Indulgentia Parentum Filiōrum Perniciēs:
Lexical Allomorphy in Latin and Japanese

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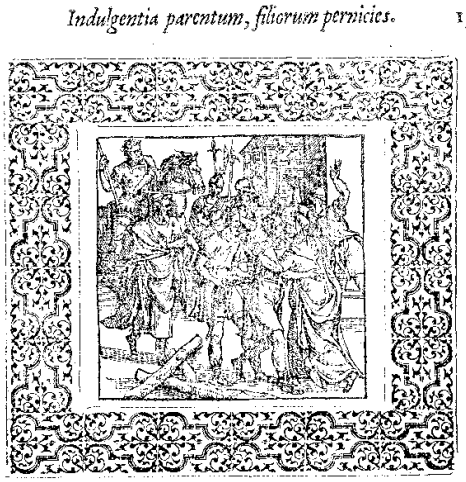
"The parents' lenience is the children's ruin," says the proverb.[1] The Latin suffix variants *-ia* and *-ie:s* both derive abstract nouns, they are fully synonymous, and are even found with the same stem, with no difference in meaning, as in *ma:terie:s~ma:teria* 'matter'. So why don't we ever find **indulgentiēs* instead of *indulgentia*, or **pernicia* instead of *perniciēs*? Or consider the names of the Nagoya and Osaka-Kobe baseball teams, the *Hanshin Tigers* (阪神タイガース), pronounced [taigaa-**s**u], and the *Chūnichi Dragons* (中日ドラゴンズ), pronounced [doragon-**z**u] (see http://www.hanshintigers.jp/ and http://www.dragons.co.jp/, respectively). Why not *[taigaa-**z**u] and *[dorangon-**s**u]? Languages are replete with such cases of lexical allomorphy. Their characteristic property is that the distribution of allomorphs is explicable on general phonological grounds, but no actual phonological rule exists in the grammar of the language that would derive both from the same underlying representation (UR). Take ***a*** *book* vs. ***an*** *article*: the allomorph without *n* is found before C-initial words, the allomorph with *n* before V-initial words, a syllabically most sensible arrangement. At the same time, English has no general process, be it *n*-deletion or *n*-insertion, that could derive the correct output forms on the basis of a single UR, whether it is /ə/or /ən/.



Indulgentia parentum, filiorum pernicies. 155

A Theefe, condemn'd to dye, to execution lead:
His wofull mother did beholde, for forowe almoſte dead.
And whilſt ſhe kiſſ'd her ſonne, whome ſhe did tender deare:
The towarde childe did kiſſe with teeth? and off her noſe did teare:
Whereat, the ſtanders by exclaymed at his acte:
Then quoth the theefe, my maſters marke, I will defend the facte.
My mother, in my youthe, did with my faults diſpence:
And euermore did like me beſt, when I did moſt offence.
So that, ſhe was the cauſe that made me doe amiſſe:
For if ſhee had correction vſde, I had not come to this.
Wherefore, I did reuenge my wronge, in what I mighte:
In hope my facte ſhall mothers warne, that doe behould this ſighte.
For if the Children ſteale, and come vnto the rope:
It often is the parentes faulte, for giuing them ſuch ſcope.

Traditional rule-based treatments of lexical allomorphy are therefore faced with an unhappy choice. If the allomorphs are separately listed in the lexical entry of the morpheme, each with its own subcategorization frame capturing its distribution, everything is treated on the model of the worst-case scenario of hard-core suppletion (à la *go~went*), and the obvious phonological generalizations go unexpressed. If, on the other hand, one tries to capture the phonological generalizations by deriving the sur-

[1]From: Geffrey Whitney. *A choice of emblemes, and other devises. For the moste parte gathered out of sundrie writers, Englished and Moralized.* Imprinted at Leyden, in the house of Christopher Plantyn, by Francis Raphelengius.M.D.LXXXVI. [Downloaded from http://www.mun.ca/alciato/whit/w155.html.]

face allomorphs from a single UR, we are forced to stipulate the existence of minor rules—rules that almost nothing undergoes.

Optimality Theory (OT, Prince and Smolensky 1993, 2004) has led to a significant advance in our understanding in this area, as seen in the works of Anttila 1997, Burzio 1994, 1997, Kager 1996, Mascaró 1996a, 1996b, Mester 1994 (briefly discussed below), Perlmutter 1998, Russell 1995, Teeple 2006, Tranel 1996a, 1996b, 1998, among others. The central idea in these works, with minor variations, is that the allomorphs are listed in the lexical entry of the morpheme, but the choice between them is not relegated (or rather, only in exceptional cases) to individual subcategorization frames, but falls to the usual OT selection mechanism, the system of ranked constraints that makes up the grammar of the language. This explains why allomorph selection is phonologically optimizing even though no specific phonological process operative in the language can be invoked, and avoids both construction-specific rules and unenlightening listing of allomorph environments.

In this note, we take up the two cases mentioned above, the historically matured allomorphy of the Latin noun-forming endings and the newly emerging allomorphy of the plurality marker in Japanese loanwords. From a variety of evidence characterized as "prosodic trapping", Mester 1994 argues that the optimal foot structure of Latin is the bimoraic balanced trochee, ('LL) (two light syllables) or ('H) (one heavy syllable). Crucially, in a quantitative system, the unbalanced ('HL) and ('LH) do not qualify as trochees, and neither does ('L). In this restricted foot inventory, light syllables are often prosodically trapped initially: #L(H)…, and medially between heavy syllables: …(H)L(H)….

The phenomena traditionally known as iambic and cretic shortening illustrate this kind of foot inventory in action. The initial L of disyllabic LH forms and the medial L of HLH forms, which remain unfooted in the formal variety known as "Classical Latin", are made parsable in Colloquial Latin by shortening the following H, as shown in (1a,b). Evidence for this comes from a variety of sources, most prominently, the comedies of Plautus and Terence. In the prosodic interpretation of Mester 1994, the shortenings are motivated by the fact that they achieve full parsing into bimoraic trochees (see the work cited for details on foot structure and word stress assignment). No shortening is expected in (1c,d), and none occurs, because the forms are already fully parsable.

(1)

a. LH	púta:	LH → ('LL)	púta	believe-2SG.IMP.
	hómo:		hómo	human-NOM.SG.
b. HLH	dí:kito:	HLH → ('H)(LL)	dí:kito	say-2SG. IMP.FUT.
	ímpera:		ímpera	rule-2SG. IMP.
c. ('H)(H)	mánda:	*(no change)*		entrust-2SG. IMP.
	láudo:			praise-1SG. PRES.
d. ('LL)(H)	símula:			simulate-2SG. IMP.
	hábito:			inhabit-1SG. PRES.

Viewed from the perspective of OT (see Prince and Smolensky 2004 for a statement of the analysis in such terms), the register difference between Classical Latin to Spoken Latin is not a difference in foot type, but a slight difference in constraint ranking involving a faithfulness constraint (MAX-μ) and the exhaustive footing constraint (PARSE-σ).

(2)

	ranking:	*more generally:*	*result:*
Classical Latin:	Max-μ » Parse-σ	Faithfulness » Prosodic Form	faithful, nonoptimal prosody
Colloquial Latin:	Parse-σ » Max-μ	Prosodic Form » Faithfulness	not faithful, optimal prosody

The tableau in (3) illustrates how the selection is made in the two varieties.

(3) a. Classical Latin:

	/di:kito:/		*Faith:* Max-μ	*Prosodic Form:* Parse-σ
►	dí:kito:	('H)L(H)		*
	dí:kito	('H)(LL)	*!	

b. Colloquial Latin

	/di:kito:/		*Prosodic Form:* Parse-σ	*Faith:* Max-μ
	dí:kito:	('H)L(H)	*!	
►	dí:kito	('H)(LL)		*

The general prediction is that we expect structure-changing effects of prosodic wellformedness constraints in the colloquial variety, but not in the literary variety where faithfulness reigns supreme.

Nevertheless, there are anti-trapping effects in the classical variety of the language—they occur in cases where Faithfulness is for some reason not involved, so that the otherwise dormant anti-trapping constraint can show its force—in terms of McCarthy and Prince 1994, an Emergence-of-the-Unmarked effect. This brings us back to *indulgentia* and *pernikie:s*, with the synonymous abstract noun-forming suffix variants **-***ia* and **-***ie:s*. Their distribution is heavily skewed in terms of the weight of the stem final syllable: After H-final stems, the LH-variant *-ie:s* is avoided in favor of the LL-variant **-***ia* (4).

(4)

grá:tia	('H)(LL)	grace	*grá:tie:s	('H)L(H)
audá:kia	(H)('H)(LL)	audacity	*audá:kie:s	(H)('H)L(H)
kle:méntia	(H)('H)(LL)	clem-ency	*kle:méntie:s	(H)('H)L(H)
pe:nú:ria	(H)('H)(LL)	want	*pe:nú:rie:s	(H)('H)L(H)
indul-géntia	(H)(H)('H)(LL)	indul-gence	*indulgéntie:s	(H)(H)('H)L(H)

The tableau in (5) shows that the reason is prosodic. Different from ***indulgéntie:s***, the form *indulgéntia* avoids medial trapping of L, a Parse-σ violation.

(5)

	/indulgent/ + /ia, ie:s/		*Faith:* Max-μ	*Prosodic Form:* Parse-σ
►	(in)(dul)(gén)(ti.a)	… ('H)(LL)		
	(in)(dul)(gén)ti(e:s)	... ('H)L(H)		*!

Other parsings of the form with *ie:s*, such as (*in*)(*dul*)(*gen*)(*tí*)(*e:s*) with ('L) or (*in*)(*dul*)(*génti*)(*e:s*) with ('HL), lose against the winner because of the foot form con-

straints against monomoraic ('L) and trimoraic ('HL) trochees. After L-final stems, however, things are different, and the *-ie:s* variant has a chance to appear, as shown in (6).

(6)

	/pernik/ + /ia, ie:s/		*Faith:* Max-μ	*Prosodic Form:* Parse-σ
►	(per)(níki)(e:s)	… (LL)(H)		
	(per)(níki)a	… (LL)L		*!

The moral here is that the lexical listing of morpheme variants means that faithfulness becomes irrelevant, as far as the choice between the variants is concerned, and low-ranking markedness (here, the anti-trapping constraint PARSE-σ) becomes decisive. This Emergence-of-the-Unmarked pattern characteristic of lexical allomorphy was first clearly expressed by Mascaró 1996b. The result is that even in Classical Latin, where Faith (MAX-μ) is higher-ranked, forestalling the shortenings characteristic of Colloquial Latin ((1)-(3)), the effects of the prosodic markedness constraints emerge in allomorphy selection.

Mester 1994 presents a significant number of similar cases where the distribution of lexical allomorphs is explicable as prosodic optimization—avoidance of trapped L and of dispreferred ['HL] trochees, i.e., what Burger 1928, in a thorough historical study of the phenomenon, refers to as *rythme binaire*. One of the most extensive cases of this kind is the perfect of the second conjugation, whose canonical form is *-ui:* (7).

(7) 2nd conjugation, canonical perfect in -u-i:

mon-é:-re	món-u-i: ('LL)(H)	remind- INF./1SG.
dek- é:-re	dék-u-i:	be seemly
hab- é:-re	háb-u-i:	have
jak- é:-re	ják-u-i:	lie
dok- é:-re	dók-u-i:	teach
lat- é:-re	lát-u-i:	be hidden
plak- é:-re	plák-u-i:	please

In these forms the *-u-* of the perfect forms a bimoraic foot with the last syllable of the root, which is L. Special cases aside, the canonical perfect in *-u-i:* is not found after H-final roots. Here we find instead formations that are not expected in the 2nd conjugation on historical grounds (see Burger 1928:23), such as the sigmatic perfect (root+/s/, with segmental adjustments), a hallmark of the consonantal conjugation. As shown in (8), this distribution has a prosodic rationale: Suffixing *-u-i:* would result in a trapped *u*-vowel.

(8) 2nd conjugation, sigmatic perfect

aug- é:-re	áuk-s-i: ('H)(H)	enlarge	*áug-u-i: ('H)L(H)
alg- é:-re	ál-s-i:	be cold	*álg-u-i:
haer- é:-re	háe-s-i:	hang	*háer-u-i:
indulg- é:-re	indúl-s-i:	be indulgent	*indúlg-u-i:
urg- é:-re	úr-s-i:	urge	*úrg-u-i:

This kind of emergence of unmarked structure in sections of the morphology that are otherwise full of arbitrary stipulations provides significant support for the

OT-approach to lexical allomorphy (and, more generally, to the basic idea that outputs are chosen from a set of alternatives by a selection process built on phonological optimization). The rest of this note is devoted to an interesting case of this kind that developed quite recently in the loanword vocabulary of Japanese.

As shown in (9), native Japanese does not allow voiceless obstruents to occur after nasals. (Coda nasals, which generally assimilate to following consonants or are placeless, are here transcribed as *n*, following the Kenkyusha Dictionary.)

(9)

tonbo	dragonfly	*tonpo
kangae	thought	*kankae
cf. also alternations such as		
/yom+te/	→ [yonde]	read-GERUND
/yom+ta/	→ [yonda]	read-PAST
/yom+tara/	→ [yondara]	read-CONDITIONAL
/yom+tari/	→ [yondari]	read-NONEXHAUSTIVE LISTING

This restriction does not extend to the (rather sizeable and fully integrated) Sino-Japanese loan vocabulary (10a), and neither is it observed in Western loans (10b).

(10)

a.

gen+ki	health(y)
kan+koo	sightseeing
den+pa	electric wave
san+po	walk
sen+soo	war
han+too	peninsula

b.

panku	puncture, flat tire
torankiraizaa	tranquillizer
syanpuu	shampoo
konpyuutaa	computer
konsaato	concert
sentaa	center
bentyaa	venture (firm)

Following earlier work of our own and of others (Ito and Mester 1999, Fukazawa, Kitahara and Ota 1998), we can conceptualize this as faithfulness specific to lexical strata (Sino-Japanese and Foreign, in the usual terminology) dominating the constraint responsible for postnasal voicing, NO-NC$\underset{\sim}{}$, which in turn dominates general faithfulness:

(11) IDENT-F/SJ » NO-NC$\underset{\sim}{}$ » IDENT

The tableaux in (12) illustrate how this grammar segregates native (unmarked), Sino-Japanese (SJ), and Western loan items (F), respectively.

(12) a. *sinde* 'die-GERUND'

	/sin-te/	Ident-F/SJ	No-NC$\underset{\sim}{}$	Ident
	sinte		*!	
►	sinde			*

b. *kankoo* 'sightseeing'

	/kankoo/$_{SJ}$	Ident-F/SJ	No-NC̥	Ident
►	kankoo		*	
	kangoo	*!		*

c. *sentaa* 'center'

	/sentaa/$_{F}$	Ident-F/SJ	No-NC̥	Ident
►	sentaa		*	
	sendaa	*!		*

This characteristic pattern of a stratified lexicon—a core vocabulary maximally unmarked (in terms of the grammar of the language) contrasting with more peripheral items that admit a larger set of structures—encounters a problem when confronted with an interesting generalization first noted by Tateishi (2001, 2003). It concerns the ways in which the English plural *s*-suffix appears in loanwords. Japanese does not have a regular plural marker, and English words that are usually pluralized are sometimes borrowed with the plural marker intact (*doonattsu* 'donuts', *piinattsu* 'peanuts'), a cross-linguistically common event (Campbell 1999:57-88), sometimes without (*surippaa* 'slippers', *koon fureeku* 'corn flakes'); in still other cases both pluralized and non-pluralized forms are found (13). As a result, loanword Japanese has come to possess a quasi-suffix expressing some kind of plurality.

(13)

with plural suffix		*without plural suffix*	
kyattsu	'Cats' (title of musical)	kyatto fuudo	'cat food'
handzu appu	'hands up'	hando kuriimu	'hand cream'

Thus, loanwords with *-su/zu,* with the expected epenthesis, are found among the growing F-items. Tateishi (2001, 2003) noted that the distribution of the two variants in the loanwords does not necessarily follow the distribution of the corresponding English elements, i.e., voiced after voiced, and voiceless after voiceless. In particular, the voiceless variant is sometimes found in unexpected environments:

(14)

English source word	*Japanese loan word*
men's [z]	menzu
ladies [z]	lediisu

The results of a Google search for co-occurrences of the different versions, in katakana syllabary, of "men's/ladies" and "dragons/tigers" (names of baseball teams) appear in (15) and (16).

(15) "men's, ladies"—Google Search (July 23, 2005, 2:18pm EST)

men-zu, redii-su	1,870,000	99.6701%
men-zu, redii-zu	5,570	0.2969%
men-su, redii-su	611	0.0326%
men-su, redii-zu	8	0.0004%

(16) "dragons, tigers"—Google Search (July 23, 2005, 2:35pm EST)

doragon-zu, taigaa-su	48,600	97.6335%
doragon-zu, taigaa-zu	807	1.6212%
doragon-su, taigaa-su	361	0.7252%
doragon-su, taigaa-zu	10	0.0201%

Here the voiced variant *-zu* occurs after nasal-final loanwords, and the voiceless *-su* elsewhere—quite different from the purely voicing dependent allophonic rule in English. The generalization is not without exceptions, but apparently solid enough to warrant a systematic explanation. Even though divergent from what is found in English, it might still reflect some phonetic property of the English models, similar to the way final vowel epenthesis in plosive-final English loans in Korean appears to correlate with the probability that the corresponding plosive is released in American English (see Kang 2003). In the present case, however, this mode of explanation seems less attractive: We are not aware of relevant empirical studies, but the idea that the postnasal -[z] of *dragons* should be consistently more strongly voiced than the postvocalic -[z] of *tigers* seems farfetched.

Setting aside the possibility of explaining the distribution as learned through diligent observation of American English pronunciation habits, we turn to another attractive mode of explanation—the constraints of universal phonology, as ranked in the grammar of Japanese. The *-su/zu* pattern obviously conforms to the postnasal voicing pattern familiar from the native stratum of Japanese (see (9)-(12) above). This suggests—and all recent analyses (Tateishi 2001, 2003, Fukazawa, Kitahara and Ota 2002, and the one developed here[2]) agree on this point—that what we are dealing with is an *F*-item on which NO-NC͡ is in some way active. But in what way? This is where our hypothesis departs from the other two, who see this as a case of restratification, arguing that the foreign quasi-suffix has either joined the native items (Tateishi 2003) or is subject to lower-ranking affixal IDENT (Fukazawa, Kitahara and Ota 2002). Either way, the IDENT responsible for *-su* ranks below NO-NC͡. These are certainly viable analyses, but there is some concern whether it is really correct to declare *-su/zu* a native suffix (in the face of speakers' intuitions declaring it to be distinctly 'foreign'), and in general a proliferation of faithfulness constraints dealing with single elements should give us pause.

Is there a simpler alternative? Our claim is that there is: In English, the *s*-plural morpheme is realized as voiced or voiceless, depending on the environment. The crucial voiced/voiceless distinctions in the phonological environment are lost in Japanese because of epenthesis: (Boston) Pop[s] → *poppu-su*, (Chicago) Cub[z] → *kabu-su*. As a result, both allomorphs are borrowed as a lexically listed pair /-su, -zu/. But once this is the case, the ranking [IDENT-F » …» NO-NC͡ » IDENT » NO-VOIOBS], already firmly anchored in the grammar, predicts the distribution that Tateishi discovered. Allomorph listing means that allomorph selection is purely phonologically conditioned. With faithfulness (i.e., IDENT-F) neutralized, as far as voicing is concerned, the subhierarchy [NO-NC͡ » IDENT » NO-VOIOBS] means voiced after nasals (*doragon-zu,* (17), *men-zu,* etc.), otherwise voiceless (*taigaa-su* (18), *redii-su, poppu-su, kabu-su,* etc.*)*

(17)

/doragon/, /-zu, -su/	Ident-F	No-NC͡	Ident	No-VoiObs
► doragon zu				(*d *g) *z
doragon su		*!		(*d *g)

[2] First presented in class lectures at the 2005 LSA Linguistic Institute at MIT/Harvard University (July-August 2005).

(18)

/taigaa/, /-zu, -su/	Ident-F	No-NÇ	Ident	No-VoiObs
taigaa zu				(*g) *z!
► taigaa su				(*g)

Exceptions are cases of straight borrowing of voiced *-zu*, such as *syuu-zu* 'shoes'. This avoids both construction-specific rules and unenlightening listing of allomorph environments and follows the standard OT analysis of lexical allomorphy discussed earlier. This leads to a TETU-effect for such listed pairs of allomorphs—here, post-nasal voicing in tandem with default voicelessness—in thoroughly foreign territory, where IDENT-F otherwise prevents any changes in voicing. Similar TETU-effects with affixal elements in Japanese arise with Sino-Japanese counters (Ito and Mester 2003, 138-141) and verbal suffixes (Ito and Mester 2004).

In conclusion, this note has taken up two at first glance very different cases of lexical allomorphy—one from the derivational morphology of Classical Latin, with endings carved in stone, and a second one from Contemporary Japanese involving some fashionable and often short-lived innovations in "Janglish", found in cyber-space ads and blogs. The architecture of OT allows us to understand why such lexical allomorphs, besides their familiar idiosyncratic and unpredictable character, can also show the emergence of unmarked structure precisely because they are listed and therefore subvert the demands of high-ranking faithfulness. Far from being a problem for OT, this surprising combination of properties is rather a point in its favor.

In a broader perspective, it teaches us how important it is to take proposed theories in phonology seriously, as making substantive claims about linguistic reality, and not just as tools to formalize existing generalizations—a lesson we learned from Alan Prince, our teacher, dissertation supervisor, and friend. We wish him a happy *kanreki* 還暦(sexagenary) birthday.[3]

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[3] The Chinese zodiac consists of a cycle of 12 years, each named for an animal (rat, ox, tiger, rabbit, dragon, snake, horse, sheep, monkey, rooster, dog, boar), which combines with a system of 5 elements (wood, fire, earth, metal, and water) [http://en.wikipedia.org/wiki/Sexagenary_cycle]. 2006 is the year of the Fire Dog, and the last time it came around was 60 years ago. In Japan a person's 60th birthday is their *kanreki* ('returning calendar'), celebrating the completion of one full sexagenary cycle.

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