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CONTENTS

Three Faces of Niuean *aki**

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1. Introduction

This paper examines the properties of the Niuean instrumental element *aki*. This particle can be used as a preposition or it can appear as a clitic within the verbal complex. The cliticization of *aki* has interesting consequences for transitivity which will be explored in this paper. Another goal of this paper is to determine whether the clitic *aki* functions as an incorporated preposition (ie in conjunction with the verb as a case and theta-role assigner) or as some sort of bound element, coindexed with an element in a preceding clause. This question arises since in other Polynesian languages, such as Tongan and Samoan, *aki* has been said to have an anaphoric use (Chapin, 1974, Clark, 1976, Hovdhaugan, 1985). Little has been said specifically about Niuean *aki*, though Chapin (1974) states that *aki* is not anaphoric in languages other than Tongan and Samoan, and Seiter (1980) considers Niuean *aki* in all cases to be an incorporated preposition. Our conclusion in this paper will be that while in the most commonly cited examples *aki* has prepositional properties, when operator bound, it acts as a variable, and is thus, in a sense, anaphoric in that it needs an antecedent in the discourse. We show that in its variable use, Niuean *aki*, like *aki* in the languages discussed by Clark, Chapin, and Hovdhaugen, is similar to another verbal clitic, the locative or temporal *ai* which has been discussed by Chapin (1974) and by Massam and Roberge (1997).

2. *Aki* as a preposition

Aki appears as a preposition with an instrumental meaning, as seen in the following examples. Note that Niuean has VSO word order and an ergative/absolutive pattern of case marking.[1] The NP following the preposition *aki*

*Niuean is a Polynesian language, spoken primarily on the island of Niue and in New Zealand. I would like to express my gratitude to Harry Manamana for his valuable work as language consultant. I would also like to thank Liz Pearce, Wolfgang Sperlich, Yves Roberge, and Lagi Sipeli for their help with this work, as well as audiences at the University of Toronto syntax group meetings, the University of Auckland, and Victoria University of Wellington for useful comments. This work has been funded in part by a Social Sciences and Humanities Research Council of Canada grant (410-94-1093). Any errors are my own.

[1]The analysis of the Niuean case system developed in Seiter (1980) and Chung (1978) and adopted here, is as follows.

	Erg	Abs
Proper/Pronoun	a	
Common	he	e

appears preceded by the Absolutive nominal marker. I assume therefore, that *aki* assigns absolutive case to its complement, or, in terms of Minimalist theory (Chomsky, 1995), that the object of the preposition moves covertly to the specifier position of the prepositional phrase, to check the absolutive case feature on the prepositional head.[2]

1. a. *Fano ke fahifahi e tau mohuku aki e pelu*
   Go SBJ clear ABS PL fern AKI ABS knife
   "Go and clear the ferns with the bush knife" (Sp)

   b. *Ne kai e Sione e tau talo aki e huki*
   PST eat ABS Sione ABS Pl taro AKI ABS fork
   "Sione ate the taros with a fork."

   c. *Ne tohitohi a Sione aki e pene*
   PST writing ABS Sione AKI ABS pen
   "Sione is writing with a pen."

I will not further address the prepositional use of *aki* in this paper.

3. *Aki* as a cliticized preposition

3.1 The basics

An alternative realization for *aki* is shown below. In these examples, *aki* appears after the verb and the instrument usually moves to a position between the subject and the object, though this reversal of order is not obligatory, as seen in (3), as well as in (10b) below.

2. a. *Ne folo aki e ia e akau e kuli*
   PST beat AKI ERG she ABS stick ABS dog
   "She beat the dog with a stick." (Sp)

   b. *Kua hele aki tuai e ia e titipi e falaoa*
   PERF cut AKI PERF ERG he ABS knife ABS bread
   "He has cut the bread with the knife"

[2]Data in this paper come from a variety of sources, and the source is indicated for each sentence. The abbreviations used in the example sentences are: C=Chapin (1974), L=Lane (1978), M=McEwen (1970), S=Seiter (1980), Sp-Sperlich (to appear), W=Whittaker (1992). Rex *et al* (undated) and Kaulima and Beaumont (1994) were also of use. Data which is not identified comes from my own notes from Niuean language consultations. Glosses for the sentences taken from Chapin and McEwen have been added in this paper. In some cases, glosses have been changed for consistency. Orthography also has been changed in places. For example, McEwen uses *ng* for a velar nasal, whereas I follow standard Niuean orthography in using *g*. Long vowels are sometimes written with macrons, but due to word processing limitations, I have not used them. Abbreviations used are: Abs: absolutive, Erg: ergative, Loc: locative, Nfut: Nonfuture (embedded), Nom: nominalizer, Perf: perfect, Pers: person marker, Pl: plural, Poss: possessive case, Pred: predicative marker, Prog: progressive, Pst: past, Sbj: subjunctive.

   c. *Ne ahu aki e ia e akau e tau toa*
   PST slay AKI ERG he ABS club ABS plural hero
   "He slayed the heroes with a club"(M)

3. a. *Ne haha aki e Sione e akau e kuli*
   PST hit AKI ERG Sione ABS stick ABS dog
   "John hit the dog with a stick."(L)

   b. *Ne haha aki e Sione e kuli e akau.*
   PST hit AKI ERG Sione ABS dog ABS stick
   "John hit the dog with a stick."(L)

Seiter (1980) presents evidence that the instrument in constructions such as those in (2) has direct object properties, as does the patient. For example, it can raise to subject or object.[3]

4. *Ne toka oti e au e vai ke fakapukepuke aki*
   PST let all ERG I ABS water SBJ fill AKI
   he tau fanau e tau lupo
   ERG PL children ABS PL bottles.
   "I let all the water be used by the children to fill the bottles." (L)

In sentences like (2), *aki* appears in the verbal complex, which is schematized below. Its order with respect to *oti* can vary[4] but it always appears after the directional and intensifier elements and before the aspectual adverbs. I do not discuss here the correct derivation of the elements in the verbal complex, ignoring such questions as whether these elements head projections or are attached pre-syntactically to the verb. In this paper I assume that at least *aki* is base generated on the verb.[5]

5. <u>Verbal elements:</u>
   Tns/Comp Neg Modal V DIR INT *aki oti ai* ASP-ADV EMPH PERF Q

   <u>Modals:</u> *fia* "desiderative" *fa* "habitual" *mata* "look like" *liga* "likely"
   kamata "begin" *teitei* "nearly"

[3]Niuean raising involves overt displacement of either a subject or object into the higher clause. This phenomenon is discussed at length in Seiter (1980) (see also Chung, 1978) and is analysed within GB/Minimalism by Massam (1985) and Massam (1995).

[4]The freedom of order between *aki* and *oti* is seen in the following example. The interaction of *a i* and *aki* will be discussed in section 5. When they co-occur, *aki* precedes *ai*.

(i) Ne holoholo aki oti/oti aki e Sione e vala vai a ia
Pst wash AKI all/all AKI Erg Sione Abs water Abs he
"John washed all of himself with the water." (L)

[5]The reason for this assumption is partly because of problems of morpheme ordering within the verbal complex which arise if *aki* heads a functional projection. The claim that *aki* is base generated on the verb is perhaps supported by the fact that *aki* can appear inside the nominalizing suffix as seen below.

(i) Kua fakamaa e hio-aki-aga haana he akau e toki
Perf shameful Abs cut-AKI-Nom his Gen tree Abs axe
"His chopping the tree with the axe was shameful." (L)

Directionals: *mai* "towards speaker" *atu* "towards hearer" *age* "towards 3rd person" *hake* "up" *hifo* "down"
Intensifiers: *lahi* "very, really" *fakamitaki* "well" *fakaeneene* "carefully"
aki "instrumental", *oti* "universal quantifier", *ai* "locative/temporal"
Aspectual Adverbs: *tuumau* "always" *hololoa* "frequently" *agaia* "still" *agataha* "immediately"
Emphatic Particles: *noa* "only" *foki* "also" *laa* "just" *koa* "indeed"

3.2. *Aki* and transitivity

Seiter (1980), citing examples such as (6) argues that it is not possible for *aki* to cliticize to an intransitive verb.[6]

6. *Ko e tohitohi aki a au (mogonei) e pene foou
PRES write AKI ABS I now ABS pen new
("I am writing now with a new pen.")

However, this is not entirely correct.[7] First, while (6) is indeed ungrammatical, the same sentence with different case marking is acceptable as shown in (7). A similar pair is shown in (8).

7. Ne tohitohi aki e/*a Sione e pene
PST write AKI ERG/*ABS Sione ABS pen
"John wrote with a pen."

8. Ne hopo aki e/*a ia e kave toua
PST jump AKI ERG/*ABS she ABS cord rope
"She jumped with a rope."

Note that without *aki* incorporation, *tohitohi* and *hopo* each take an absolutive agent, and are thus intransitive verbs, as seen for *tohitohi* in (9). It is not possible to transitivize this process verb by adding a created object. For the accomplishment meaning of "write", the simple form *tohi* is used.[8]

[6] I retain here the gloss of Seiter (1980) who considers *ko e* to denote present tense in structures such as (6) (cf. also Krupa, 1982). In Massam and Smallwood (1996) and Massam (1996) it is argued that *ko e* is not a tense marker.

[7] I have no way of ascertaining whether Seiter was led by the ungrammaticality of (6) to making a claim that can be proven incorrect by sentences such as (7), or whether there is in fact a substantial difference of grammar between his sources and mine. For all the sentences that Seiter considers ungrammatical due to the attachment of *aki* onto an intransitive verb, it is possible to account for them in other ways.

[8] In fact, the following sentence was judged as grammatical, with an absolutive object. But note the translation given suggests that *e pepa* "a book" is a locative and not a theme.
(i) Ne tohitohi e Sione e pepa
Pst writing Erg Sione Abs book
"Sione was writing in a book."

9. a. *Ne tohitohi a Sione (aki e pene)*
PST wrote ABS Sione (AKI ABS pen)
("Sione was writing with a pen")

b. **Ne/Kua tohitohi e Sione e tau tala*
PST/PERF writing ERG Sione ABS PL book
("Sione was writing books.")

c. *Kua tohi e Sione e tau tala*
PERF write ERG Sione ABS PL book
"Sione wrote books."

The generalization which might be drawn from the examples in (7) and (8) is that *aki* must at least create, if not initially attach to, a transitive verb. But this generalization would also be false, as (10) demonstrates.

10. a. *Ne fakakofu aki e vaka e tau lauakau*
PST cause-cover AKI ABS canoe ABS PL leaves
"The canoe is covered with leaves."

b. *Fakamafana aki e poko e hita*
cause-warm AKI ABS room ABS heater
"The room is warm with the heater."

Each of (6) and (10) contains a verb with an *aki* clitic, and two absolutive arguments, but (6) is ungrammatical while (10a) and (10b) are acceptable. The difference between them is that (6) contains an intransitive agentive verb, and (10a) and (10b) contain intransitive verbs without agents (but see below).

In (10) we find *aki* cliticized in constructions without an ergative subject, in syntactically intransitive clauses. It is thus not the case that *aki* can appear on a verb just in case it is syntactically transitive, ie contains an ergative agent. But it remains true that the verb *aki* attaches to must be semantically agentive. This is seen from the ungrammaticality of (11), where *aki* is attached to a semantically non-agentive verb. The stative verb *mafana*, without the causative prefix *faka-*, is not possible with *aki* cliticization.[9] This makes intuitive sense, since instruments and agents are closely connected thematic roles (cf. Brunson, 1992).

(11) *Mafana aki e poko e hita.
Warm AKI ABS room ABS heater
("The room is warm with the heater.")

We can thus state the following descriptive generalizations regarding Niuean *aki*.

[9] *Kofu* "cover' is possible with *aki* incorporation without *faka*, but in Sperlich (to appear), *kofu* is given as an optionally transitive verb even without the *faka-* prefix.
i. Ne (faka)kofu aki e vaka e tau lauakau
pst (Cause)cover AKI Abs canoe Abs Pl leaf
"The canoe is covered with leaves." (Sp)

12. a. *aki*+agent/patient verb becomes a double object verb (with or without the ergative agent syntactically expressed).
    b. *aki*+ agent-only verb becomes a transitive verb.
    c. *aki* cannot appear with a non-agentive verb.

We return below to a more theoretical account of these facts.

The generalizations in (12) can be accounted for by positing the following lexical entry for *aki*.

13. *aki* parasitic predicate, {preposition/affix}, [allow abs case]

	<x,	y>
	user	instr
assoc w/pred	<x,	(z)>
	agent	(patient)

MEANING: "agent uses instrument to VERB (patient)"

This entry states that *aki* is a preposition or an affix, and that it assigns two theta roles, that of user and instrument. The user theta role maps onto the agent theta role which is assigned by another predicate with which *aki* must be associated. *Aki* also allows for absolutive case to be assigned to the instrument.

This entry accounts straightforwardly for the ditransitive sentences in (2). A number of questions arise, however. First, we must account for the cases where the agent remains unexpressed, that is, for the intransitivity of (10), and second we must account for the transitivity of (7,8).

With respect to the first question, to derive the examples in (10), we assume general rules which determine under what conditions a lexically present agent (or agent+user) theta role may remain syntactically unassigned. Transitivity alternations (and their relation to passivization) is a rich area in Polynesian syntax (see for example Biggs, 1974, Chung, 1978, Levin and Massam, 1986, Sperlich, 1994) which we will not explore in any depth in this paper. It is generally possible for some verbs to freely alternate between a transitive and an intransitive use, but there are other verbs which may not undergo these alternations.

(14) a. *Futi e Sione e ika*
Catch ERG Sione ABS fish
"Sione caught a fish."

b. *Ne futi e ika*
PST catch ABS fish
"The fish was caught."

(15) a. *Ne ta he tagata e fale*
PST build ERG man ABS house
"The man built a house."

b. **Ne ta e fale*
PST build ABS house
("The house was built.")

When a normally transitive verb does not express its agent, it surfaces as an intransitive verb, that is a verb with an absolutive subject, and no direct object.[10] When an *aki*-cliticized verb does not express its agent, it also appears as an intransitive verb, in the sense that it has an absolutive subject, rather than an ergative one, in spite of the fact that it has two direct arguments.

A more troublesome problem, because it does not fall in with a more general phenomenon, is the case of verbs such as *tohitohi* "writing" and *hopo* "jump" with *aki* cliticization. Since the agent appears in the absolutive case in the non-*aki* sentences (as in (9a)), why must it be ergative when *aki* is cliticized to the verb? We know that it is possible for a Niuean verb to appear with two absolutive case marked NPs and no ergative NP, as in (10), so why can the agent not remain as an absolutive argument along with the instrument in (7)? The answer to this question is not clear but we see from these facts that the notions of agentivity and transitivity are crucially interconnected in Niuean.

The data in (7) to (11) provide us with an unexpected glimpse into the nature of Niuean transitivity and unaccusativity, an otherwise elusive phenomenon due to the ergative/absolutive case system. We see from these sentences that ergative case is conditional on transitivity and on agentivity, and that both of these must hold in order for a sentence to contain an ergative argument. An agentive argument of a mono-valent verb appears in absolutive case (9a), but as soon as this verb becomes transitive, the same argument appears as an ergative NP (7). In the case of (10), on the other hand, we see a transitive verb, that is, a verb which has two direct arguments, but neither of the arguments appears as an ergative argument, since neither is an agent. A similar situation is seen in raising to subject (see Seiter, 1980, Massam, 1985, 1995), where no NP may ever raise into an ergative position. These facts support a view of ergative case as an inherent transitive case thematically tied to agentivity. An agent may receive absolutive case, and a verb may have two direct arguments and fail to appear with an ergative argument. But if a verb has two arguments, one of which is an agent, then it is transitive, and the agent must be ergative.

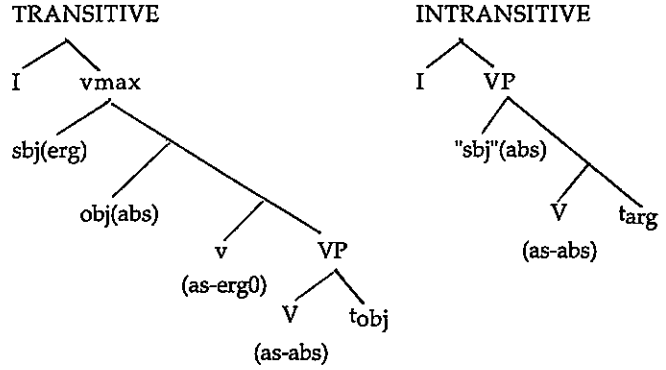
3.3 Syntactic analysis

Having laid out the basic facts, I can now present an analysis of *aki* incorporation. This analysis is embedded in assumptions about Niuean clause structure and case, which are in turn based on Chomsky (1996). I assume the following clause structure for transitive and intransitive sentences. In the case of the transitive clause, the object merges with the verb, forming a VP. The light verb, or transitivity head (cf Hale and Keyser, 1993, Murasugi, 1992), merges to the VP, and the verb then moves up to adjoin to the light verb. The object then moves to the specifier position of the v-V head, where it checks absolutive case. Finally, the agent NP is merged, receiving inherent ergative case along with the agent theta role. The verb will then further front to INFL, above vmax, to derive

[10]Following Seiter (1980), I assume that the single absolutive argument of an intransitive verb is the subject of its clause. However, it is in fact difficult to determine subjecthood in Niuean (cf. Biggs, 1974, Massam and Smallwood, 1996).

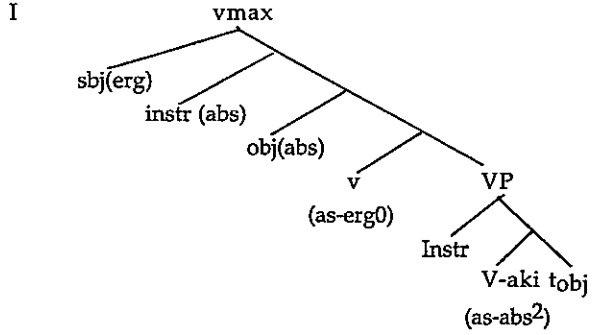
the VSO order. Note that I am ignoring the issue of what features force the various movements, simply assuming that somehow the movements are forced.[11]

16.



This allows the following analysis of *aki* incorporation for the transitive cases, as illustrated in (17). *Aki* is base generated on the verb, thus allowing (but not forcing, cf. (7,8) its case feature to be checked more than once. The object merges with the verb, then the instrument NP merges to the V'. The light verb, or transitivity phrase, merges to the VP, and the verb moves up to adjoin to the light verb. The object and the instrument then move to specifier positions, where they check absolutive case. Finally, the agent NP is merged, receiving inherent ergative case along with the agent theta role. The verb will then further front to INFL, above vmax, to derive the VSInstrO order.

17.



[11]See Massam and Smallwood (1996) for a discussion of this question with respect to V movement in Niuean.

Assuming that we can predict when a light verb will be projected and when it will not be (as discussed above), the derivations of (7) and (8) and (10) are explained in this analysis.

4. *Aki* as operator bound variable

Interestingly, in A-bar bound contexts, the facts change. In (18) we see an example where the instrument has been extracted from the clause by relativization.

18.

Ne	*fakatau*	*e au*	*e kave toua*		*ne*	*fae*	*hopo*
PST	buy	ERG I	ABS cord rope		NFUT	PROG	jump
aki	*a*	*ia*					
AKI	Abs	she					

"I bought the rope that she is jumping with."

What is notable about this clause is that the embedded relative clause is intransitive, that is, the agent is in the absolutive case, even though *aki* appears on the verb. If there is no relative extraction, the clause will be transitive, as seen in (19).

19.

Ne	*hope*	*aki*	**a/e*	*ia*	*e*	*kave*	*toua*
PST	jump	AKI	*ABS/ERG	she	ABS	cord	rope

"She jumped with a rope."

Normally relativization does not cause a shift in transitivity, since the extraction leaves behind a variable empty category which receives case. This is true in Niuean, as seen in (20), which shows that in non-*aki* sentences, relative extraction of the object does not prohibit the subject from appearing with ergative case.

20.

e	*kofe*	*ne*	*taute*	*e*	*au*
ABS	coffee	NFUT	make	ERG	I

"the coffee that I made"

I conclude from these facts that in relative clauses with *aki*, there is no variable in the sentence coindexed with the operator, since if there was, the subject would appear with ergative case, as in (20). Instead, *aki* appears to itself act as the variable in these clauses in that it is the only element in the sentence which is associated with the relative operator. When *aki* is bound by an operator in this way, it no longer acts as a theta role and case assigner, in fact it cannot do so, as seen in example (25) below, where the ungrammaticality of the ergative subject indicates that the verb+*aki* complex is not free to assign absolutive case to an instrument empty category. *Aki* thus takes on a very different character in operator bound contexts.

5. *Aki* compared with *Ai*

At this point it is interesting to turn to an examination of *aki*'s sister clitic *ai*, seen in (21-24). This clitic, examined across Polynesian languages by Chapin (1974) has been recently treated by Massam and Roberge (1997). In the latter work, it is shown that in spite of the variety of contexts it occurs in, *ai* can be characterized across the board as an operator-bound clitic. Massam and Roberge classify four environments for Niuean *ai* as below.[12]

21. **-relative clauses and other A-bar bound situations (clefts, wh questions)**
Ti alai e hala ne faa hifo ai a ia
then block ABS path NFT go down **AI** ABS she
"and blocked the passage by which she usually went down." (M)

22. **-discourse anaphor**
Ne atu e au e taga! Tuku ai nakai e koe
PST give ERG I ABS bag put AI Q ERG you
e uga?
ABS crab
"I gave you a bag! Did you put the coconut crab in it?" (S)

23. **-existentials**
Hahaa i ai foki taha e moa-fifine fitipiu
PRED LOC AI also one ABS bird-female multi-coloured
"There was also a multi-coloured hen there." (M)

24. **-causality, resultative, purposive ("dependant action" (Bauer, 1997))**
a. *ti nakai talia ai agaia.*
then not consent therefore still (Gloss of Seiter, 1980)
"...so she still didn't consent"

b. *Ko e poka-aga he tama e maka ati*
PRED ABS push-NOM POSS child ABS rock then
matakutaku ai e kuli
fear AI ABS dog
"It was the child's pushing the rock that frightened the dog." (L)

c. *Kua kai e ia e kakaiona ti fifigo ai*
PERF eat ERG he ABS gourd then wither I
"It (a worm) ate the gourd and it withered." (M)

d. *Ko e vaka mitaki lahi* ke heke **ai** a
PRED ABS boat good very SBJ ride AI ABS
taua he tahi
we at sea
"It is indeed a good boat for us to ride in on the sea."(C)

[12]Chapin (1974) discusses seven uses of *ai* in Niuean. Massam and Roberge (1997) collapse these into four main groups.

Massam and Roberge refer to analyses of other languages by Huang (1984), Freeze (1992), and Tellier (1991) to show that the four environments in (21) to (24) involve operator binding of *ai*. Further, they argue, following Pulleyblank (1986) and Guerssel (1995), that a non-paradigmatic clitic such as *ai* which has no phi features (ie features for person, number or gender), must be operator bound, since as an adjunct it cannot be recovered through the theta grid, nor can it in turn provide overt phi feature information for an phonologically null pronoun. In this, Niuean *ai* contrasts with Romance clitics.

If *ai* is an operator bound clitic, and if, as mentioned above, in Samoan and Tongan, *ai* and *aki* have similar properties, then it might follow that *aki* is also an operator bound clitic in these languages. From the examination of Niuean data, I conclude that this the case in Niuean. What is strange in Niuean is that the similarity between *ai* and *aki* only arises in operator bound contexts. *Aki* is thus a lexical item that changes its character, depending on its syntactic content. When A-bar free, it acts as a preposition, assigning case and theta role, either in its own capacity or in conjunction with a predicate. When A-bar bound, it loses its case and theta role assigning properties, and comes to act like a variable clitic.[13]

The following sentence demonstrates support for the claim that, when operator bound, *aki* takes on a role like that developed in Massam and Roberge (1997) for *ai*.

25. *Ne mai e ia ki a au e tau hui pato,*
PST give ERG he to PERS me ABS PL foot duck
*ti uku hifo aki a/*e au ke he toka*
then dive down **AKI** ABS/*ERG I to bottom
"He gave me the flippers then I dove down to the bottom (with them)."

In this sentence we see *aki* in a different operator-binding context. (25) contains an instance of *aki* which falls into discourse anaphor class, as seen with *ai* in (22) above. Here too, the subject of the lower clause must appear in absolutive case, in spite of the fact that in cases where the instrument is overt, the subject must appear in ergative case. Hence, it is not just in relative clauses, but in other operator bound situations also, that *aki* exhibits variable-like properties.

A final observation is that the semantics of *ai* and *aki* become blurred in some dependent action operator contexts. This is seen in (26a), where it might be understood either that the cleared space is being used instrumentally to enable people to build the house, or that the act of clearing is being undertaken in order

[13]It seems to be the case that prepositions are prone to such contextual variations in character. In English, for example, some prepositions can be used intransitively with an adverbial sense (eg "He just walked by.", "She just went on and on for hours."). And in French, so-called "orphan prepositions" act adverbially as in the following, from Roberge, 1996. A: "C'est un beau sac."/"This is a nice bag."; B: "Merci, je voyage toujours avec."/*"Thank you, I always travel with." Particular constraints vary from language to language.

to enable people to build the house.[14] As Chapin (1974) discusses, it is hard to determine what truth conditions might distinguish the two meanings instrument purposive and event purposive. Interestingly, it is possible to state this sentence (26a) either with *ai* or *aki*, with no real difference in meaning (cf. 26b). The same facts hold of the sentences in (27), where *ai* appears, in comparison with (18) which contains *aki*. These two sentences are said to have the same meaning.

26. a. *Ne foa e lautolu e vala vao ke ta*
PST clear ERG they ABS bushland SBJ build
aki e fale pola
AKI ABS house thatch
"They cleared the bushland to build a thatch house (with)" (Sp)

b. *Ne foa e lautolu e vala vao ke ta*
PST clear ERG they ABS bushland SBJ build
ai e fale pola
AI ABS house thatch
"They cleared the bushland to build a thatch house"

27. *Ne fakatau e au e kave toua ne fae hopo ai*
PST buy ABS I ABS rope NFUT PROG jump AI
a ia
ABS she
"I bought the rope that she is jumping with."

Observe further that this blurring of meaning is echoed in the English sentences below, where an instrument purposive and an event purposive have essentially the same meaning.

28. a. I bought this pen to write a letter with. (= *aki* sentence)
b. I bought this pen to write a letter. (= *ai* sentence)

In (28a), we normally would posit an operator which binds an empty category object of *with*, whereas in (28b), there is no apparent gap, but just a relation of reason or purpose between one event and another. This relation too can be formalized via an operator, as in the gapped instrument purposives, but in this case the operator is coindexed with the event of the first clause and it temporally or causally binds the event of the second clause in the dependant action relation observed by Bauer (1997) for Maori.[15] It is in the Niuean corelates of the English clauses in (28) that the merging of *ai* and *aki* occurs.

[14]Thanks to Elaine Gold for originally pointing out to me the potential ambiguity of (26).

[15]Bauer (1982) notes that there is a relation between the use of *ai* in Maori relative clauses and a future reading. This is compatible with the Niuean facts, where a temporal relation between two events is implicated with the use of *ai*. The fact that *ai* involves an operator might potentially be used to explain the relation between *ai* and tense which Bauer (1982) finds mysterious.

6. Conclusion

We have seen in this paper that Niuean *aki* has interesting properties in that it undergoes a change in character depending on its context. As well as appearing as a relatively straightforward preposition, it can cliticize onto a verb to act as an derivational affix, changing the argument structure and case properties of the verb. In this second use, it obeys a constraint in that it is unable to appear with a semantically non-agentive verb. It affects transitivity of the verb if the verb is originally an intransitive agentive verb, otherwise it simply allows for more than one internal argument. When operator bound, *aki* shows its third face, appearing as a variable, and losing its prepositional properties. In this use, *aki* is similar in properties to the Niuean locative/temporal clitic *ai*. *Ai* and *aki* are thus more closely related to each other than has been previously believed to be the case in Niuean. In this respect they are similar to Samoan and Tongan *ai* and *aki*.

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DP Licensing and Spec roles in Maori

Elizabeth Pearce

Abstract

In this paper I propose an account of local licensing conditions which privilege the relations between a Head and its Specifier and between a Head and the elements of the Head-chain. The analysis is based on conditions applying to PRO and to he-indefinites in Maori. The paper gives further indications of how the account that it provides can be extended to the conditions affecting the licensing of empty Ds, such as discussed in Longobardi (1994).

0 Introduction

This paper presents an analysis of syntactic conditions which distinguish between two kinds of subjects in Maori: Agentive DPs and unaccusative Theme DPs.* The analysis is based on two constructions in which the licensing effects are distinct for DPs in the Spec and the complement position of the VP.

The particular licensing schema which emerges from the analysis privileges the head-government relations shown in (1a) and (1b), disallowing the relation shown in (2).

(1)a. [$_{XP}$ Spec [$_{X'}$ X [. .]]] b. [$_{XP}$ . . [$_{X'}$ X YP]]

(2) [$_{XP}$ . . [$_{X'}$ X [$_{YP}$ Spec ..]]]

(1a) shows a head-Spec relation; (1b) is a head-complement relation; and (2) is a relation between a head and the Spec of its complement. Although in (2) the head X c-commands the Spec of its complement, the claim will be that it does not govern this Spec position. I will be arguing that the only way by which a head can license material in the Spec of its complement is via Spec-to-Spec transmission as shown in (3).

(3) [$_{XP}$ Spec [$_{X'}$ X [$_{YP}$ Spec . . .]]]

* My thanks to Pauline Teripowai Higgins and to Timoti Karetu for sentence acceptability judgments for Maori and to Mario Saltarelli for Italian. Thanks also to the audience at the presentation of this paper at the AFLA III meeting UCLA 1996, and to Jeffrey Waite.

(3) is thus in contrast with (2) in which the direct relation between the X head and the lower Spec is excluded.[1]

The two constructions which will provide the evidence for the licensing and anti-licensing relations shown in (1) - (3) are first, those involving PROs in non-finite clauses and second, those involving the licensing of a class of indefinite DPs. The discussion of the PRO constructions draws on material in Pearce and Waite (1997) and the analysis of the indefinite DPs extends on proposals in Pearce (1995).

1 Maori clause structure

On the evidence of the position of subjects with respect to classes of adverbial elements, I will be assuming that the subject in a tensed clause remains in the [Spec,VP] position in the surface:

(4) kia tae$_i$ rawa atu ia t_i ki Aotearoa. [Biggs 69]
T/A arrive Intens thither he P Aotearoa
'. . . that he get right to NZ'

In (4) the verb tae raises out of the VP to I and the post-adverb position of the subject ia provides the indication that the subject remains in the [Spec,VP] position.

Another piece of evidence that suggests that the VSO agent subject remains in [Spec,VP] is that, when the subject does raise, it raises to a position preceding the Tense/Aspect marker of its clause:

(5)a. Kātahi anō te wahine ka whakahoki mai i ngā pukapuka.
then again Det woman T/A return here DO Det book
'Then the/a woman returned the books'
b. *Kātahi anō (i) ngā pukapuka ka whakahoki mai te wahine.

In (5a), the subject te wahine immediately follows the sentence initial adverbial but it precedes the T/A marker of its clause. The pre-T/A position shown in (5a) can be filled only by the subject and not, for example, by the object (5b). These facts suggest that, if the Maori clause has a Spec position which is designated for the subject above the VP, then that position precedes rather than follows the T/A clause head position. Thus, the subject ia in (4) is inside the VP, rather than in a subject position above the VP.

The second assumption is that the Direct Object of the verb in a transitive clause is the immediate sister of the verb. This syntactic relation is suggested in particular by the availability of Object-Noun-Incorporation (ONI) as shown in (6b):

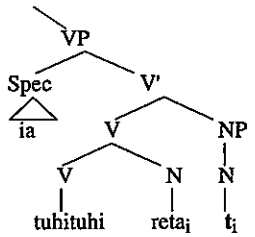
(6)a. E tuhituhi ana ia i ngā reta.
T/A write T/A 3PSg DO Det letter
'She is writing the letters'

[1]Roussou (1996) argues for a similar view of the syntactic relations identified in (1) - (3). In her account, she proposes that these syntactic relations are compatible with Minimalist assumptions (Chomsky 1995) with respect to asymmetric operations.

b. E tuhituhi reta ana ia. [Bauer (1798)]
T/A write letter T/A 3PSg
'She is letter writing'

A syntactic view of ONI as in (6b) would involve the raising of the N head in the structure:

(7)



The complex V so formed then raises to Infl.

A number of possible approaches can be taken as to the arrangement of other argument positions within the VP.[2] The discussion in this paper will however focus on the two types of nominative arguments, Agents and unaccusative Themes, which from the above, I take to be respectively in [Spec,VP] and in the complement position as sister to the V head. Any additional VP-internal arguments (whether or not there is more than one VP shell) must therefore be located above the lowest V head but below the [Spec,VP] position assigned to the Agent. This means that the bracketing indications given for a clause with a ditransitive verb in (8a) and for an unaccusative verb in (8b) are open to further interpretation on which I will not commit myself here:

(8)a. I hoatu$_i$ [VP ia [V' t_i te pukapuka] ki a Mere].
T/A give 3PSg Det book P Pers Mere
'She gave the book to Mere' Waite (1994)
b. I mahue$_i$ [VP . . . [V' t_i te kōtiro] i te pahi].
T/A left Det girl P Det bus
'The girl missed the bus'

In (8a) the nominative subject ia is in [Spec,VP]; but in (8b) the nominative subject te kōtiro is the Theme complement of the unaccusative verb. In both (5a) and (5b) the preposition-governed argument will be located somewhere in the structure above the lowest V' node.

2 Subjects in tensed versus non-tensed clauses

In some respects clausal complements in Maori which have an irrealis interpretation show a familiar subjunctive versus non-finite alternation such as is found in Italian in examples (9a,b):

[2]For a range of alternative proposals, see Larson (1988), Den Dikken (1995), Belletti and Shlonsky (1995).

(9)a. Maria vuole [aiutare la famiglia].
Maria wants help-Inf the family.
'Maria wants to help the family'

b. Maria vuole [che la famiglia ti aiuti].
Maria wants that the family you help-3Sg/Subjunct
'Maria wants that the family help you'

When the subject of the embedded clause is coreferential to the main subject as in (9a), the verb of the embedded clause must be an infinitive. When the two subjects are non-coreferential as in (9b), the embedded clause has an inflected subjunctive verb. Corresponding to the Italian examples in (9) are the forms for Maori shown in (10):

(10)a. Kei te pīrangi a Mere [ki te/*kia āwhina i tōna whānau].
T/A want Pers Mere help DO Poss family
'She wants to help her family'

b. Kei te pīrangi a Mere [kia/*ki te āwhina tōna whānau i
T/A want Pers Mere help Poss family DO
a koe].
Pers 2PSg
'She wants that her family help you

The examples in (10) appear to parallel those for Italian in (9) in that the form of the T/A marker preceding the verb depends on whether or not the two subjects are coreferential. In Maori when the subject of the embedded clause is non-coreferential to the main clause subject the verb of the embedded irrealis clause is preceded by kia. When the two subjects are coreferential and the embedded subject is non-overt, the verb is preceded by ki te.

Leaving aside the question of possible syntactic tests to distinguish kia and ki te from simple Tense/Aspect markers,[3] I will treat both of these forms as Infl elements, kia thus being like a subjunctive marker, and ki te corresponding to non-finite inflection.

It has long been noticed that, although Maori shows comparability with languages like Italian for (10a,b), as with other Polynesian languages (Samoan: Chung (1978); Tahitian, Tokelauan, Tikopian: Hooper (1982)), it also has an unexpected restriction on the kinds of predicate that can occur after ki te as in (10b). In essence the restriction is that unaccusative verbs may not occur in an embedded clause after ki te.[4] Some examples are given in (11):

[3]The form kia also occurs as an optative as in:
(i) Kia toru ngā ika! [Biggs 35]
kia three Det/Pl fish
'Let there be three fish'
(ii) Kia tae mai pea ia. [Bauer (2053)]
kia arrive hither perhaps 3Sg
'(I hope) she comes'

[4]These constructions are examined in greater detail in Pearce and Waite (in preparation). See also Chung (1978), Reedy (1979), Hooper (1982) and Bauer (1993: §1.1.2.2).

(11)a. Passive
*Ka pīrangi ia [ki te āwhinatia e tōna whānau].
T/A want 3PSg help-Pass by Poss family
'She wishes to be helped by her family'

b. Neuter/Stative
*E pīrangi ana a Moana [ki te mahue i tōna tane].
T/A want T/A Pers Moana left P Poss male
'Moana wants to be abandoned by her husband'

c. Experiencer
*Ka pīrangi ia [ki te mōhio ki te kōtiro rā]
T/A want he know P Det girl there
'He wanted to know that girl' [Bauer (1983), (45)]

The restriction exhibited in Maori in (11) is absent in Italian, a language which has clearly identifiable unaccusative verbs:

(12)a. Passive
Voglio [essere aiutato dalla famiglia].
I-want to-be helped by-the family
'I want to be helped by the family'

b. Unaccusative
Voglio [arrivare alle otto].
I-want to-arrive at-the eight
'I want to arrive at eight'

c. Experiencer
Voglio [piacere a Carlo].
I-want to-please to Carlo
'I want to be pleasing to Carlo'/'I want Carlo to like me'

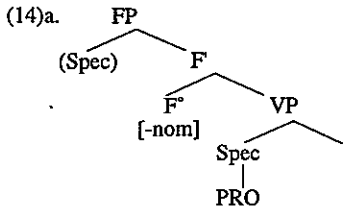
The assumption is that a PRO subject is available in non-tensed unaccusative clauses in Italian in the same way as it is available in non-unaccusative non-tensed clauses, as in (13a):

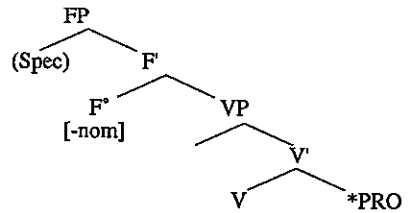
(13)a. ...[$_{IP}$ PRO$_i$ aiutare$_j$ [$_{VP}$ t_i t_j la famiglia]] TRANSITIVE
PRO to help the family

b. ...[$_{IP}$ PRO$_i$ arrivare$_j$ [$_{VP}$ t_j t_i alle otto]] UNACCUSATIVE
PRO to arrive at eight

That is, the subject PRO of the embedded clause will raise to [Spec,IP] in parallel with the use of the [Spec,IP] position for subjects in tensed clauses in Italian. In the non-finite CP clause [Spec,IP] is standardly an ungoverned, un-Case-marked position.

Returning now to Maori, given that Maori is a VSO language, an obvious way to approach the unavailability of PROs in the constructions in (11) is to assume that the [Spec,IP] position is not available to house such PROs. We thus obtain the contrast shown in (14a,b):

(14)a. 

b 

The structures in (14) reflect the assumption that the agentive subject is in [Spec,VP], whilst the Theme object of the verb is the V-sister. In unaccusative constructions I take it therefore that the unaccusative subject is housed in the position of the PRO in (14b).

I now rule out (14b) by invoking the contrast shown in (1a,b) versus (2). In (14b) the PRO as sister to V is governed by the V or the V-trace. In (14a), on the other hand, the PRO is in [Spec,VP], where although it is c-commanded by F, it is not governed by F or by F+V.[5]

This analysis of non-finite PROs now requires that we examine the reverse situation. That is, I ask the question: how are the overt subject DPs licensed in the tensed clause? The corresponding structures with overt DPs are as shown in (15):

[5]Sandy Chung has pointed out that the prohibition against PRO in (14b) should give rise to comparable effects in VPs occurring inside DPs. The following examples from Waite (1994) show that the subject in such DPs may be overt or non-overt:

(i)a. te patu a Hoani i te poaka [W (22a)]
Det kill Gen Hoani DO Det pig
"Hoani's killing the pig'

b. te patu i te poaka [W (13a)]
'killing the pig'

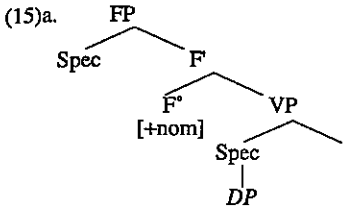
(ii)a. te kitea o te tamaiti e te kaiako [W (23b)]
Det see-Pass Gen Det child by Det teacher
'the child's being found by the teacher'

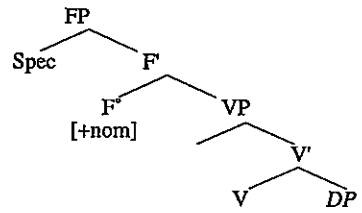
b. te kitea e te kaiako [W (13b)]
'being found by the teacher'

(iii)a. te mahue o te motukā i te kaitaraiwa [W (23c)]
Det left Gen Det car DO Det driver
'the car's being left by the driver'

b. te mahue i te kaitaraiwa [W (13d)]
'being left by the driver'

In the examples in (i) - (iii) the non-subjects have the Case-marking characteristic of VP-internal arguments. In (i) the object te poaka is marked by i, the DO Case marking; in (ii) the Agent has the usual passive e Case-marking; in (iii) the cause argument te kaitaraiwa is marked by i as in the corresponding tensed form, such as in (19b). The overt VP subjects have the genitive marking which, following the arguments in Waite (1994), applies according to whether the argument is the [Spec,VP] subject (i), or the Theme (ii) and (iii). The availability of Case marking for the overt subjects suggests that the non-overt variants should have pro rather than PRO subjects.

(15)a. 

b 

Although in the surface forms, the DPs remain inside the VP, both DPs must have access to the F head for nominative Case checking. Suppose that a strong [+nom] F projects a Specifier position, whereas a weak [-nom] F fails to project a Specifier. The DPs in (15) can now enter into a covert relation with Spec,FP for Case checking. The lexical/non-lexical contrast for the [Spec,VP] subject reduces to the presence versus the absence of the Spec,FP. This proposal is in accordance with the suggestion put forward in Chomsky (1995) that the strength of D features in a functional head may be the determining factor in whether or not a Spec is projected. A projected Specifier has a checking function which must be implemented, overtly or covertly.

This analysis also has some plausibility in view of both syntactic and morphological characteristics which can be highlighted in a comparison, say with Italian. That is, Italian has strong D or other F features which lead to the projection of the relevant Specifier even when the F is [-nom]. The relevant contrasts are identified in (16):

(16)		Italian	Maori
(i)	Spec,IP subject	Yes: SVO	No: VSO
(ii)	Subject-Verb agreement	Yes	No
--> (iii)a.	D-features	strong	weak
b.	[-nom]	+ Spec	- Spec

The relative weakness of D-features in Maori is suggested by the failure of overt raising of the subject in the simple tensed clause (16(i)) as well as by the absence of overt subject-verb agreement (16(ii)). However, whereas the Minimalist approach aims to derive the contrasting surface configurations from the checking properties, my analysis of the failure of the PRO to occur in (14b) seems, as it stands, to require the use of a mechanism of government, such as indicated by the conditions (1) - (3).

As an alternative, however, we can consider that the relation between a verb and its sister DP is to be regarded as another kind of checking relation. That is, all of the legitimate relations in (1) and (3) count as licensing structures in terms of Minimalist checking. The mechanism of government is thus reinterpreted as a checking relation which can be satisfied in the head-Spec structure of (1a) or in the head-complement relation of (1b). The structure in (3) is a covert variant of (1a) in that the Spec of YP has access to the Spec of XP position.

3 The licensing of indefinite he-NPs

The second case involving a contrast in the licensing relations affecting [Spec,VP] and the verb-complement position is found in the conditions affecting the licensing

of indefinite he-NPs. Once again, following Chung, Mason & Milroy (1995), the contrast is between unaccusative and non-unaccusative constructions. The analysis to be presented in this section extends on that put forward in Pearce (1995).

An indefinite he-NP can occur only as the nominative DP of the clause. As shown schematically in (17), in simple clauses these indefinites cannot be the nominative DP in [Spec,VP]: (17a), but they can be the nominative DP of an unaccusative: (17b) :

(17)a. *[T/A Verb_i [$_{VP}$ he-NP t_i . . .]]

b. [T/A Verb_i [$_{VP}$ t_i he-NP . . .]]

Thus the examples given in (18), corresponding to (17a), are ungrammatical and those given in (19) instantiate the grammatical schema of (17b):

(18)a. *Kei te patu he tamariki i te kau. [Bauer (1983), (72)]
T/A beat *he* children DO Det cow
'Some children are beating the cow'

b. *I whiu he wahine i tāna mōkai ki te moana
T/A throw *he* woman DO her pet P Det sea
'A woman threw her youngest child into the ocean' [CMM (19b)]

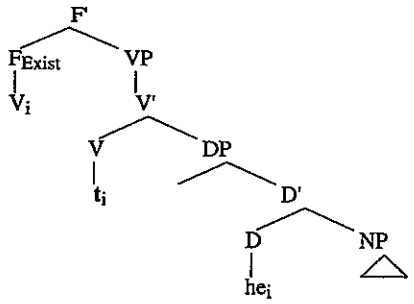
(19)a. Passive
Kua mahia e Pani he kapu tī mā rātou. [Bauer (1086)]
T/A make-Pass by Pani *he* cup tea P them
'Pani has made them a cup of tea'

b. Neuter/Stative
I mahue he kōtiro i te pahi.
T/A left *he* girl P Det bus
'A girl missed the bus'

c. Experiencer
I pīrangi he tāne ki tēnei wahine. [CMM (27b)]
T/A desire *he* male P this woman
'A man desired this woman'

If we take the indefinite he as a kind of polarity item, we can say that it needs to be licensed by an existential head or operator. If the existential projection is housed within the functional structure of the clause, it enters into a direct licensing relation with the sister of the verb through the chain created by the movement of the verb, such as shown in (20):

(20)



In (20) the lowest V head of the chain directly head-governs the D head of its DP complement.

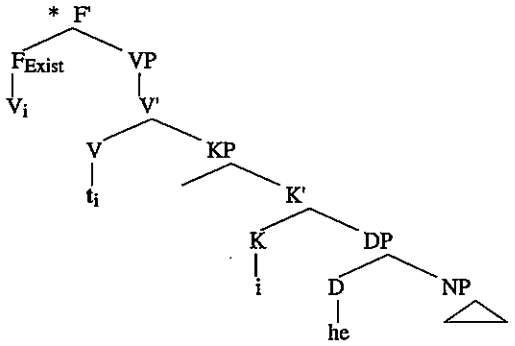
There is an overt analogue of the head linking relationship shown in (20). Following Waite (1994), the predicational constructions illustrated in (21) involve the raising of a head to a he which here serves as the T/A nexus of the clause.

(21)a. He [$_N$ māhita]$_i$ [$_{NP}$ ia t_i].
T/A teacher he
'He is a teacher'

b. He [$_A$ whero]$_i$ [$_{AP}$ tēnei t_i].
T/A red this
'This is red' [Waite (1994)]

The nominative DP of (20) is in contrast to the accusative DP in (22) in which the chain relation between the V and the D head is blocked by the overt Case morphology:

(22)



Thus, the licensing of the unaccusative he subject takes place in a head-government structure, in which the he is the D head of the complement of the verb. Such is not the case for the he-NP subjects in [Spec,VP] in (18). In parallel with the explanation for the inaccessibility to government of the PRO in [Spec,VP], I assume that there is no licit chain relation for the [Spec,VP] indefinite he-NP subject: the chain relation shown in (20) does not work for the [Spec,VP] position (17a) because the non-overt existential F fails to project a Specifier in which to house an operator that could enter into a binding relation with the DP in the [Spec,VP] position.

There is, however, another kind of construction in which an indefinite he-NP originating from [Spec,VP] is licensed. These are constructions which include a higher operator, such as a quantifying expression or a negative, as in (24); corresponding to (23.II) in the terms of Chung, Mason & Milroy (1995):

(23) Description of *he*-indefinites following Chung, Mason & Milroy (1995)[6]
I: The existential he-indefinite can only be the nominative argument of a passive or unaccusative verb.
II: The polarity he-indefinite is an operator-bound nominative argument.

(24) Operator licensing of *he*

a. Kāore he tamaiti i kai i ngā tuna rā.
Neg *he* child T/A eat DO Det eel there
'A child did not eat those eels'

b. Ia tau, ia tau, i tito waiata hou he wahine.
that year that year T/A compose song new *he* woman
'Every year a woman composed new songs' [CMM (30c)]

c. Ki te karanga he reo, kei puta iho koe.
T/A call *he* voice don't come out down you
'If a voice calls, don't you come down' [CMM (31a)]

Chung, Mason and Milroy propose to unify their two-way characterization as in (25):

(25) The variable introduced by a he-indefinite must be unselectively bound or quantificationally closed by a sentence level operator. [CMM, fn.19 (a)]

What I have been trying to do here is to identify the precise syntactic conditions for these indefinites. The account that I have given of the licensing requirement for the (23.I) type involves the absence of a Specifier for the existential F (as well as the absence of a head-to-head relation with the D (= he)). With the constructions

[6]An additional factor is the distinction in the behaviour of stage versus individual-level predicates, as shown in (i) and (ii).

Stage versus Individual level predicates

(i) STAGE

a. I whero he kanohi i te makeretanga o te tarau.
T/A red *he* face P Det drop-Nmlz of Det trouser
'She/they blushed because she lost her trousers' [CMM (36e)]

b. I makariri he kōtiro i tā koutou haringa i ngā paraikete.
T/A cold *he* girl P Det-Gen you-Pl take-Nmlz DO Det-Pl blanket
'A girl got cold because you took away the blankets' [CMM (36c)]

(ii) INDIVIDUAL

a. ?*I whero he waka.
T/A red *he* car
'A car was red' [CMM (39e)]

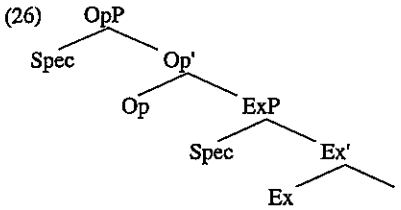
b. *I makariri he kōhatu.
T/A cold *he* stone
'A stone was cold' [CMM (39c)]

The contrast between (i) and (ii) requires further investigation. Whilst the examples in (i) have the form of the neuter/stative type of unaccusative, with an i-marked Cause argument, our first assumption would be that the forms in (ii) are also unaccusatives. It would, for example, seem reasonable to suppose that the syntactic and thematic relations between a colour and the referent which has the colour is the same in all cases. On the other hand, Levin and Rappaport (1994) argue that a characteristic common to unaccusative verbs is that they encode either internal or external causation. As they point out, de-adjectival unaccusative verbs are formed from stage-level rather than from individual level adjectives. This suggests that, in line with the opposing stage/individual interpretations for the adjectives in (i) and (ii), those in (i) count as unaccusative adjectives, but those in (ii) do not have an unaccusative structure. The argument structure of these adjectives is a topic for further research. Also requiring further investigation is the possible role of Event structures within or external to the VP, such as proposed in Kratzer (1989) and in much recent work.

represented in (23.II), such as those in (24), we might suppose that these constructions contain operators which have the capacity to link up with the Existential head, empowering it to project a Specifier position. The he-indefinite in these cases has access to the projected Spec and thus to a relation with the existential head. The availability of such a Specifier position is supported by the typical position of the subject in these constructions, as in (24a).[7]

A partial representation of the suggested schema is as follows:

(26)



The idea is that, whereas in the case of the (23.I) construction the F_{Ex} projection is 'made visible' through the head-chain relation with the he of the unaccusative below it, the (23.II) type higher operator constructions have the capacity to identify the F_{Ex} projection from above. In both cases the F_{Ex} projection must be identified by some overt material in an appropriate licensing configuration.

Returning again to the unaccusative constructions, recall that these do not need an independent mechanism to trigger the projection of the Spec,ExistP. This is because the he of the indefinite enters into a head-to-head relation with the Verb-Infl-Exist chain. The relationship in this instance is covert because the he Determiner head does not raise out of the DP, nor can the whole DP raise to a Spec position of an ungoverned XP.

4 Some further implications

The kinds of binding mechanisms just described find parallels with phenomena that have been analysed for other languages. Thus, Longobardi (1994) invokes a licensing role for chains involving head-to-head relations with respect to properties of determiners in Italian. Consider in particular the examples in (27) and (28):

Longobardi (1994)

(27)a. *Acqua viene giù dalle colline. [L (14a)]
water comes down from the hills

b. Viene giù acqua dalle colline. [L (14b)]
comes down water from the hills

[7]Note that only some of the triggers for subject preposing have the capacity to license he-indefinites:

(i) Kātahi anō te/*he wahine ka whakahoki mai i ngā pukapuka.
then again Det woman T/A return here DO Det book
'Then the/a woman returned the books'

Kātahi (anō) is an adverbial licenser for subject proposing. The licensing operator for he-indefinites must be an operator with quantificational force.

c. Ho preso acqua dalla sorgente. [L (14c)]
I took water from the spring

(28)a. *Consideravo studenti intelligenti. Belletti (69a) L fn11.(i)
I considered students intelligent

b. Consideravo gli studenti intelligenti. Belletti (71a)
I considered the students intelligent

In both (27b) and (27c) acqua is the direct complement of the verb, the unaccusative subject in (27b) and direct object in (27c). The null determiner is licensed here in the same syntactic configuration as applies to the licensing of unaccusative indefinite he in Maori. In (27a) the null determiner is not lexically governed. In (28) studenti occupies a small clause Specifier and is accessible for accusative Case checking, as shown by (28b), but the null determiner in (28a) cannot be licensed in a head-to-head relation. For Longobardi, there is a requirement for lexical head government of the empty category D, but, as he notes, for cases like (28a) "the required relationship with a head seems stronger than many usual definitions, since it does not allow an empty D to be licensed by a verb across small clause boundaries" (fn. 11). Whereas constructions like (27a) can be ruled out on the basis of a failure of lexical head-government under c-command, (28a) is like the ungrammatical constructions in Maori in which the indefinite DP is located in [Spec,VP]. In both (28a) and the schema (17a), the relevant Spec position is in a c-command relation with a potential lexical governor. The 'stronger' relation which Longobardi points to has been spelt out in the proposals which I have been developing here.[8]

Longobardi's analysis focuses on the relationship between the D and the N of the NP that it heads. When the D is empty, its interpretation can be satisfied, either through the raising of N to D (generic interpretation) or through an anywhere rule which assigns an existential interpretation to the empty D (Longobardi 1994 (102)). In the latter case lexical government is required for the empty D. In the analysis that I have presented in this paper the conditions and the interpretation for he-indefinites match up with those applying to the Italian existential empty D. In Longobardi's analysis of Italian the lexical government requirement is forced because the D is empty. The Maori he occurring in the same syntactic position is lexical. The head-government requirement (or the chain) from V to D (= he) is suggested by the failure of he-NPs to occur in the presence of overt accusative Case-marking (cf. (21)). We may assume however that the LF representation of such quantified expressions requires at least a coindexation (if not also raising) to an extra-VP position. In the portrayal of the conditions affecting the existential he in Maori I have supposed that the representation must include a linking mechansim to that extra-VP position. One particular piece of evidence in support of this proposal rests on the presence of overt he in the T/A position in examples like those in (21a,b).

In the interests of a universal characterization of mechanisms affecting both the Maori he and the Italian existential empty D, I thus wish to propose that the two

[8]A further account which is comparable to the analysis developed in the present paper is the analysis put forward in Rizzi (1991) in relation to the mechanisms applying to head-government of a [Spec,IP] trace. Under Rizzi's account, a crucial condition of the capacity of the C to govern the trace is that the C must acquire the Agr feature from the IP below it. In the resulting configurations, the Spec-head relation has the pre-eminent role over any alternative mechanism based simply on c-command from C to the [Spec,IP] position.

phenomena are most appropriately unified in terms of the present analysis of the Maori construction It seems to me that this interpretation has the further advantage that it provides a better representation of the quantificational characteristics of the semantics of the constructions involved, including both those with overt and with non-overt quantifiers. A similar focus on the unification of operator-bound and bare indefinite DPs is proposed also in Déprez (1996), based on material from yet more languages.

In summary, I have argued that the syntactic conditions applying to PRO DPs and to he-indefinites in Maori can be accounted for in terms of relations which allow for government between a head and its Spec (1a) and between a head and its complement (1b), but which do not allow for an unmediated government relation between a head and the Spec of its complement (2). These conclusions have been drawn from the consideration of VSO structures in Maori in which we have been able to view the properties of DPs located in [Spec,VP] as distinct from in other positions within the VP or external to the VP. In the preceding paragraphs I have suggested that the mechanisms applying to Maori are generalizable to other (SVO) languages in which similar effects are manifested in different, but comparable, construction types.

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Genitive Case in the Maori DP*

Elizabeth Pearce

Abstract

This paper presents a reinterpretation of the syntax of possessives in Maori, building on the proposals of Waite (1994) as to the treatment of the thematic roles within the DP. The analysis proposes that the various manifestations of Case marking on arguments within the DP derive from the particular characteristics of two functional projections occurring within the DP. $Case_{Gen}$ can alternatively check an Agent argument or a Theme argument, the latter being coindexed with the lexical head of the phrase. A Nmz head can be interpreted as a hybrid nominalizer/passive and it has the capacity to Case check a passive Agent or, alternatively, it acts in the manner of an N Case checker for either an active Agent or a Theme. Constituent ordering alternations are located in an Identificational projection (IdentP) situated below D and which, in Maori, has characteristics that, in other languages, may be located rather in the immediate projection of D.

The Maori DP, as with the DP in other Polynesian languages presents some unusual characteristics from the point of view of language typologies. For example, in the Maori DP an overt determiner is required (although one such determiner may be absent in the presence of certain case-marking prepositions); there is a double system of genitive Case marking which distinguishes the role of the possessor with respect to the possessee; and the Maori DP does not accept the stacking of adjectives. These facts, and others, are well known in the literature on Maori,[1] but, up to the present time, Waite (1994), an account of the syntax of possessive DPs in Maori, is, to my knowledge, the only work that has appeared addressing the analysis of nominal expressions in a Polynesian language from the perspective of DP structure.[2]

It is clear that there are a number of questions to be solved in analyzing the syntax of the Maori DP (and of the DP in other Polynesian languages). In my

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[1] See, for example, Biggs (1969), Chung (1973, 1978), Clark (1981), Bauer (1981, 1993, 1997). For variants of these characteristics in other Polynesian languages, see Vonen (1988), Hovdhaugen et al (1989), Mosel and Hovdhaugen (1992).

[2] Essentially, following the work of Abney (1987), Stowell (1989) and many others, the notion that a nominal expression is headed by D and that other functional projections may occur within the DP embedding the NP.

approach in this paper my analysis focuses on the syntax of possessives within the DP. I begin in Section 1 by setting out the proposals of Waite (1994) that I will be adopting in the paper as to thematic role assignments within the DP. Section 2 identifies the need for incrementing the DP structure with the inclusion of at least one additional functional projection below D and establishes the mechanisms by which the two forms of genitive Case are assigned within the Maori DP. Section 3 extends on the data of the earlier sections, presenting additional patterns of Case realization within a DP containing a nominalized verb. Section 4 undertakes a detailed examination of the manifestations of passive forms within the DP. Section 5 returns to the analysis of the constituent ordering alternations. Finally, in Section 6 I turn to some comparative data and analyses which appear to provide support for the use of the projection that I label "IdentP" situated below D in Maori.

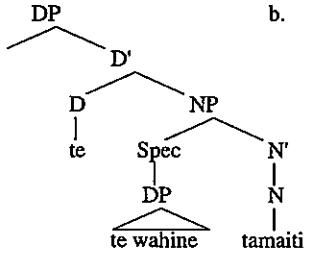
1 The analysis of Waite (1994)

Waite (1994) proposes (i) that the complement of the D may be an NP, a VP, or an AP; and (ii) that the distribution of a/o- (henceforth: A/O) genitives derives from distinctions in the D-structure placement of possessor arguments within the DP. With respect to (ii), the contrasts in the forms shown in (1) match with the D-structure representations in (2).[3]

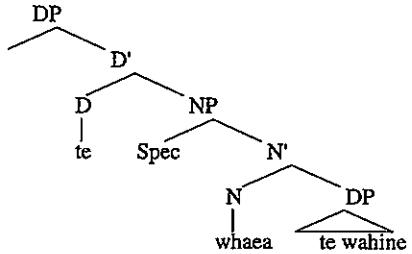
(1)a. te tamaiti a/*o te wahine
the child GEN the woman
'the woman's child'

b. te whaea o/*a te wahine
the mother GEN the woman
'the woman's mother'

(2)a.



b.



The A-marked possessor is generated in [Spec,NP] in (2a), whereas the O-marked possessor is placed in the complement position of the N at D-structure in (2b). In the derivation of both (1a) and (1b) the N head raises to D. In Waite's analysis, genitive Case is assigned to the [Spec,NP] position. Therefore, from the (2b) structure the DP complement must raise to [Spec,NP] for Case assignment.

[3]Maori examples cited from published sources are regularized to the modern spelling system using macrons for long vowels. I thus follow the modern system in treating the A/O genitive markers as short vowels when they are not in compounds. See Biggs (1969: 44) on short/long pronunciations for the genitive markers. Some glosses are also altered from the original citations for reasons of consistency.

Waite's analysis of the argument positions within the DP as in (2) is supported by the existence of parallels in the forms of genitive marking in DPs which contain V heads:[4]

(3)a. Ka patu te tama i te poaka.
T/A kill the boy ACC the pig
'The boy killed the pig'

b. te patu a te tama i te poaka
the kill GEN the boy ACC the pig
'the boy's killing the pig' [Waite 1994: (24a)]

c. te patu o te poaka [Waite 1994: (23a)]
the kill GEN the pig
'the killing of the pig'

d. te patua o te poaka e te tama
the kill-PASS GEN the pig by the boy
'the killing of the pig by the boy' [Waite 1994: (24b)]

e. *te patu(-a) a te tama o te poaka
the kill(-PASS) GEN the boy GEN the pig
'the boy's killing of the pig' [Waite 1994: (24c)]

The example in (3a) shows the case marking characteristics in a tensed clause containing an active transitive verb: the subject te tama has zero nominative case and the direct object te poaka is preceded by the accusative marker i. The remaining examples (3b-e) give forms of the corresponding nominal expression embedding a VP with the same predicate-argument structure. Thus the A-marked DP in (3b) is the Agent subject. In this example the object of the transitive verb patu is preceded by the accusative marker i. In (3c) and (3d) the O-marked DPs are the D-structure complements of the verb, active in (3c) and passive in (3d). When a verb has both a subject and a direct object, only one of its arguments may be marked by genitive Case, as illustrated by the contrast between (3b) and (3e).

The Theme argument of an unaccusative verb in a nominal expression is marked with the O-genitive, just like the D-structure Theme of the passive verb in (3d):

(4)a. Ka mahue te motukā i te kaitaraiwa.
T/A left behind the car P the driver
The car was left by the driver'

b. te mahue o te motukā i te kaitaraiwa
the left behind GEN the car P the driver
'the car's being left by the driver' [Waite 1994 (23c)]

In the sentence (4a) the unaccusative verb mahue has te motukā as its nominative (zero Case) Theme. In (4b), where mahue is the head of the VP constituent within the DP, motukā as the Theme is marked with the O-genitive.

[4]For other discussions, see Biggs (1969: 43-44), Bauer (1993: 215). Similar patterns occur with verbs bearing nominal morphology. These are discussed in Sections 3 and 4.

Thus, the distribution of the A/O genitive markings on arguments embedded inside VPs matches with the Agent/Theme distinction for the syntax of the VP arguments. These syntactic relations have been transposed by Waite (1994) in his identification of the argument roles within the NP as shown in (2a) and (2b).

A further aspect of the data that is treated in Waite (1994) concerns alternative ordering characteristics within the Maori DP. The examples (1a) and (1b) are repeated in (5a) and (6a) to show the contrast with the alternative orderings given in (5b) and (6b).

(5)a. te tamaiti a te wahine
the child GEN the woman
'the woman's child'

b. tā te wahine tamaiti
'the woman's child'

(6)a. te whaea o te wahine
the mother GEN the woman
'the woman's mother'

b. tō te wahine whaea
'the woman's mother'

On the basis of the structures in (2a) and (2b), whereas in both (5a) and (6a) the N head raises to D, in (5b) and (6b) the alternative ordering of the N with respect to the genitive DP is obtained through the absence of such N-raising. In both (5a) and (5b) the genitive a te wahine remains in the [Spec,NP] position, the position to which genitive Case is assigned. From (6b), given the pre-N position of o te wahine and the absence of N-raising, we see that the surface ordering in this example requires the preposing of the Theme te wahine. In Waite's account of these constructions the Theme DP raises to [Spec,NP], the position to which genitive Case is assigned by D.

In this present paper I retain Waite's analysis of the D-structure position of the possessor arguments as well as the notion that the DP may embed different types of lexical phrases: NP, VP, AP. I will be proposing an alternative treatment of the syntax of genitive Case marking and I will be proposing that the basic DP structure put forward by Waite should be incremented by the inclusion of additional functional projections between the D head and the lexical projection (NP, VP, . . .).

2 The DP-internal structure

In section 2.1 I identify some problems in the mechanisms of the treatment in Waite (1994) and in section 2.2 I begin to sketch out the main lines of the analysis that I will develop.

2.1 A reassessment of the treatment in Waite (1994)

According to Waite's analysis, genitive Case is assigned by D to the Spec position immediately below it. As it has already been mentioned with respect to (2b), the complement DP within an XP embedded under D must then raise to [Spec, XP] ((in (2b), [Spec,XP] = [Spec,NP]) for genitive Case assignment. This Spec position is selected as the position for Case assignment in parallel with the analysis that

nominative Case is assigned by Infl to the [Spec,VP] position (the configurational relation between I and [Spec,VP] being parallel to that between D and [Spec,NP/VP]). Waite, in fact, proposes that the Case assigning parameter for Maori is that Case is assigned by a head to the right.

There are two important considerations which suggest that a reassessment of this treatment of Case assignment is called for:

(i) If [Spec,NP], like [Spec,VP] is an argument position, then movement of a Theme DP into an empty [Spec,NP] would be a violation of the theta-criterion.
(ii) If the A/O distinction in genitive Case realization is dependent on the base position of the argument, then Waite's account fails to identify the mechanism by which structural Case assignment by D matches with the distinction in the overt Case realizations.

Both of these considerations taken together, suggest that there is a problem with the notion that both kinds of genitive Case are assigned to the [Spec,NP] position, or [Spec,VP], etc. as the case may be.

As well as attempting to solve these particular problems with the mechanisms adopted in Waite's account, in the analysis that I will develop, the actual mechanisms themselves will be reinterpreted in accordance with the more recent perspective on conditions for Case licensing in the Minimalist treatment. In this regard, what will be particularly relevant for our account is the notion that Case is checked by a functional head in an overt or covert Spec-head relation.

In effect, much recent work on DP syntax in a variety of languages (Abney 1987, Bernstein 1991, Ritter 1991, Valois 1991, Giusti 1993, for example) provides arguments for a more elaborated structure than we have so far been considering for the Maori DP. There are thus a number of language particular arguments, as well as theory-internal reasons to suppose that DP structure allows for the inclusion of functional projections between D and NP which can be assumed to play a role in the Case checking conditions for the DP-internal genitives of Maori. The next section embarks on the analysis of what will be required in the DP-internal structure for Maori on the basis of these more recent proposals.

2.2 Functional projections within the DP

So far, we have seen that the use of the A- and O-genitive markings distinguishes Agents from Themes and that a VP embedded in a DP can retain the accusative marking for its complement. If only one argument is present, that argument may be Case-marked as an A- or O-genitive depending on its role, whether it is based in an NP or a VP.

The assumed presence of only one genitive per DP[5] meant that in Waite's analysis, only one head position, namely D, needed to be implicated in the mechanisms associated with genitive Case realization. Whilst I retain one aspect of this analysis (the notion that there is a single head which has the capacity to

[5]Waite's analysis focused on the array of Case markings occurring in DPs embedding VPs, for which this assessment appears to be correct.

alternatively license A- and O-genitives), an empirical reason which forces the extension of the array of genitive Case checking heads is that there can, in fact, be more than one genitive within a DP. The following are examples of DPs embedding an NP and including two genitive Case markings for the arguments of the NP:

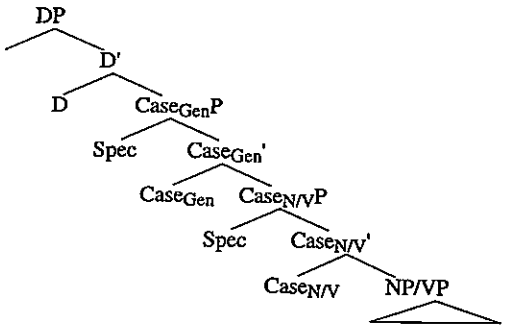
(7)a. te karakia a ngā tohunga o te heke
the chant GEN the.PL tohunga GEN the migrate
'the incantation of the tohunga of the migration' [Bauer 97 (2037); PP2,20]

b. . . . me tana tikanga anō o aua rangi o mua rā:
tāna
and his manner yet GEN those days GEN before DEM
' . . with him behaving as on previous days:'
[Clark 1981: (31); cited Williams 1957]

In (7a) the O-genitive, o te heke, must be interpreted as the complement of the N karakia, rather than as the complement of tohunga. Thus the N karakia is associated with two genitive marked arguments: the Agent, A + ngā tohunga, and the complement, O + te heke. With (7b), the translation given by Clark is quite free in representing tikanga as a verb, the gloss is accurate in showing tikanga as a noun. Tana or tāna[6] is a possessive pronoun and o aua rangi o mua rā is a complex O-genitive DP. Thus, whereas it appears that a VP embedded in DP can include only one genitive Case (from *(3e)) an NP embedded inside a DP may be accompanied by both an A-genitive and an O-genitive.

The analysis that I will propose requires the availability of at least two Case checking heads relatively placed between D and NP/VP as shown in (8).

(8)



In (8) Case$_N$ checks the O-genitive Theme and Case$_V$ checks the i-accusative Theme. Case$_N$ is generated above NP and Case$_V$ is generated above VP. When two arguments are present, Case$_{Gen}$ checks the A-genitive subject, or Agent. If both types

[6]This citation from Williams (1957) does not show the vowel length distinction, resulting in an ambiguity for the form given as tana 'his'/'her'. The singular possessive determiners occur in three forms, for 3SG: tāna (A-genitive), tōna (O-genitive) and tana (neutral A/O-genitive). Following the discussion in Bauer (1993: 376-377), the neutral form is more commonly used in 1SG and 2SG in association with familiar items.

of arguments raise overtly out of their NP/VP, the relevant Case checking positions will be as shown in (9) and (10).

(9) D [a DP$_i$ Case$_{Gen}$ [o DP$_j$ Case$_N$ [$_{NP}$ t$_i$ . . . t$_j$]]]

(10) D [a DP$_i$ Case$_{Gen}$ [i DP$_j$ Case$_V$ [$_{VP}$ t$_i$ . . . t$_j$]]]

The relative ordering of the DPs in (9) and (10) matches up with the domains for chain formation as defined in Chomsky (1993). That is the raisings are un-nested.

On the further assumption that Case heads are optionally generated, one or both of the Case projections may be absent. The derivation however will of course crash is there are not enough Case checking heads to match with the number of overt DPs in the structure. Consider now the case of a D embedding a VP containing an O-genitive such as example (3c) contrasting with *(3e). Given the structure in (8), there are conceivably two ways in which the O-genitive Case could be checked. Either it is checked by Case$_{Gen}$ or by Case$_V$. If we were to assume that Case$_V$ could check the O-genitive, then it should be possible to derive *(3e), with Case$_{Gen}$ checking the A-genitive. The failure of *(3e) suggests that Case$_V$ must be associated only with the i-accusative Case, deriving examples like (3b). If Case$_V$ is therefore not involved in the checking of an O-genitive, the remaining functional head in (8) which could used in the checking of the O-genitive is Case$_{Gen}$ (for examples like (3c) and (3d)). For Case$_{Gen}$ our assumption would have to be that this head can check genitive Case on a DP regardless of whether it is an Agent or a Theme argument within the VP.

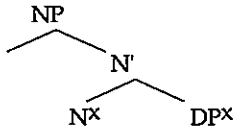
Something of the sort seems to apply in English for the pre-N genitive DPs:

(11)a. the enemy's destruction of the city
b. the city's destruction

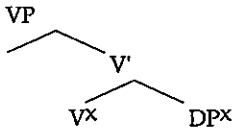
In (11) the form of the pre-N genitive is the same whether that DP is the Agent, as in (11a), or the Theme, as in (11b). In this respect, genitive Case is here in parallel with nominative Case, the Case applying to whichever argument it is (Agent or Theme) that succeeds in raising to the [Spec,IP] position. With the Maori possessives, however, if Case$_{Gen}$ is available for checking either an Agent or a Theme, Case$_{Gen}$ must be also be able to distinguish between these two argument roles.

The means by which I propose to deal with the Case form distinction arising from the base position of arguments is through a mechanism of coindexing between the N/V head and its complement. I will represent the coindexing through superscripting as shown in (12).

(12)a.



b.



$Case_{Gen}$ will be sensitive to the presence or absence of coindexing, checking the A-genitive in the absence of coindexing and the O-genitive when coindexing is present. $Case_{N/V}$ must also be sensitive to coindexing so that it will correctly check only a DP^{X}.

In summary, where the V of the VP is transitive, the available Case realizations are as shown in (13), in which the Case checking heads are matched vertically with the DPs that they check.

(13)	$Case_{Gen}$	$Case_{V}$
a.	a DP	i DP^{X}
b.	o DP^{X}	

In a further instantiation for the transitive verb within a DP, the Theme argument may occur with the i-accusative marking when no overt Agent is present:

(14)a. te patu i te poaka [Waite 1994: (13a)]
the kill ACC the pig
'the killing the pig'

b. horohoro te huti i ngā punga [Clark 1981:(2): MF 98]
quick the pull up ACC the-PL anchor
'(Then they) quickly pulled up their anchors'

Since such accusative Case marking on the Theme is unavailable to the Theme of an unaccusative verb, or of a passive verb, the DP-internal Case marking in these instances is in parallel with the Case mechanisms applying to the arguments of a VP in a tensed clause. Within the tensed IP, accusative Case is withheld when the Theme argument is the only argument available to be checked for nominative Case. The parallel withholding of accusative Case within the DP (see (4b)) suggests that, in terms of the structure given in (8), $Case_{V}$ is suppressed (or unrealized) if no argument is present to be checked by $Case_{Gen}$. This means that in examples of the type shown in (14) we must assume that a non-overt Agent (= pro) is present in the structure.

To finally complete the picture of the array of Case realizations for VPs embedded within DPs, the Agent of a unergative verb, lacking the 'x' coindexing, must be realized as an A-genitive:

(15) Ka pakaru te wini i te waiata a te wahine
T/A broken the window P the sing GEN the woman
'The woman's singing broke the window' [Waite 1994: (9a)]

In (15) waiata 'sing' is the unergative V head of a VP in which te wahine 'the woman' is the [Spec,VP] Agent.

The table in (16) summarizes the different forms of Case realization for Agents and Themes occurring in different classes of VPs embedded in DPs:

(16)		$Case_{Gen}$	$Case_{V}$	Oblique
a.	Unergative	a DP	–	
b.	Transitive[7]	{a DP / pro} o DP^{X}	i DP^{X}	
c.	Unaccusative	o DP^{X}		
d.	Passive	o DP^{X}		(e DP)

In (16) a complement DP is always DP^{X} and is realized as O + DP unless it is the complement of a transitive verb associated with an Agent argument (overt or pro).

For the arguments of NPs embedded within a DP, Carstairs (1970) shows that the accusative i-marking cannot apply in the presence of a lexical N head:[8]

(17)a. tōku pukapuka [Carstairs 1970: (3)]
my book
'the book about me'

b. *te pukapuka i a au [Carstairs 1970: (69)]
the book ACC PERS me

(18)a. te ringa o Hone [Carstairs 1970: (8a)]
the hand GEN Hone
'Hone's hand'

b. *te ringa i a Hone [Carstairs 1970: (70)]
the hand ACC PERS Hone

In (17) and (18) the Theme in the NP projections must be an O-genitive. Given the availability of both an A- and an O-genitive for a single NP as in (7a,b), we must assume that $Case_{N}$ checks the O-genitive, in contrast with $Case_{V}$ which checks an i-accusative.

Corresponding therefore to the table in (16) for DPs embedding VPs, the parallel representation for DPs embedding NPs is as shown in (19).

(19)	$Case_{Gen}$	$Case_{N}$
	(a DP)	(o DP^{X})
	o DP^{X}	

In (19) the structural relations within the NP, except for instances in which there is clearly an Agent and a Theme, are inferred (unambiguously) through the form of the Case marking on the particular DP.

[7]In effect, my treatment of the o DP possibility will suggest that the Agent may be lacking in these cases.

[8]Lee Smith (personal communication) finds that some nouns, including whenua 'land', can occur with an accusative marked complement. I assume that, in such instances, the case is inherent Case since it appears to be lexically determined.

2.3 Ordering within the DP

The focus of the analysis up to now has been on the mechanisms by which the differing Case markings are realized. The discussion assumed that the Case checking is implemented in Spec-head relations between the DPs and the appropriate functional head ($Case_{Gen}$ or $Case_{N/V}$). The Case checking is implemented either by overt or covert raising of the DP to the Spec of the functional projection.[9] In order to round out this picture we will need to identify the available PF positions for both the N/V heads and the possessive DPs.

In Waite's (1994) analysis, constituent ordering differences, such as illustrated in (5) and (6), were obtained through optional implementation of N/V raising out of NP/VP. Whilst the analysis that I have been presenting here suggests that Case checking positions for possessive DPs are situated above the lexical NP/VP projection, we have not yet identified the level (PF or LF) at which such checking takes place.

The first point to be made is that Waite's interpretation that N/V can remain inside NP/VP at PF cannot be correct because certain modifying constituents can appear only to the right of the lexical N/V head.[10] On the assumption that these constituents are generated above the NP/VP and therefore to the left of the N/V head,[11] then it must be that the ordering N/V - Modifier is obtained through the raising of the N/V out of the NP/VP projection. The examples in (20) and (21) show N ordering with respect to an adjective (= (20)) and with respect to a quantifier (= (21)).

(20)a. te ika$_i$ nui t_i
the fish big

b. *te nui ika

(21)a. ngā wāhine$_i$ katoa t_i
the.PL women all
'all the women'

b. *ngā katoa wāhine

A further aspect of ordering within the DP which will be relevant to our analysis is that, whereas genitive marked DPs may precede a V head, the pre-V position is not available to an i-accusative marked DP:

(22)a. te patu o te wahine
the kill GEN the woman
'the killing of the woman'

b. te patu i te wahine
the kill ACC the woman
'the killing the woman'

[9]A further assumption which has not been spelt out in the preceding discussion is that the Case morphology is located in a projection embedding the possessive DP. Thus, what I have been showing as 'DP' is in fact to be regarded as 'KP', in the sense: [KP [K a] [DP [D te] [NP [N wahine]]]], 'A + the woman'. I will continue to refer to such arguments as 'DPs' as a matter of convenience.

[10]See Bauer (1993: 120) for some detailed indications with respect to N ordering.

[11]Consistent with the Antisymmetry view that I am adopting from Kayne (1994).

(23)a. tō te wahine patu
the-GEN the woman kill
'the killing of the woman'

b. *te i te wahine patu
the ACC the woman kill

The contrast between (23a) and (23b) indicates that the O-genitive can raise above the raised V head. Since [Spec,$Case_{Gen}$P] is the checking position for the O-genitive our first assumption must be that the O-genitive in (23a) raises at least to this Spec position. For the ordering in (22a) we have the possibility either (i) that the O-genitive has the option of not raising to [Spec,$Case_{Gen}$P] at PF, or (ii) that the V head has the option of raising higher than [Spec,$Case_{Gen}$P], attaching (a) to D or attaching (b) to a functional head positioned in a projection situtated between D and $Case_{Gen}$P.

Because ordering alternations such as observed in (22a) versus (23a) are matched by similar ordering alternations occurring with Ns and demonstratives, I am going to propose that the analysis (iib) provides the most appropriate interpretation for the data. The alternative demonstrative~N orderings are illustrated in (24).

(24)a. tēnei wahine
the-near woman
'this woman'

b. te wahine nei
the woman near
'this woman'

If we suppose that N must raise to a fixed position within the DP, then the demonstrative - N ordering must be obtained by raising of the demonstrative to a higher Spec position. In the structure (8) the highest Spec position available for the demonstrative is [Spec,$Case_{Gen}$P]. If, however, we were to include a further functional projection between D and $Case_{Gen}$P, we obtain a 'neutral' (i.e. non-genitive Case) Spec position which could be optionally available either to the DP from [Spec,$Case_{Gen}$P] or to a demonstrative.

In Section 6 I will introduce some comparative data in support of this proposal for an additional functional projection which I will be labelling "IdentP" (Identificational Phrase). The more extended discussion is delayed until the later section however, because there are some further facts about genitive Case marking that we need to include in the analysis. Aspects of these data will also be relevant for the consideration of constituency and ordering within the Maori DP.

2.4 Summary

Whilst retaining the analysis of Waite (1994) for the positions of arguments within the NP/VP, I have proposed that Waite's original structure be incremented with the inclusion of two Case checking projections housed between D and NP/VP. $Case_{Gen}$, the higher of the two Case projections, must be present for the checking of an A-genitive. When no A-genitive (no [Spec,NP/VP]) argument is present, $Case_{Gen}$ can alternatively check an O-genitive for a DP which is coindexed as the complement of the N/V. Otherwise, in the presence of a [Spec,NP/VP] argument, the Case of the

complement argument is checked by the lower Case projection, $Case_N$ matching with an O-genitive and $Case_V$ matching with an i-accusative DP.

Section 2.3 has given an initial presentation of the treatment that will be further developed in Section 5 to account for the ordering alternations for the N/V and DP constitutents occurring immediately to the right of the main D head. This treatment proposes that a further functional projection, IdentP, provides the landing site for the raised N/V head as well as a Spec position which may optionally attract a genitive DP or a demonstrative.

Up till now, our discussion has focused on the system of Case marking applying to possessive arguments in DP structures containing head nouns and head verbs occurring in their base forms. An alternative to the structures in which the embedded head is a base form verb is the construction in which the verb bears nominalizing morphology. The DP constructions containing nominalized forms present additional variants in the Case marking patterns which we will proceed to examine in the Section 3.

3. Nominalized forms

The examples in (25) below show that DPs containing nominalized verbs instantiate Case marking patterns which are directly comparable to those observed in DPs containing the bare form of the verb.

(25)a. te patu-nga a Rewi i te poaka [Waititi 1974: 136]
the strike-NMZ GEN Rewi ACC the pig
'Rewi's killing the pig

b. tāku patu-nga i te poaka [Biggs 1969: 81]
my strike-NMZ ACC the pig
'my killing the pig'

c. te patu-nga o Paki e Rewi [Waititi 1974: 143]
the strike-NMZ GEN Paki by Rewi
'the killing of Paki by Rewi'

d. te mahue-tanga o Pani mā i te tereina
the left.-NMZ GEN Pani others P the train
'Pani and the others' being left by the train' [Waititi 1974: 143]

In (25a) Rewi is the A-genitive subject of the nominalized transitive verb patu. That the a marker preceding Rewi is the A-genitive marker and not to be confused with the personal marker a is seen in the fact that the corresponding form, tāku in (25b), is the A-form of the 1SG possessive determiner (contrasting with the O-form tōku). The object in both (25a) and (25b) takes the i accusative marker. In (25c), although no overt passive morphology is present, the Theme Paki is an O-genitive and the Agent Rewi is preceded by the passive agent marker e. In (25d) the nominalized mahuetanga is formed from the unaccusative verb mahue. The Theme in this example has the O-genitive marking as o Pani mā. Thus, except for the absence of the passive morphology in (25c), the Case markings in the forms given in (25) correspond to those of the equivalent forms in (3) and (4) in which the nominalizing morphology is not present.

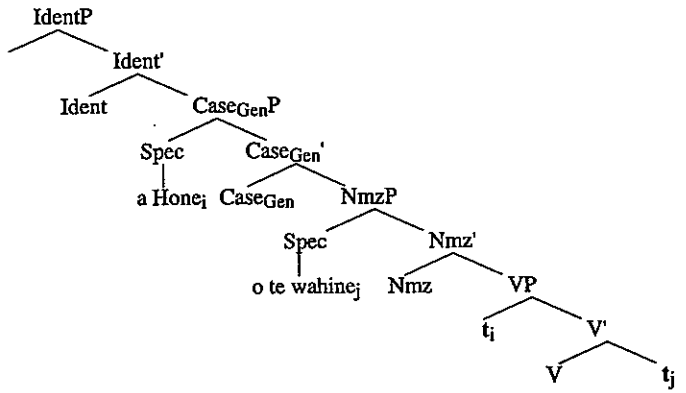
There are three further Case marking patterns which occur in DPs containing nominalized verbs but which we have not found in the corresponding constructions with bare verb heads. In one of the new patterns both the A- and O-genitive markings are present. In a second pattern the Agent is marked as an O-genitive, the form which is otherwise reserved for Themes. The third pattern combines an e Passive marked Agent with an i accusative marked Theme. We examine first the double genitive pattern, illustrated in the examples in (26).

(26)a. tā Hōne patu-nga o te wahine [Carstairs 1970: (20)]
the.GEN Hone strike-NMZ GEN the woman
'Hone's killing of the woman'

b. te patu-nga a Hōne o te wahine [Carstairs 1970: (19)]
the strike-NMZ GEN Hone GEN the woman
'Hone's killing of the woman'

The availability of two genitive markings in a DP with a nominalized verb suggests that the nominalizing function provides an additional site in which genitive Case can be checked. The structure (27) includes an Nmz projection instantiating this function below the $Case_{Gen}P$ and shows the proposed Case checking positions for the two genitive DPs in (26a) and (26b). (The structure in (27) is simplified in that it does not include the D or $Case_V$ projections.)

(27)



In (27) [Spec,$Case_{Gen}P$] is shown as the Case checking position for the Agent DP and [Spec,NmzP] as the corresponding position for the Theme DP. The lexical verb raises to Nmz and then, as before, on to Ident, passing through $Case_{Gen}$. As shown in Carstairs (1970) the relative ordering of the two DPs cannot be reversed:

(28)a. *te patu-nga o te wahine a Hone [Carstairs 1970: (81)]
the kill-NMZ GEN the woman GEN Hone

b. *tō te wahine patu-nga a Hone [Carstairs 1970: (21)]
the-GEN the woman kill-NMZ PERS Hone

The two genitive Case checking positions can be seen as structurally parallel to the subject and object checking positions above the VP in the clause and the raising mechanisms for the DPs are thus likely to be interpretable, once again, as falling

under the type of domain licensing conditions proposed in Chomsky (1995: Ch. 3). The relative ordering of $Case_{Gen}P$ and NmzP in (27) matches up with the fact that, when NmzP is not present and when both an Agent and a Theme DP are present, [Spec,$Case_{Gen}P$] in the active construction must assign A-genitive to the Agent (the Theme complement of the V being marked as an i-accusative).

We now consider the two further patterns of Case marking occurring with nominalized forms, beginning with the type shown in (29), in which the Agent bears the O-genitive marking.

(29)a. te tā-nga o Pou i te rākau [Bauer 1993: (868)]
the fell-NMZ GEN Pou ACC the tree
'Pou's felling the tree'

b. .. te patu-nga o Hōne i te poaka rā . . .
the kill-NMZ GEN Hone ACC the pig DEM
'. . John's killing of that pig . . . ' [Reedy 1979: p.262 (65)]

c. .. te kōhuru-tanga o Pou i a ia anō
the kill-NMZ GEN Pou ACC PERS 3SG again
'. . Pou's killing of himself . . . ' [Bauer 1993: (752)]

Thus, alongside the use of the A-genitive for the Agent, as in (25a), the forms in (29) show the use of the O-genitive applied to subjects of nominalized transitive verbs.

In the preceding analysis of the O-genitive marking we derived the O-genitive, as distinct from the A-genitive, through mechanisms by which the Theme DP was coindexed with the lexical head, whether an N head or a V head. The application of the O-genitive marking to Agents appearing with nominalized verbs suggests that Nmz checks an O-genitive without regard to the presence or absence of the complement co-indexing. The fact that the i-accusative marked complement can co-occur with an O-genitive Agent, as in (29a-c), would be consistent with the placement of $Case_{v}P$ between NmzP and the VP.

Finally we come to the third type of Case marking pattern occurring in DPs with nominalized verb heads. In this pattern an e (Passive) Agent is accompanied by an i accusative marked Theme:[12]

(30)a. te patu-nga i te wahine e Hōne
the strike-NMZ ACC the woman by Hone
'the woman's being killed by Hone' [Carstairs 1970: App (12)]

b. i te kite-nga anō e Mahanga i ngā waewae o
P the see-NMZ indeed by Mahanga ACC the.PL footprint GEN
Hotonui . . . [Chung 1973: fn.22 (b); cited from Johansen (1948)]
Hotonui
'When Mahanga had seen Hotonui's footprints . . . '

[12]In Chung (1973: fn.22 (a)) a comparable form is described as acceptable and shown as:
(i) ?ko te patu-nga i te wahine e Hōne
TOP the kill-NOM DO the woman by Hōne
'the killing of the woman by Hone'

c. te epa-nga i te kupenga e te tangata
the throw-NMZ ACC the net by the man
'the throwing the net by the man' [Chung 1978: 301 (78b)]

d. te whakataka-nga e Ngāti-Rarua i a mātou i Whakatū
the surround-NMZ by Ngati-Rarua ACC PERS us P Whakatu
'because Ngati-Rarua surrounded us at Whakatu . '
[Chung 1978: 301 (78c); cited from Biggs et 1967]

In each of the examples in (30) the Agent is preceded by the e passive Agent marker, yet the Theme has the accusative case marker i.

Carstairs (1970) shows that this pattern of Case marking is not available when the verb has overt passive morphology:[13]

(31)a. *te patu-a-nga i te wahine e Hone
the kill-PASS-NMZ ACC the woman by Hone
'the woman's being killed by Hone' [Carstairs 1970: (83)]

b. *te patu-a-nga e Hone i te wahine [Carstairs 1970: (84)]

(32)a. te patu-a-nga o te wahine e Hone [Carstairs 1970: (83a)]
b. te patu-a-nga e Hone o te wahine [Carstairs 1970: (84a)]

In both (31) and (32) the verb is a nominalized passive. We see from (32) that the O-genitive marking for the Theme is available; and from (31) that the i accusative marking is not available. This means that there is a sense in which the contrasting forms in (30) are passive in their use of the e Agent marker, but active in their use of the i accusative marker. The ungrammaticality of the forms in (31) suggests that the preempting of accusative marking must be due to the presence of the overt passive morphology.

4. The Passive interpretation

From the analysis of Hale (1968) through many other accounts to that of Blevins (1994), there has been extensive discussion of the treatment to be applied to the phonology/morphology of the Maori passive. Whilst it is not our purpose here to enter into the phonology/morphology side of the debate, it is however relevant for our discussion to consider the morphological form of the passive, in particular in its relation to the morphological form of the nominalized verb.

[13]Reedy (1979) gives paradigms embedding nominalized verbs under the purpose complementizer hei:
(i)a. Ka whaka-tere i tōna poho hei horomi i a Maui
T/A CAUSE-large DO her stomach COMP swallow DO PERS Maui.
'(She) enlarged her stomach to swallow Maui' [Reedy 1979: 292, (114a)]

b. ?..... hei horomi-tanga i a Maui [Reedy 1979: 292, (114b)]
COMP swallow-NMZ DO PERS Maui

c. *..... hei horomi-tia-tanga i a Maui [Reedy 1979: 292, (114c)]
COMP swallow-PASS-NMZ DO PERS Maui

Whereas the accusative marked Theme is represented as marginal with the simple nominalized form, (ib), it is clearly unacceptable where the passive morpheme is overtly present in (ic).

As indicated, for example, in Biggs (1969), for many (in fact, most[14]) verbs in Maori there is a correspondence in the shapes of the passive and nominalizing suffixes:

(33)

	Pass	Nmz	
mahi	-a	-nga	'work'
inu	-mia	-manga	'drink'
tangi	-hia	-hanga	'cry'
noho	-ia	-anga	'sit'

[Biggs 1969: 80]

Correspondences of this type have led to the use of the forms -Cia, -Canga as abstractions to represent the two kinds of suffixes and in which 'C', for a given verb, is constant.

We have seen already in (32) that a nominalized verb may be formed on a passive base: patu-a-nga 'kill-PASS-NMZ'. However, although such suffixal compounding is available, the seemingly hybrid nature of the active/passive manifestations of forms like those in (30), with e Agents and i-accusative Themes, suggests the possibility that simple nominalized forms may optionally be interpreted as containing portmanteau morphemes combining the passive and nominalizing suffixes.

For Reedy (1979) the use of the O-genitive marking with a transitive nominalized verb lacking passive morphology gives rise to thematic ambiguity:

(34)a. Kua kuru-a atu e Hōne te pōhatu i te
T/A throw-PASS DIR by Hone the stone T/A the
whakatoi-tanga ōna e Pare [Reedy 1979: 282 (97a)]
tease-NMZ his by Pare
'Hone$_i$ threw the stone when he$_i$ was teased by Pare.'

b. . . . i te whakatoi-tanga ōna. [Reedy 1979: 282 (97b)]
'. . . when he$_i$ was being teased.'/' . . . when he$_i$ was teasing.'

In (34a), because of the presence of the e Agent, ōna can only be interpreted as the Theme. With the absence of any overt Agent in (34b), ōna can be be interpreted as the Theme or as an O-genitive Agent.

With the inclusion of overt passive morphology on the verb, the O-genitive can be interpreted only as the Theme:[15]

[14]See Bauer (1993: 396-398) on variation in the forms of the passive as well as in the forms of the nominalizing suffix.

[15]Reedy (1979: 301, fn 12) describes the ordering whaka-tia-tanga as the unmarked ordering. As he notes, Chung (1973: 648) identifies the following intra-Polynesian patterns in the ordering of these two suffixes:

(i) Tahitian: -Canga -Cia
Maori & Hawaiian -Cia -Canga

Chung (1973: fn 6) also reports that the inclusion of the passive suffix in forms like (35a,c) is restricted to a contemporary usage and does not appear in older Maori texts.

(35)a. . . . i te whakatoi-tia-tanga ōna [Reedy 1979: 282 (97c)]
T/A the tease-PASS-NMZ his
'. . . when he$_i$ was being teased.'/' . . . because of his being teased.'

b. . . . i te whakatoi-tanga-tia ōna [Reedy 1979: 282 (97d)]
T/A the tease-NMZ-PASS his
'. . . when he$_i$ was being teased.'/' . . . because of his being teased.'

c. . . . i tōna whakatoi-tia-tanga [Reedy 1979: 282 (97e)]
T/A his tease-PASS-NMZ
'. . . when he$_i$ was being teased.'/' . . . because of his being teased.'

Recall now that it is the hybrid nominalized forms which we have yet to account for with respect to the use of the e Agent and i-accusative Case markings. We have seen that the i-accusative marking cannot occur when distinct passive marking is present on the verb (whether or not the verb is nominalized). How then in these constructions can the Agent be Case-marked as the Passive e? Let us suppose that the Nmz head can receive a hybrid interpretation and that, in this interpretation, the Nmz head can have passive features. Then, in the presence of the passive features, the Nmz head has the capacity to check the e Case marking. With respect to the Case marking of the Theme DP, the inclusion of -Canga marking on the verb then has no other effects distinct from those which apply to the bare form of the lexical verb inside a DP.

5. Surface ordering alternations

Given the analysis that I have proposed with respect to the sites for the checking of the different forms of Case markings in the full range of DP types, we are now in a position to examine the effects that obtain with regard to the relative orderings of the DP-internal arguments. But first, let us review the Case checking positions for the different forms of Case marking:

(36)a. An A-genitive is Case checked in [Spec,Case$_{Gen}$P].
b. An O-genitive is Case checked:
(i) in [Spec,Case$_{Gen}$P] in the absence of Nmz.
(ii) in [Spec,NmzP] when an A-genitive is also present.
(iii) in [Spec,NmzP] when it is an Agent.
c. An i accusative marked Theme is Case checked by Case$_V$.
d. An e-marked Agent is Case checked:
(i) in [Spec,PassP].
(ii) in [Spec,NmzP] when PassP is not present.

We have already seen from (26) and (28) that the (a) claim of (36) would be consistent with a pattern in which surface linear ordering matches with the relative hierarchical ordering of the Case checking projections in (8). Our task in this section is to determine if such precedence relations apply also to the full array of Case marking possibilities that are observed in nominalized forms as well.

The Case checking sites identified in (36) are matched schematically in (37) to show the available checking locations when an e passive Agent DP is included within the DP, both with and without distinct passive morphology.

(37)a.	**D Ident**	**Case$_{Gen}$**	**Nmz**	**Pass**	**V**
			O DP^{x}	e DP	
		O DP^{x}		e DP	
b.	**D Ident**	**Case$_{Gen}$**	**Nmz**	**Case$_{V}$**	**V**
			[+pass]		
			e DP	i DP^{x}	
		O DP^{x}	e DP		

In (37a) the passive morphology is overt and Case$_V$ is thus suppressed. Both Case$_{Gen}$ and Nmz have the capacity to check an O-genitive complement. In (37b) the passive interpretation is associated with Nmz which therefore checks the e-marked Agent. In the absence of the distinct Pass head, the complement DP is checked, as before, either as an i-accusative by Case$_V$ or as an O-genitive by Case$_{Gen}$.

Observe that both (37a) and (37b) have identical linear precedence relations for the O DP and the e DP. Whereas the O DP consistently precedes the e DP in both (37a) and (37b), in (37b) we see that the e DP precedes the i DP. If the surface ordering matched exactly with the precedence relations for the checking heads shown in (37), then the surface outcome would present the same left to right ordering for the DPs as shown in (37).

The relative ordering of an e DP with respect to an O-genitive and with respect to an i-accusative requires more extensive investigation. Whereas we have seen (from (26) versus (28)) that an A-genitive must always precede an O-genitive, the evidence with respect to the ordering of an e DP relative to an O DP or an i DP indicates variability in the orderings.

The surface ordering issue is explicitly addressed in Carstairs (1970) who notes that, whilst variability is available for the ordering of the e DP and the O DP (shown in (32a,b)) the only permitted ordering in the e DP/i DP combination has the i DP preceding the e DP:

(38)a.	*te	patu-nga	(e)	Hōne	i	te	wahine	[Carstairs 1970: (11)]
	the	kill-NMZ	by	Hone	ACC	the	woman	
b.	te	patu-nga	i	te wahine	e	Hōne		(= (30a))

However, Carstairs' claim as represented by (38) would appear to be in conflict with the two examples (30b) and (30d) (both taken from texts), unless we were to infer that an unmarked ordering i DP - e DP can be overridden by an additional 'heaviness' principle such as invoked by Bauer (1993: 90) with reference to Theme/Agent orderings in the tensed passive clause.

In the case of the e DP/o DP ordering, in the data that I have seen,[16] the apparently preferred ordering is for the O DP to precede the e DP. In this instance

[16]Some further examples are given in Chung (1973: (14), (15)), Chung (1978: 302 (79a,b)), Reedy (1979: 262 (66)), Hooper (1982: 189), Bauer (1993: (864)). A contemporary teaching text, Waititi (1974), consistently gives forms in which the O DP precedes the e DP (see, for example, p. 143).

what appears to be the preferred ordering matches with the hierarchical precedence relations for O DP/e DP as shown in (37a) and (37b).

A preference for i DP/O DP - e DP ordering would match with the claims of Biggs (1969) with respect to the preferred ordering of Agent and Theme arguments in finite clause passives. Thus, Biggs considers that, whilst both (39a) and (39b) are fully acceptable, the preferred ordering is that of (39a):

(39)a.	Ka	inumia	te	wai	e	te	tangata.	[Biggs 1969: 32]
	T/A	drink-PASS	the	water	by	the	man	
	'The water is drunk by the man'							

b. Ka inumia e te tangata te wai. [Biggs 1969: 32]

The general pattern, therefore, would be that, in all of the forms in which a passive Agent occurs in conjunction with a Theme argument, the preference could be for the Theme to precede the Agent. For a single account of such a preferred ordering we would need to suppose that the passive Agent remains in situ in [Spec,VP] at PF and that the Theme argument raises to at least the Spec of the relevant Case checking head. In the apparently less preferred pattern the Theme argument could remain in situ as complement of the lexical V head.[17]

Without more definitive evidence at this stage on the controlling factors affecting the different ordering possibilities, we will have to leave unresolved the nature of the mechanisms by which the diverse surface orderings can be derived. What however, is clear with respect to the ordering patterns is that it is only a genitive DP (A or O) which may precede a head N/V and that, when both an A- and an O-genitive occur within the same DP, the A-genitive must precede the O-genitive. These facts suggest that the only DP that can precede an N/V head is the DP which can be checked by Case$_{Gen}$.

In this account of nominalizing constructions we have seen that the inclusion of NmzP provides for the additional Case marking characteristics over and above what we get with the bare V inside a DP: the use of the double A/O genitive marking, the use of the O-genitive marking as the sole genitive marking applied to an Agent DP. We have also seen that the presence of Nmz can provide a construction with the capacity to include e Agent marking, without at the same time removing the use of the i-accusative Case.

The analysis that I have developed includes a functional projection "IdentP" immediately below the D head and above the highest Case checking projection "Case$_{Gen}$P". At PF the lexical V/N head raises to Ident. The [Spec,IdentP] position can be filled by an A-genitive, or by an O-genitive if an A-genitive is not present. This same [Spec,IdentP] can alternatively be filled by a demonstrative, or it can simply be left empty. In Section 6 to follow I introduce some comparative evidence

[17]Whilst in Pearce (1995) I suggested that the ordering in which the nominative Theme precedes the e DP could be derived by extraposition of the e DP passive Agent, such an interpretation is not compatible with the mechanisms available under the Antisymmetry approach of Kayne (1994) which I am attempting to follow here.

which I think lends support to my proposal for the existence of a functional projection below D, the one that I am calling "IdentP".

6. Some comparative issues

The proposed Maori "IdentP" has parallels with the AgrPs proposed for Italian and for Rumanian (Giusti 1993, 1994, Brugè 1996) and with the N+IP proposed in Szabolsci (1989) for Hungarian. In these approaches to the syntax of the DP, the internal structure of the DP includes DP analogues of functional projections which have been hypothesized for the IP. In her analysis of the DP in Hungarian, Szabolsci specifically proposes that the D of the DP is syntactically parallel to the C of the CP above IP. Similarly, the AgrP label adopted by Giusti is in parallel with the Agr(S)P label commonly used to identify the licensing site for the pre-verbal subject of the clause. The AgrP label itself as used in the representations of the IP and the DP in Italian and in Rumanian also has the advantage that it is transparent in signally what are actually concrete manifestations of agreement in both the IP and the DP in these languages.

For Maori, it could be seen as more appropriate on universalist grounds to adopt the AgrP label on the assumption that the checking function that it represents is general, overtly manifested in some languages, but not in others. However, I have felt that, rather than simply adopting the AgrP term, it may be more useful (even in the interests of the general theory) to introduce another focus into the discussion by adopting a label for Maori which would appear to best reflect what is distinctive about the Maori data: an apparent lack of correspondence in the syntax of IPs and DPs, including (i) the ordering contrast: clausal VSO versus NSO/SNO; and (ii) clausal Ø-nominative versus the split A/O genitive marking system. Further analysis of these distinctions, however, requires more research on the structure of both the IP and the DP in Maori. Although it may turn out that the "IdentP" of the Maori DP is indeed comparable to a parallel projection in the Maori clause, at the present time, the IP/DP differences seem to me to be more apparent than the similarities. The spirit in which I propose the IdentP label is akin to the notion behind the proposal of Szabolsci (1989) for a 'Det' distinct from 'D'. Let us first, however, see some ways in which the top end of the Italian DP differs from the top end of the Maori DP.

Italian, like Maori and unlike English, exhibits cooccurrence of the determiner and the possessive:

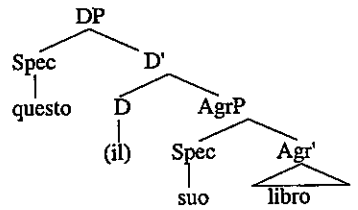
(40)a.		il	suo	libro	Italian
b.		t-	āna	pukapuka	Maori
c.	*	the	his	book	English

In both Italian and Maori the cooccurrence of the article and the possessive suggests that the possessive is housed in a projection below D. The same cooccurrence patterns however do not apply to the determiner and the demonstrative:

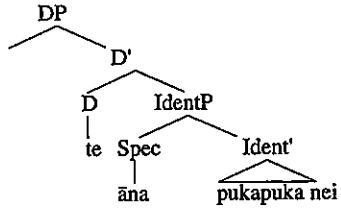
(41)a.	*	il	questo	libro /	*questo il libro	Italian
b.		tē-	nei	pukapuka		Maori
c.	*	the	this	book	/ *this the book	English

Suppose now that the ordering possibilities for Italian are as represented in the structure (42a), from Giusti (1993), and for Maori as in (42b).

(42)a. Italian



b. Maori



In Italian, when the demonstrative is in [Spec,DP] the D cannot contain an overt determiner (41a), although it can contain a raised N:

(43)a. questo suo libro
this his book
'this book of his'

b. questo libro$_i$ suo t_i

Thus Italian and Maori use different positions for their demonstratives, but the same position for possessives (discounting the different phrase labels). One of the effects of the use of the [Spec,DP] position in Italian for the demonstrative is the absence of an overt determiner in D. In Maori the [Spec,DP] position remains unfilled at PF and the overt determiner is required in D. On the basis of these data, Italian and Maori are comparable in that, for both languages, either D or [Spec,DP] must be overt, but both positions cannot be overt (that is, cannot be overtly filled by a determiner-like element[18]).

Rumanian presents characteristics, some of which it shares with Italian and some with Maori:

(44)a. om-ul acesta
man-the this

b. acest om

c. *acest om-ul [Giusti 1994: (21a,c,d)]

As seen in the data in (44), Rumanian has an enclitic article. Following the analyses of Giusti (1993, 1994) and Brugè (1996), the checking of D is implemented either through N --> D raising: (44a), or through movement of the demonstrative into [Spec,DP]: (44b). One or other of these licensing strategies can apply, but not both: (44c). In this respect Rumanian is like Italian in that when the demonstrative is in

[18]See Longobardi (1994) for further discussion of N-raising in Italian, including an analysis of constructions in which there is neither an overt determiner nor an overt [Spec,DP].

[Spec,DP] the determiner cannot be overt. However, whereas in Italian the demonstrative must move to [Spec,DP] (= (41a)), in Rumanian the demonstrative can remain in the Spec below D (44a). When the demonstrative remains below D in Rumanian, N --> D raising must apply.

The data in (45) provide the comparison between Rumanian and Maori for the position of the N with respect to a possessive.

(45)a. portret$_i$-ul regelui t_i [Giusti 1993: 19]
portrait-the king-the-GEN
'the king's portrait'

b. te pukapuka$_i$ a te tama t_i
the book GEN the boy
'the boy's book'

c. tā te tama pukapuka
the-GEN the boy book
'the boy's book'

In both languages the possessives remain below D. In Rumanian N --> D raising must apply, as before, in order to implement the checking of D. For our interpretation of the Maori ordering in (45b), N does not raise to D, but it must raise to Ident. Thus, although the linear orfering of the constituents in (45a) and (45b) is directly comparable, the Rumanian N is in D, whereas the Maori N is in Ident.

The phenomena that we see at the "top end" of the DP in Italian and Rumanian seem to match best with phenomena that we have located as occurring in IdentP in Maori. Whereas in Italian and Rumanian, [Spec,DP] is a position optionally available to a demonstrative, in Maori, it is the Spec below D (i.e. [Spec,IdentP]) that is optionally available to a demonstrative. Whereas both Italian and Rumanian can have N --> D raising in certain constructions, no such raising applies in Maori in which the D position is reserved for the determiner. Thus, whereas in Italian and Rumanian it is within the D projection that we see the options being played out, in Maori it is in the projection immediately below D in which the alternative raising possibilities are realized (restricted, however, to the Spec position, but involving either a possessive or a demonstrative). In Maori the N/V alone may fulfill the requirements for overt content in IdentP.

This leaves the Maori D as a syntactically fairly inert kind of entity -- not greatly entering into alternations with other constituents within its immediate projection. Although for lack of space we cannot enter into a more extended discussion here of the semantics of the Maori determiner, there are a number of characteristics, especially of te, that have led Bauer (1993: 358) to suggest that te has the role of a default article. In applying the label "IdentP" to the projection below D it has been my intention to give a focus to the rather more semantically identifying function of this projection in Maori, syntactically supported by the obligatoriness of N --> Ident raising.

This interpretation is also somewhat in the spirit of the proposals of Stowell (1989) and of Szabolsci (1989). Szabolsci applies the term 'DetP' to a projection below D and assigns to D the function of turning a predicate expression into an argument

(Lambda-binding an open sentence into a generalized quantifier). For further extensions of this principle based on differences in the syntactic behaviour of kind referring and object referring nouns, see Longobardi (1994, 1996). Perhaps there is a distinction: article versus determiner, more readily identifiable in some languages than in others. It is such a distinction that I have envisaged here in the use of the two projections, DP and IdentP. That is, the article in Maori is simply a kind of place holder, whereas the determiner in both Italian and Rumanian has a distinct semantic role as well as being a place holder.

Whereas other accounts of DP syntax may derive alternations in surface orderings through overt/covert distinctions in head raising (the construct state versus the free genitive in Hebrew, Ritter 1991; and Giusti's N-raising account of the contrast between (43a) and (43b), for example), I have rather taken the view that N/V --> Ident is a constant of the overt syntax in Maori and that the surface alternations are derived from differing placement possibilities for the relevant XP constituents. For a full account of the DP-internal syntax of Maori many other aspects of DP syntax need to be examined in detail. The proposals in the present paper have focused particularly on the top end of the DP although, along the way, we have considered some implications for the behaviour of arguments lower down in the surface structure of the DP I look forward to pursuing these questions for Maori, and more, in future work.

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Two Types of Evaluation Time and Subject Marking in Japanese*

Shizuka Torii

Abstract

This paper takes a tense/aspect perspective on the challenging question as to what determines the choice between *wa* and *ga* to mark the so-called subject of a clause in Japanese. I distinguish two types of evaluation time, on which the truth of a clause is dependent, and to which I show that *wa*- and *ga*-marking of the subject correlate. Compared with Reichenbach's (1947) three temporal primitives, S, E, and R, the two types of evaluation time distinguish two types of R; one that coincides with S but not with E and the other that coincides with E but not with S. Due to the availability of two types of evaluation time, a single tense/aspect morpheme yields two distinct temporal and aspectual interpretations in a perfect correlation with *wa*- and *ga*-marking of the subject. This analysis thus defines an interrelation between tense/aspect and subject Case-marking in the syntax.

1. Introduction

The fundamental problem for the analysis of *wa*- and *ga*-marking in Japanese is largely due to the fact that the so-called subject of a clause can be marked by either *wa* or *ga*, as seen in (1).

(1)	a.	John-**wa** John	ki-ta. come-Past	'John came.'
	b.	John-**ga** John	ki-ta. come-Past	'John has just arrived.'

A basic question as to what determines the choice between *wa* and *ga* to mark the subject of a clause has been a genuine challenge and a considerable amount of effort has been put into the investigation of the question from various theoretical standpoints (Endo 1994, Hinds 1987, Kuno 1973, Kuroda 1972, 1986, 1992b, Maynard 1987, Mikami 1960, Shirai 1986, Tateishi 1991, Uetake 1991-1992, among others).

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This paper approaches this issue from a tense/aspect perspective and sheds light on a particular dimension of *wa/ga*-marking of the subject.[1] Notice that in (1) above I translate the predicate *ki-ta* 'come-Past' as 'came' when the subject is marked with *wa* in (1a) but as 'has just arrived' when the subject is marked with *ga* in (1b). The studies on tense/aspect in Japanese have been mainly concerned with the phenomena in subordinate clauses, which exhibit interesting contrasts with languages like English (eg, Kuno 1973, Nakau 1976, Ogihara 1989, Nakamura 1994).[2] Although all of these discussions are useful contributions to our understanding of the tense/aspect system in Japanese, we also need to return to simple sentences and re-examine their temporal and aspectual interpretations to grasp the basis of the Japanese tense/aspect system. By doing this, we come to see the correlation between *wa*- and *ga*-marking of the subject and tense/aspect features.

The organization of this paper is as follows. In Section 2, I begin by distinguishing two types of evaluation time, on which the truth of a clause is dependent, and show that *wa*- and *ga*-marking of the subject correlate to the different types of evaluation time. In Section 3, I compare the two types of evaluation time with Reichenbach's (1947) three temporal primitives, S, E, and R and show that they correspond to two different types of R; one that coincides with S but not with E and the other that coincides with E but not with S. Section 4 turns to the temporal relations specified between R and S on the one hand and E on the other hand (when R = S and R ≠ E) and between S on the one hand and R and E on the other (when R = E and R ≠ S). Assuming that Japanese tense morphemes, *-ta*, *-ru*, and *-teiru*, carry relational meanings, '>', '<', and '⊂', I show that both relations are specified by these morphemes and that these morphemes specify the temporal relation between S and R/E when the subject is marked with *wa* and that between R/S and E when the subject is marked with *ga*. Section 5 shows that those morphemes can also be considered to denote aspectual meanings, completed, inchoative, and ongoing, which modify either a remote event as a whole when the subject of the clause is marked with *wa*, or a cross-section of an immediate event when the subject of the clause is marked with *ga*. In conclusion, a single tense/aspect morpheme can yield two distinct temporal and aspectual interpretations, due to two types of evaluation time, which distinguish two different types of event. Which one of the two possible interpretations obtains perfectly correlates to whether the subject of the clause is marked with *wa* or *ga*. This suggests that subject marking in Japanese is clearly related to tense/aspect in the syntax.

[1] In order to focus on the basic contrast between *wa* and *ga*, I only deal with what may be called their neutral interpretations, which correspond to the "thematic" interpretation of *wa* and the "neutral description" reading of *ga* in Kuno's (1973) terminology.

(i)

	neutral interpretation	focus interpretation
wa	"thematic"	"contrastive" (contrastive focus)
ga	"neutral description"	"exhaustive-listing" (presentational focus)

(based on Kuno 1973)

[2] Nakau (1976) includes also a survey of the tense/aspect phenomena in main clauses. Besides this, the basic tense/aspect phenomena in main clauses have been studied within the traditional *kokugo-gaku* linguistics (e.g., Kindaichi 1950, 1955).

2. Two Types of Evaluation Time

In this section, I distinguish two types of evaluation time, on which the truth of a clause is dependent, and show that *wa*- and *ga*-marking of the subject correlate to the two types of evaluation time.

2.1. 'Original' versus 'new' evaluation time

To observe a distinction between two types of evaluation time, let us first refer to the traditional analysis of tense as a sentential operator (as in Prior 1967 and Montague 1974 among others). For example, the interpretation of a sentence with past tense is accounted for by the rule (2) (Enç 1987: 633).

(2) The interpretation of a past tense sentence:
Where φ is a sentence [and PAST is the past operator], PASTφ is true at time t iff there is a time t' such that $t' < t$ and φ is true at t'.
('<' indicates that what is on the left-hand side of the symbol precedes what is on the right-hand side of it.)
(adapted from Enç 1987: 633)

According to (2), a past tense sentence, say *John ate an apple*, is true at the utterance time t iff there exists a time, t', prior to t, such that *John eats an apple* is true at t'. In this view, the truth of a sentence at the utterance time t does not "depend on" t, but on another time t', which is designated by a tense operator.[3]

By contrast, the truth of a sentence like *John is eating an apple* is solely dependent on the utterance time t (without recourse to another time t'). *John is eating an apple* is true at t if John is eating an apple at t. In such a case, the utterance time t serves as the evaluation time not only for the truth of a sentence but also for the event described in the sentence. Therefore, there is no need for another time t' to be introduced.

While utterance time t naturally comes into being every time something is uttered, another time t' is specially introduced when it is needed for the interpretations of some sentences, such as sentences in past tense. In other words, while utterance time t alone is sufficient for the temporal interpretation of a sentence in some cases, another time t' needs to be introduced in other cases.

Since utterance time t is a naturally occurring time and it is most natural that the truth of a sentence is dependent on the time of utterance, we can consider utterance time t as the 'original' evaluation time.[4] On the other hand, another time t' comes into existence only when needed. And when it does, it

[3] However, t' is dependent on t in that it is defined in relation to t. In what follows I use the expression "depends on (or is dependent on)" in the sense indicated by the discussion in the paragraph. When the utterance is evaluated at t but the event being spoken of is verified at t', the truth of the utterance is dependent on t'.

[4] I define evaluation time as the time at which the event described in a sentence is verified, rather than the time on which the truth of a sentence is evaluated, though the two times can be the same.

takes over the power of utterance time *t* as evaluation time and makes a 'new' evaluation time.[5]

Interestingly enough, the two types of evaluation time, *t* and *t'*, constantly correlate to *ga*- and *wa*-marking of subject respectively: when the subject is marked with *ga*, the truth of a sentence is dependent on the original evaluation time *t*, and when the subject is marked with *wa*, the truth of a sentence is dependent on a new evaluation time *t'*.

Compare the temporal and aspectual interpretations given to (1a) and (1b) above, which are repeated in (3) below.

(3)	a.	John-**wa**	ki-ta.	'John came.'
		John	come-Past	
	b.	John-**ga**	ki-ta.	'John has just arrived.'
		John	come-Past	

The sentence (3a) with a *wa*-marked subject is interpreted as asserting that the event of John's coming took place at a certain time in the past.[6] The truth of (3a) is taken as relative to a time which is located prior to the time of utterance. On the other hand, (3b) with a *ga*-marked subject is interpreted as describing a present situation in which John has just arrived.[7] Although John's arrival must have taken place immediately before the moment of utterance, the event is perceived and described as having just been completed from the perspective of the utterance time. In this sense, the truth of (3b) is dependent on the utterance time. That is, the utterance time *t* alone is sufficient for the temporal interpretation of (3b) with a *ga*-marked subject, while another time *t'*, which is located prior to *t*, is required for the temporal interpretation of (3a) with a *wa*-marked subject.[8]

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[5] See footnote 4.

[6] In order to get the neutral interpretation of the *wa*-marked subject (rather than the contrastive interpretation), imagine that (3a) is uttered as an answer to a question *Did John come to the party?*

[7] Although (3b) is translated as present perfect in English, it only represents one particular interpretation of English present perfect, namely the "just completed" interpretation.

The completed interpretation seems to be often overlooked due to its similarity to the resultative interpretation (eg, Smith 1991, Brugger 1997a). Compare the sentences in (i) below.

(i) a. John has (already) gone. <resultative>
b. John has (just) sneezed. <completed>

While (ia) ascribes the property of having gone to the subject John, (ib) does not ascribe its subject a property. The completed use of present perfect as in (ib) simply describes a present state of affairs in which an event has just been completed. Imagine that you are on the phone. The person on the other side of the phone heard a funny noise from your side and asked what that noise was. And you say "John has just sneezed", or in Japanese "John-ga kushami-o shi-ta". Crucially, while the subject is marked with *ga* in the Japanese equivalent for (ib), the subject is marked with *wa* in the Japanese equivalent for (ia), as shown in (ii) below.

(ii)	a.	John-wa	moo	it-ta.	'John has already gone.'
			already	go-Past	
	b.	John-ga	kushami-o	shi-ta.	'John has (just) sneezed.'
			sneeze-Acc	do-Past	

[8] However, if a time adverb such as *kinoo* 'yesterday' or *san-ji ni* 'at three o'clock' occurs with (3b), (3b) is not interpreted as describing a present situation but clearly a past situation. In such cases, a past situation is described in retrospect, as though we are back at that particular spatiotemporal location in the past. Therefore, although the truth of the sentence is not dependent on the 'real' present moment or the utterance time, it is dependent on a "pseudo-present". I take a view that *t* refers to a time recognized as the present in the discourse, which is typically the utterance time but can be other temporal moments (see 3.3 below).

Let us examine a couple more *wa/ga* pairs of sentences, which have different tense/aspect morphemes. The examples in (4) below have the *-ru* morpheme instead of *-ta* in (1) above. The sentence (4a) with a *wa*-marked subject receives a future reading that John will come sometime in the future. The sentence (4b) with a *ga*-marked subject, on the other hand, is interpreted as describing a present situation in which John is actually coming or in fact we see John actually coming to the place of utterance at the time of utterance.[9]

(4)	a.	John-**wa**	ku-ru.	'John will come.'
		John	come-Pres	
	b.	John-**ga**	ku-ru.	'John is coming. (Here comes John.)'
		John	come-Pres	

While the truth of (4b) with a *ga*-marked subject is dependent on the utterance time *t*, the truth of (4a) with a *wa*-marked subject is dependent on another time *t'* (which is after *t*).

The same contrast is observed even when the predicate is in the *-teiru* present progressive form, as in (5) below.

(5)	a.	John-**wa**	hon-o	kai-tei-ru.
			book-Acc	write-Prog-Pres
		'John is writing a book.'		
	b.	John-**ga**	hon-o	kai-tei-ru.
			book-Acc	read-Prog-Pres
		'John is writing a book.'		

Both (5a) and (5b) express a present ongoing situation of John's writing a book. However, while (5b), whose subject is marked with *ga*, can only be uttered on the spot where the speaker perceives the actual situation in which John is writing a book, (5a), whose subject is marked with *wa*, can be uttered even when John is not actually writing at the time of speech. For example, (5a) can be uttered in a speech situation where you are introducing John, who is standing next to you (and hence not writing a book), as in *This is John. John is writing a book.* This suggests that while (5b) conveys that there is an actual situation in which John writes a book going on right in front of the speaker at the moment of speech, (5a) does not necessarily mean that John is actually writing a book at the moment when the sentence is uttered (though it can be well uttered when John is actually writing too).

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[9] *ki-* in (3) and *ku-* in (4) are phonological variants of a verb 'to come'.

This contrast between (5a) and (5b) can be illustrated by the range of temporal adverbials which can cooccur with each sentence. Adverbials such as *saikin* 'these days' and *itsumo* 'always' are compatible with (5a) but not with (5b), as shown in (6) below. (The asterisk on (6b) indicates that the addition of one of these adverbials to (5b) forces the focus interpretation of the *ga*-marked subject.[10])

(6) a. Saikin/itsumo John-**wa** hon-o kai-tei-ru.
these days/always book-Acc write-Prog-Pres
'John is writing a book these days./John is always writing a book.'

b. *Saikin/itsumo John-**ga** hon-o kai-tei-ru.
these days/always book-Acc write-Prog-Pres

The compatibility of (5a) with *saikin* 'these days' or *itsumo* 'always' makes it clear that (5a) does not convey that John is actually writing a book at the moment when it is uttered. Thus, while the truth of (5b) with a *ga*-marked subject is totally dependent on the utterance time *t*, that of (5a) with a *wa*-marked subject is not strictly dependent on *t* but rather dependent on another time *t'*, which embraces *t* in it.

However, both (5a) and (5b) can take *ima* 'now', as shown in (7) below. With *ima* 'now' both examples in (7) have to mean that John is writing a book now.

(7) a. Ima John-**wa** hon-o kai-tei-ru.
now book-Acc write-Prog-Pres
'John is writing a book now.'

b. Ima John-**ga** hon-o kai-tei-ru.
now book-Acc write-Prog-Pres
'John is writing a book now.'

Nonetheless, we can still observe the same contrast between (7a) and (7b). The proposition (7a) will hold true even if John is sipping his coffee in the middle of writing at the time when the sentence is uttered, whereas (7b) will be evaluated as false if it is uttered when John is sipping his coffee in the middle of writing. In other words, while (7b) strictly requires that John be actually writing at the moment of utterance for it to be true, the truth of (7a) is evaluated more loosely at a loosely defined present time which includes the utterance time. (The word *ima* 'now' itself is interpreted in two ways. It is taken as referring to a precise temporal point of the present which corresponds to the moment of utterance in (7b) and to a loosely defined present time which includes the utterance time in (7a).) That is, while the truth of (7b) is totally dependent on the utterance time *t*, that of (7a) is rather dependent on another time *t'*, which is a loosely defined present time embracing the utterance time *t*.[11]

[10] With the focus interpretation of the subject, (6b) gives an interpretation that it is John who is writing a book these days/it is John who is always writing a book.

[11] Although I do not discuss the past progressive form *-teita* for the reasons of simplicity, it also exhibits the contrast between *t* and *t'* with *wa*- and *ga*-marking of the subjects if we take a view that *t* refers to a time recognized as the present in the discourse, which is typically the utterance time but can be other temporal moments (see 3.3 below).

Thus, the two types of evaluation time, *t* and *t'*, constantly correlate to *ga*- and *wa*-marking of subjects respectively. When the subject is marked with *ga*, the truth of a sentence is dependent on the utterance time *t*. When the subject is marked with *wa*, the truth of a sentence is dependent on another time *t'*.

2.2. Spatiotemporal boundedness

The subtle but sound contrast observed between the interpretations of (7a) and (7b) above indicates that while a sentence with a *ga*-marked subject is interpreted as being strictly bounded at a particular spatiotemporal location, a sentence with a *wa*-marked subject is interpreted more loosely. In this subsection, I show that, while the original evaluation time *t*, which a sentence with a *ga*-marked subject is dependent on, refers to a well defined singular point in time, a new evaluation time *t'*, which a sentence with a *wa*-marked subject is dependent on, does not single out a precise temporal point but rather refers to a more loosely defined time.[12]

Let us now imagine a situation in which John is standing there. If you know that John has been standing there for some time and still see him standing there, you will say (8a), in which the subject John is marked with *wa*. But if you have just noticed for the first time that John is standing there, you will say (8b), in which the subject John is marked with *ga*.

(8) a. John-**wa** asoko ni tat-tei-ru.
that-place at stand-Prog-Pres
'John is standing there.'

b. John-**ga** asoko ni tat-tei-ru.
that-place at stand-Prog-Pres
'John is standing there.'

This suggests that (8a) with a *wa*-marked subject implies a duration of the described present situation, whereas (8b) with a *ga*-marked subject describes the present situation more as a transient situation holding at that very moment. In other words, the intension of (8b) is spatiotemporally bounded, whereas that of (8a) is not.

This contrast in spatiotemporal boundedness is always observable between *wa*- and *ga*-sentences, irrespective of the predicate form. Let us return to the above examples, (3) with the *ta*-form of a verb and (4) with the *ru*-form, which are repeated in (9) and (10) below.

[12] Note that *t*'s referring to a punctual temporal point and a clause's being dependent on *t* do not entail that the event described in the clause is punctual (as opposed to durative or ongoing). For example, a clause describing a durative event as progressing is dependent on a punctual temporal point *t*, in the sense that the event is perceived and described as progressing from the perspective of the particular point in time (and space).

(9) a. John-**wa** ki-ta. 'John came.'
John come-Past

b. John-**ga** ki-ta. 'John has just arrived.'
John come-Past

In (9a) with a *wa*-marked subject, whose truth is dependent on another time *t'*, the event of John's coming described in the sentence is interpreted as having taken place at a certain time in the past. The focus of the sentence is that the event did take place some time in the past, and the exact time of the event is rather irrelevant. That is to say, the temporal interpretation of (9a) is not dependent on a precise temporal point in the past (eg, when the clock struck one yesterday), but rather on a more loosely defined past time (eg, yesterday). This suggests that *t'* does not refer to a precise temporal point but rather to a loosely defined time.

On the other hand, (9b) with a *ga*-marked subject, which is dependent on the utterance time *t*, is interpreted as describing a present situation in which John has just arrived. In order for an event to be described as having just been completed, we need to stand at a specific reference point, from the perspective of which we perceive and describe the state of the event. In (9b), the completion of the event is perceived and described at the precise temporal point of speech. In this sense, the temporal interpretation of (9b) is dependent on a punctual temporal point. This suggests that the utterance time *t* refers to a punctual temporal point.

(10) a. John-**wa** ku-ru. 'John will come.'
John come-Pres

b. John-**ga** ku-ru. 'John is coming (on his way).'
John come-Pres

The *wa*-sentence (10a), whose truth is dependent on *t'*, asserts that the event of John's coming will take place some time in the future. Similarly to (9a), the focus of the sentence is the occurrence of the event in the future, and the exact time of the event is rather irrelevant. The temporal interpretation of (9a) is not dependent on a precise temporal point in the future (eg, when I sneeze in my office tomorrow), but rather on a more loosely defined future time (eg, tomorrow).

On the other hand, the *ga*-sentence (10b), which is dependent on *t*, is interpreted as describing a present situation in which the event of John's coming is actually observed as occurring and progressing at the moment of speech. In the sense that the event is perceived and described as progressing at the moment of speech, the temporal interpretation of (10b) is dependent on a punctual temporal point (at which the sentence is uttered). In other words, the event of John's coming described in (10b) is a temporal slice of the event which as a whole is durative and ongoing, manifested at the puncutal spatiotemporal location of utterance.

To conceptualize the distinction between a punctual manifestation of an event and an event as a whole, it may be helpful to refer to Jackendoff's (1996) decomposition of a situation. Comparing situations to objects such as a cylindrical tube and an H-beam, Jackendoff decomposes a situation into axis plus cross-section so that if we take a slice of a situation at any point of the axis, we get a representative cross-section of the situation. Since Jackendoff uses the term 'situation' as a supercategory under which 'event' and 'state' are subsumed and I use the term 'event' without implying any distinction between eventive and non-eventive aspectual classes of predicates, what Jackendoff refers to by 'situation' and what I refer to by 'event' correspond to each other.[13] Therefore, a punctual manifestation of an event is a cross-section of a situation intersecting at a particular point on the time axis and a whole event is an undecomposed situation. In these terms, an event described in a sentence with a *ga*-marked subject is necessarily taken as a cross-section of the event (whether an end or a middle cross-section), whereas an event described in a sentence with a *wa*-marked subject is taken as an undecomposed whole event.

This suggests that the utterance time *t*, which a sentence with a *ga*-marked subject is dependent on, refers to a single temporal point and therefore cuts out a cross-section of an event intersecting at that particular point on the time axis. On the other hand, another time *t'*, which a sentence with a *wa*-marked subject is dependent on, refers to a more loosely defined time, which extends (at least) over the whole length of the time axis of the event. Therefore, *t'* as the evaluation time leaves an event as a whole without decomposing it.

Lastly, although *t* refers to a precise temporal point and *t'* refers to a more loosely defined time, whether the clause is dependent on *t* or *t'* does not restrict the selection of temporal adverbials. For example, a non-point adverbial such as *kinoo* 'yesterday' can occur not only in a clause dependent on *t'* but also in a clause dependent on *t*, as seen in (11) below. While (11a) is interpreted as asserting that the event of John's eating ice cream took place yesterday, (11b) is interpreted as retrospecting and describing an actual situation in which John eats ice cream, that occurred at a certain time yesterday. Both the undecomposed whole event in (11a) and a punctual manifestation of the event as in (11b) can be modified by a non-point adverbial *kinoo* 'yesterday', because it covers both the whole event time and a punctual event time.

[13] However, the examples discussed in this paper are all eventive predicates. In fact, the contrasts in temporal and aspectual interpretations I claim to hold between sentences with *wa*-marked subjects and those with *ga*-marked subjects do not necessarily hold with non-eventive predicates. For example, both (ia) with a *wa*-marked subject and (ib) with a *ga*-marked subject receive the past tense interpretation only. The asterisk on (ib) indicates that the sentence cannot yield the neutral interpretation and that the ga-marked subject can only be interpreted as being in focus.

(i) a. John-wa byooki dat-ta. 'John was sick.'
sick Cop-Past

b. *John-ga byooki dat-ta. 'It was John who was sick.'
sick Cop-Past

Although this certainly suggests interactions between event types and temporal and aspectual interpretations, I leave this issue for future research.

(11) a. Kinoo John-**wa** aisukuriimu-o tabe-ta.
yesterday ice cream-Acc eat-Past
'John ate ice cream yesterday.'

b. Kinoo John-**ga** aisukuriimu-o tabe-ta.
yesterday ice cream-Acc eat-Past
'John ate ice cream yesterday.'

Similarly, a point adverbial such as *ichi-ji juugo-hun ni* 'at one fifteen' can occur not only in a clause dependent on *t* but also in a clause dependent on *t'*. However, the scope of a point adverbial varies, depending on whether the clause is dependent on *t* or *t'*, as seen in (12) below.

(12)a. Ichi-ji juugo-hun ni subete-no gakusei-**wa** ki-ta.
one o'clock fifteen-min. at all-of students come-Past
'All of the students came at 1:15.' (all > 1:15)

b. Ichi-ji juugo-hun ni subete-no gakusei-**ga** ki-ta.
one o'clock fifteen-min. at all-of students come-Past
'At 1:15, all of the students had come.' (1:15 > all)

The sentence (12a) with a *wa*-marked subject is interpreted as asserting that all of the students came and that their coming took place at one fifteen. On the other hand, (12b) with a *ga*-marked subject is interpreted as retrospecting and describing an actual situation at one fifteen, in which all the students have come. While (12a) conveys that the students came or arrived all at the same time at one fifteen, (12b) conveys either the same as (12a) or that at one fifteen the last student or the last group of students arrived, which makes the situation where all of the students had arrived at one fifteen. This indicates that *ichi-ji juugo-hun ni* 'at one fifteen' in (12a) only qualifies the predicate, *ki-ta* 'came' and the quantified subject 'all of the students' is outside of the scope of the point adverbial, whereas that in (12b) takes scope over the rest of the sentence including the subject, and qualifies the situation in which all of the students had come.[14,15]

[14] Because of the scope of the adverbial in (12a), it is more natural to put *ichi-ji juugo-hun ni* 'at one fifteen' after the *wa*-marked subject, as shown in (i) below.

(i) Subete-no-gakusei-wa ichi-ji juugo-hun ni ki-ta.
All-of-students one-o'clock fifteen-min. at come-Past
'All of the students came at one fifteen.'

If the point adverbial is put after the *ga*-marked subject, as in (ii) below, the *ga*-marked subject is interpreted as being in focus.

(ii) Subete-no-gakusei-ga ichi-ji juugo-hun ni ki-ta.
all-of-students one-o'clock fifteen-min. at come-Past
'It is all of the students who came at one fifteen.'

[15] *Ichi-ji juugo-hun ni* 'at one fifteen' modifies the event time in (12a) and the reference time in (12b). (cf. Brugger 1997b for the distinction between event time modification and reference time modification)

Thus, whether a clause is dependent on *t* or *t'*, it can occur with both a point and a non-point adverbial. Irrespective of the presence of whatever temporal adverbial, a clause with a *ga*-marked subject, which is dependent on *t*, is necessarily interpreted as being bounded at a particular spatiotemporal location, whereas a clause with a *wa*-marked subject, which is dependent on *t'*, is interpreted more loosely.

2.3. Summary

In this section, I have shown that there are two types of evaluation time, the utterance time *t* and another time *t'*, which constantly correlate to *ga*- and *wa*-marking of the subject respectively. The utterance time *t* and another time *t'* are distinguished as the original versus a new evaluation time, and while the former refers to a precise temporal point, the latter refers to a more loosely defined time.

To further identify the properties of *t* and *t'*, in the next section, I compare them with Reichenbach's (1947) three temporal primitives, S, E, and R.

3. Reichenbach's (1947) Three Temporal Primitives

3.1. S, E, and R

Within the Reichenbachian framework, a tense is represented as a complex of three temporal entities ('times'), temporally ordered with respect to one another (whether one precedes, follows, or coincides with the other(s)). The first, denoted by S, refers deictically to the utterance time and is, therefore, called "speech time". The second, E denotes the time of the event instantiated by the predicate of the clause and is, therefore, called "event time". The third, R stands for "reference time" and serves as a 'point of view' (particularly for perfect tenses).

In terms of these three temporal primitives, S, E, and R, what do the two types of evaluation time, *t* and *t'*, correspond to?

3.2. *t* and *t'* = R

Firstly, both *t* and *t'* correspond to R, because what Reichenbach calls reference time (R) is essentially the same as what I have been calling evaluation time.

Reichenbach introduces R, showing that R is required to account satisfactorily for the semantics of perfect tenses. For example, consider the temporal interpretation of a sentence discussed in Giorgi and Pianesi (1991) *when Mary entered the room (at 5), John had already left (at 4)*. The subordinate clause *when Mary entered the room* fixes a reference point for the main clause *John had already left*. The time of the event of Mary's entering the room, which is located prior to S, serves as R, and the event of John's leaving is located prior to this R. This temporal interpretation is represented as in (13), where a line between two points signifies that the leftmost point is interpreted as temporally earlier than the other.[16]

[16] The graphical notation is due to Hornstein (1990).

(13) E __ R __ S
⋮ ⋮
Mary's entering the room
⋮
John's leaving

(example adapted from Giorgi and Pianesi 1991: 190)

Reichenbach considers R as a formal device which must be instantiated even when it does not appear to be immediately connected to a semantic interpretation. For example, the temporal interpretation of *he will eat tomorrow* does not involve the notion of "point of view" (as in the interpretation of perfect tenses), but its representation still involves R. In this case, the reference time, which is overtly specified by the time adverb *tomorrow*, is aligned with the time of the event of eating, since we know from this sentence that the event will take place as specified by R, ie, tomorrow. Therefore, S precedes both R and E, as represented in (14), where a comma signifies that two points are contemporaneous.

(14) S __ R, E
⋮
tomorrow (example from Giorgi and Pianesi 1991: 190)

Notice that in both of the examples represented in (13) and (14) above, R is the time on which the truth of a clause is dependent. In (13), the truth of the main clause *John had already left* is relative to the time specified by the subordinate clause *when Mary entered the room*, which is represented with R, in the sense that the event of John's leaving is perceived as having already been completed from the perspective of the point in time when Mary entered the room. In (14), the truth of *he will eat* is relative to the time specified by the time adverb *tomorrow*, which is also represented with R. This suggests that Reichenbach's R refers to the time on which the truth of a clause is dependent, ie, the evaluation time in my terminology. Thus, two types of evaluation time, *t* and *t'*, both correspond to R as the time on which the truth of a clause is dependent. This means that I am dividing Reichenbach's R into *t* and *t'*, ie, distinguishing two types of R.

3.3. R = S and R ≠ S

It is rather obvious from the definitions that the utterance time *t* corresponds to S and that another time *t'* is distinct from S. That is, *t* and *t'* distinguish two types of R; one that coincides with S and the other that is distinct from S.

For a simple illustration, compare the R in *John ate an apple yesterday* and that in *John is eating an apple now*. In each case, R is overtly specified by the time adverb; *yesterday* in the former and *now* in the latter sentence. The R which is specified by *yesterday* precedes S and therefore is clearly distinct from S. By contrast, the R which is specified by *now* coincides with S. R coinciding with S corresponds to the utterance time *t* serving as the evaluation time, whereas R distinct from S corresponds to another time *t'* serving as the evaluation time.

It has been pointed out (eg, Hornstein 1990) that S, besides referring deictically to the speech time, in some contexts can also refer to the time specified by other sentences in the discourse or can connect the tense representation of a subordinate clause with that of the main one. I take the view that S refers to a time recognized as the present in the discourse, which is typically the utterance time, although in narrative types of situations, other temporal moments can be recognized as the present as an outcome of other sentences in the discourse establishing a "pseudo-present". The notion of pseudo-present in narratives can be extended to complex sentences in which the subordinate clause specifies a particular spatiotemporal location as a reference point for the main clause. In *when Mary entered the room, John had already left*, for example, the subordinate clause *when Mary entered the room* specifies a particular spatiotemporal location in the past as a reference point for the main clause *John had already left*. The subordinate clause functions as though it brings the interlocutors back to the specific spatiotemporal location in the past and the time it specifies becomes a temporary "pseudo-present".

According to this view, the time specified by *when Mary entered the room* is S, which fixes a "pseudo-present" for the main clause *John had already left*. And this S serves as R in interpreting that John's leaving has already been completed.[17] Therefore, the temporal interpretation of this sentence should be represented as in (15) below, where R and S coincide.[18] Since R coincides with S (ie, R = S), this is a case in which *t* serves as the evaluation time.

(15) E _ R, S
⋮ ⋮
Mary's entering the room
⋮
John's leaving

By contrast, in *he will eat tomorrow*, the reference time specified by *tomorrow* is understood as the day after the day on which the sentence is uttered. In this case, R is defined in terms of its relation to S, where R and S are clearly distinct. Such an R distinct from S corresponds to *t'* serving as the evaluation time.

Thus, the two types of evaluation time, *t* and *t'*, distinguish between the two cases; one in which the reference time coincides with the speech time (R = S) and the other in which the reference time is distinct from the speech time (R ≠ S).

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[17] The S for the main clause is distinct from the "real" S which refers to the time of speech. It actually corresponds to the E for the subordinate clause, which is located prior to the "real" S.

(i) Mary's entering the room
⋮
R, E _ S <Tense representation for the subordinate clause>
▌
E _ R, S <Tense representation for the main clause>
⋮
John's leaving

[18] When we take S as a deictic element which designates the moment which is recognized as the present in the discourse and acts as the anchor for the temporal interpretation, all perfect tenses, present, past, and future perfect, are represented identically as E _ R, S (or E _S, R).

(16) a. *t*: R = S
b. *t'*: R ≠ S

3.4. R ≠ E and R = E

Let us now look at the two types of R in terms of their relations to E.

An R which corresponds to S has the intuitive sense of R as a "point of view". It functions as a reference point from which the event is viewed and in relation to which the time of the event is located. Such an R is observed in the representation of a perfect tense "E _ R, S" as in (15) above, where E is located prior to the R = S point. On the other hand, an R which is distinct from S lacks the intuitive sense of a "point of view" from which an event is viewed, and is in fact always aligned with E. It is illustrated in the representation of a future tense "S _ R, E" in (14) above, where R is attached to E.

With the former type of R, the temporal location of E is defined in relation to the R = S point, as seen in the representations in (17) below, whereas with the latter type of R, the temporal relation is specified between S on the one hand and R and E on the other, as seen in the representations in (18) below.

(17) a. E _ R, S eg, John has (just) left.
b. R, S _ E eg, John is leaving (now).

(18) a. R, E _ S eg, John left.
b. S _ R, E eg, John will leave.

The crucial difference between the two sets of representations is whether R is aligned with S and not with E (in (17)) or aligned with E and not with S (in (18)). Notice that apart from this difference, both (17) and (18) specify the temporal relation between S and E. To see this, cover up all the Rs in the representations in (17) and (18) above. The representations in (17a) and (18a) and those in (17b) and (18b) have identical S-E relations.

The same S-E relations yield distinct temporal and aspectual interpretations, depending on whether R is aligned with S (and not with E) or aligned with E (and not with S). When R is aligned with S, ie, R = S, the truth of a clause is dependent on the "present" moment (including pseudo-present) and hence the event described in the clause is taken as holding at the "present" moment. Therefore, E located in relation to S functioning as R (as in (17) above) must be very immediate to S. For example, in "E _ R, S", E is located immediately before S. This yields an interpretation that the event has just taken place, ie, the perfect interpretation. In "R, S _ E", E is located immediately after S. This yields an interpretation that the event is going to take place immediately, ie, the inchoative interpretation.

On the other hand, when R is distinct from S, ie, R ≠ S, the truth of a clause is dependent on another time distinct from the present moment and hence the event described in the clause is taken as somewhat remote from the present moment. E aligned with R (as in (18) above) is therefore remote from S. For example, in "R, E _ S", E is located remotely before S. This yields an interpretation that the event took place at a past time somewhat remote from the present moment, ie, the past tense interpretation. In "S _ R, E", E is located remotely after S. This yields an interpretation that the event will take place at a certain time in the future, remote from the present moment, ie, the future tense interpretation.

Furthermore, R corresponding to S refers to a spatiotemporal location (fixed by S in the speech context) and locates E with respect to that spatiotemporal location. Such an R cuts out a cross-section of an event intersecting at S. On the other hand, R aligned with E refers to the time of event. With such an R, an event is seen as a whole without being decomposed.

What is important for our present purpose is that when R coincides with S, it is necessarily distinct from E (as seen in (17) above) and that when R is distinct from S, it necessarily coincides with E (as seen in (18) above). Since the two types of evalution time, *t* and *t'*, correspond to R which coincides with S and R which is distinct from S respectively, they also distinguish between R which is distinct from E and R which coincides with E.[19,20]

(19) a. *t*: R = S
≠ E
b. *t'*: R ≠ S
= E

3.5. Conclusion

To sum up, I have shown that the two types of evaluation time, *t* and *t'*, both correspond to Reichenbach's reference time R and distinguish two types of it. The original evaluation time *t* corresponds to R which coincides with S (R = S) and is distinct from E (R ≠ E). A new evaluation time *t'* corresponds to R which is distinct from S (R ≠ S) and coincides with E (R = E).

Since the two types of evaluation time, *t* and *t'*, correlate to *ga*- and *wa*-marking of the subject respectively, it means that the subject is marked with *ga* when R = S and R ≠ E and with *wa* when R ≠ S and R = E.

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[19] Bertinetto (1986) also distinguishes R which follows E in the perfect tenses from R which is interpreted as simultaneous with E. For him, only the former R is 'R' and the latter R is called 'L' ('event localizing function'). While R fixes the internal reference which is intrinsically (intensionally) required for semantic interpretation, L chronologically specifies the location of E extrinsically (extensionally) in the sense it is not intrinsically required.

[20] Notice that Priorean *t* and *t'* are defined in terms of Reichenbachian S, E and R. This indicates an intersection between the two approaches to tense. Blackburn (1994: 88) also points out that Priorean tense logic gives a clear account of Reichenbach's S and E: "the point of speech is the point in the model at which the utterance is evaluated, while the point of event is the point in the model where the event being spoken of is verified. That is, *t* corresponds to S and *t'* corresponds to E.

4. Tense Morphemes and Their Relational Meanings

In the previous section, I have distinguished two types of R; one that coincides with S but not with E and the other that coincides with E but not with S, which correlate to *ga*- and *wa*-marking of the subject respectively. In this section, I turn to the temporal relations specified between R and S on the one hand and E on the other hand (when R coincides with S but not with E) and between S on the one hand and R and E on the other (when R coincides with E but not with S) and show that both relations are specified by identical tense morphemes in Japanese. Each of the Japanese tense morphemes can yield two distinct temporal and aspectual interpretations, depending on whether the morpheme specifies the temporal relation between R/S and E (when the subject is marked with *ga*) or that between S and R/E (when the subject is marked with *wa*).

4.1 Relational meanings

Let me start with spelling out the assumptions I make, and on the basis of which I present the following discussion.

Firstly, I assume that the Japanese tense morphemes such as *-ta*, *-ru*, and *-teiru* carry relational meanings such as '>', '<', and '⊂'. A relational meaning '>' temporally locates what follows it prior to what precedes it. That is, if A > B, B is temporally located prior to A. Therefore, A > B can read: A follows B, B precedes A, A is preceded by B, or B is followed by A. A relational meaning '<' temporally locates what follows it after what precedes it. That is, if A < B, B is temporally located after A. Therefore, A < B can read: A precedes B, B follows A, A is followed by B, or B is preceded by A. A relational meaning '⊂' indicates that what precedes it is included in what follows it. That is, if A ⊂ B, B includes A or A is included in B.

Secondly, no matter how we read a relation (eg, A follows B, B precedes A, A is preceded by B, or B is followed by A), a relational meaning defines the temporal location of what follows it with respect to what precedes it. That is, what is on the left-hand side of the symbol serves as a reference point for what is on the right-hand side of it. In the relation between R and S on the one hand and E on the other, the R = S point functions as a "point of view" from which an event is viewed and with respect to which the time of the event is located. Since the R = S point serves as the reference point for E, the relation between R/S and E is represented as "R, S ♦ E" (where ♦ is a variable for relational symbols). On the other hand, in the relation between S on the one hand and R and E on the other, the location of R and E is defined in relation to S. Recall that such an R that is distinct from S corresponds to another time *t'* serving as the evaluation time. Another time *t'* is totally dependent on the utterance time *t* in the sense that *t'* exists only in relation to *t*. Therefore, such an R is defined in terms of its temporal relation to S. Since S serves as a reference point with respect to which the temporal location of R (together with E) is defined, the relation between S and R/E is represented as "S ♦ R, E".

Equipped with these notations, we get the following six tense representations.[21]

(20)

R, S > E	S > R, E
R, S < E	S < R, E
R, S ⊂ E	S ⊂ R, E
⋮	⋮
t	*t'*
(subject-*ga*)	(subject-*wa*)

The same set of relational meanings, >, <, and ⊂, supposedly denoted by the same set of tense morphemes, link either R/S and E or S and R/E. That is, the same tense morphemes carrying the same relational meanings can specify either the relation between R/S and E or that between S and R/E. Since the subject is marked with *ga* when R = S and R ≠ E (ie, *t*) and with *wa* when R = E and R ≠ S (ie, *t'*), we can expect that a tense morpheme specifies the relation between R/S and E with a *ga*-marked subject, and a relation between S and R/E with a *wa*-marked subject.

To verify this, I review the two distinct temporal and aspectual interpretations given to the *wa*/*ga*-minimal pairs of sentences in Section 2 and demonstrate that the two temporal and aspectual interpretations represent the cases in which the tense morphemes specify the relation between S and R/E and those in which they specify the relation between R/S and E.

It is important to remember that E located in relation to the R = S point is taken as being very immediate to S, whereas E aligned with R is taken as being remote from S and that R corresponding to S cuts out a cross-section of an event, whereas R aligned with E leaves an event as a whole (without decomposing it).

4.2. *Ta*

We have observed in Section 2 that a *ta*-form, *ki-ta* 'come-Past', yields a past tense reading with a *wa*-marked subject and a present perfect reading with a *ga*-marked subject. We can now represent our earlier examples (repeated in (21) below) in terms of their S/E/R designations:

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[21] The relations between R/S and E and those between S and R/E correspond to what Comrie (1985) calls relative and absolute tenses respectively. Comrie distinguishes relative tenses from absolute tenses in that while in absolute tenses the reference point for the location of a situation in time is the present moment, in relative tenses it is some point in time given by the context, which is not necessarily the present moment. Comrie represents absolute tenses as relations between S and E and relative tenses as relations betwen R and E.

The relations between R/S and E and those between S and R/E also correspond to the two two-place relations between R and E and between S and R, which have been regarded as the preferred replacement for Reichenbach's three-place relations among S, E and R for both empirical and theoretical reasons (Comrie 1985, Vikner 1985, Hornstein 1990). These two relations have been further claimed to be instantiated by tense morphemes when the two points are intended to be different (Giorgi and Pianesi 1991).

(21) a. John-**wa** ki-ta. 'John came.'
John come-Past S > R, E

b. John-**ga** ki-ta. 'John has just arrived.'
John come-Past R, S > E

I assume that the morpheme *-ta* conveys a relational meaning '>', which can connect either S and R/E or R/S and E. When the relation '>' connects S and R/E, ie, "S > R, E", E is located away from S in the remote past. This yields an interpretation that the event described in the clause took place at a past time somewhat remote from the present moment. The past tense reading in (21a) is an instance of this case. The event of John's coming described in the sentence is interpreted as a past event which took place at a past time somewhat remote from the moment of speech and therefore seen as a whole.

On the other hand, when the relation '>' connects R/S and E, ie, "R, S > E", E is located immediately before S. This yields an interpretation that the event described in the clause has just taken place. The present perfect reading in (21b) is an instance of this case. The event of John's coming described in the sentence is taken as having just been completed and as the end cross-section of the whole event.[22]

4.3. *Ru*

The situation with *-ru* is a little more complicated, as there are four distinct interpretations that *-ru* can possibly yield. We have seen in Section 2 that a *ru*-form, *ku-ru* 'come-Pres', yields a future reading with a *wa*-marked subject and a present progressive reading with a *ga*-marked subject. To repeat the examples, (22a) is interpreted as asserting that John will come sometime in the future, whereas (22b) is interpreted as describing a present situation in which John is actually coming to the place of speech at the time of speech (which is perceived by the speaker).

(22) a. John-**wa** ku-ru. 'John will come.'
come-Pres S < R, E

b. John-**ga** ku-ru. 'John is coming. (Here comes John.)'
come-Pres R, S ⊂ E

Another *ru*-form, for example, *ware-ru* 'break-Pres', exhibits a different contrast. In (23) below, the (a) sentence receives a generic reading that a balloon breaks, whereas the (b) sentence is interpreted as describing an urgent situation in which a balloon is going to break (in such a situation that somebody is holding a needle to prick a balloon or squashing a balloon right in front of the speaker).

[22] It has been noted that the distinction between the simple past and the present perfect has not been captured in standard tense logic (Blackburn 1994: 89). My analysis suggests that the difference between the two interpretations (ie, past and perfect) derives from the two types of R and should therefore be represented in those terms.

(23) a. Huusen-**wa** ware-ru. 'A balloon breaks.'
balloon break-Pres S ⊂ R, E

b. Huusen-**ga** ware-ru. 'A/The balloon is going to break.'
ballonbreak-Pres R, S < E

Thus, *-ru* can possibly yield four distinct interpretations; a future reading as in (22a), a progressive reading as in (22b), a generic/habitual reading as in (23a), and an urgent reading as in (23b). In order to account for the four interpretations, I assume that the morpheme *-ru* conveys either a relational meaning '<' or '⊂'.

The future reading in (22a) is an instantiation of the case in which the relation '<' connects S and R/E, ie, "S < R, E". Since E is located away from S in the remote future, the event of John's coming described in (22a) is interpreted as a future event which will take place at a certain time in the future, remote from the moment of speech, and seen as a whole.

The progressive reading in (22b) is an instantiation of the case in which the relation '⊂' connects R/S and E, ie, "R, S ⊂ E". In this case, S is immediately included in E. Therefore, the event of John's coming described in (22b) is interpreted as taking place over a duration of time which includes the moment of speech and actually progressing at the moment of speech. The described event is taken as an arbitrary internal cross-section of the whole event (intersecting at S).

The generic/habitual reading in (23a) is an instantiation of the case in which the relation '⊂' connects S and R/E, ie, "S ⊂ R, E". In this case, S is remotely included in E, which means that E includes S and yet is remote from S. This yields the interpretation that the event of breaking described in (23a) takes place over a loosely defined present time which includes the moment of speech but not necessarily at the moment of speech, which results in the generic/habitual reading. In this case, the event is seen and described as a whole.

Lastly, the urgent reading in (23b) is an instantiation of the case in which the relation '<' connects R/S and E, ie, "R, S < E". In this case, E is located immediately after S. Therefore, the event of breaking described in (23b) is interpreted as going to take place immediately after the moment of speech and taken as the initial cross-section of the whole event.

Whether *-ru* designates the relation '<' or '⊂' seems to depend on pragmatic factors on semantic interpretation. For example, the presence of the common noun subject, *huusen* 'balloon', in (23a) may incline towards the generic interpretation of the sentence, while the presence of the proper noun subject, *John*, in (22a) does not have such an effect. In fact, (22a) can also be interpreted habitually, depending on the context of use. It may be uttered to mean, for example, that John regularly comes to this class, where the interlocutors are at the time of speech. In (22b), the event of coming is taken as occurring over a duration of time, that is, the time of the event is durative. Since

a durative time contains a set of temporal points, it is possible for such an E to include the R = S point. Therefore, the "R, S ⊂ E" interpretation obtains in (22b). By contrast, in (23b), the event of breaking is taken as instantaneous. Since the time of the event is not durative, the inclusive relation "R, S ⊂ E" is not possible. Therefore, in (23b) the "R, S < E" interpretation obtains instead.

Crucially, no matter whether '<' or '⊂', a relation designated by *-ru* connects S and R/E when the subject is marked with *wa* and R/S and E when the subject is marked with *ga*.

4.4. *Teiru*

In Section 2, we have further observed that a *-teiru* form is also interpreted distinctively, depending on whether it is used in a sentence whose subject is marked with *wa* or *ga*. The examples are repeated in (24) below.

(24) a. John-**wa** hon-o kai-tei-ru.
book-Acc write-Prog-Pres
'John is writing a book.' S ⊂ R, E

b. John-**ga** hon-o kai-tei-ru.
book-Acc write-Prog-Pres
'John is writing a book.' R, S ⊂ E

Although both (24a) and (24b) roughly mean that John is writing a book, (24a) conveys that John has been engaged in a continuing activity of writing a book, which does not necessarily mean that John is actually writing a book when the sentence is uttered, while (24b) conveys that the event of John's writing a book is actually taking place and being in progress at the time of utterance.

If we assume that *-teiru* conveys the relation '⊂', (24a) and (24b) are explained as a case in which the relation '⊂' connects S and R/E and a case in which it connects R/S and E respectively.[23] When the relation '⊂' connects S and R/E, ie, "S ⊂ R, E", E includes S and yet is remote from S. This gives rise to the interpretation of (24a) that the event of writing a book described in the sentence takes place over a loosely defined present time which includes the moment of speech but not necessarily at the moment of speech.

On the other hand, when the relation '⊂' connects R/S and E, ie, "R, S ⊂ E", S is immediately included in E. This yields the interpretation of (24b) that the event of writing a book described in the sentence is taking place over a duration

[23] Notice that the relation '⊂' is designated by *-ru* in (22b) and (23a) and by *-teiru* in (24a) and (24b). Whether the realtion '⊂' is designated by *-ru* or *-teiru* seems to depend on the aspectual type of the predicate. Roughly, the relation '⊂' is designated by *-ru* with achievements, which are characterized by inherent conclusions, and by *-teiru* with activities, which are characterized by their open-endedness. (McClure (1994) points out that the *teiru* form is progressive with activities and perfective with achievements.)

of time which includes the moment of speech and actually progressing at the moment of speech.

As we expected, the relation '⊂' designated by *-teiru* connects S and R/E, when the subject is marked with *wa*, and R/S and E, when the subject is marked with *ga*.

4.5. Summary

On the assumption that morphemes, *-ta*, *-ru*, and *-teiru*, carry relational meanings, '>', '<', and '⊂', I have shown that they specify the temporal relation between S and R/E when the subject is marked with *wa* and that between R/S and E when the subject is marked with *ga*, as summarized in (25) below. Accordingly, *wa*/*ga*- minimal pairs of sentences are given distinct temporal and aspectual interpretations.

(25) Subject marking and temporal relations

	wa (*t'*)	*ga* (*t*)
> (*-ta*)	S > R, E (past)	R, S > E (perfect)
< (*-ru*)	S < R, E (future)	R, S < E (inchoative)
⊂ (*-ru*/*-teiru*)	S ⊂ R, E (present)	R, S ⊂ E (progressive)

The interpretive difference derives from whether R coincides with E and not with S or coincides with S and not with E. (Apart from this difference, tense morphemes essentially specify the temporal relation between S and E.) With the former type of R, a relational meaning designated by a tense morpheme temporally locates a whole event in remote relation to S. With the latter type of R, a relational meaning designated by a tense morpheme temporally locates a cross-section of an event in immediate relation to S.

5. Tense Morphemes and Their Aspectual Meanings

In the previous section, we have worked with the assumption that morphemes, *-ta*, *-ru*, and *-teiru*, carry relational meanings, '>', '<', and '⊂', which can connect either S and R/E or R/S and E, or in fact S and E in either case. In this section, I turn to the aspectual meaning of these morphemes and show that they can also be considered to denote aspectual meanings, completion, inchoative and ongoing, which can modify two different types of event.

When the subject is marked with *ga*, the truth of a clause is dependent on the utterance time *t*. In this case, the event described in the clause is a cross-section intersecting at *t* and taken as being immediate to the present moment. On the other hand, when the subject is marked with *wa*, the truth of a clause is dependent on another time *t'*. In this case, the event described in the clause is somewhat remote from the present moment and seen as a whole. Therefore, an aspectual meaning modifes a cross-section of an immediate event when the subject is marked with *wa* and a remote event as a whole when the subject is marked with *wa*.

The morpheme *-ta*, which has been considered to carry the relation '>', can also be considered to denote completed aspect. When it occurs in a clause whose subject is marked with *wa*, as in (21a) above (repeated in (26a) below), completed aspect denoted by *-ta* modifies an event as a whole which is remote from the present moment. A remote event as a whole modified by completed aspect is interpreted as a past event having been completed at some remote time in the past. Thus, completed aspect modifying a remote event as a whole yields a past tense reading.

On the other hand, in a sentence whose subject is marked with *ga*, eg, (21b) above (repeated in (26b) below), completed aspect denoted by *-ta* modifies a cross-section of the event intersecting at the present moment. A cross-section of an immediate event modified by completed aspect is interpreted as having just been completed in the immediate past and therefore directly relevant to the present moment. This yields the present perfect interpretation.

(26) a. John-**wa** ki-ta. 'John came.'
John come-Past

b. John-**ga** ki-ta. 'John has just arrived.'
John come-Past

Similarly, the morpheme *-ru* can be considered to denote inchoative aspect when it designates the relation '<'. In a sentence whose subject is marked with *wa*, eg, (22a) above (repeated in (27a) below), inchoative aspect modifies a remote event as a whole. A remote event as a whole modified by inchoative aspect is interpreted as going to take place at some remote time in the future. Thus, inchoative aspect modifying a remote event as a whole yields a future tense reading. In a sentence whose subject is marked with *ga*, eg, (23b) above (repeated in (27b) below), inchoative aspect modifies a cross-section of the event intersecting at the present moment. A cross-section of an immediate event modified by inchoative aspect yields an urgent interpretation that it is going to take place immediately.

(27) a. John-**wa** ku-ru. 'John will come.'
come-Pres

b. Huusen-**ga** ware-ru. 'A/The balloon is going to break.'
ballon break-Pres

When the relation '⊂' is designated by *-ru* or *-teiru*,[24] they denote ongoing aspect. In a sentence whose subject is marked with *wa*, eg, (23a) and (24a) above (repeated in (28a) and (28b) below), ongoing aspect denoted by them modifies a remote event as a whole. A remote event as a whole modified by ongoing aspect is interpreted as continuing throughout in space and/or time but not necessarily actually occurring at the present moment. This results in the generic, habitual, or

[24] See footnote 23 above.

continuous interpretation.[25] In a sentence whose subject is marked with *ga*, eg, (22b) and (24b) above (repeated in (29a) and (29b) below), ongoing aspect denoted by *-ru* or *-teiru* modifies a cross-section of the event intersecting at the present moment. A cross-section of an immediate event modified by ongoing aspect is interpreted as actually going on and progressing at the present moment. This results in the present progressive interpretation.

(28) a. Huusen-**wa** ware-ru.
balloon break-Pres
'A balloon breaks.'

b. John-**wa** hon-o kai-tei-ru.
book-Acc write-Prog-Pres
'John is writing a book.'

(29) a. John-**ga** ku-ru.
come-Pres
'John is coming.'

b. John-**ga** hon-o kai-tei-ru.
book-Acc write-Prog-Pres
'John is writing a book.'

Thus, those morphemes which have been considered to carry relational meanings to specify temporal relations in Section 4 can also be considered to denote aspectual meanings, which modify either an event as a whole remote from the present moment or a cross-section of an immediate event. A certain relational meaning corresponds to a certain aspectual meaning, as summarized in (30) below. While a relational meaning and an aspectual meaning may be distinguished as tense and aspect, they are in fact two different sides of one thing. On this basis, we can view those morphemes such as *-ta*, *-ru*, and *-teiru* as tense/aspect morphemes, which carry inseparable tense/aspect meanings.[26]

(30) Denotations of morphemes, *-ta*, *-ru* and *-teiru*

	relational meaning	aspectual meaning
ta	>	completed
ru	<	inchoative
ru/teiru	⊂	ongoing

Crucially, a single tense/aspect meaning denoted by a single tense/aspect morpheme can yield two distinct temporal and aspectual interpretations, due to

[25] Note that I distinguish 'continuous' from 'progressive', despite the fact that they are usually used synonymously. The term continuous suggests connectedness throughout in space and/or time, whereas the term progressive suggests a cumulative or step-by-step advancement. (24a) (repeated in (28b)) is an example of the continuous interpretation, while (24b) (repeated in (29b)) is an example of progressive interpretation.

[26] This analysis of tense and aspect as a single system of morphologically inseparable tense/aspect suggests that tense and aspect should be merged syntactically in the phrase structure of tense/aspect as well.

two different types of event, caused by two types of evaluation time. Which one of the two possible interpretations obtains perfectly correlates to whether the subject of the clause is marked with *wa* or *ga*.

6. Conclusion

In this paper, I have shown that *wa*- and *ga*-marking of the subject perfectly correlate to two types of evaluation time, which distinguish two types of event and give rise to two distinct temporal and aspectual interpretations of clauses.

This suggests that subject marking in Japanese is clearly related to tense/aspect in the syntax. Particularly, it points out the need to encode the distinction between the two types of evaluation time in our syntactic representation of the tense/aspect system, in order for us to see the syntactic mechanisms to account for the interrelation between tense/aspect and *wa/ga*-marking of the subject. I shall pursue this line of investigation elsewhere.

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6. The content of the WWPL will usually include material produced by post-graduate students and staff, but, in special circumstances, may include contributions from people outside the Department.

7. Copyright remains with the author(s) of contributions. Authors are welcome to publish contributions to WWPL in other journals. It would be appreciated if a re-published article contained an acknowledgment that the article had been first published in WWPL.

8. The Department should be informed of issues planned by individual staff members.

9. Authors will receive one free copy of the issue in which their contribution appears.

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