both in instances of subject and non-subject topicalisation. I take this to indicate a strong preference for subject topicalisation to involve movement, an option not available to non-subjects due to the [x] feature that the Topic head uses to probe. If topicalisation in Māori involved base-generation, it is not clear why topicalisation with resumption and/or topicalisation of non-subjects would be so unusual.

In this respect, it is interesting to compare Māori topics with Niuean topics, the latter being analysed by Seiter (1980) as hanging topics (see also Massam 2010). Seiter shows that Niuean topicalisation of core arguments, i.e. subjects and objects, involves resumption by an overt or a zero pronoun (the latter giving the appearance of a gap). In contrast, Niuean clefting of core arguments requires a genuine gap. As we have seen, both subject topicalisation and subject clefting in Māori prefer or require the use of a gap. Seiter also shows that Niuean topicalisation is potentially unbounded, may apply to a range of different arguments, and may apply to constituents, such as comitatives, which are inaccessible to clefting and relativisation, which involve movement. This is different from Māori, where topicalisation is effectively clause-bounded and only readily available for subjects. I thus conclude that Māori topicalisation, unlike Niuean topicalisation, involves movement.

Polinsky 2012), whereby the subject of the embedded clause raises to become subject of the matrix clause. If this is the case, subject topicalisation in these constructions may in fact require subject raising followed by topicalisation of a *matrix* subject (Bauer 1997: 658).

7 Discussion

I have proposed that Māori triggers A'-movement to SpecCP and SpecTopP using [D] and [X] features respectively, rather than more “traditional” and dedicated A'-features such as [WH], [REL] and [TOP] familiar from analyses of European languages. I have argued that this captures the extraction profile of Māori in a straightforward fashion, utilising the familiar mechanisms of featural Relativised Minimality. I would also argue that there are conceptual benefits to the analysis proposed here. If A'-movement is defined as movement into the C-domain and if the specific interpretations for different types of A'-movement are determined by the field in which the moving element lands (as is standardly assumed in the cartographic literature following Rizzi 1997), then grammatical systems should in principle be free to trigger A'-movement using features like [D] and [X], as in Māori, or features like [REL], [WH] and [TOP].²¹ Indeed, as Chomsky (1981: 7) recognised at the inception of the Principles and Parameters framework: “We need not expect, in general, to find a close correlation between the functional role of such general processes [i.e. the general processes underlying notions such as ‘passive’ and ‘relativisation’ – JD] and their formal properties, though there will naturally be some correlation”. In the present context, the A'-movements underlying both Māori and English relativisation have the same ‘functional role’ and both share the formal property of involving movement into the C-domain, but they are triggered by distinct formal features and so the A'-movements in both languages exhibit different formal properties in terms of which elements are accessible and which elements count as interveners.

Similar analyses have been independently proposed in the literature. Landau (2015) proposes that a [D] probe on a low C head derives the subjecthood of PRO; Belletti (2015) proposes that new information focus clefts in French are restricted to subjects because the relevant head in the C domain of the embedded clause probes for [D]; and Levin (2017) proposes that K'ichean C probes for [D], which results in movement of the absolutive or ergative argument depending on which argument is higher, which in turn depends on the internal structure of the *v*P.

Other authors have also questioned whether the A/A'-distinction is universal. Davies (2003) and Davies & Kurniawan (2013) argue that Madurese and Sundanese respectively lack *wh*-movement, and that what has previously been analysed as A'-movement is in fact A-movement, whilst van Urk (2015) and van Urk & Richards (2015) argue that Dinka has both A- and A'-features but that these always form composite probes, meaning there is no formal distinction between A- and A'-movement. Aldridge (2017a; b; 2018) proposes that in languages where there is no formal A/A'-movement distinction, it is only a [u ϕ] feature which motivates movement to SpecCP. The A/A'-distinction only arises when C has two sets of features which motivate two distinct movements. In such cases, there is C-T Inheritance (Richards 2007; Chomsky 2008), for example, in English, [wh] and [ϕ] originate on C: [ϕ] is inherited by T (hence A-movement targets SpecTP), whilst [wh] remains on C (hence A'-movement targets SpecCP). Aldridge thus derives the A/A'-distinction from C-T Inheritance – in the absence of C-T Inheritance, there is no A/A'-distinction and only a [ϕ] feature is present, this being universally necessary for licensing DPs.

The present proposal is similar to Aldridge's in that, if there is no formal evidence for A'-features, I assume that they are not present in the grammatical system. However, rather than appeal to the mechanism of Feature Inheritance, I suggest that the formal feature used to trigger A'-movement in a given language/construction results from the acquisition

²¹ To be clear, although all of these features may in principle trigger A'-movement, I only refer to such features as (dedicated) A'-features if their *only* purpose in the formal syntax is to trigger A'-movement. Thus [REL], [WH] and [TOP] are (dedicated) A'-features, whilst [D] and [X] are not.

or development of the grammar itself. In this way, although the grammar itself places no constraints on the feature used to trigger A'-movement, other factors will serve to limit the range of possible variation. Consider the question of why Māori triggers A'-movement using nominal-features like [D] and [X], whilst English does so using features like [WH] and [REL].

I adopt the proposal that formal features are emergent (Biberauer 2011; 2017; Biberauer & Roberts 2015a; b; 2017), resulting from the interaction of the Three Factors in Language Design, namely Universal Grammar, the Primary Linguistic Data, and the Third Factor, i.e. principles of data processing and architectural/computational-developmental constraints (Chomsky 2005). Biberauer (2017) proposes as a Third Factor a domain-general cognitive bias called Maximise Minimal Means, which could be paraphrased informally as 'do as much as possible with as little as possible', and which in the linguistic domain has at least two language-specific manifestations that guide language acquisition, namely Feature Economy and Input Generalisation (see also Roberts & Roussou 2003; Roberts 2007; Biberauer & Roberts 2017).

- (85) Feature Economy
Postulate as few formal features as possible to account for the input (= intake).
- (86) Input Generalisation
Maximise already-postulated features.

According to this view, features are not innate or universal. If there is no evidence in the input – or more specifically the “intake” (see Evers & van Kampen 2008) – for the presence of a particular formal feature, then the language acquirer will not postulate it following Feature Economy. However, once a formal feature has been postulated, the acquirer will attempt to use it as much as possible following Input Generalisation. Crucially, this includes the possibility of recycling features in syntactic domains beyond the one for which a given feature was originally postulated. For example, Wiltschko (2014) argues that there is universally an Anchoring domain in the clausal spine, but that languages may encode Anchoring using Tense, Location or Person, at least some of which are plausibly recycled from prepositional or nominal domains.

Biberauer (2017) argues that the N/V distinction²² is plausibly made first in the acquisition process. Its acquisition is based largely on prosodic cues and accounts for the earliness of basic OV/VO directionality (see also Tsimpli 2014). It is thus plausible that nominal features are present in the early stages of the developing grammatical system, and are thus available for recycling in other domains if the intake provides adequate motivation. Now, an acquirer of Māori will be exposed to instances of subject questioning, subject relativisation and subject topicalisation in the input/intake. Subjects being nominal phrases, it seems plausible to suppose that the acquirer will encode the trigger for A'-movement in Māori by recycling a nominal feature for use as a probe in the C domain. This makes maximal use of minimal means. The acquirer has not postulated any new formal features, and has maximised nominal features which already existed in the system. The result is a Māori-like extraction profile, i.e. one where only subjects are accessible to A'-movement.

²² By N/V distinction it is not meant the specific features [N] and [V], which by hypothesis only arise in their exact form later in the acquisition process. We must thus think of the N/V distinction as distinguishing nominal features and verbal features (or nominal features and non-nominal features), which will eventually be successively subdivided into the finer-grained categories of the adult grammar (including [N] and [V]). The N/V distinction thus involves *archi-features* (by analogy with *archi-phonemes*): *archi-N* (N) and *archi-V* (V) (see Douglas 2018).

I assume that acquirers of languages like English also go through such a stage, i.e. recycling features to serve as triggers for A'-movement is the default. This would account for the fact that questions and relative clauses emerge quite early during acquisition (at around age 3) and for the fact that subject questions and subject relative clauses typically emerge first (see Tsimpli 2014 and references therein).

In the absence of clear instances of A'-movement of non-subjects, this system will persist, ultimately yielding the adult Māori grammar.²³ However, an acquirer of a language like English will be exposed to A'-movement of non-subjects. Such positive evidence will (eventually) indicate that triggering A'-movement using nominal features is insufficient to account for their intake, leading them to override Feature Economy (see e.g. Biberauer 2017; Biberauer & Roberts 2017) and postulate a new type of feature for triggering A'-movement, namely (dedicated) A'-features. Acquirers who have postulated A'-features may still struggle with non-subject A'-dependencies as a result of the computation required to evaluate featural subset and superset relations for the purposes of featural Relativised Minimality, but this arguably has more to do with processing (see Friedmann, Belletti & Rizzi 2009).

This sequence of development means that an acquirer of a Māori-type language will not fall into a superset trap. If they encoded A'-movement triggers using A'-features from the outset, one would either have to explain why A'-movement of non-subjects is ungrammatical in the adult grammar given the standard assumption that negative evidence does not constitute part of the intake, or one would have to say that featural Relativised Minimality is computed differently in Māori-type and English-type languages, which is conceptually unappealing. On the view proposed here, featural Relativised Minimality is computed in exactly the same way in both types of language, the difference resulting instead from the features which enter into those computations.

I believe that this provides a new formal perspective on Keenan & Comrie's (1977) Accessibility Hierarchy. As Keenan & Comrie and many investigations stemming from their proposal observe, the Accessibility Hierarchy describes both discrete differences between languages as well as parsing and processing preferences within languages (see also the discussions in Hawkins 2004; Guasti, Branchini & Arosio 2012). The Maximise Minimal Means model suggests a bridge between the two. The formal systems of languages with non-subject dependencies have to be motivated by robust cues from the intake. It seems reasonable to think there is a diachronic if not synchronic-acquisitional link between the robustness of cues and the ease with which such cues are parsed and processed. Robust cues will lead to the postulation of formal features during language acquisition, whilst non-robust or absent cues will not. In this way, parsing and processing preferences may be digitised and encoded in the formal system of a language during language acquisition, resulting in hierarchies, such as the Accessibility Hierarchy.

8 Conclusion

This paper has investigated subject extraction in Māori. I argued that, whilst subject topicalisation is generally permitted in all types of construction, subject questioning is restricted, being permitted in verbal and prepositional predicate constructions but prohibited in nominal predicate constructions. I argued that subject questions and subject focus take the form of clefts: the questioned/focused constituent is the matrix predicate phrase and the matrix subject phrase is a headless relative clause. I argued that the restriction on subject questioning reduces to an intervention effect in the CP of this headless relative clause. I proposed that the C head probes for a [D] feature ([D] being shared by both

²³ I leave the issue of why C specifically probes for [D] and Topic for [x] for future research.

argument and predicate nominals). Consequently, nominal predicate phrases intervene with movement of the subject DP to SpecCP, whilst verbal and prepositional predicate phrases do not. In contrast, I proposed that the Topic head probes for an [x] feature ([x] being found on argument nominals only). Consequently, no predicate phrase intervenes with movement of the subject to SpecTopP.

I argued that by triggering A'-movement using nominal features like [D] and [x] we can account for why generally only subjects are accessible to A'-movement in Māori. I suggested that nominal features may be recycled as triggers of A'-movement in line with recent emergentist ideas, according to which formal features emerge during language acquisition guided by the domain-general cognitive bias to Maximise Minimal Means.

Abbreviations

ACC = accusative, CLS = classifier, CLS(FUT) = future classifier, CONTR = contrastive particle, DIST = distal, DUP = reduplicated segment, EQ = equational *ko*, EXCL = exclusive, INCL = inclusive, KO = interrogative/focus *ko*, NEG = negator, PART = particle, PASS = passive, PERS = personal particle, PL = plural, PRES = present, PROX1 = proximal (near speaker), PT = past, Q = question word, TAM = tense/aspect/mood marker, TOP = topic *ko*, 3SG = third person singular

Additional File

The additional file for this article can be found as follows:

- **Supplement for 'Māori subject extraction'.** 'Māori subject extraction'. DOI: <https://doi.org/10.5334/gjgl.566.s1>

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