Maximal Words and the Maori Passive*

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1. Introduction

(1) **Minimal Word restrictions**: a limit on the smallest possible size of a Prosodic Word (ω). [Broselow 1982, Prince 1983, McCarthy & Prince 1986 and many others].

(2) **Maximal Word restriction:** a limit on the largest possible size of ω.

(3) Limitations on ω's may have consequences for the size of morphological words or roots.
   ☞ *But* this depends on how the language chooses to align the edges of ω's with morphological words/roots.

(4) **Example**: Maori (Polynesian)
   (i) Min-ω Restriction:
   - No ω has fewer than two moras.
   - Every Root is contained inside a unique ω.
   - Therefore every Root is bimoraic on the surface. (i.e. *[pa])

   (ii) Max-ω Restriction (simplified a little):
   - No ω is four (or more) moras in size.
   - All elements of a Root must be contained inside the same ω.
   - Therefore, no Root is four moras in size. (i.e. *[patakata]).

(5) **Aims of this talk**
- *Empirical*: Show that Maximal ω restrictions really do exist.
- *Theoretical*:
   (i) Show that Maximal ω restrictions reduce to constraints we (almost) already have.
   (ii) Show that they can be accounted for within Optimality Theory.

(6) The centre-piece of this talk is the allomorphy found in the Maori passive suffix:

Root	*Passive Form*	*Gloss*
horo	horo-**a**	fall in fragments
hoka	hoka-**ia**	run out
mahue	mahue-**tia**	put off
kopou	kopou-**a**	appoint
(inu	inu-**mia**	drink)

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(7) **Outline**
§2: The Theory of MaxWd effects.
§3: Empirical evidence for MaxWd effects.
§4: Violability, Ranking, and MaxWds: Maori Allomorphy.
§5: Alternatives, and Serialism.
§6: Typology & CON: MaxWd effects that do and don't exist, and why.
§7: Conclusions.

2. The Theory of Max-ω Effects

(8) McCarthy & Prince (1986 et seq.) argue that minimal ω effects reduce to general constraints on prosodic structure.
- There is no single minimal ω constraint.
- Instead, since:
  - Feet are minimally bimoraic
  - Every ω must contain a foot

  Then every ω is minimally bimoraic.

(9) I will argue the same for Max-ω effects here.
- Max-ω effects come about when prosodic constraints that minimize structure outrank faithfulness constraints or constraints on ω-formation.

(10) A brief example: A bimoraic maximum ω (e.g. Yorta Yorta – Bowe 1999)
- ALL-Ft-L "Every foot must appear at the left edge of a ω." (M&P 1993)
- ALL-Ft-R "Every foot must appear at the right edge of a ω."
- MAX-IO "Don't delete." (M&P 1995)

(11) Max-ω = 2μ.

	/pataka/	ALL-Ft-L	ALL-Ft-R	MAX-IO
☞	a) (páta)			x x
	b) (páta)ka		x!	
	c) pa(táka)	x!		

(12) More common are 3-μ Max-ω restrictions (e.g. Tigak – Beaumont 1979)
- LAPSE-Ft "Incur a violation for two adjacent unfooted moras."
  i.e. *[(pata)kata], but ✓[(pata)ka], ✓[pa(taka)ta]
  [See Green & Kenstowicz 1995, cf Selkirk 1984]

(13) 3-μ ω's are fine…

	/pataka/	LAPSE-Ft	ALL-FT-L	MAX-IO
☞	(a) (páta)ka			
	(b) (páta)			x x!

(14) 4-μ ω's are not…

	/patakata/	LAPSE-Ft	ALL-FT-L	MAX-IO
	(a) (páta)kata	x!		
	(b) (páta)(kàta)		x!	
☞	(c) (páta)ka			x

(15) **Theoretical Aims for the rest of this talk:**
1. Show that Max-ω effects can be reduced to several interacting prosodic constraints.
2. Show that these constraints are necessarily ranked wrt each other.
3. Show that these constraints are violable.
4. Show which constraints *must not* exist in CON.

3. Max-ω Restrictions in Maori

(16) There are two areas where we can see the effect of MAX-ω effects in Maori:
- Root size restrictions
- Allomorphy

(17) *Background*:
- Maori is a Polynesian language spoken in New Zealand.
- It is spoken natively by 30,000-50,000 people (in 1995 – Maori Language Commission).
- The data presented below is from:
  - Dictionaries: *Williams* (7th ed), and *Ngata*.
  - My own fieldwork (Northland dialects).

(18) *Phonemes*

Consonants		
p	t	k
m	n	ŋ
f/ɸ		h
w	ɾ	

Vowels	
i	u
e	o
a	

(19) *Syllables*
(C)V_1(V_2) where V_1=V_2 (i.e. a long vowel)
or V_1 is more or as equally sonorous as V_2.
(i.e. [ai au ae ao eo ei eu oi ou oe ui iu])[1]

e.g. [ta.ŋa.ta] ‘man, person’
[ku.ri:] ‘dog’
[a:.i.o] ‘calm’
[tai.o] ‘lock of hair’

(20) *Stress*
(1) On a bimoraic syllable,
[kurí:] ‘dog’, [hí:ra] ‘seal’, [matáu] ‘hook’, [táima] ‘time’
(2) Else on the leftmost syllable
[máte] ‘dead, kill’, [táŋata] ‘man’

(21) *ω Formation*
- Every root has its own ω.
{páti}{íti} ‘snow grass’, *{patí:ti}
{púta}{áŋa} ‘sentry post’, *{putá:ŋa}

[1] The status of level-sonority diphthongs varies from dialect to dialect.

- Every bimoraic prefix has its own PrWd.
  [{fáka}{íhi}], *[{fakáihi}] ‘effect by means of a spell’
  [{óho}{óho}], *[{ohó:ho}] ‘very valuable’
- There is only one mono-moraic prefix: a σ-sized reduplicant. It incorporates with the root’s PrWd:
  [{títiro}] ‘look’, *[ti{tíro}] (from *tiro*).

3.1 ω-Size Restrictions

(22) Attested native root shapes: (C’s are optional)

μμ	[hóŋi], [pái], [tío], [pá:]
μμμ	[káraŋa], [kurí:], [táio]
$\sigma_{\mu}\sigma_{\mu\mu}\sigma_{\mu}$	[tamáiti], [pakoire]
CV:$\sigma_{\mu}\sigma_{\mu}$	[kó:rero], [ma:ori], [a:nene]

(23) We will leave CV:CVCV roots (e.g. [ko:rero]) aside here since they won’t turn out to be significant for the passive. These are produced as {(kó:)rero}, and come about through a higher ranked constraint (CLASH) preventing the form *[{(kó:)}{(réro)}].

(24) *Generalizations*:
(1) Only one heavy syllable (CVV, CV:) is allowed per root.
(2) Two adjacent unfooted moras are not allowed.

(25) *Translates to:*
- Don’t have a non-head foot (i.e. secondary stress): *FT-
- Don’t have an unfooted footable sequence: LAPSE-FT.

(26) What happens to longer roots?
Long loanwords often get split up into two PrWds: e.g. {ówa}{kóti} ‘overcoat’

(27) WRAP(Root, ω) “Every moraic element inside a root must be contained inside the same ω.”
[After Truckenbrodt (1995)]

(28) Long roots get split up into separate ω’s

	/owakoti/	*FT-	LAPSE-FT	WRAP(Root, ω)
☞	(a) {(ówa)}{(kóti)}			x
	(b) {(ówa)koti}		x!	
	(c) {(ówa)(kòti)}	x!		

(29) Shorter roots form a single ω: e.g. /karaŋa/

	/karaŋa/	*FT-	LAPSE-FT	WRAP(Root, ω)
☞	(a) {(kára)ŋa}			
	(b) {(kára)}{(ŋá)}			x!
	(c) {(kára)}{(ŋá:)}			x!

(30) and again for $\sigma_{\mu}\sigma_{\mu\mu}\sigma_{\mu}$ roots.

	/tamaiti/	*FT-	LAPSE-FT	WRAP(Root, ω)
☞	(a) {(ta(mái)ti}			
	(b) {(táma)(ìti)}	x!		
	(c) {(táma)}{(íti)}			x!

4 Allomorphy: The Maori Passive

(31) *Previous works*: Williams (1864), Biggs (1961), Hohepa (1967), Hale (1968, 1973, 1991), Kiparsky (1971), Hyman (1975), Kenstowicz & Kisseberth (1977), McCarthy (1981), Kawasaki (1990), Sanders (1990, 1991), Harlow (1991), Bauer (1993, 1997), Blevins (1994), Keegan (1996), Kibre (1998).

(32) *The predominant issue:* relates to language acquisition…

Active	*Passive*	*Gloss (Active)*
inu	inu**mia**	drink
fau	fau**fia**	tie
apo	apo**hia**	gather
tu:	tu:**ria**	begin
hoko	hoko**na**	exchange, sell
hua	hua**ina**	name
tohu	tohu**ngia**	show
pare	pare**a**	ward off
maka	maka**ia**	put

(33) <u>*The predominant issue (raised by Hale 1968, 1973)*</u>
Should we have a morphological or phonological analysis for the passive?
(1) *Morphological analysis*: there are many (suppletive) allomorphs in the lexicon. Each stem is marked for which one it takes.
(2) *Phonological analysis*: There is one input form of the passive (usually /Cia/ or /ia/). The form of the passive is determined by:
(i) The fact that some roots are underlyingly C-final:
e.g. /inum/ 'drink'
So, /inum/ → [inu], but /inum+ia/ → [inumia]
(ii) and phonological rules:
/pare + ia / → [parea] by some regular rule.

(34) The analysis below supports a phonological analysis.

4.1 Data

(35) *Important Note*: The generalizations presented below are based on
(i) Two dictionaries: Williams (1971- 7th ed), Ngata (1993),
(ii) and three native speakers (from Northland, NZ).
Previous descriptions differ on several points.

(36) **Generalizations**
(1) *C-Final Verbs*

C-final roots take *ia*.

Root (UR)	*Passive*	*Gloss(active)*
inum	{ínu}{mía}	*drink*
monok	{móno}{kía}	*prepare food*
kinoŋ	{kíno}{ŋía}	*dislike*
fauf	{fáu}{fía}	*tie*
nekeh	{néke}{hía}	*move*
apur	{ápu}{ría}	*heap upon*

(2) *V-final Verbs*

Bimoraic V-final roots take *–a*, trimoraic roots take *tia*.

Root (UR)	*Passive*	*Gloss(active)*
huke	{húkea}	*excavate*
hori	{hória}	*cut*
ehu	{éhua}	*bail*
miro	{míroa}	*twist*
tapuhi	{tápuhi}{tía}	*sort out*
mahue	{máhue}{tía}	*leave*
karaŋa	{káraŋa}{tía}	*call, welcome*
kohiko	{kóhiko}{tía}	*interrupt*

(i) Exception 1: [a]-final roots take *ia*.

Root (UR)	*Passive*	*Gloss(active)*
hika	{hikáia}	*plant*
pona	{ponáia}	*tie*
tia	{tiáia}	*paddle vigorously*

(ii) Exception 2: CV.CVV verbs take *a*.

Root (UR)	*Passive*	*Gloss(active)*
horoi	{horóia}	*clean*
kopou	{kopóua}	*appoint*
tinei	{tinéia}	*quench*
marau	{maráua}	*remember*
tapae	{tapáea}	*present*
takai	{takáia}	*wrap around*

cf [CV.CV.V] roots: mahue~mahuetia, unua~unuatia.

4.2 The Proposal

(37) **Preliminaries:**

(1) The input form of the passive is /ia/

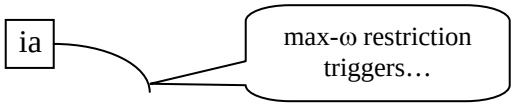
(2) The [t] in the *tia* allomorph is **epenthetic**. [We'll see why later on]

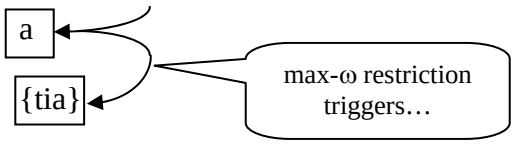
- It is impossible to have *ia* alone in a ω without an epenthetic [t].

(38) **Argument:**

- Passive allomorphy cares only about the *output*.
- The aim with Maori passive allomorphy is to produce a possible output ω.
- So, maximal word restrictions block certain realizations of the passive.
- The passive can surface as [ia], [a], or [{tia}], in that order of preference.

(39)





(40) **Example:** /mahue + ia/
1. *-ia*: {mahueia} = violates the maximal ω restrictions.
2. *-a*: {mahuea} = violates the maximal ω restrictions.
3. *-tia*: {mahue}{tia} = doesn't violate the max-ω restrictions.

(41) **Constraints**:
Apart from the ones identified in the previous section, we need:
DEP-C "Don't epenthesize consonants."
ALL-FT-L "Align every foot with the left edge of a ω."
UNIF(ormity) "Don't coalesce."

4.3 Bi-Moraic vs Trimoraic Roots

(42) C-final trimoraic roots (e.g. /hopuk/) allow the passive to emerge faithfully…

(43) *Emergence of the Faithful: C-final Roots*

	/hopuk + ia/	*Ft-	LAPSE-FT	UNIF
	(a) {(hópu)(kìa)}	x!		
	(b) {(hópu)kia}		x!	
	(c) {(hópu)ka}			x!
☞	(d) {(hópu)}{(kía)}			

- Incorporating the passive into the same ω as the root necessarily violates the maximal word constraints [(a), (b)].
- Coalescing the passive's /i/ violates UNIFORMITY 'Don't coalesce'. [c]
- This leaves (d): where the passive emerges faithfully.

(44) *The Next Best Thing: Coalescence* – CVCV *roots*

	/hau + ia/	*Ft-	LAPSE-FT	DEP-C	UNIF
	(a) {(háu)ia}		x!		
	(b) {(háu)(ìa)}	x!			
☞	(d) {(háu)a}				x
	(e) {(háu)}{(tía)}			x!	

- Faithful renditions of the passive fail, as above (a), (b).
- But putting the passive into its own ω violates DEP-C "Don't epenthesize"
- So the only option left is to coalesce: (c).

(45) *The Next Next Best Thing: Epenthesis and CVCVCV roots*

	/mahue + ia/	*Ft^{-}	LAPSE-FT	DEP-C	UNIF
	(a) {(máhu)eia}		x!		
	(b) {(máhu)(èi)a}	x!			
	(c) {(máhu)ea}		x!		x
	(d) {(máhu)(èa)}	x!			x
☞	(e) {(máhu)e}{(tía)}			x	

- The faithful forms (a-b) again violate the maximal ω constraints.
- But the coalesced forms (c-d) also violate them.
- The remaining option is to put the passive in another ω: (e).
- (Splitting the root up {mahu}{ea} is ruled out by WRAP).

(46) The examples above show that the maximal word conditions are *persistent*, and there is a hierarchy of repairs.

4.3.1 Why Does Epenthesis Happen?

(47) When the passive forms a ω on its own, a [t] is epenthesized:
e.g. /mahue/ → [{mahue}{tia}], *[{mahue}{ia}].
• The idea that this [t] is **epenthetic** is extremely important to the present analysis: It explains why [horoa] and not *[horotia] is optimal.

(48) All ω's in Maori like to begin with an onset:
ONSET/σ_1 "ω-initial syllables have onsets."

(49)

	/mahue + ia/	ONSET/σ_1	DEP-C
	(a) {mahue}{ia}	x!	
☞	(b) {mahue}{tia}		x

(50) Support for this generalization comes from two facts:
(1) There are no V-initial prefixes in Maori.
(2) The reduplicative prefix cannot reduplicate V-initial words (Keegan 1996)
i.e. /RED + pata/ → [papata]
cf /RED + ara/ → [ara], *[a:ra]
• In other words, ONSET/σ_1 blocks reduplication.

(51) But roots don't have initial epenthesis! e.g. [aroha], *[taroha].
• The blocking constraint here is ALIGN-L(Root, σ), requiring the left edge of a root to begin a syllable.

	/aroha/	ALIGN-L(Root, σ)	ONSET/σ_1
☞	aroha		x
	taroha	x!	

(52) Is ONSET/σ_1 a reasonable constraint?
- Prediction: some language should require epenthesis at the beginning of all ωs: e.g. Guhaŋ Ifugao (Newell 1956).

4.4 V-final Roots: Emergent Maximal ω Conditions

(53) The constraint ALL-FT-L does not figure prominently in the preceding discussion.
- It does not play a role in defining possible ω's in Maori, otherwise [pi(ráu)] and [ku(rí:)] would be impossible.
- However, it does have an *emergent* effect:

(54) Non-[a] final roots.

	/horo + ia/	*Ft-/LAPSE-FT	DEP-C	ALL-FT-L	UNIF
	(a) {ho(rói)a}			x!	
☞	(b) {(hóro)a}				x
	(c) {(hóro)}{(tía)}		x!		

- ALL-FT-L is crucial in ruling out (a) *horóia*
- Without ALL-FT-L, *hóroa* would lose.

(55) [a]-final roots

	/hoka + ia/	*Ft-/LAPSE-FT	DEP-C	ALL-FT-L	UNIF
☞	(a) {ho(kái)a}			x	
	(b) {ho(ká:)}			x	x!
	(c) {(hóka)}{(tía)}		x!		

- Only when a bimoraic root ends in [a] will ALL-FT-L be violated in the coalesced candidate.

(56) Similar conditions emerge in CV.CVV roots:

	/kopou + ia/	*Ft-/LAPSE-FT	DEP-C	ALL-FT-L	UNIF
	(a) {ko(póu)ia}	x!		x	
☞	(b) {ko(póu)a}			x	x
	(c) {ko(póu)}{(tía)}		x!	x	

- Again the output is a {CV.CVV.CV} root: an acceptable ω.

(57) Similar effects can be seen throughout the other passive forms.
- Long vowels preferentially take the faithful *ia*: e.g. [{(to:)ia}]. Again, they can only do so because {CV:CVCV} ω's are acceptable in Maori.
- Note that Ci: roots take *a*, though: *pí:a*, **pí:ia*. The latter is blocked by a general condition in Maori: *[V_i:V_i] (reducible to the OCP).

4.5 Support For Maximal Words in Reduplication

(58)
- Partial (CV) reduplicants incorporate into the ω of the root they reduplicate:
  /RED + pako/ → [{(pápa)ko}]
- But in doing so, they form a maximal word.
- So if we added the passive onto this reduplicated form, we would necessarily violate the maximal word constraints: e.g. [{(pápa)koa}].

(59) So what happens?
(1) Either the reduplicant does not appear (Bauer 1993, Keegan 1996), or
(2) it infixes.

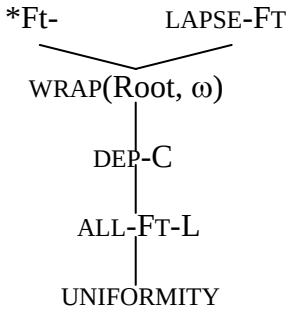
Active	*Passive*	*Gloss*
kukume	ku:mea	pull, drag
nonoke	no:kea	hustle him
pupuhi	pu:hia	blow, shoot

(60) The infixed form does fit in with the ω restrictions: {CV:CVCV} is an acceptable ω in M☚ori. In other words, the need to have a reduplicant at the left edge of the ω is overridden by the minimal word constraints.

(61) The only place that the passive does appear is reduplicants and affixes that form their own ω:
e.g. full reduplicants: [{kata}{katáina}], [{huki}{hukia}] 'roast on spit'
causative + Root: [{faka}{toaia}] 'disdain', [{faka}{pipia}] 'pile up'

4.6 Summary

(62)



(63) My aims were to show that maximal word restrictions
(i) are not effected by a single constraint
(ii) are violable

(64) ☞ The fact that DEP-C must intervene between LAPSE-FT & *FT- and ALL-FT-L shows that the restriction is not a single constraint.
☞ That the effect of ALL-FT-L is emergent shows that the constraints are violable.

5. Typology

(65) In OT, it's not enough to come up with a set of constraints to deal with a single language.
• Since constraints are universal and permutation is unrestricted, every constraint ranking must produce a possible grammar.
• Similarly, no ranking may produce an impossible grammar.

(66) Typology of Maximal Word Conditions

Restriction	***Language***	***Reference***
2μ ω only	Roots: Bagandji verb roots Words: Yorta Yorta Reduplicants: *many*.	Hercus 1982 Bowe 1999
≤3μ ω	Roots: Bagandji noun roots Words: Tigak, Ura, Tetun (Fehan)	Hercus 1982 Beaumont 1979, Crowley 1999, van Klinken 1999
≤4μ	?	
≤5μ	-	-

(67) In section 2 I showed how the constraints could produce bimoraic restrictions, trimoraic restrictions, and the more complex Maori-type restrictions.
- It is not likely that there are higher restrictions: once languages allow more than 3 moras, they seem to allow anything.
- Statements like "Roots are bi- or tri-moraic" are common in grammars, but statements like "Roots have 5 moras or less" are not common at all.

(68) The constraints used here predict this to be the case.
- Together, ALL-FT-L, LAPSE-FT, *FT- allow bimoraic and trimoraic forms but necessarily penalize longer forms. There is no ranking of these two constraints that will allow 4-μ CVCVCVCV forms but penalize longer ones.

(69) If a constraint penalizes a candidate with *n* moras, then – all else being equal – it must penalize all candidates with >*n* moras.

5.1 Anti-Odd-Parity Systems

(70) PARSE-σ "Every syllable must appear inside a foot" (P&S 1993)

(71) Hyde (1999) and Hall (2000) have pointed out that PARSE-σ can produce a system that allows words with even numbers of syllables only, but bans odd-parity words.

(72) Odd parity forms → Even parity

	/pataka/	PARSE-σ	FTBIN	MAX
☞	(pata)			x x
	(pata)ka	x x!		
	(pata)(ka)		x!	

(73) Even parity → same.

	/patakati/	PARSE-σ	FTBIN	MAX
	(pata)kati	x x!		
☞	(pata)(kati)			
	(pata)(ka)		x!	x

(74) • This condition is a maximal ω constraint of a very specific sort. So we need to eliminate it from the grammar.
• In this case, we can eliminate the problem by eliminating the constraint. If there is no PARSE-σ, there is no problem.

(75) We can make a general statement about what is in CON: there is no constraint that penalizes two adjacent unstressed syllables (i.e. no LAPSE, either).

(76) However, we still need something to encourage footing:
i.e. LAPSE-FT "Assign a violation if a candidate has two adjacent unfooted syllables."

(77) LAPSE-FT cannot force full footing. It will not favour fully-footed {(pata)(ka)} over partially footed {(pata)ka}. This turns out to be a good thing: Hayes (1995) argues that there really are no languages with exhaustive foot parsing. All cases that look like this can be analyzed as having a degenerate head foot: [(pàta)(ká)]. Here, the requirement of main stress to be at the right edge forces the syllable to be footed.

(78) The other use for PARSE-σ has been foot-conditioned allomorphy. But in most cases, these seem to be reducible to stress-attraction conditions rather than footing requirements.

7 Conclusions

(79) There is an empirical basis for maximal word restrictions.
They can constrain root size,
and affect allomorphy.

(80) CON cannot contain constraints that penalize odd-parity words only.
If a constraint C penalizes a candidate with *n*-moras (for having *n*-moras), then all else being equal, it C must penalize candidates with >*n* moras.

(81) Maximal conditions at other levels:
• σ's may contain 2 moras at the maximum (at least contrastively)
• Feet may contain 2 syllables at the maximum (or 3, or unbounded)
• Phonological Phrases: may have a binary maximum (Selkirk & Tateishi 1988)

References

Bauer, W. 1993. Maori. London & New York: Routledge.

Bauer, W. 1997. The Reed Reference Grammar of M☚ori.

C. H. Beaumont. 1979. *The Tigak language of New Ireland Pacific linguistics : Series B ; no. 58.* Canberra: Dept. of Linguistics Research School of Pacific Studies Australian National University.

Biggs, B. 1961. The structure of New Zealand Maaori. *Anthropological Linguistics* 3: 1-53.

Blevins, J. 1994. A Phonological and Morphological Reanalysis of the Maori Passive. *Te Reo* 37: 29-53.

Bowe, H.J. 1999. *The Yorta Yorta (Bangerang) language of the Murray Goulburn, S.E. Australia, including Yabula Yabula (Australia)* Pacific linguistics, Series C, 154. Canberra.

Broselow, E. 1982. On predicting the interaction of stress and epenthesis. *Glossa* 16: 115-132

Crowley, T. 1999. Ura : a disappearing language of southern Vanuatu. Canberra: Pacific Linguistics, Research School of Pacific and Asian Studies, Australian National University.

de Lacy, P. 1998. A Co-occurrence Restriction in Maori. *Te Reo* 40:10-44.

Gough, M. 1998. Te Reo Tupu. Electronic Maori Dictionary Database. New Zealand: ERI Publications. (http://www.eri.co.nz)

Green, T. & M.Kenstowicz. 1995 The Lapse Constraint. ROA 101.

Hale, K. 1968. Review of Hohepa (1967)—'A Profile Generative Grammar of Maori'. *Journal of the Polynesian Society* 77:83-99.

Hale, K. 1973. Deep-Surface Canonical Disparities in Relation to Analysis and Change: An Australian Example. in T.Sebeok (ed). *Current Trends in Linguistics 11*. The Hague: Mouton.

Hale, K. 1991. Remarks on G.Sanders "Levelling in the History of Polynesian Passive Formations". *Journal of the Polynesian Society* 100:99-101.

Hall, N. 2000. What is the Pressure for Maximal Footing? ms. University of Massachusetts, Amherst.

Harlow, R. 1991. Consonant Dissimilation in Maori. in Robert Blust (ed.), Currents in Pacific Linguistics: Papers on Austronesian Languages and Ethnolinguistics in Honour of George W. Grace, Pacific Linguistics Series C-117, 117-128, Canberra: The Australian National University.

Hercus, L.A. 1982. *The Bagandji language Pacific Linguistics. Series B ; no. 67.* Canberra, A.C.T., Australia: Dept. of Linguistics Research School of Pacific Studies Australian National University,

Hohepa, P. 1967. A Profile Generative Grammar of Maori. Bloomington, Ind.: Indiana University Press.

Hyde, B. 1999. Doctoral Dissertation, Rutgers University.

Hyman, L. 1975. Phonology: Theory and Analysis. New York: Holt, Rheinhart, and Winston.

Kawasaki, N. 1990. Cooccurrence Restrictions on Consonants in Some Polynesian Languages. *UMOP* 13:49-84, Amherst, MA: GLSA Publications.

Keegan, P. 1996. Reduplication in Maori. MPhil dissertation, University of Waikato.

Kenstowicz, M. & C.Kisseberth (1979) Generative Phonology: Description and Theory. Academic Press, pp.171-174.

Kibre, N. 1998. Formal Property Inheritance and Consonant/Zero Alternations in Maori Verbs. ROA 285.

Kiparsky, P. 1971. Historical Linguistics. In William Dingwall (ed.) *A survey of linguistic science*. University of Maryland, pp.577-649.

Krupa, V. 1966. The Phonemic Structure of Bi-vocalic Morpheme Forms in Oceanic Languages. *Journal of the Polynesian Society* 75:458-497.

McCarthy, J. 1981. The role of the evaluation metric in the acquisition of morphology. The Logical Problem of Language Acquisition. C. L. Baker and J. McCarthy. Cambridge, MA, MIT Press, pp. 218-248.

McCarthy, J. and A. Prince. 1986. Prosodic Morphology. ms. University of Massachusetts, Amherst & Rutgers University.

McCarthy, J. and A. Prince. 1993. Prosodic Morphology I. Rutgers Technical Reports #3.

McCarthy, J. and A. Prince. 1995. Faithfulness and Reduplicative Identity. University of Massachusetts Occasional Papers in Linguistics UMOP 18. J. Beckman, S. Urbanczyk and L. Walsh Dickey. (eds) Amherst, MA, GLSA**:** 249-384.

Newell, Leonard E. 1956. Phonology of the Guhang Ifugao dialect. *Philippine Journal of Science 8*5: 523-539.

Ngata, H.M. 1993. *English-Maori Dictionary*. Wellington: Learning Media.

Pearce, G.L. 1964. A Classification of the Forms of the "Passive" Suffix Used With Maori Verb-Bases. *Te Reo* 7:51-58.

Prince, A. 1983. Relating to the grid . *Linguistic Inquiry* 14: 19-100.

Prince, A. and P. Smolensky. 1993. *Optimality Theory: Constraint interaction in generative grammar* New Brunswick, NJ**:** Rutgers University,

Sanders, Gerald 1990. On the Analysis and Implications of Maori Verb Alternations. *Lingua* 80: 149-196.

Sanders, G. 1991. Levelling and Reanalysis in the History of Polynesian Passive Formations. *Journal of the Polynesian Society* 100:71-90.

Selkirk, E. and K. Tateishi. 1988. *Minor phrase formation in Japanese* in L. Macleod and et al. (ed) *Papers from CLS 24.* Chicago: Chicago Linguistic Society, 316-336.

Truckenbrodt, H. 1995. *Phonological Phrases: Their Relation to Syntax, Focus, and Prominence* Doctoral dissertation, Massachusetts Institute of Technology.

Urbanczyk, S. 1996. Patterns of Reduplication in Lushootseed. PhD Dissertation, University of Massachusetts, Amherst. GLSA Publications.

Van Klinken, C.L 1999. *A grammar of the Fehan dialect of Tetun, an Austronesian language of West Timor Pacific linguistics. Series C, v. 155.* Canberra: Research School of Pacific and Asian Studies The Australian National University.

Williams, H.W. 1971. A Dictionary of the Maori Language. 7th edition. (orig. 1844). Wellington, N.Z.:A.R.Shearer, Government Printer.

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