Final Extrametricality in Latin and Manam

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1 Introduction

Extrametricality has played an important role in metrical theory since its beginnings (cf. Liberman and Prince 1977), but its formal representation has been quite varied. Examples of its application to syllables range from a simple diacritic on the syllable (Hayes 1979, 1981) to exclusion of that syllable and its segmental content from the domain of rule application (Inkelas 1989). In the extended bracketed grids theory of Idsardi (1992), extrametricality results from the insertion of a foot edge that leads to exclusion of a syllable from foot structure. While this approach is appealing in its elegance, I argue that it cannot account adequately for the interaction of extrametricality with quantity sensitivity.

The argument is based on two languages with the same foot structure—moraic trochees constructed at the right edge of the word—and similar, but importantly distinct, roles for extrametricality. Section 2 outlines Latin stress and extrametricality and its theoretical analysis, while section 3 demonstrates problems that this analysis encounters in treating the similar facts in Manam. (The discussion is restricted to primary stress.) Section 4 shows that in Optimality Theory a unified and principled treatment of the two languages is easily available.

2 Latin

Idsardi (1992) and Halle and Idsardi (1995) develop a theory of metrical structure in which the heads and edges of feet are sufficient to determine the locations of metrical prominences, regardless of whether a particular head has both a left and right boundary present in the representation. For example, a basic rule type is the Edge Marking Parameter, which inserts a foot edge (indicated by a parenthesis) before or after the first or last syllable of a string. In their analysis of Latin, Halle and Idsardi (1995) make use of the RLR setting of this parameter (items in bold are language-specific settings of elements subject to crosslinguistic variation).

(1) EDGE MARKING PARAMETER: Place a *right* parenthesis to the *left* of the *rightmost* element in the string.

This rule accounts for the well known fact that final syllables are ignored in Latin stress placement. In the diacritic approach adopted by Hayes (1995), angled brackets indicate that the last syllable is ignored by foot construction (here, moraic trochees).

(2) a. re(prími)<tur> 'it is held back'
b. repri(mún)<tur> 'they are held back'

For Halle and Idsardi, application of Edge:RLR in (1) to these words accomplishes a similar task but has the advantage of using the basic notational vocabulary of the stress system—i.e., a foot edge—rather than an arbitrary diacritic. The inserted boundary essentially prespecifies a foot before the final syllable, without marking the syllable itself in any way.

(3) x x x) x x x x) x
re pri mi tur re pri mun tur

Subsequent rules respect this foot boundary. For example, Iterative Constituent Construction (ICC) groups stressable elements into pairs.

(4) ITERATIVE CONSTITUENT CONSTRUCTION: Insert a *left* boundary for each pair of elements.

ICC:L would normally place a left foot boundary two syllables before the right edge of the word, giving the effect of a binary foot. (Since it inserts a left boundary, it scans in a leftward direction.) But in (3), since the final syllable is already excluded from any preceding constituent, the new foot boundary is placed two syllables before the existing boundary.

(5) x (x x)x * x x (x)x
re prí mi tur re pri mí tur

An important complication arises when we consider heavy syllables. The reason (2b) has penultimate stress is that the penult is closed and heavy, attracting the stress. This generalization is captured by the Syllable Boundary Projection Parameter.

(6) SYLLABLE BOUNDARY PROJECTION PARAMETER: Project the *left* boundary of a *heavy syllable* onto line 0.

As formalized for Latin, this rule inserts a left parenthesis before the heavy penult of *reprimuntur* in (3).

(7) x x (x) x
re pri mún tur

ICC is not relevant to main stress in a word like this, since the left boundary has already been supplied by reference to the heavy syllable, not by grouping two syllables together. But notice that no left foot edge has been inserted before the final syllable /tur/ in (7), even though it is heavy; such an outcome must be ruled out to prevent **reprimuntúr*. (Recall that only one foot edge is necessary to establish a stress.) The same is true for *reprímitur*, which has the same final syllable.

(8) x x x)(x
*re pri mi túr

x x (x) (x
*re pri mun túr

Because extrametricality is here not formalized as a fact about the final syllable, but rather is just an inserted foot edge, the outcomes in (8) are entirely plausible.

To prevent the incorrect results in (8), Halle and Idsardi (1995) make use of an *Avoid* constraint on the application of Syllable Boundary Projection; it prevents the final syllable from starting a foot.

(9) Avoid (x#

This constraint ensures that only a non-final heavy syllable will undergo Syllable Boundary Projection, and the forms in (8) will not be generated.[1]

Already the need for this constraint lessens the elegance of the approach, but there is an additional problem: as it stands, the analysis will not work for monosyllables.

(10) mé: 'me (acc./abl.)'
cór 'heart (nom./acc. sg.)'

[1]In the Halle-Idsardi framework, *Avoid* constraints block the application of specific rules; the relevant rule in all cases discussed here is Syllable Boundary Projection (6).

ICC is irrelevant here because that rule requires at least two syllables (4). All monosyllables in Latin are heavy, however, and we can make use of Syllable Boundary Projection to assign stresses to such words—except that the constraint formulated in (9) will block its application here, just as in any final syllable.

To remedy this situation, Halle and Idsardi modify the constraint so that it includes a preceding grid mark as well.

(11) Avoid x(x#

Naturally this revised constraint will not prevent Syllable Boundary Projection in a representation that contains a single grid mark.

(12)

(x	(x
mé:	cór

Thus it is possible to accommodate the Latin facts, but at the price of the rather complex and ad hoc constraint in (11). A more important difficulty for the general theory is that the solution has empirical problems when placed in crosslinguistic context.

3 Manam

I turn now to a discussion of final-syllable extrametricality in Manam, an Oceanic Austronesian language of Papua New Guinea (Lichtenberk 1983). Manam has the same basic foot structure as Latin—in traditional terms, quantity-sensitive trochees built from the right edge of the word. In the normal case, however, the final syllable is not extrametrical, so main stress falls on the last syllable if heavy (13a), otherwise the penult (b).

(13)

a.	i-maŋím	'it is sour'
	ta-ʔabúŋ	'we will gather them'
	u-ʔáŋ	'I ate them'
b.	wabúbu	'night'
	ruaŋá-gu	'my friend'
	ʔu-lele-ʔáma	'you looked for us'
	ʔanán-da	'ours'

Any member of the set of "AP" suffixes (underlined here) induces a pattern precisely like the Latin case: stress on a heavy penult (14a), otherwise the antepenult (b).

(14)	a.	i-ʔínt-a	's/he pinched me'
		matá-n-lo	'in your eye'
	b.	tína-ma	'our mother'
		mánam-o	'on Manam island'
		i-léle-a	's/he looked for me'

A conventional analysis is to treat the final syllable as extrametrical, by a special rule that is triggered by these suffixes (cf. Halle and Kenstowicz 1991). For Idsardi and Halle, an interesting alternative is possible: the suffixes have an underlying grid mark with a right boundary preceding it (Bill Idsardi, p.c.).

(15)	) x	) x
	ma	lo

Morpheme concatentation, plus regular projection of grid marks, yields the following initial representations for two examples in (14). Notice that this is parallel to the output of Edge:RLR in Latin (3), and could equivalently be generated by idiosyncratic (morphologically triggered) application of the rule in Manam.

(16)	x x) x	x x) x
	ti na ma	ma tan lo

Of these two words, Syllable Boundary Projection (to the left of a heavy syllable) has an effect only for *matánlo*, where it creates a nonbranching foot (cf. (7)). In the absence of a heavy penult, e.g. *tínama*, antepenultimate stress is generated by ICC as in Latin (5).

(17)	(x x) x	x (x) x
	tí na ma	ma tán lo

The crucial difference between Latin and Manam is that, as seen in (13a), Manam normally assigns stress to a heavy final syllable. None of the AP suffixes is heavy, but we do find a heavy extrametrical syllable in the case of

the zero AP suffix that marks third-person singular possession (in a noun) or object (in a verb). Since there is no segmental content in the suffix, its only exponence is the shift in stress, even when the final syllable is heavy, as in (18c,d).

(18)	a.	paŋána	'head'
		páŋa<na>	'his/her head'
	b.	balígo	'grass skirt'
		báli<go>	'his/her grass skirt'
	c.	da-ʔáŋ	'they will eat them'
		dá-<ʔaŋ>	'they will eat it'
	d.	u-zém	'I chewed them'
		ú-<zem>	'I chewed it'

As with the other AP suffixes, a right foot boundary before the final syllable can be achieved by morphologically sensitive application of Edge:RLR, but the following underlying representation is also possible in this framework: grid information without any segmental content.

(19)) x

Whatever its source, we need the following minimal initial contrast for (18c).

(20)	*plural*	x x	*singular*	x) x
		da ʔaŋ		da ʔaŋ

Here lies the problem. In order to have final stress on the plural *daʔáŋ*—as well as any other ordinary word ending in a heavy syllable (13a)—constraint (9) or (11) cannot be active in Manam. But without such a restriction, we predict the following outputs of Syllable Boundary Projection.

(21)	*plural*	x (x	*singular*	* x) (x
		da ʔáŋ		da ʔáŋ

This problem arises exactly because in this approach the final syllable is not specifically excluded from the domain of stress: an underlying or inserted right foot boundary is not sufficient to prevent incorrect creation of a final foot. An alternative to the Latin analysis is a constraint of the type *Avoid)(*, which will rule out the incorrect singular form in (21). In addition to its ad

hoc nature, however, this move results in quite distinct enforcement of final extrametricality in Latin and Manam, despite the intuitive identity of the facts. It may be possible to use this constraint in Latin rather than (11), but a more fundamental problem for either language is that *Avoid)(* fails to capture the right insight: The problem with **reprimuntúr* is not that it violates some kind of foot clash, but that it fails to respect the extrametricality of the final syllable.

Thus while the use of the Edge Marking Parameter (or underlying structure with a similar effect) to generate the effect of extrametricality works well for simple cases, it leads to complications in Latin and to explanatory inadequacy in Manam.

4 Anti-alignment

There are various other approaches to extrametricality that can account for both the Latin and the Manam facts in a unified fashion. A diacritic approach (cf. Hayes 1981, 1995, Halle and Vergnaud 1987, Halle and Kenstowicz 1991) avoids the problem just noted, but suffers from an ad hoc formalism. I sketch here a solution for Manam that has the elegance of Halle and Idsardi's foot boundary plus the empirical power to exclude the final syllable from foot structure—namely, foot alignment in Optimality Theory (Prince and Smolensky 1993, McCarthy and Prince 1993). Here I assume familiarity with the framework; see Buckley (1998) for a more comprehensive treatment of Manam stress in OT.[2]

In the normal case, the foot marking main stress in Manam will be aligned with the right edge of the word, yielding the pattern in (13); thus the basic constraint is ALIGNFT (22). The constraint needed for the AP suffixes is one that disallows perfect right-alignment of a foot and an AP suffix, forcing minimal displacement of the foot from absolute final position. In Buckley (1998) this is *ALIGNAP.

(22)	ALIGNFT	AlignR(Foot; PrWd)
	*ALIGNAP	*AlignR(AP suffix; Foot)

Ranked *ALIGNAP » ALIGNFT, these constraints generate the following results when combined with other well known constraints such as FTBIN and

[2] The alignment approach to Manam clitic stress in Buckley (1998) can also be applied to the Latin clitic facts assumed by Halle and Idsardi: the main stress is simply aligned with the left edge of the clitic (*liminá=que, ubí=libet, quá:=propter*).

PARSESYL (see Buckley 1998). The right edge of the AP suffix is marked by a square bracket.

(23)

/tina-ma/	*ALIGNAP	FTBIN	ALIGNFT
a. ☞ (tína)ma]			σ
b. ti(náma)]	*!		

This analysis extends easily to the case of a zero AP suffix. Since there is no segmental content intervening between the end of the root and the end of the AP suffix, they are indistinguishable on the timeline; any foot that right-aligns with the root violates *ALIGNAP.

(24)

/da-ʔaŋ-Ø/	*ALIGNAP	FTBIN	ALIGNFT
a. ☞ (dá)ʔaŋ]		*	σ
b. da(ʔáŋ)]	*!		
c. (dà)(ʔáŋ)]	*!	*	σ

The essential point to be drawn from these facts is that the constraint *ALIGNAP, which replaces an extrametricality diacritic, specifically refers to whether the final syllable of the relevant word ends in a foot. The Halle and Idsardi approach to extrametricality, on the other hand, is silent on this point. Insertion (or prespecification) of a foot boundary is really about *one* foot, the one preceding the final syllable. But what the theory must do is prevent the occurrence of *any* foot on the final syllable. An (anti-) alignment constraint does precisely this, while maintaining the insight that syllable extrametricality is actually a fact about feet, rather than a diacritic property of a syllable.

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