Motivating Osthoff's Law in Latin: Diachronic Constraint Stability and Phonological Innovation

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§1 Introduction

§1.1 Osthoff's Law (OL): The traditional designation for a process of vowel shortening targeting long vowels before non-final tautosyllabic sonorants operative in several Indo-European (IE) language branches (cf. Osthoff 1881).

§1.2 Status in Latin: Despite some earlier dispute (Collinge 1985:127), standard handbooks—e.g. Weiss (2009:12–26), Meiser (2002:75–6)—now reflect the consensus view that OL was operative within Latin.

§1.3 Multiple application? Certain attested forms even appear to require the application of OL both before and after sound changes which can be dated with respect to one another—e.g. "early" (1) vs. "late" (2)—thus suggesting multiple "rounds" of OL within the history of Latin (cf. Weiss 2009:125–6):

(1) **"Early" OL ⇒ *a-Weakening:**

**párāntēs* [nom.pl.m.] > **párantēs* > Cl. Lat. *parentēs* [pa.ˈrent.eːs] 'parents' (cf. *parāre*)
**kálāndai* [nom.pl.f.] > **kálandai* > Cl. Lat. *Kalendae* [ka.ˈlen.dai] 'first of the month' (cf. *calāre*)

(2) **Syncope(s), Monophthongization ⇒ "Late(r)" OL:**

a. **nṓmo-kapāse* [inf.] > **nṓŋkepāre* > **nóŋkepāre* > Cl. Lat. *nuncupāre* [nuŋ.ku.ˈpaː.re] 'to name'
**sḗmi-kaput* [n.nom.s] > **sḗŋkeput* > **séŋkeput* > Cl. Lat. *sinciput* [ˈsiŋ.ki.put] 'half a head'

b. **oíno-dekem* [num.] > **ūndecim* > Cl. Lat. *undecim* [ˈun.de.kim] 'eleven' (> Fr. *onze*, Sp. *once*)
pūrus 'pure' → *pūrigāre* (Pl.) > Cl. Lat. *purgare* [pur.ˈgaː.re] 'purify' (> Cat. *porgar*)

- Weiss (2009:125–6) is most explicit about its chronology, positing three historical "rounds" of OL. In *SPE* terms, OL feeds *a*-Weakening, and in turn is fed by Latin-internal changes like syncope and monophthongization. On the forms in (2a), see (e.g.) *DELL* s.vv.; more difficult are (2b), since such forms are subject to "re-composition" in the Romance dialects, with analogic restoration of the base vocalism (Ital. *undici, purgare* :: *uno, puro*; cf. Weiss (2009:126) and Meyer-Lübke, s.v. *pŭrgāre*). On Latin syncope (and its chronology), see now Nishimura (2008, 2011) with reff. (cf. Sen 2012, forthcoming).

§1.4 Questioning OL: Some (neglected) questions about the operation of OL in Latin:

- Should OL be understood as a series of independent historical processes/change events?
- Why is OL operative in Latin—what is its phonological motivation?
- Why does OL apply only to pre-sonorant long vowels? To non-final tautosyllabic sonorants?
- How are surface exceptions to OL to be understood?

§1.5 A new approach: In response to such questions, an alternative approach to OL is developed in which it is argued:

(i) No "historical" OL in Latin; apparent multiple application results from the interaction of independent Latin-internal phonological changes and a diachronically-stable phonological constraint against long vowels preceding mora-bearing coda sonorants; this constraint directly continues the PIE dispreference for superheavy syllables (cf. Byrd 2010a,b, 2015) (§2).

(ii) OL is phonetically well-motivated and typologically sound; surface exceptions to OL admit analysis in Optimality Theory (OT) (§3).

(iii) A constraint-based approach to OL allows for a broader formulation, extending it to word-final syllables following the loss of PIE final consonant Extrametricality (cf. Sandell and Byrd 2014) (§4).

§2 Motivating Osthoff's Law in Latin

§2.1 Formalizing OL: Original formulation of OL for Greek per Osthoff (1881:1593) in (3):

(3) **Osthoff's Law:**

a. "Jeder lange Vokal ist in der Stellung vor Sonorlaut und einem weiteren Konsonanten innerhalb desselben Wortes urgriechisch verkürzt worden."

b. V → [-long] / _____ [+son, -syll] [+cons]

- The *Paradebeispiel* for the operation of OL in Latin and Germanic is (post-)PIE **wēnto–* > **wĕnto–* (via OL) > Lat. *ventus*, Goth. *winds* (cf. Toch.A. *want*, Ved. *vā́ta–*, OAv. *vāta–* < PIE **h₂weh₁n̥to–*); for insightful discussion, see Ringe (2006:77).

§2.2 Analyzing OL in Latin: Multiple historical application is problematic—at best, descriptively accurate (though no agreement on number/chronology between (e.g.) Sihler (1995:77–8), Meiser (2002:75–6), and Weiss (2009:125–6)), and never explicitly motivated—can it be coincidence that OL arises each time phonological change creates new /(C)V̄RC/ sequences?

§2.3 An analogy to Germanic: In the (pre-)history of Germanic, Siever's Law (SL) appears to apply both before and after the "resolution" of syllabic sonorants (**R̥* > ** uR*), e.g. (4a); on this issue, cf. Ringe (2006:120) in (4b):

(4) a. PIE **wr̥ĝyéti* 'works' > **wurgieti* (via SL) > PGmc. **wurkīþi* > Goth. *waúrkeiþ*; OE *wyrcþ*

b. "The reapplication of Sievers' Law is hard to understand if it was an ordered rule... but it makes sense if Sievers' Law was operating as a **surface filter**, applying to any derived input that met its structural description."

- As a synchronic process, the "surface filter" described by Ringe (2006) is effectively equivalent to a "persistent rule" in the sense of Myers (1991), and may be implemented as such.

§2.4 Rule- or constraint-driven? Possible, then, to economically account for Latin OL phenomena with a "surface filter"—or alternatively, within a constraint-based framework (Optimality Theory; Prince and Smolensky 1993), as driven by a diachronically-stable markedness constraint against OL environments.

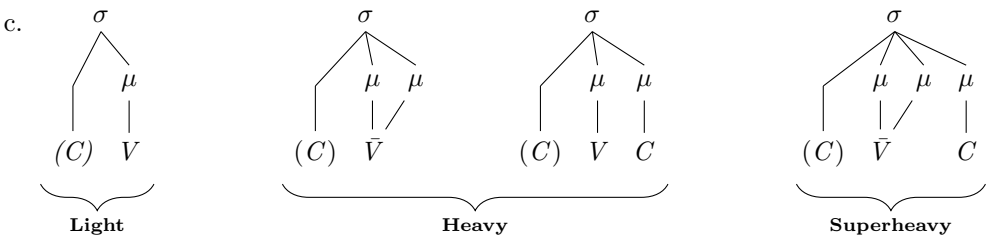
- Some (theoretical and empirical) advantages to a constraint-based approach are discussed in §5.2 below.

§2.4.1 Latin OL in OT: OL in Latin is driven by *V̄R]$_\sigma$ in (5a), which continues the PIE dispreference for superheavy (viz. trimoraic) syllables—i.e. *Superheavy, which would militate against the *(C)V̄C*]$_\sigma$ structure in (5c) (cf. Byrd 2010a,b, 2015):

(5) a. *V̄R]$_\sigma$: A long vowel preceding a mora-bearing coda sonorant is not permitted in the output.

b. *Superheavy: A syllable may contain no more than two morae.

c.



- Byrd (2010a,b, 2015) has shown that *Superheavy was high-ranked in PIE, driving several phonological repair processes, including SL, Schwebeablaut, and likely even OL. The dispreference driving OL in Latin is thus not only cross-linguistically well-established, but also likely **inherited** from PIE.

§2.5 A constraint grammar for OL: OL vowel shortening would fall out from the assumption that the avoidance of superheavy syllables is more important than preserving vowel length—i.e. *V̄R]$_\sigma$ / *Superheavy ≫ (6a) Ident-V[+ long], as in (e.g.) *Kalendae* in (simplified) (6b) or *nŭncupāre* in (6c):

(6) a. Ident-V[+ long]: Corresponding vowel segments in the input and output must be identical with respect to the feature [+long].

b.

/kala:ndai/		*V̄R]$_\sigma$	Ident-V[+ long]
a.	ka.ˈla:n.dai	∗!	
b. ☞	ka.ˈlen.dai		∗

c.

/no:m(i)kapa:re/		*V̄R]$_\sigma$	Ident-V[+ long]
a.	no:ŋ.ku.ˈpa:re	∗!	
b. ☞	nuŋ.ku.ˈpa:re		∗

- For more complete analyses and tableaux, see the Appendix (§6). Unlike OL, *a*-Weakening was a historical process: a constraint against unstressed [a] does not rule out the Cl. Lat. synchronically-generated gerundive *calănd–*, and therefore must have been high-ranked only at an early period, then demoted within the attested history of the language.

§2.6 Diachronic constraint stability: Is it justifiable to assume that the constraint driving OL was stably maintained through the history of Latin?

§2.6.1 PIE inheritance: Observable OL effects in Greek, Germanic, and Latin suggests that a highly-ranked constraint against (at least) *(C)V̄R]$_\sigma$* was inherited from PIE, hence could be stably transmitted across many generations of speakers.

§2.6.2 Phonotactic learning: Learners' well-formedness intuitions are established on the basis of positive evidence (cf. Baker 1979; Albright and Hayes 2011); stable (constraint) acquisition is thus expected in the absence of evidence for *(C)V̄R]$_\sigma$*, which is likely systemic from PIE until certain Latin-internal developments (cf. §§3.6–3.7), and then greatly outweighed by evidence from productive morphophonological processes (e.g. 3rd pl. /amā - nt/ → *amănt*).

- For a recent demonstration of successful phonotactic acquisition using a language-learning model that relies only on positive evidence, see Hayes and Wilson (2008) with reff. It is the **absence** of ≠*b*[+nas]– (or similar) onsets that (famously) causes English speakers to judge $^{\text{x}}$*bnick* as ill-formed, but $^{\text{x}}$*blick* as a possible (but nonexisting) word (cf. Chomsky and Halle 1965).

§2.6.3 'Persistent' OL in Latin: Therefore reasonable to assume that *(C)V̄R]$_\sigma$* is diachronically stable within Latin, and interacts with other historical sound changes that produce new OL environments, thereby yielding apparent chronology-distinct "rounds" of OL.

§2.7 Some outstanding questions: Several issues complicate this proposal (to be addressed in §§3–4):

§2.7.1 Superheavy syllables in Latin: Frequent and systematic examples in (7) (e.g. Lachmann's Law) show that at least *(C)*$\bar{V}T]_\sigma$ superheavy syllables are licit in Latin—is it problematic that only *(C)*$\bar{V}R]_\sigma$ is targeted by OL for reduction via vowel shortening?

(7) Cl. Lat. *āctus* ['a:k.tus] 'driven', *tēctus* [te:k.tos] 'covered'; *rēx* ['re:ks] 'king', *lēx* ['le:ks] 'law'

§2.7.2 Surface exceptions to OL: The constraint driving OL cannot be inviolable: there are a number of surface exceptions to OL—viz. *(C)*$\bar{V}R]_\sigma$ syllables, e.g. (8)—how are such examples to be analyzed?

(8) Cl. Lat. *sānctus* ['sa:ŋx.tus] 'sacred'; *scrībēns* ['skri:.be:ns] 'writing'; *ōrdō* ['o:r.do:] 'row, line'

§2.7.3 Final syllables? If OL driven by *$\bar{\text{V}}\text{R}]_\sigma$, why does it fail to apply to word-final *CV̄R#*, e.g (9)?

(9) OLat. *patēr* ['pa.te:r] 'father'; *frātēr* ['fra:te:r] 'brother'

- Long vowels in the exx. in (7–9) are assured; for discussion of the evidence for vowel quantity, as well as the historical development of length in these vowels, see Allen (1978:64–75). Superheavy syllables are consistently produced by Lachmann's Law, on which see Jasanoff (2004) and Roberts (2009). *V̄sC* clusters (at least at morphemic boundaries, e.g. *-s-*perfects, *-sk-*presents) do not violate *Superheavy, since [s] may be syllabified into the following onset (cf. Nishimura 2011:18–19 with reff.). In contrast, even if [s] is extrasyllabic (or semisyllabic) at word-edge (cf. Byrd 2010b; Keydana 2012), forms like *rēx* still violate *Superheavy.

§3 Phonology & phonetics of OL in Latin

§3.1 Reduction of superheavy syllables in Latin: Per §2.7.1, at least *(C)*$\bar{V}T]_\sigma$ superheavy syllables are permitted in Latin; such sequences do not undergo vowel shortening in contrast to *(C)*$\bar{V}R]_\sigma$, where OL applies (if not exceptionlessly; cf. §2.7.2).

§3.2 Superheavier? Applicability of OL only to trimoraic *CV̄R*$]_\sigma$ — not *CV̄T*$]_\sigma$ — syllables thus suggests a weight distinction in Latin between syllables with coda obstruents vs. sonorants.

§3.3 Syllable weight in Latin: Seemingly problematic, then, that for metrics, word minimality, and (Classical) stress assignment, Latin distinguishes only between heavy and light syllables (cf. (5c) above): *(C)*$\breve{V}T]_\sigma$ and *(C)*$\breve{V}R]_\sigma$ are both treated simply as **heavy**.

- In fact, Ryan (2011:67–9) has shown that *(C)*$\breve{V}R]_\sigma$ is metrically treated as heavier than *(C)*$\breve{V}T]_\sigma$ in Latin. Some data relevant for word minimality is presented by Allen (1973:51). On Cl. Lat. stress, see Allen (1973:155–70) and Mester (1994).

§3.4 Syllable weight and process-specificity: However, Gordon's (2006) cross-linguistic survey convincingly shows that different phonological processes within a language may be sensitive to different weight criteria—viz. syllable weight is **process specific**.

- cf. Gordon (2006:54): "Tone, stress, and minimal word requirements all differ from one another in terms of their weight criteria. . . [t]he overall picture that thus emerges from cross-linguistic comparison of weight criteria is one of process specificity."

§3.5 The typology of OL: Restriction of OL to pre-resonant environments is phonetically well-motivated (cf. Gordon 2002), and directly paralleled in Creek (Muskogean), where "OL" causes vowel shortening in (10) only in *(C)*$\bar{V}R]_\sigma$ — not *(C)*$\bar{V}T]_\sigma$ — syllables:

(10)

Pre-R, "OL"	*in–la:m–itá*	'to uncover'	→	*in–lam–k–itá*	'to be uncovered'
Pre-T, no "OL"	*in–lipa:s–itá*	'to slip (of foot or hand)'	→	*in–lipa:s–k–itá*	'to slip (on ice)'

(Martin 2011:64–5)

- With the exception of "OL", Creek (like Latin) distinguishes only between heavy *CVC(C)*$]_\sigma$ and *CV̄*$]_\sigma$ vs. light CV$]_\sigma$. The *–k–* suffix in (10) is used to derive "middle stems" from active roots. "OL" also blocks vowel lengthening in certain morphological categories (cf. Martin 2011:64–5, 88–9).

§3.6 Exceptions to OL: Per §2.7.2, there are exceptions to OL—i.e. surface *(C)V̄R*]$_\sigma$ structures; yet these exceptions frequently have their own systematicity, e.g. (11), where long vowels consistently precede tautosyllabic nasal-fricative sequences.

(11) Cl. Lat. *sānctus* [ˈsaːŋx.tus] ‘sacred’; *scrībēns* [ˈskriː.beːns] ‘writing’

- For the phonetic representation of *–c–* in *sānctus* in (8) as a voiceless fricative, see Allen (1978:66); this development may be paralleled in Osc. **saa<u>h</u>túm**. Of course, not all exceptions to OL fit into such neat categories, and it may be the case that some—e.g. *cōnsul*, *Quīntus*, *ōrdō*, and others—must be lexically specified as exceptional. It should be noted, though, that the synchronic phonological status of the nasal in (esp.) Cl. Lat. *–V̄ns–* sequences is open to debate, given their regular absence in Romance, certain loanwords, inscriptional variability, and grammarians’ (mixed) testimony (cf. Weiss 2009:61–62, 129–30); similarly, *–V̄nK–*, where the velar is lost (again): cf. Cl. Lat. *cīnctus, ūnctus*: Ital. *cinto, unto*. A comprehensive assessment of exceptions to OL (and their potential phonological regularities) must be a task for future research.

§3.7 Analyzing surface exceptions: Since constraints in OT are violable, formal analysis may be extended to such exceptions—for (11), the constraint driving OL must be dominated by *V̆NF]$_\sigma$ in (12a); the ranking in (12b) thus correctly predicts *sānctus* in (simplified) (12c):

(12) a. *V̆NF]$_\sigma$: A short vowel preceding a tautosyllabic nasal-fricative sequence is not permitted in the output.

b. *V̆NF]$_\sigma$ ≫ *V̄R]$_\sigma$ ≫ IDENT-V[+ LONG]

c.

/sank - tus/	*V̆NF]$_\sigma$	*V̄R]$_\sigma$	IDENT-V[+ LONG]
a. ˈsaŋx.tus	*!		
b. ☞ ˈsaːŋx.tus		*	*

- Historical developments—viz. segmental loss with compensatory lengthening, then analogic restoration (cf. Allen 1978:28–9, 66–7; Weiss 2009:129–30)—in many forms may have given rise to a constraint that is not only surface-true synchronically (though cf. Weiss 2009:130 n. 38), but have reality in speaker grammars, driving lengthening in certain synchronically-productive formations, e.g. /mitte - ns / → *mittēns* or *sānctus* in (12c).

§4 The domain of OL: Constraint stability & innovation

§4.1 Non-final OL: In accordance with Osthoff’s (1881) formulation (cf. §2.7.3), OL only applicable to non-final *(C)V̄R*]$_\sigma$; yet if driven by *V̄R]$_\sigma$, the non-application to final *CV̄R#*—e.g. (13)—seems unexpected.

(13) OLat. *patēr* [ˈpa.teːr] ‘father’; *frātēr* [ˈfraː.teːr] ‘brother’, *Bacchanāl* [ˈba.ka.naːl] ‘shrine of Bacchus’

- Forms in (13) per (Weiss 2009:128). That metrical length is assured just once in (e.g.) *patēr* (Aul. 779) vs. frequent *patĕr* shows that the final long vowel was almost certainly a metrical license already for Plautus (cf. Fortson 2008:22). For alternative views on the evident vowel shortening, see Lindsay (1922:124–5) and Gerschner (2002:97).

§4.2 Prosodic status of *-R#*: Note that *V̄R]$_\sigma$ penalizes only long vowels before **moraic**—viz. prosodic weight bearing—tautosyllabic sonorants; preservation of length is thus expected if final sonorants were (at least in early Latin) non-weight bearing—i.e. EXTRAMETRICAL.

- Most relevantly, in languages with final-consonant EXTRAMETRICALITY only final *CV̄#* and *CVCC$_0$#* are treated as heavy syllables, while *CVC#* and *CV#* are both light. In general, constituents designated as EXTRAMETRICAL behave as though “invisible” to certain phonological processes—rule(/constraint) application (cf. Hayes 1995:56–60) or higher-order prosodic grouping (cf. Hyde 2011). EXTRAMETRICALITY is restricted to constituents at word-edge.

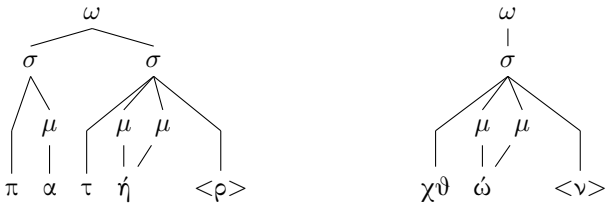
§4.3 Latin in typological & historical perspective: Final consonant EXTRAMETRICALITY is a fairly common cross-linguistic phenomenon (cf. Gordon et al 2010) and—crucially—a feature of PIE (cf. Sandell and Byrd 2014), hence potentially inherited into Latin.

- EXTRAMETRICALITY was first proposed for PIE (in passing) by Ringe (2006:75); it is treated in greater detail by Sandell and Byrd (2014), who leverage it to explain Szemerényi’s Law compensatory lengthening in word-final—but not word-medial—position, as well as vowel lengthening in monosyllables. On the (sound) phonetic basis for final consonant extrametricality, see Gordon et al (2010).

§4.4 Greek inheritance: Inheritance of final consonant EXTRAMETRICALITY most clearly evident in Greek, where it accounts for the distribution of "recessive" accentuation (cf. Golston 1990), and may also explain the non-application of OL before *–R#* (since it is non-weight bearing), e.g. (14a) with the moraic structure in (14b):

(14) a. πατήρ 'father'; χθών 'earth', etc.

b.



- <. . . > designates extrametrical constituents. Golston's (1990) analysis builds on those of Steriade (1988) and Sauzet (1989); for discussion, see Probert (2003:28–33) and Gunkel (2014). Per Golston, ictus assignment in Greek—as in Classical Latin—involves building right-aligned moraic trochees. The two systems differ in that the Greek has final consonant extrametricality, and low tone docks to the head of the rightmost trochee, while Latin has final syllable extrametricality, and assigns stress to the head of the rightmost trochee (cf. Mester 1994).

§4.5 Latin inheritance: Inheritance of final consonant EXTRAMETRICALITY into the attested period of Latin could explain the symmetry in (15) between PIE, Greek, and preclassical Latin, with consistent preservation of *–V̄R#* (i.e. no OL):

(15)

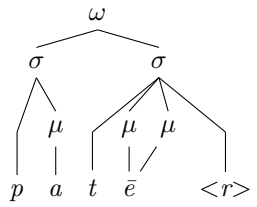
	PIE	**Greek**	**Pre-Cl. Latin**	**Cl. Latin**
'father'	**ph₂tḗr*	πατήρ	(OLat.) *patēr*	*patĕr*
(gen. pl.)	**–oh$_x$om / –ōm*	–ῶν	(PIt.) **–ōm*/ S. Pic *–om*	*–ŭm*

- The South Picene genitive plural ending spelled **–om** confirms that **–ōm#* was preserved in Proto-Italic (Weiss 1998:710–13).

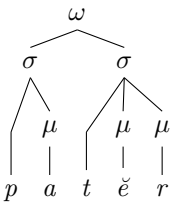
§4.6 A Latin innovation? In contrast, the loss of final consonant EXTRAMETRICALITY could explain the divergence of the corresponding Cl. Lat. forms in (15): the newly weight-bearing status of *–R#* would trigger OL vowel shortening, yielding the moraic structure in (e.g.) (16b) from earlier (16a):

(16)

(a) **OLat. *patēr*:**



(b) **Cl. Lat. *patĕr*:**



- Monosyllables of shape *CV̄R#* nevertheless appear to maintain vowel length throughout Latin, e.g. *fūr* 'thief', *sōl* 'sun', *vēr* 'spring'; this unexpected retention of length in the nominative singular is likely due to analogy to **all** other case forms—e.g. acc. s. *fūrem*, dat.s. *fūrī*, etc.—where the long vowel would not undergo shortening. It is possible that this loss also drives the 'simplification' of final long diphthongs in (e.g.) Cl. Lat. them. dat. *–ō* < *–ōi* (DVENOI; CIL I^2 4.3) within the historical period, since these too would be trimoraic under the new system.

§4.7 A prosodic shift: The loss of final consonant EXTRAMETRICALITY likely connected to the development of (pre-)Classical Latin stress system, which depends upon final **syllable** EXTRAMETRICALITY.

- The crucial details of this shift remain to be worked out, yet it seems likely that final consonant EXTRAMETRICALITY may itself have contributed to the reanalysis by rendering more final syllables light (both *CV<C>* and *CV*), hence unstressable under any trochaic system. On a possible intermediate stage between Italic initial stress and the Classical stress system, see Parsons (1999) (but cf. Fortson 2008:205 n. 70).

§5 Preliminary conclusions & outstanding questions

§5.1 Motivating OL in Latin: An alternative, constraint-based approach to OL has been proposed according to which:

(i) OL in Latin is driven by a constraint *$\bar{\text{V}}\text{R}]_\sigma$, which causes shortening of long vowels before mora-bearing tautosyllabic sonorants.

(ii) *$\bar{\text{V}}\text{R}]_\sigma$ continues a dispreference for trimoraic syllables inherited from PIE, and persists stably in Latin even as other phonological changes produce new OL environments, yielding vowel shortening in each instance.

(iii) OL is phonetically well-motivated and typologically sound, with nearly exact parallel in Creek.

(iv) The non-application of OL to *CV̄R#* in early Latin is due to (inherited) final consonant EXTRAMETRICALITY, the loss of which results in OL and consequent vowel shortening in Cl. Lat.

§5.2 Advantages to a constraint-based approach: Like a "surface filter" (cf. §§2.3–2.4), a constraint-based approach resolves the "multiple application" problem; in addition:

(i) Diachronic stability of OL from PIE into (and within) Latin (and Greek, Germanic) is theoretically expected (§2.6).

(ii) Allows for formal integration of surface exceptions to OL, potentially yielding insight into the synchronic grammar of Cl. Lat. (§3.7).

(iii) Together with final consonant EXTRAMETRICALITY, provides explanatory basis for the (non-)application of OL to *–CV̄R#* in Latin (§§4.5–4.6).

§5.3 (Still) outstanding questions & implications: Some further issues raised (and left open) here:

§5.3.1 The exceptions to OL—what and why? As noted in §3.6, identifying (all) surface exceptions to OL—and determining their phonological motivation—calls for much further research.

§5.3.2 An archaism in Latin? Per Gordon (2006:52), a weight distinction between *CV̄R*$]_\sigma$ and *CV̄C*$]_\sigma$ is "extremely rare in stress systems" like Latin, but "quite common in tonal systems"—could its typologically irregular status in Latin be a relic of PIE?

§5.3.3 A "historical" OL elsewhere? If the proposed analysis is accepted, OL in Latin is not "historical" but synchronic—(to what extent) is the same true in the history of the other IE languages?

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§6 Appendix

§6.1 OL and *a*-Weakening: *a*-Weakening was a historical process, likely dateable to post-500 BCE (cf. Weiss 2009:120). The constraints relevant to generating (e.g.) *Kalendae* in (1) at this stage are listed in (17a), with ranking in (17b) and tableau in (17c); on vowel reduction in Latin, see Nishimura (2008, 2010a,b).

(17) a. *V̄R]$_\sigma$: A long vowel preceding a mora-bearing coda sonorant is not permitted in the output.

IDENT-V[+ LONG]: Corresponding vowel segments in the input and output must be identical with respect to the feature [long].

*à: Unstressed short [a] is not permitted in the output.

IDENT-V[± LOW]: Corresponding vowel segments in the input and output must be identical with respect to the feature [low].

ALIGN-L(PK, ω): The stress peak of a prosodic must coincide with its left edge.

b. *V̄R]$_\sigma$, *à, ALIGN-L(PK, ω) ≫ IDENT-V[+ LONG], IDENT-V[± LOW]

c.

/kalaːndai/		*V̄R]$_\sigma$	*à	ALIGN-L(PK, ω)	IDENT-V[+ LONG]	IDENT-V[± LOW]
a.	ˈka.laːn.dai	*!				
b.	ˈka.lan.dai		*!		*	
c. ☞	ˈka.len.dai				*	*
d.	ka.ˈlan.dai			*!	*	

- Harmonically-bounded candidates are excluded from the tableau in (17c) and (18c). Whether it is really IDENT-V[± LOW] that penalizes the correspondence between /a/ and [e] or some other faithfulness constraint—e.g. IDENT-V[± FRONT]—is immaterial to the case at hand.

§6.2 OL and early Latin syncope: Additional constraints relevant to generating (e.g.) *sinciput* in (2a) are listed in (18a). The case for *⏑⏑ in motivating syncope is made by Nishimura (2008, 2011). Sen (2012) identifies a number of environments in which syncope is blocked when it would produce illicit phonotactic sequences, including ^{x}*–kp–*; such sequences are ruled out in this analysis by a catch-all constraint *PHONOTACTICS. The constraint ranking in (18b) yields the correct analysis in (18c):

(18) a. *⏑⏑: Two sequential light syllables are not permitted in the output.

**e/oŋ*: A [-high, -low] vowel preceding [ŋ] is not permitted in the output.

*PHONOTACTICS: An illicit phonotactic sequence is not permitted in the output.

IDENT-V[± HIGH]: Corresponding vowel segments in the input and output must be identical with respect to the feature [high].

MAX-V: Every [+syll] segment in the input must have a correspondent in the output.

b. *V̄R]$_\sigma$, *⏑⏑, **e/oŋ*, *PHONOTACTICS ≫ MAX-V ≫ IDENT-V[+ LONG], IDENT-V[± HIGH]

c.

/seːmikiput/		*V̄R]$_\sigma$	*⏑⏑	*e/oŋ	*PHONOTACTICS	MAX-V	IDENT-V[+ LONG]	IDENT-V[± HIGH]
a.	ˈseː.mi.ki.put		*!					
b.	ˈsiːŋ.ki.put	*!				*		*
c.	ˈseŋ.ki.put			*!		*	*	
d. ☞	ˈsiŋ.ki.put					*	*	*
e.	ˈseː.mik.put				*!	*		

- I assume at this stage left-aligned, moraically binary trochaic feet and obligatory non-parsing of the final syllable (EXTRAMETRICALITY), properties which are enforced by still further constraints not explicitly listed here (e.g. FTBIN, NONFINALITY-σ, etc.). These assumptions are generally in accord with the analyses of Nishimura (2011) and Sen (2012), who depart from one another in significant ways yet basically coincide in this respect. This system would necessarily predate the system presented for Plautine Latin by Parsons (1999) (if such a system indeed obtained; cf. §4.1).

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