

Alignment in Latin Enclitic Stress

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Hyea-Sung Cho(1995). **Alignment in Latin Enclitic Stress.** *Linguistics, vol.3*. In this paper I show that Latin enclitic stress can be best explained within Optimality Theory. Halle & Kenstowicz(1991)' approach relies on serial derivation of suffixal and enclitic stress, which makes stress rule dual and unrelated. I argue that enclitic stress be due to phonology-morphology interface, and be handled by Alignment, supporting Parallelism. Thus, both stress patterns observed in Latin are the results of constraint interactions.

1. Introduction

In Latin, words show antepenultimate stress if the penultimate syllable is light, and penultimate stress otherwise. This is true of both morphologically simple and complex:

- (1) a. réprimit 'to press(act.)'
 reprimit+ur 'to press(pass.)'
- b. réprimint 'to hold back(act.)'
 reprimint+ur 'to hold back(pass.)'

Adjunction of the passive suffix *-ur* shifts the stress onto a later syllable; to the antepenult if the syllable is light(*reprimit-ur*) and to the penult otherwise(*reprimint-ur*). However, cliticized words show different stress behaviour from the above. Latin enclitics, as Steriade(1988) notes, both nomosyllabic and disyllabic - uniformly displace the word stress to the final syllable of the host word, regardless of its weight.

- (2) a. úbi 'where'
- úbi# libet 'wherever'

- | | | |
|----|---------------|------------------|
| b. | lí:mina | 'thresholds' |
| | lí:mina# que | 'and thresholds' |
| c. | éa:- | 'there' |
| | eá: # propter | 'therefore' |

Why is antepenultimate stress prohibited in quadrisyllabic strings in which enclitic is monosyllabic(for instance, *lí:mina#que*, not *lí:mina#que*). To explain Latin stress, Halle & Kenstowicz(1991) assume two domains of stress, that of host word(cyclic) and that of clitic(noncyclic). The Free Element Condition(proposed by Prince(1985)) interacts with final syllable extrametricality to give preclitic stress of cliticized words.

In this paper I show, instead, that such stress patterns observed in Latin can be explained better by interaction of constraints within OT, rather than by separated rule applications on two blocks. Further, I argue that apparent divergent enclitic stress be due to phonology-morphology interface and thus be handled by Alignment Constraint, that is, Align-Mw-Ft, supporting an argument for Parallelism.

2. An Optimality-Theoretic Analysis

The central claim of Optimality Theory(OT) is that cross linguistic variations among phonological dimensions follow from interaction of constraints. Assuming no derivational rule applications, OT discards phonological rules. Instead, Gen produces possible candidates and the candidate set is evaluated by the system of constraints, which selects the actual output from the available candidates. Constraints are in principle violated, if their violations are minimal.

2.1 The Basic Analysis

We must first explain the basic stress pattern of Latin words in (3), with the foot bracketing indicated by parentheses, and final syllable extrametricality angled brackets.

- | | | |
|--------|--------------|----------|
| (3) a. | (ró)<sa> | 'rose' |
| | (úr)<be> | 'city' |
| b. | a(mí:)<cus> | 'friend' |
| | mo(lés)<tus> | 'molest' |
| c. | (fáci)<lis> | 'easy' |
| | (pópu)<lus> | 'people' |

The analysis proposed here requires the following system of constraints:

(4) Ft-Form(Trochaic) Ft --> $\mu s \mu w$

Ft-Bin.	Feet are binary under moraic or syllabic analysis.
Parse-Syll	All syllable must be parsed by feet.
Align-Syll	Align(PrWd, R, Syll, L)
Align-PrWd	Align(PrWd, R, Ft, R)

Then, how are they ranked each other to give optimal candidates? First, to represent the extrametricality of the final syllable, Align-Syll must dominate Parse-Syll. Second, like Parse-Syll, Align-PrWd is unviolated since all Latin words bear primary stress in the right. This entails in turn that Align-PrWd should be dominant, with Ft-Bin suffering. Otherwise, Ft-Bin must be ranked more highly than Parse-Syll to ensure that no degenerate feet are constructed. Third, Align-PrWd must dominate Parse-Syll to make footing noniterative. Finally, since there are no iambs in Latin, Ft-Form should be unviolated. To represent the hierarchy is as follows:

Tableau (5)	Align-Syll >> Parse-Syll Word final syllables are extrametrical.
Tableau (6)	Align-PrWd >> Ft-Bin All words must bear stress.
Tableau (7)	Align-PrWd >> Parse-Syll Foot parsing is noniterative
Tableau (8)	Ft-Bin >> Parse-Syll No degenerative feet are constructed.

To sum up, the noniterative, quantity-sensitive, and trochaic stress which is limited to the final third syllable from the right of words is captured within an OT analysis under the constraint hierarchy as in (9).

Tableau (9) Ft-Form: Align-PrWd : Align-Syll >> Ft-Bin >> Parse-Syll

Only the undominated status of Align-PrWd, Ft-Form and Align-Syll is crucial. Tableau (10) analyzes the inputs /rósas/, /amí:cus/ and /fácilis/ under the constraint rankings.

Tableau(10): Input /rosa/

Candidates	A-PrWd	A-Syll	Ft-Bin	P-Syll
→1.a [(ró)<sa>]			*	*
b [ró <sa>]	*!			**
c [(rósa)]		*!		

Tableau(10), continued: Input /amicus/

Candidates	A-PrWd	A-Syll	Ft-Bin	P-Syll
→2.a [a(mí:)<cus>]				*
b [(á)(mí:)<cus>]	*!		*	*
c [(ámí:)<cus>]			*!	*
d [a(mí:cus)]	*!	*		*

Tableau(10), continued: Input /facilis/

Candidates	A-PrWd	A-Syll	Ft-Bin	P-Syll
→3.a a[(fáci)<lis>]				*
b [(fá)(cf)<lis>]	*!		*	**
c [fa(cílis)]		*!		*
d [(fáci)lis]	*!	*		*

Tableau 10-1 shows that the undominated status of A-PrWd and A-Syll makes their violated candidates 10-1b and 10-1c excluded. Only one candidate, 10-1a passes A-PrWd and A-Syll, and is selected optimal, even though it contains violations of Ft-Bin and Parse-Syll. Tableau 10-2 shows that A-PrWd and A-Syll domination over Ft-Bin and Parse-Syll are crucial. Since 10-2a and 10-2c are tied with no violation of the former constraints, the deciding role should fall to Ft-Bin. The tie between 10-2a and 10-2c is settled by excluding the candidate with a Ft-Bin violation. Tableau 10-3 presents analysis for the antepenultimate stress of /fcilis/ under the rankings Ft-Form: A-PrWd: A-Syll >> Ft-Bin >> P-Syll

2.2 The Structures of Clitics and Suffixes

Clitics are defined as 'forms which resemble words, but which cannot stand on their own as normal utterances' by Crystal(1980). Their dualism makes Zwicky(1977) analyze combinations of a word + clitic as word-external ('#' -behaviour), others word-internal ('+' -behaviour) depending on special rules. Zwicky adduces Classical Latin as an example of the latter. His observation is based on the fact that when an enclitic is attached to a word in Latin, the primary stress is shifted from its original position in the word to the syllable that immediately precedes the clitic, as (3) in section 1. In other words, it affects the location of encliticized word stress like suffixes.

However, Latin enclitics must not be treated as normal suffixes because stress never locates on clitics themselves unlike suffixed words, although their first Syllables are heavy(for example, *eá:#propter*, not *ea:#própter*). We think such different stress behaviours between suffixes and clitics are originated from their different morphological structures. We, therefore, need to differentiate the structures.

I think that Latin stress applies within morphological words, excluding clitics phonologically adjoined to them. This implies that the the apparent peculiarity of enclitic stress follows from the presence of morphological word boundary.

Following Cohn & McCarthy(1994), I suggest that the unit preceding clitics is morphological word, explaining the demarcative stress of clitic, which is distinctive from rhythmic stress of suffixed words. The difference is represented schematically as follows:

- (11)
- a. [stem + suffix]_w
 - b. [morphological word / clitic]_w

Now, let us turn to the analysis of enclitic stress under the Optimality Theory.

2.3. The Analysis of Enclitic Stress

Enclitic elements in Latin include *-que* 'and', *-ne* 'interrogative marker' and *-cum* 'with,' and so on. As we have seen in section 1, Latin enclitic show different stress pattern from that of suffixed words. Their difference can be summed up as follows:

Tableau (12)

normal stress:	enclitic stress:
quantity-sensitive	quantity-insensitive
penultimate or ante-penultimate stress	preclitic stress only

How can we explain the apparent aberrant stress of cliticized words like the following?

- (13) a. Mú:sa 'Muse'
 Mu:sá#que 'and the Muses'
 b. éa: 'there'
 eá:#propter 'therefore'
 c. lí:mina 'thresholds'
 liminá#que 'and the thresholds'
 d. vóta 'vow'
 votá#que 'and the vows'
 e. íd 'reason'
 íd#circo 'for this reason'
 f. súb 'immediate'
 súb#inde 'immediately thereafter'

There is a way of accounting for enclitic stress using cyclic applications of stress rules like Halle & Kenstowicz(1991).

2.3.1 Halle & Kenstowicz(1991)'s Analysis

H&K assume two rounds of accent assignment, first on the domain of the host word and subsequently on the cyclic domain. On the word domain, foot is quantity-sensitive, trochaic, making final syllables extrametrical. Subsequently on the final syllable of the host word remains unmetrified.

- (14) a. word domain
- | | | |
|---------|-----------|--------|
| Mu: sa | li:mi na | |
| (*) <*> | (* *) <*> | Line 0 |
| * | * | Line 1 |

On the clitic domain, where footing switches quantity-insensitive trochee, the unmetrified (previously extrametrical) final syllable of the host word

become the head of a new foot. The final foot receives main stress and secondary feet are eliminated by conflation.

(14) b. clitic domain

Mu: sa#que	li:mi na#que	
(*) * <*>	(* *) * <*>	Line 0
*	*	Line 1

Mu: sa#que	li:mi na#que	
(*) (*) <*>	(* *) (*) <*>	Line 0
(* *)	(* *)	Line 1
*	*	Line 2

Mu: sá#que	li:mi na#que	
* (*) <*>	* * (*) <*>	Line 0
*	*	Line 1

H&K's analysis relies on the Free Element Condition(Prince, 1985)

(15) Free Element Condition

Rules of primary metrical analysis apply only to Free elements-those that do not stand in metrical relationship being established; that is, they are "feature-filling" only.

H&K's version of the condition rules out (i)both the removal of a footed syllable from one foot and its reassignment to another foot ('opacity' effect) and (ii) the extension of the boundaries of an existing foot to include unfooted syllable ('closure' effect)

Yet their quantity-mixing analysis is confronted with a serious empirical problem. When FEC interacts with extrametricality, the problem arises in the case that monosyllabic host words combine with bisyllabic enclitics. This is so because the final and only one syllable of a monosyllabic word enjoys a special status on the first round of foot assignment: It is not subject to syllable extrametricality, by virtue of the "whole form exemption"(Halle & Vergnaud 1987, p. 50). Consequently, this syllable is already metrified upon entering the stress assignment on the clitic domain. As a result, they can't derive intended stress on the last syllable of the host word as *sub#inde in (16b):

(16) a.	b.	
vo: ta	sub	
(*)<*>	(*) EM/footing	Line 0
*	*	Line 1
vo: ta#que	sub#inde	
(*) * <*>	(*) * <*>	Line 0
*	*	Line 1
vo: ta#que	sub#in de	
(*) (*)<*>	(*) (*)<*>	Line 0
(* *)	(* *)	Line 1
*	*	Line 2
vo: ta#que	sub#in de	
* (*)<*>	* (*)<*>	Line 0
*	*	Line 1

Output: vo:tá#que *sub#inde (not súb#inde)

2.3.2. Enclitic Stress under Optimality Theory

In the case of enclitic stress the crucial observation to be captured is that accent never lodges on the clitic. In order to account for this, Mester(1994) assumes that enclitic itself is extrametrical. This evades the quantity-insensitivity effect in Latin enclitic accent. However, I reject clitic extrametricality because unlike the final syllable extrametricality of suffixed words, clitic doesn't constitute metrical constituents. Hayes(1983) notes that only constituents like segment, rhyme, foot and syllable can be marked as extrametrical. Recall that consideration of clitic as a prosodic unit is problematic(Nespor & Vogel) and Latin clitics are not composed of uniformly either mono- or bisyllabic. Clitic extrametricality is an *ad hoc* and arbitrary approach to enclitic stress.

As we have seen before, clitics don't show expected stress pattern.

(17)	Mu:sá#que	*Mú:sa#que
	eá:#propter	*ea:#própter
	li:miná#que	*li:mína#que
	íd#circo	*id#círcō
	súb#inde	*sub#índe

The starred forms on the right show if these clitics are treated exactly like

suffixes: in the actual forms, stress are displaced relative to suffixal expectation. How can we account for the peculiarities of (17) while still preserving the "normal" pattern of suffixed words. Note that OT permits constraints to be ranked and violable. Then, we can see clitic stress as violation of Ft-Form(Trochaic), that is, iambic foot parsing, from Morphological Word boundary, as we have assumed in (11b). Under the assumption, clitic words are parsed as follows:

- (18) [(Mu:sa)/que]_w
- [(ea:)/propter]_w
- [li:(mina)/que]_w
- [(id)/circo]_w
- [(sub)/inde]_w

Note that stress is still noniterative and doesn't go beyond the third syllable counting from the right of PrWd. Therefore, an additional dominant constraint is required to specify the iambic parsing into a foot at the right of morphological word(Mw).

(19) Align-Mw-Ft

Align(Mw, R. Ft, R). The right edge of every Morphological word coincides with the right edge of some foot-every morphological word ends in a foot.

All cliticized words should satisfy A-Mw-Ft. The Tableau(20) exhibits that A-Mw-Ft must dominate the principal constraints that control the metrical structure of suffixed forms, A-Syll, A-PrWd, and Ft-Form if it is to have any effect.

Tableau (20), Input: /Mu:sa#que/

Candidates	A-Mw-Ft	A-Syll	A - P r - Wd	Ft-Form	Ft-Bin	P-Syll
→1a. [(Mu:sá)/que]		*	*	*		*
b. [Mú:sa]/<que>]	*!					*
c. [Mu:(sá)/que]	*!	*				*
d. [(Mú:)(sá)/que]			*		*	*

Tableau (20), continued, Input: /ea:#propter/

Candidates	A-Mw-Ft	A-Syll	A - P r - Wd	Ft-Form	Ft-Bin	P-Syll
→2a. [(eá:)/propter]		*	*	*		**
b. [ea:/(próp)<ter>]	*!					***
c. [(é)(á:)/propter]		*	*	*	*	**
d. [ea:/(própter)]	*!				*	**

Tableau (20), continued, Input: /id#circo/

Candidates	A-Mw-Ft	A-Syll	A - P r - Wd	Ft-Form	Ft-Bin	P-Syll
→1a. [(id)/circo]			*	*	*	**
b. [id/(cír)<co>]		*!				**
c. [(id)/(cír)<co>]	*!					*

Since cliticized words must satisfy the dominant constraint, A-Mw-Ft which requires that the right edge of stem coincide with the right edge of a foot, candidates which are stressed like suffixed words are excluded, as in 20-1b, 2b, 3b. If a candidate is to satisfy A-Mw-Ft, it leads to the violation of tracheic Ft-Form, which means that we have an advantage of not having distinct iambic, quantity-insensitive parsing. To conclude, without damaging the prosodic coherence, we can account for both normal and enclitic stress patterns in Latin.

At this point we find an argument for our analysis here on the basis of minimal pairs. Consider the forms in (21). The first column consists of a word + clitic combination, and is thus stressed on preclitic position. The second column, on the other hand, with a different, nonanalyzable meaning and thus follows the basic stress pattern. In these cases, stress falls on the antepenultimate syllable, since the penult is light.

- (21) a. itáque 'and so'
 undíque 'and from'
 b. ítaque 'therefore'
 úndique 'everywhere'

According to our proposal, words in (21a) have different structures from words in (21b). They are represented schematically as follows:

- (22) a. [ita/que]_w b. [itaque]_w
 [undi/que]_w [undique]_w

Under the proposed constraint hierarchy, words in (22) are analyzed as follows:

Tableau (23)

Candidates	A-Mw-Ft	A-Syll	A - P r - Wd	Ft-Form	Ft-Bin	P-Syll
→1a. [(itá)/que]		*	*	*		*
2. [(íta)/<que>]	*!					*
3. [(í)(tá)/que]	*!		*	*	*	*
→4. [(íta)<que>]						*
5. [(ei)(tea)<que>]			*!			*
6. [(itá)que]		*!	*			*

[(itá)/que] in (21a) bears morphological word boundary. Therefore it must not violate A-Mw-Ft to be an optimal candidate. Candidate (23-1) satisfies the constraint and is chosen as optimal. As to the [(íta)que], the most optimal candidate is the one with the least violations of lower constraints, as in (23-4). It has only a Parse-Syll violation.

3. Conclusion

So far, we have examined basic and clitic stress patterns of Latin under OT, comparing with the analysis of Halle & Kenstowicz. Within OT, we need no longer serialism, that is, leveled derivation. Assuming Alignment constraint, A-Mw-Ft, we can account for preclitic assignment of enclitic stress linking with the basic stress pattern of Latin. This adds to Alignment family.

References

- Buckley, E.(1994) Alignment in Manam Stress, Ms.
 Crystal, D.(1980) *A First Dictionary of Linguistics and Phonetics*, London: Andre Deutsch.
 Cohn, A and J McCarthy(1994) Alignment and Parallelism in Indonesian Phonology, Ms.
 Halle, M. and M Kenstowicz(1991) " The Free Element Condition and Cyclic versus Noncyclic Stress," *Linguistic Inquiry*, 22.3, 457-501.
 Hayes, B.(1981) *A Metrical Theory of Strss Rules*, Doctoral Dissertation, Distributed by the IULC.
 Mester, A.(1992) "The Quantitative Trochee in Latin," Ms, UCLA.
 Nespor, M. and I. Vogel(1986) *Prosodic Phonology*, Foris: Dordrecht.
 McCarthy, J. and A. Prince(1993b) Generalized Alignment, Ms.
 Prince A.(1985) "Improving Tree Theory," *Proceeding of BLS* 11, 471-90.
 Prince. A. and P. Smolensky(1993) Optimality Theory: Constraint Interaction in Generative Grammar. Ms.
 Steriade. D.(1988) Greek Accent: A Case for Preserving Structure," *LJ* 19, 271-314.

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