Stress, epenthesis, and segment transformation in Selayarese loans

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1. Introduction

Loanwords normally undergo changes that bring them into conformity with native language phonological patterns. Among the most commonly seen changes are phoneme substitution and prosodic adjustment, illustrated by the Japanese pronunciation *kurisumasu* 'Christmas' in which the English schwa is replaced by [a], and [u] is inserted in three positions to create legal Japanese syllables. In a serial framework, such changes are frequently problematic, requiring processes that are not well motivated by native language data (such as rules converting schwa to [a] and rules of vowel epenthesis), or requiring a filtering mechanism to bring inputs of the borrowed forms into line with NL inputs (e.g. Silverman 1992).

Many of these problems disappear in an output-oriented, constraint-based framework. Phoneme substitution follows from the constraint set, with no need to filter inputs; the lack of particular phonemes in some or in all positions in the native vocabulary is accounted for by a set of output constraints which, when ranked below faithfulness constraints, will prevent the disallowed phonemes from surfacing should they appear in the inputs of borrowed words. And since all possible output candidates are considered in parallel, there is no need to posit processes specific to loanwords. In many instances, then, loanwords are accounted for by the same grammar that accounts for the native language data, with no special pleading.

In the following sections I discuss the transformation of loanwords from Bahasa Indonesia into Selayarese, a Makassar language of South Sulawesi, Indonesia. I will argue that the shape of the borrowed words is consistent with well motivated constraints, and consider whether such rankings are motivated by the native language data and if not, whether they correspond to the default, initial-state rankings. I will first discuss the stress of borrowed words, and then the treatment of illegal codas, which undergo either epenthesis of a vowel or transformation of the coda consonant into a legal Selayarese coda segment. In the latter section, I argue that the loanword data argue against a transparency analysis of epenthesis (as proposed in McCarthy, to appear), and in favor of an analysis closer to classical phoneme substitution, in which the borrowing language alters segments to conform to the native language phonotactic constraints.

2. Selayarese Stress and Epenthesis Interactions

Selayarese stress in monomorphemic words is normally penultimate, regardless of syllable structure:

(1)

a. sampúlo	'ten'
b. palóla	'eggplant'
c. balíkaʔ	'arm'
d. barámbaŋ	'chest'
d. kalihára	'ant'
e. kalumánti	'big black ant'
f. búlaŋ	'moon, month'
g. tímbo	'grow'
h. góntiŋ	'scissors'

The sole exception involves monomorphemic words with antepenultimate stress:

(2)

a. sáhala	/sahal/	'profit'
(cf. sahála	/sahala/	'sea cucumber')
b. lámbere	/lamber/	'long'
c. bótoro	/botor/	'gamble'
d. sússulu	/sussul/	'burn'
e. páʔrisi	/páʔris/	'painful'
f. maŋkásara	/maŋkasar/	'Makassar'
g. kasíssili	/kasissil/	'mosquito'
h. barúasa	/baruas/	'cookie'
i. hállasa	/hallas/	'suffer'

In all monomorphemes with antepenultimate stress, the final vowel is absent before a vowel-initial, non-clitic suffix (Basri, Broselow, Finer, and Selkirk 1997):

(3)

a. lámbere	lambéraŋ	/lamber+aŋ/	'long/longer'
b. lóhe	lohéaŋ	/lohe+aŋ/	'many/more'
c. hállasa	hallási	/hallas+i/	'suffer/make suffer'
d. rúppa	ruppái	/ruppa+i/	'face/confront'

Furthermore, all monomorphemic forms with antepenultimate stress end in V-*r/l/s*-V, where the two final vowels are identical. These forms have thus been analyzed as derived from stems ending in *r*,*l*, or *s* via epenthesis of a vowel which copies the quality of the preceding vowel (Mithun and Basri 1986, and for Makassarese, Aronoff, Arsyad, Basri, and Broselow 1987, McCarthy & Prince 1994.) Since Selayarese allows no complex onsets, and allows in coda position only velar nasal nd glottal stop (plus word-internally, the first half of a geminate or a nasal followed by a homorganic stop), vowel epenthesis makes it possible to syllabify stem-final *r*,*l*,*s*. (See section 2 for discussion of why only *r*,*l*,*s*, and not other illegal codas in loans, trigger epenthesis). The epenthetic vowel is apparently invisible for the purposes of stress, giving rise to the antepenultimate stress pattern. This pattern has been described by Alderete (to appear) as the result of a constraint HEAD-DEP, which

forbids the inclusion of epenthetic material in the main stress foot. Thus, while the normal stress pattern involves the building of a bisyllabic trochaic foot aligned with the right edge of the prosodic word (as in *lam{béraŋ}* 'longer', where curly brackets indicate foot boundaries), the foot may be shifted one syllable to the left to avoid including the epenthetic vowel in the main stress foot (as in *{lámbe}re̲* 'long', with the epenthetic vowel underlined).

Loanword stress provides interesting confirmation of the account of stress-epenthesis interactions sketched above. As expected, antepenultimate stress with final epenthetic vowels is seen in words that contain the final vowel in the Selayarese pronunciation, but not in the corresponding Bahasa Indonesia (BI) form. (Most borrowings in Selayarese come through Bahasa Indonesia, even where the original source is clearly another language).

(4) a. σσE: final epenthetic vowel outside stress foot

BI	Sel	Gloss
bótol	bótolo̲	'bottle'
árus	árusu̲	'current'
sénter	séntere̲	'flashlight'
kəlás	kálasa̲	'class'
bərás	bérasa̲	'rice'
kábal	kábala̲	'cable'
kíkir	kíkiri̲	'metal file'
kípas	kípasa̲	'fan'

b. σσσE: final epenthetic vowel outside stress foot

bələbás	balábasa̲	'ruler'

However, loanwords, unlike native vocabulary, motivate the postulation of epenthetic vowels in word-internal positions, as well as in final position. Interestingly, an epenthetic vowel in penultimate position is stressed:

(5) σEσ: penultimate epenthetic vowel inside stress foot

kártu	karátu	'card'
súrga	surúga	'heaven'
cə'rmin	sarámmeŋ	'mirror'
bákri	bakári	proper name
búrhan	burúhaŋ	proper name
rámli	ramáli	proper name

We might then be tempted to assume that final epenthetic vowels are always visible for stress, while internal epenthetic vowels are invisible. But the forms in (6), which contain both final and medial epenthetic vowels, have penultimate stress, requiring the final epenthetic vowel to be visible:

(6) σEσE: final epenthetic vowel inside stress foot

sólder	solodére	'weld'
kárcis	karatísi	'ticket'
térpal	tarapála	'tarpaulin'
tápsir	tapasére	'interpretation'

Closer inspection shows that this pattern is just what we would expect, given the generalization that incorporation of epenthetic material in the main stress foot is to be avoided where possible. With medial epenthesis, such avoidance is not an option, and so the normal pattern of a right-aligned foot emerges (Alderete, to appear, discusses a similar pattern, though with left-aligned feet, in the Papuan language Yimas). The following constraints will serve to derive the stress patterns seen above:

(7) Stress Constraints:

a. FT BIN(σ), FT TROC: Feet are bisyllabic and trochaic. These constraints are never violated (and therefore will not be illustrated in tableaux).

b. ALIGN HEAD-R: No foot may intervene between the most prominent foot and the right edge of a prosodic word.

c. PARSE-2: Two adjacent syllables cannot be left unfooted.

d. HEAD-DEP: The head foot of a word may not contain an epenthetic vowel (Alderete, to appear prohibits any epenthetic material in head foot).

e. ALIGN PWD-R : The right edge of a prosodic word must be aligned with the right edge of a foot.

These constraints will give us the invisibility of a single epenthetic vowel in final position, and the visibility of a single epenthetic vowel in medial position. We first consider trisyllabic forms, in which Head-Dep and Align PWd are the deciding constraints. Because a high ranking constraint requires all feet to be bisyllabic, trisyllabic forms may contain only one stress foot. It is possible to build a bisyllabic foot without incorporating a final epenthetic vowel, as in (8):

(8) /botol/ 'bottle'	ALIGN HEAD	PARSE-2	HEAD-DEP	ALIGN PWD
a. bo {tólo}			*!	
☞b. {bóto}lo				*

But there is no way to avoid incorporating the medial vowel in (9) in a bisyllabic foot, and therefore, since HEAD-DEP cannot be satisfied, the optimal candidate (9a) is the one that satisfies the lower-ranking ALIGN PWD-R:

(9) /kartu/ 'card'	ALIGN HEAD	PARSE-2	HEAD-DEP	ALIGN PWD
☞ a. ka {rátu}			*	
b. {kára}tu			*	*!

Forms longer than three syllables may contain more than one bisyllabic foot. For quadrisyllables with a final epenthetic vowel, three options are available for satisfying HEAD-DEP. Two of these violate the higher-ranked constraints; making the lefthand foot the head, as in (10a), violates ALIGN HEAD, while footing only the two leftmost syllables, as in (10b), violates PARSE-2. The candidate with antepenultimate stress (10c) wins, since it satisfies these constraints as well as HEAD-DEP, violating only the lowest ranked ALIGN PWD.

(10) /bələbas/ 'ruler'	ALIGN HEAD	PARSE-2	HEAD-DEP	ALIGN PWD
a. {bála} {basa}	*!			
b. {bála} basa		*!		*
☞c. ba {lába} sa				*
d. {bala}{bása}			*!	

In contrast, satisfaction of HEAD-DEP is impossible in (11), since incorporation of some epenthetic vowel into the head foot is unavoidable. Lower-ranked ALIGN PWD therefore ends up being decisive, choosing the form with penultimate stress. (See Broselow 1999 for the inadequacy of derivational approaches to these data.)

(11) /solder/ 'weld'	ALIGN HEAD	PARSE-2	HEAD-DEP	ALIGN PWD
a. {sólo} {dere}	*!		*	
b. {sólo}dere		*!	*	*
c. so {lóde} re			*	*!
☞d. {solo} {dére}			*	

We now consider both whether the rankings required for the loanwords are consistent with the native vocabulary, and whether the native language vocabulary determines a ranking for these constraints. We have seen that the evidence for epenthesis in native forms comes from anomalous stress, and from the disappearance of final vowels before vowel-initial suffixes. These patterns cannot provide evidence for stem-medial epenthesis, but there is one case in which epenthetic vowels at the ends of stems show up word-medially-- before possessive suffixes, which are the only consonant-initial suffixes to attach to stems within a prosodic word (Basri, Broselow, Finer, and Selkirk 97). In this case, the epenthetic vowel appears in penultimate position, and is stressed:

(12)	a. sáhala	profit
	b. sahalá?na	his/her/their profit
	c. sahalá?mu	your (familiar) profit

(For the appearance of glottal stop in the possessed forms, see Basri, in preparation). This stress pattern is derived by precisely the constraints and rankings assumed to account for stress in the borrowed forms; an epenthetic vowel in penultimate position cannot be left out of the head foot without violating high ranked constraints, so the choice falls to ALIGN PWD:

(13) /sahal+na/ '3 p's profit'	ALIGN HEAD	PARSE-2	HEAD-DEP	ALIGN PWD
a. {sáha}{la?na}	***!**			
b. {sáha} la?na		*!		*
c. sa {há la?} na			*	*!
☞d. {saha}{lá?na}			*	

3. Selayarese Coda: Segment Transformation

3.1. Segment Transparency vs. Segment Transformation

We saw above that epenthesis is a response to the illegality of *r,l,s* as Selayarese codas. Since the consonant set of Selayarese includes many more consonants than *r,l,s* and the legal codas velar nasal and glottal stop, why do we find evidence of epenthesis only after *r,l,s*–that is, why are there no native words like hypothetical *kálimi, kálutu* (from hypothetica inputs /kalim/, /kalut/)?

One answer to this question with respect to the related dialect Makassarese has been suggested by John McCarthy (McCarthy, to appear), who argues that epenthesis can take place only after 'transparent' consonants. What I will call the Segment Transparency Analysis relies on three assumptions: that epenthesis involves

sharing of vocalic features between the stem vowel and the epenthetic vowel; that all such feature sharing is strictly local (as argued in Gafos 1996), so that any intervening segments must also share the vocalic features; and that *r,l,s* are the only Selayarese consonants able to accept vocalic features. As we saw above, the epenthetic vowel in Selayarese (as in Makassarese) is a copy of the preceding stem vowel, as in *lámbere* 'long', *bótoro* 'gamble'. McCarthy's constraint rankings force epenthetic vowels to acquire their features from some input segment rather than by insertion of some new set of vocalic features:

(13) Feature Copy vs. Feature Insertion (McCarthy, to appear):
DEP (VPLACE)>>I-O NOSPREAD VPLACE

For input /lamber/, (14) chooses *lambere* over **lamberi*, for example. To rule out forms like hypothetical stems /kalim/ -> *kálimi*, /kalut/ -> *kálutu*, McCarthy assumes, following Gafos & Lombardi (in preparation), that coronal consonants are more likely to accept vocalic features than dorsal or labial consonants, and, following Ito, Mester, and Padgett (1995), that fricatives and sonorants are more likely to accept vocalic features than continuants. The constraints that permit *r,l,s* to acquire secondary vocalic place features, and therefore to allow vowel copy across them, are ranked below those that permit other consonant types to acquire vocalic features. Ranked between these two sets of constraints are those that provide an alternative means of dealing with unsyllabifiable codas, such as deletion of the consonant:

(15) Transparency of *r,l,s* vs. Other Consonants
a.*PLACE/LAB,DORS+ VPLACE >>MAX (C) >> *PLACE/CORONAL+VPLACE
b. NO V-STOP LINK, NO V-NASAL LINK >> MAX (C)>> NO V-FRICATIVE LINK, NO V-LIQUID LINK

For hypothetical inputs /kalim/, /kalut/, (15a) chooses *káli* over *kálimi*, while (15b) chooses *kálu* over *kálutu*. Because consonant deletion makes the input form opaque, such forms will presumably be reanalyzed as vowel-final.

The loanword data motivate an alternative analysis of why the only epenthetic stems in Selayarese end in *r,l,s*. I will argue that illegal coda segments are transformed into the "closest" legal coda, either glottal stop or velar nasal (where the notion of "closest" is defined by the rankings of language-specific constraints on featural identity). The Segment Transformation Analysis will allow us to account both for the absence of epenthetic roots ending in consonants other than *r,l,s* in the native language vocabulary, and for the transformation of loanwords, which is problematic for the Segment Transparency Analysis.

To see this, we consider consonant-final loans from Bahasa Indonesia, the principal donor to Selayarese, which permits a much wider range of codas, including but not limited to *r,l,s*:

(16) a. Selayarese consonants: p,t,k,ʔ,b,d,j,g,mb,nd,ɲj,ŋg,m,n,ɲ,ŋ,s,h,r,l
Selayarese word-final codas: ŋ,ʔ
b. BI word-final codas: p,t,k,b,d,g,m,n,ŋ,r,l,s

We have already seen that final *r,l,s* in borrowings from Bahasa Indonesia trigger epenthesis in Selayarese. All other BI final consonants are realized in borrowed words as one of the two acceptable final Selayarese consonants, with all stops realized as glottal stop, and all nasals realized as velar nasal:

(17)		BI	Sel	
	a.	atap	ataʔ	'roof'
		adab	adaʔ	'culture'
		aŋkat	aŋkaʔ	'lift'
		ahad	ahaʔ	'Sunday'
		sendok	sondoʔ	'spoon'
	b.	jarum	jaruŋ	'needle'
		cərmin	sarammeŋ	'mirror'
		baraŋ	baraŋ	'goods'

To account for these facts, we need a set of constraints that allow stops and nasals to be transformed to glottal stop and velar nasal, respectively, but do not provide this option for *r,l,s*. As a first approximation, we consider the constraints in (18). (18a) forbids deletion of consonants. (18b,c) define legal codas, prohibiting coronals and labials, as well as any obstruent, in coda position. (18d), mandating faithfulness to input continuancy and nasality, are ranked higher than faithfulness to other features, such as place (18e). Since transformation of *r,l,s* to glottal stop or velar nasal would constitute a violation of (18d), this constraint must outrank the constraints forbidding vowel epenthesis, favoring epenthesis of a vowel after final *r,l,s* over the option of transforming *r,l,s* into either glottal stop or velar nasal.

(18) a. MAX(C): Each consonant in the input must have an output correspondent (prevents deletion of consonants). This constraint is never violated.
b. *CODA(COR, LAB): Codas may not contain coronal or labial segments (prevents *r,l,s,p,b,t,d,c,j,m,n,ɲ* from surfacing in coda).
c. *CODA(OBS): Codas may not contain obstruents (prevents *p,b,t,d,c,j,k,g,s* from surfacing in coda).
d. IDENT (CONT) and IDENT (NAS): Input and output correspondents must have the same feature specifications for [cont] and [nas] (prevents *r,l,s* from being realized as output *ʔ,ŋ*).
e. Other IDENT constraints: Input and output correspondents must have the same feature specifications for all features other than [cont/nas].

To this point, the Segment Transformation Analysis and the Segment Transparency Analysis, while different in spirit, seem empirically indistinguishable. But when we consider loanwords with medial internal clusters, we will begin to see that the two analyses make different predictions. Recall that according to the Transparency Analysis, epenthesis is restricted to *r,l,s* because only these consonants accept vocalic features (due to low ranking of constraints prohibiting linking of vowel place to coronal continuants). Once we broaden our scope to include medial consonants, we find that epenthesis is indeed possible after consonants other than *r,l,s*:

(19)	BI	Sel		
	a. syamsuddin	samasúddiŋ	proper name	(*sansuddiŋ)
	b. syamsia	samasía	proper name	(*sansia)
	c. bakri	bakári	interpretation	(*ba?ri)

The internal codas in (19) could be rendered legal by loss of place or obstruency, since *ns* and *?r* are legal word-internal sequences (*ansulu?* 'get out', *?a?ra?a* 'I want'; word-internally, nasals must agree with a following consonant in place). Instead, however, the consonant is licensed by vowel epenthesis. Thus, epenthesis is the preferred strategy for dealing with illegal codas in medial position, but in final position epenthesis is possible only with *r,l,s*. We can account for this asymmetry by assuming the following constraint:

(20) ALIGN STEM-R: The right edge of the stem must be aligned with the right edge of a syllable (cf. McCarthy and Prince 1994).

ALIGNSTEM-R discourages epenthesis after a stem-final consonant, but is irrelevant for medial codas. This pattern results from ranking DEP (V), the constraint banning epenthesis, below all IDENT constraints, giving the ranking in (21):

(21) Final Selayarese Ranking:
Max(C) >> *CODA (COR/LAB/OBS), IDENT (CONT/NAS) >>
ALIGNSTEM-R >> Other IDENT >> DEP(V)

These rankings will have the desired effects of distinguishing *r,l,s* from 'transformable' segments (stops and nasals), and distinguishing final and medial positions. First consider forms containing a labial nasal in final position (22) and in medial position (23):

(22) /jarum/ 'needle'	*CODA (COR/LAB/OBS)	IDENT (CONT/NAS)	ALIGN STEM	OTHER IDENT	DEP(V)
a. jarum	*!				
☞b. jaruŋ				*	
c. jarumu			*!		*

(23) /syamsuddin/ proper name	*CODA (COR/LAB/OBS)	IDENT (CONT/NAS)	ALIGN STEM	OTHER IDENT	DEP(V)
a. samsu...	*!				
b. sansu...				*!	
☞c.samasu...					*

The ranking ALIGNSTEM-R>> IDENTPLACE favors transformation of labial nasal to velar nasal in final position. But with a medial nasal, where ALIGNSTEM-R is irrelevant, the ranking IDENTPLACE >> DEP(V) favors epenthesis over change of place. In contrast, both final and medial *r,l,s* trigger epenthesis, because neither can be transformed into a legal coda without violating identity constraints that outrank ALIGNSTEM-R and DEP(V):

(24) /botol/ 'bottle'	*CODA (COR/LAB/OBS)	IDENT (CONT/NAS)	ALIGN STEM	OTHER IDENT	DEP(V)
a. botol	*!				
b. botoʔ		*!			
☞c.botolo			*		*

(25) /surga/ 'heaven'					
a. surga	*!				
b. suʔga		*!			
☞c. suruga					*

To summarize the analysis to date, epenthesis is the generally preferred strategy, but ALIGNSTEM-R disfavors epenthesis in final position. Word-finally, epenthesis is the last resort, used only for those segments (*r,l,s*) for which no substitute matching the input in continuancy and nasality is available. It would be difficult for a Transparency Analysis to account for this positional asymmetry, since in the Transparency Analysis, epenthesis is blocked just when the intervening consonant cannot accept vocalic features. It is not clear why consonants in stem-final position should be less willing to accept vocalic features than those in stem-medial position.

The analysis developed above receives additional confimation from subminimal loans. All Selayarese words contain at least two syllables (an effect of the high ranking requirement that feet be bisyllabic), and monosyllabic borrowed words are augmented by the addition of an additional syllable. For borrowed words ending in *r* or *l*, we see the familiar copy vowel epenthesis (the epenthetic vowel in monosyllabic *s*-final BI loans is always high, a fact for which I have no explanation):

(26)	gol	gólo	'ball'
	pil	péle	'pill'
	per	pére	'metal spring'
	gas	gasi	'gas'

Borrowed monosyllables ending in nasals do not, however, take final epenthesis; rather, the final nasal is changed to velar nasal, and a copy of the stem vowel is inserted internally, with a glottal stop separating the two identical vowels:

(27)	bom	bóʔoŋ	'bomb'
	ban	báʔaŋ	'tire'
	seŋ	séʔeŋ	'corrugated iron used on roof'

At first glance, this looks like evidence for the Transparency Analysis; if epenthesis with vowel copy is possible across *r,l* but not across a nasal, the vowel cannot be inserted after a nasal. Presumably, glottal stop accepts vocalic features (consistent with the fact that vowel copy across glottal stop is widely attested), motivating the internal insertion of a copy vowel and a glottal stop. However, this analysis does not hold up when we consider BI monosyllables ending in a stop:

(28)	sop	sóʔoʔ	'kind of soup'
	cet	céʔeʔ	'paint'
	pak	pá ʔaʔ	'pack (of cigarettes, etc.)'

In these cases, as in the nasal-final forms, the final consonant is transformed to a legal Selayarese coda, and glottal stop and copy vowel are inserted internally, bringing the forms up to the bisyllabic minimum. This poses a problem for a Transparency

account: the Transparency Analysis provides no explanation of why /sop/ surfaces as *so*ʔ*o*ʔ, rather than **so*ʔ*o*, which satisfies both the bisyllabic minimality constraint and constraints on copy across transparent consonants.

The behavior of the subminimal forms is entirely consistent, however, with the Segment Transformation Analysis developed above. ALIGNSTEM-R requires the stem-final consonant to remain in syllable-final position. When the consonant can be transformed to a coda-legal substitute, the augmentation of the monosyllabic stem is accomplished by internal vowel epenthesis (and with addition of a glottal stop, which is generally inserted between identical vowels in Selayarese native vocabulary: *toa* 'old' + *aŋ* (comparative) => *toa*ʔ*aŋ* 'older'). Tableaux (29-31) illustrate the effect of our constraint system on forms ending in *l*, nasal, and stop; input forms correspond to output forms bearing the same subscript:

(29) /gol$_3$/ 'ball'	*CODA (COR/LAB /OBS)	IDENT (CONT /NAS)	ALIGN STEM-R	OTHER IDENT	DEP(V)
☞ a. golo			*		*
b. goʔol	*!				*
c. goʔoʔ$_3$		*!		*	*

(30) /bom$_3$/ 'bomb'	*CODA (COR/LAB /OBS)	IDENT (CONT /NAS)	ALIGN STEM	OTHER IDENT	DEP(V)
a. bomo			*!		*
b. boʔom	*!				*
☞c. boʔoŋ$_3$				*	*

(31) /sop$_3$/ 'kind of soup'					
a. sopo			*!		*
b. soʔop	*!				*
☞c. soʔoʔ$_3$				*	*
d. soʔ$_3$			*!	*	*

As (32) illustrates, a Transparency Analysis of these facts will fail: these constraints choose (32d), indicated by the black hand, while the unhappy-faced candidate (32c) is the actual output:

(32) /sop$_3$/ 'kind of soup'	CODA	NO V-STOP LINK	OTHER IDENT	DEP (C)
a. sopo		*!		
b. soʔop	*!			
☹ c. soʔoʔ$_3$			*	*!
☛ d. soʔ$_3$o			*	

And even augmented with ALIGNSTEM, the Transparency Analysis cannot account for the asymmetry of medial and final positions, wrongly choosing (33c) as optimal:

(33) /syamsuddiŋ/ proper name	CODA	ALIGN STEM	NO V-NASAL LINK	OTHER IDENT
a. samsu	*!			
☹ b. samasu			*!	
☛ c. sansu				*
(34). /jarum/ 'needle'				
a. jarum	*!			
b. jarumu		*!	*	
☞ c. jaruŋ				

Thus, the loanword data support an analysis in which segments of the donor language that are illegal in particular positions in Selayarese are transformed to the closest native language segment, where "closest" is defined by language-particular rankings of constraints on individual aspects of featural identity.

3.2. Constraint rankings

The analysis developed above accounts not only for the puzzling gap in the inventory of native language stems (that is, the absence of any of the numerous proscribed codas other than *r,l,s* in stem-final position), but also for the transformation of final consonants in loanwords. The question we now confront is whether the crucial rankings that allowed us to account for the loanword data are motivated by the data from the native language. This question points up one of the very interesting ways in which the study of loan phonology can potentially illuminate our understanding of the language faculty. Let us consider the situation in which, as in Selayarese, the transformation of loanwords is quite systematic. (This contrasts with the situation described by Ross (1996), who argues that variation in the pronunciation of loanwords in Tagalog is due to variation in the rankings of various constraints, because the native vocabulary of Tagalog underdetermines their rankings.) If we find speakers behaving in a way that is consistent only with a particular constraint ranking, it is possible that the rankings required to account for systematic transformation of loanwords are those of the initial, default-state grammar.

In Selayarese, at least some of the rankings needed to account for the loanword segment transformations are indeed determined by the native language data. Evidence for low ranking of IDENT (DORS) comes from the pervasive assimilation of nasals to following consonants:

(35)	gontiŋ	'scissors'
	gontinta	'your (honorific)/our (inclusive) scissors'
	gontimba	'our (exclusive) scissors'

Change of place in the nasal is clearly preferred to epenthesis of a vowel or deletion of the consonant as strategies for implementing requirements on codas (here, that nasal codas share place with a following consonant). The forms in (35) are consistent with the ranking IDENT(NAS/SON) >>ALIGNSTEM-R>>IDENT (PLACE) >>DEP (V), since the velar nasal's stem-final position makes it resistant to epenthesis. However, the native language data is not sufficient to fully motivate this particular ranking. The ranking is designed to account for the asymmetric behavior of illegal codas in medial and final position, and the native language presents no clear evidence for such asymmetry, since it presents no clear evidence for stem-internal epenthesis (recall that as we saw in section 2, once epenthesis has taken place stem-internally, no evidence remains to point to the status of the epenthetic vowel as different in any way from an underlying vowel). How, then, do speakers arrive at this ranking? Three possible explanations suggest themselves: that a more complete analysis of the language will turn up evidence for these rankings solely from native language data; that loanwords are pervasive enough in this speech community to count as primary evidence determining the shape of the grammar; or that these rankings are the default, and therefore should be found in the early grammars of children from various speech

communities. A choice among these alternatives must depend on fuller analysis of not only the phonology but also the sociolinguistics of this speech community.

Notes

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