

Markedness and Epenthesis: Evidence from Telugu and Polynesia

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I. Markedness and Possible Grammars

De Lacy and Kingston (forthcoming), building on claims of de Lacy (2006) propose a role for markedness in grammar, based on competence factors (de Lacy's c-markedness) rather than performance factors (such as cross-linguistic frequency, ease of articulation, etc.), a move which we applaud, in principle. However, even once phonologists agree that the domain for useful explorations of a possible role for markedness in grammars resides in the language faculty itself, the question of what precise claims for a role for markedness, if any, should be adopted remains open for discussion. In this paper we explore arguments regarding epenthesis offered up by de Lacy and Kingston (forthcoming), as well as in de Lacy's book-length treatment of markedness (de Lacy 2006), treating both vowel epenthesis and the epenthesis of consonants.

(1) De Lacy (2006:404):

Competence markedness vs. performance markedness

Markedness is part of grammatical competence. Markedness in Competence is distinct from (apparently similar) Performance-related phenomena.

(2) As de Lacy (2006) recognizes, the cleanest arguments for c-markedness come from absolute restrictions against certain generated structures. Arguments as to the 'favoring' of one structure over another face a much more difficult empirical and logical challenge.

(3) We turn today to an argument offered up by de Lacy and Kingston (forthcoming) whose structure we like, but whose content doesn't hold up to serious scrutiny. It would be interesting to know if there were coherent and well-grounded cases of this type.

(4) de Lacy (2006) and de Lacy and Kingston (forthcoming) offer an argument for substantive constraints on UG from the seeming absence of velar epenthesis in the attested languages of the world. We have no position as such on whether there is or is not velar epenthesis, but we do believe that there are reasons to be anxious about the claim.

II. Claimed Restrictions on Epenthesis: Some Reasons to Be Anxious

II.A. Telugu *u*-epenthesis is the epenthesis of [u]

(5) de Lacy (2006, 302):

Epenthetic [u] has also been reported in a number of Dravidian languages (e.g. Sinhala — Keer 1996:10). Other sources report that these languages actually have epenthetic [u], [ʊ], [ə], or [i] (e.g. Bright 1975:13; Kodava — Ebert 1996). Similarly, Bright (1975:13) reports most Dravidian epenthetic vowels to be [i], but also claims that the epenthetic vowel is [u] in dialects of Kannada and Telugu. One of the most-detailed phonological analyses of epenthesis in a Dravidian language is Mohanan's (1986) analysis of Malayalam. A ban on non-nasal coda consonants motivates epenthesis in this language. Mohanan shows that, contrary to previous claims, the epenthetic vowel is [ə], not [u]. [u] only ever appears due to particular allophonic restrictions. Further close analysis of Dravidian languages is clearly warranted.

(6) In the conclusion to the 'epenthetic vowel' discussion a few pages later (2006, 306), de Lacy summarizes:

Consequently, there are no epenthetic nasal vowels, as nasal vowels are more marked than oral vowels; similarly; there are no epenthetic round or back vowels, as front unround vowels have the least-marked colour.

This is in direct contradiction not only to his own summary of the Dravidian facts (quoted above), but also to both Bright's and Mohanan's analyses. Bright devotes a section of his paper to a confirmation of the widely-reported fact that Telugu has only [u]-epenthesis (on which more below). Mohanan's analysis entails that *some* epenthetic vowels in Malayalam are [u].

(7) Our preliminary investigation of 4 Telugu informants reveals no difference, either in auditory identification or in formant structure, between the non-epenthetic /u/ in open syllables,¹ as in *gudi* 'temple' or *hindu* 'hindu', and the epenthetic [u] of unassimilated loanwords, as in [kwizzu] 'quiz' or [pɛnnu] 'pen'.

II.B. *ŋ*-epenthesis is the epenthesis of [ŋ]

(8) The Jakobson anecdote.

(9) de Lacy and Kingston (forthcoming: 22):

Finally, Howe (2004) has recently discussed velar epenthesis and neutralization, particularly of 'ŋ'. He argues that putative 'ŋ's are truly dorsal because they have the same phonetic realization as a demonstrably dorsal [ŋ]. However... phonetic realization cannot be used as a diagnostic for the phonological specification of 'ŋ' as both phonologically glottal/placeless [N] and dorsal [ŋ] are realized as phonetic [ŋ]... A

¹There is laxing in closed syllables.

placeless nasal will necessarily be pronounced as a dorsal nasal (i.e. as velar [ŋ] or uvular [ɴ]) if it has complete oral closure because it is not possible to produce nasal air flow if the oral cavity is completely closed behind the uvula.

(10) Unfortunately, in a model such as that assumed by de Lacy and Kingston (forthcoming), an epenthetic segment is an *output-only* representation (it has no corresponding segment at the phonological level)—this for them is definitional for any ‘epenthetic’ segment. There is no issue as to its *phonological* properties, only as to its *phonetic* (output) properties.

(11) So the constraints against epenthetic velar nasals need to say that epenthetic [ŋ] isn’t really ‘ŋ’, and presumably Telugu epenthetic [u] isn’t really ‘u’. Awkward, has a vaguely circular feel about it, but obviously possible under some conceptions of the relationship between output representations and ‘bodily’ realization (not, though, under the more restrictive and obviously correct conception of Hale & Reiss 2008).

(12) Is there any stronger argument *for* the restrictions?

III. Diachronic Explanation and Synchronic Explanation

(13) The argument offered in de Lacy and Kingston involves diachronic developments in the Central Eastern Polynesian language family. It runs like this:

13a. There was a proto-language (Proto-Central Eastern Polynesian) with an epenthetic *[t]

13b. In one of the daughters of that proto-language (Hawaiian), *t > k

13c. In that daughter language, you *do not* get epenthetic [k]

13d. The reason why the expected development doesn’t happen: UG doesn’t allow velar epenthesis (c-markedness).

(14) So, we have (allegedly) a case where diachrony favors one resultant state ([k]-epenthesis), but synchrony (according to de Lacy and Kingston) another, and synchrony wins. As it always will and must, of course, given that the only grammars that can come into being diachronically are those humans can end up with in their minds.

(15) Two issues arise:

(15a) if the scenario in (13) actually took place, does it *demand* a UG-based explanation?

(15b) did the scenario in (13) actually take place?

(16) For space reasons, we will only address (15b) in detail here.

IV. The Maori Passive and its History

(17) Familiar Polynesian Problem (since Hale 1973), here using Maori data:²

'active'	'passive'	gloss
<i>ami</i>	<i>amitia</i>	'embrace'
<i>hopu</i>	<i>hopukia</i>	'catch'
<i>inu</i>	<i>inumia</i>	'drink'
<i>tohu</i>	<i>tohuria</i>	'point out'
<i>mau</i>	<i>mauria</i>	'carry'
<i>kimi</i>	<i>kimihia</i>	'seek'
<i>mao</i>	<i>maomia</i>	'put into'

(18) Famously, Hale (1973) argued that, although a phonological solution to the data is trivial,³ an 'inflection class' solution (root = *inu*, passive suffix = *-mia*, e.g.) is what the speakers have actually opted for.

(19) The clearest statement as to why he favors this solution involves the generalization of a default suffix *-tia*, which is harder to imagine in a view that takes the consonant as part of the root. In Hale (1991), in addition to citing evidence from loanwords, he gives the following reasons for believing that *-tia* is a 'default' suffix:

- 19a. "Nouns which are not normally listed in the sources with a verbal use take *-tia* when used as verbs in the passive..."
- 19b. "Postverbal adverbs and quantifiers take *-tia* in agreement with a governing verb [in the passive—*mrh*]..."
- 19c. "Some causatives form their passives in *-tia*, even where the simple base has another form..."
- 19d. "Homophonous verbs with 'related meanings' may differ in the passive, one member taking *-tia*..."

(20) In essence, some of these may be essentially *wug*-test results, indicating the productivity of *-tia* at the expense of all other options.

(21) For reasons we don't have time to discuss, but which aren't, in our view, particularly compelling, de Lacy (2003) and de Lacy and Kingston (forthcoming) adopt the 'underlying root-final consonant' analysis for Maori, with the extra wrinkle that, since *-tia* is the default (for the reasons given by Hale), they treat stems that take *-tia* as underlyingly vowel final and the [t] as an epenthetic hiatus-breaker.⁴

²As usual, the problem has been massively simplified to make it look like a relatively straightforward phonological vs. morphological issue is in play. Other forms of the passive suffix (*-a*, *-ina*, *-na*, *-ŋa*) have been excluded, for example. This won't disturb our immediate purposes.

³Roots ends in final consonants underlyingly, 'drink' thus being /inum/, the passive suffix is /-ia/, and there's a rule of final consonant deletion. Thus 'active' /inum/ → [inu], 'passive' /inum/+ia/ → [inumia].

⁴De Lacy (2003) invokes epenthesis only under certain prosodic conditions—again, the evidence does not in our view favor the analysis proposed there, but since the issue is orthogonal to our present concerns, we leave it to one side.

(22) If we accept these arguments, Maori has an epenthetic [t] in forms such as *amitia* ‘embrace’, which thus comes from /ami/ + /ia/.

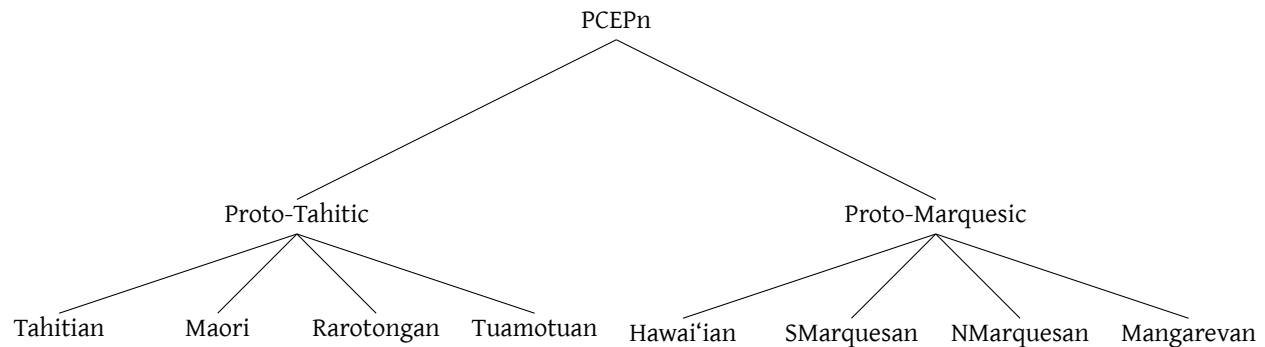
(23) Maori, unfortunately, is not a protolanguage (yet). To satisfy (13a), de Lacy and Kingston need the [t]-epenthesis to be true of some language ancestral to Hawaiian. Maori and Hawaiian have a long string of common ancestors. Did any of these (proto)languages have [t]-epenthesis in the passive?

(24) Regarding the somewhat distant ancestor, Proto-Polynesian, de Lacy and Kingston (forthcoming, 10) say: “All closely studied languages in the Polynesian family show allomorphy that is very similar to Māori’s, so it is likely that epenthesis occurs in all these cases.”

(25) While it isn’t clear which languages they are trying to exclude with their “[a]ll closely studied”, the claim is on the face of it false. Rapanui, for which we have an extensive modern grammar (du Feu 1995), has no trace of the so-called *-Cia* suffix. In West Futuna-Aniwa “-a alone is the productive form” of this suffix (Dougherty 1983:102), making its allomorphy quite unlike that of Maori. Some daughters have only frozen reflexes. And outside of Eastern Polynesia, the status of the suffix as a unified element (vs. a complex of *-Ci* and *-a*) is open to debate.

(26) How about Proto-Central Eastern Polynesian, a much more recent common ancestor of Hawaiian and Maori? Regarding this language, they say:

Proto-Central Eastern Polynesian (PCE)—the ancestor of Maori, Hawai‘ian, and Tahitian—had *p, *t, *k and no *ʔ. Consequently, PCE had a Māori-like situation: it had the passive and gerund, and very likely epenthesis of [t].



(27) In all of the arguments that *-tia* is the Maori default, neither Hale nor de Lacy has ever argued that you can determine that fact from a simple examination of the segment inventory of the language. Hale (1973, 1991) cites several arguments, some of them given above; de Lacy (2003) presents a detailed consideration of the prosodic structure of roots and how that relates to suffix allomorphy. The ‘very likely’ in (26) is simply wishful thinking at this juncture. Of course, wishful thinking can be true, in the end. So, did Proto-Central Eastern Polynesian have [t]-epenthesis in the passive?

(28) Since it is by no means clear that even Maori really has [t]-epenthesis, I will approach this question somewhat indirectly. A key element of the idea that Maori has [t]-epenthesis is that the default surface form of a passive verb ends in [-tia]. Since all words (and presumably some roots)

are vowel-final, if we assume /-ia/ as the basic form of the passive suffix, and [t]-epenthesis, it would not be surprising that [-tia] so strongly dominates.

(29) In addition, as noted above, Hale (1973, 1991) has argued that [-tia] is what shows up when you take an English verbal loanword, or use a Maori noun exceptionally as a verb, and passivize the form.⁵

(30) Unfortunately, it is not possible to do meaningful statistics at this juncture of Proto-Central Eastern Polynesian passive forms. This is because there has clearly been a great deal of leveling of the passive endings *after* the break-up of PCEPn. E.g., the table below shows, for each Hawai‘ian word which occurs with the passive suffix *-lia*, the Maori cognates we have identified (after the fully productive =?ia clitic and the ending *-hia*, this is the most common ending in Hawai‘ian, with 27 roots taking it in all):

HAW		MAO		RAR		TUA		gloss
<i>au</i>	<i>-lia</i>	—	—	<i>au</i>	—	<i>au</i>	—	‘flow, current’
‘ <i>au</i>	-lia	<i>kau</i>	-ria	<i>kau</i>	—	<i>kau</i>	-ria, -a	‘swim, travel by sea’
<i>hiki‘i</i>	-lia	<i>whitiki</i>	-ria, -tia	‘ <i>itiki</i>	<i>-‘ia, -a, -na</i>	<i>hītiki</i>	—	‘tie, bind’
<i>ka‘a</i>	<i>-lia</i>	<i>taka</i>	<i>-ia, -ngia</i>	—	—	<i>taka</i>	—	‘twist; prepare food’
<i>kāmau</i>	-lia	<i>tāmau</i>	<i>-tia</i>	<i>tāmau</i>	<i>-‘ia, -a</i>	<i>mau</i>	-ria, -hia	‘persevere, be devoted to’
<i>kau</i>	-lia	<i>tau</i>	-ria	<i>tau</i>	-ria	<i>tau</i>	-ria, -hia	‘hang on, land on’
<i>kō</i>	<i>-lia</i>	<i>tō</i>	<i>-ia</i>	<i>tō</i>	<i>-‘ia, -a</i>	<i>tō</i>	<i>-a</i>	‘drag, draw’ (PPN *toho)
<i>kū</i>	-lia	<i>tū</i>	-ria, -tia	<i>tū</i>	—	<i>tū</i>	-ria	‘stand, stop’
<i>ku‘u</i>	<i>-lia</i>	<i>tuku</i>	<i>-na, -a</i>	<i>tuku</i>	<i>-ia, -a, -na</i>	<i>tuku</i>	<i>-a, -hia</i>	‘release (esp. a net)’
<i>maka‘u</i>	<i>-lia, -hia, -a</i>	<i>mataku</i>	—	<i>mataku</i>	-‘ia	<i>mataku</i>	—	‘fear’
<i>mana‘o</i>	<i>-lia</i>	<i>manako</i>	<i>-hia, -tia</i>	<i>manako</i>	<i>-‘ia</i>	<i>manako</i>	—	‘think of, desire’
<i>moku</i>	-hia, -lia	<i>motu</i>	-hia, -kia	<i>motu</i>	<i>-kia</i>	<i>motu</i>	—	‘cut, sever’
<i>nānā</i>	<i>-lia</i>	—	—	<i>nānā</i>	—	<i>nānā</i>	—	‘observe’
<i>nau</i>	<i>-lia</i>	<i>ngau</i>	<i>-ngia, -a</i>	<i>ngau</i>	<i>-‘ia, -a</i>	<i>ŋau</i>	—	‘chew, masticate’
<i>nu‘a</i>	<i>-lia</i>	<i>nuka?</i>	<i>-ia</i>	—	—	<i>nuka</i>	—	‘pile up’
<i>paka</i>	<i>-lia</i>	<i>pātā</i>	<i>-kia</i>	—	—	—	—	‘strain, prepare food’
<i>pau</i>	<i>-lia</i>	<i>pau</i>	—	<i>pau</i>	—	<i>pau</i>	—	‘finish(ed)’
<i>pō</i>	<i>-lia</i>	<i>pō</i>	<i>-ngia</i>	<i>pō</i>	—	<i>pō</i>	—	‘get dark’
<i>puku</i>	<i>-lia, -a</i>	<i>putu</i>	-a	<i>putu</i>	<i>-‘ia, -a</i>	<i>putu</i>	-a	‘contract, lie in a heap’

(31) We also cannot really ask what a Proto-Central Eastern Polynesian speaker would have done with an English loanword, or with the nonce usage of one of their own nouns as a passive verb.

(32) There is one argument offered in Hale (1991) which actually might be persuasable, and is, in any event, of significant interest in its own right. As noted in (19b) above, Maori requires that postverbal manner adverbs (and a small number of other modifying elements) “agree” with a passive verb in showing passive morphology—all such adverbs must show up as [-tia]. Since

⁵The English loanword data does not look particularly good for an analysis which takes the [t] of the ending [-tia] as a hiatus-removing epenthetic consonant. For example, Eliasson (1989) presents nonce-creations by Maori speakers of the form *help-tia* and *changed-ngia* (in some Maori dialects the ‘default’ passive suffix is *-ngia*), with unasimilated (in phonological form) first elements. Since neither of the English verbs is vowel final, the [t] (or, in the other dialect, [ŋ]) cannot be removing a hiatus.

manner adverbs represent an open class of lexical items ('in a tired manner', 'in a French manner', etc.), this [-tia] clearly represents a 'default'.

(33) Post-adverbial passive morphology is broadly attested in Eastern Polynesian, though in various forms, so we give some examples.

(34) Maori:

kite-a rawa-tia ake rāua i runga i te maunga
see-PASS intens-PASS up IIldu at top at the mountain
'They were finally seen on the mountain.' (Bauer 1997:487)

(35) Tahitian:

e tāpū 'āfaro roa=hia te 'ahu
PRS cut straight very=PASS the cloth
'the cloth has been cut very straight'

'ua 'ite-a pāpū roa=hia e au
PERF see-PASS clearly very=PASS by me
'(it) was seen very clearly by me'

(36) Hawai'ian:

ua 'ā-pono wale 'ia ke kānāwai
PERF approve unnecessarily PASS the law
'The law was approved unnecessarily.' (Elbert and Pukui 1979: 83)

(37) Mangarevan:

ku muani tehito hia te vai te
PAST prepare already PASS the water tea
'the tea is already prepared' (Janeau 1906: 203)

(38) Let us return to the *form* of the passive suffix, and whether it involved [t]-epenthesis. It will be useful to bear in mind the consonant correspondences of PCEPn (note PPn *ʔ>Ø and *h>Ø)⁶

⁶A slash A/B indicates a conditioned development, a tilde (A ~ B) indicates variable reflexes due to language contact.

PPn PCEPn	*p	*t	*k	*f	*w	(*s) *h	*m	*n	*ŋ	(*l/*r) *r	passive clitic ???
Tahitian	p	t	ʔ	f ~ h	v	h	m	n	ʔ	r	=hia (< *-h/fia)
Maori	p	t	k	m/h	w	h	m	n	ŋ	r	=tia (< *-tia)
Maori (dial.)											=ŋia (< *-ŋia)
Rarotongan	p	t	k	ʔ	v	ʔ	m	n	ŋ	r	=ʔia (< *-h/fia)
Tuamotuan	p	t	k	f ~ h	v	h	m	n	ŋ	r	=hia ^{??} (< *-h/fia)
Hawai'ian	p	k	ʔ	h	w	h	m	n	n	l	=ʔia (< *-kia)
S. Marquesan	p	t	ʔ	f	v	h	m	n	ŋk ~ k	ʔ	=tia (< *-tia)
N. Marquesan	p	t	k ~ ʔ	h	v	h	m	n	n	r ~ ʔ	=ʔia (< *-k/ria)
Mangarevan	p	t	k	h	v	h	m	n	ŋ	r	=hia (< *-h/fia)

(39) Hawai'ian is the only language in this branch of the Polynesian language family to show the change of PCEPn *t to /k/. As you will recall, since de Lacy and Kingston believe that PCEPn 'very likely' had epenthetic [t] in this morphological context, the fact that Hawai'ian has a 'default' suffix *-ʔia* (which it does) is the key to their argument.

(40) There is no reason to doubt that Hawai'ian *ʔia* is the default 'passive' suffix in Hawai'ian. de Lacy and Kingston take this, without comment, as evidence that Hawai'ian has [ʔ]-epenthesis. This does not follow, of course.

(41) We will not be able to investigate the issue of whether Hawai'ian does in fact have epenthesis here, but let us, once again being as generous as possible, assume that if a language has an element used like Maori 'default' *-tia*, e.g., in its (productive) ability to occur after adverbials (rather than directly affixed to the verb) and in loanwords, it is at least a candidate for 'epenthetic' status. Hawai'ian satisfies this (exceedingly weak) condition. How about the rest of the CEPn languages?

(42) For the Tuamotuan dialects, comprehensive analysis is not possible from the available data. Documentation is sorely needed, but could be a challenge (Kuki 1970: 8):

...reaching some of the atolls is still extremely dangerous. A linguist would most likely be able to visit 20 out of some 80 atolls, but his ship might be wrecked on the reef near the 21st atoll. The best qualified investigator for this task would be a combination of competent linguist and Johnny Weismuller who can fight sharks and rough seas, and live on fish and coconut water. [Footnote inserted at this point: According to Jerome Tsong, a Berkeley-educated Chinese friend in Tahiti, a graduate student in linguistics from a Midwestern U.S. university went to a central atoll some five years ago and nobody has seen or heard from him since.]

(43) We do not have reliable data of the most desirable type for each of the CEPn languages, but there is some relevant data. It looks like this:

- Marquesic
 - Hawai'ian: 'default' *ʔia*, can occur separated from verb and on loanwords, *t>k

- North Marquesan: ‘default’ *?ia* (Cablitz 2006: 126-8), can occur separated from verb and on loanwords (Cablitz 2006: 205), **no *t>k**
- South Marquesan: ‘default’ *tia* (or *-a?*), can occur separated from verb (Dordillon 1857: 50), **no *t>k**
- Mangarevan: ‘default’ *hia* (Janeau 1908: 61f.), can occur separated from verb, **no *t>k**
- Tahitic
 - Tahitian: ‘default’ (and arguably sole form) *hia*, occurs separated from verb and on loanwords, **no *t>k**
 - Maori: see discussion in main body of text
 - Rarotongan: ‘default’ *-?ia*, can occur separated from verb and on loanwords (see, e.g., <http://www.cook-islands-maori-dictionary.org/tag/•passive-clitic>), **no *t>k**
 - Tuamotuan: probably *-hia*, but the facts are simply too unclear at this point (too many languages are being covered by this term, there’s been a great deal of Tahitian influence, etc.)

(44) It would be exceedingly rash to reconstruct [t]-epenthesis on the basis of this distribution.

(45) In addition to Hawai‘ian, North Marquesan and Rarotongan show ‘default’ *-?ia* (note that both branches of the family are thus represented), but neither shows **t>k*.

(46) Thus, even if one granted [t]-epenthesis for Proto-Central Eastern Polynesian, the fact that Hawaiian fails to preserve a reflex of that [t] as its default passive marker is of no more obvious significance than the fact that North Marquesan, Mangarevan, Tahitian, Rarotongan, or Tuamotuan fail to do so. We need stories for all of these languages: one needs to show that the correct account of Hawai‘ian *-?ia* doesn’t follow from that same account—that the much more powerful device of a UG-based explanation is needed.

V. Conclusions

- The evidence for [u]-epenthesis (and back vowel epenthesis generally) is robust and clear (cf. also Kisko 2010, Kisko and Reiss 2003). de Lacy’s hesitation in this regard, as well as his unhesitating denial of the existence of back vowel epenthesis a few pages later, are ungrounded.
- Similarly, the arguments against η -epenthesis violate the spirit of OT and, more importantly, undermine the pursuit of phonological UG.
- The facts of the history of Hawai‘ian do not support a scenario with sudden emergence of epenthetic η where diachronically [k]-epenthesis was expected, contrary to de Lacy and Kingston (forthcoming).

- We agree that UG constrains possible human phonological grammars (as is amply demonstrated in extensive previous work by us, and us and Reiss). In the present case, de Lacy and Kingston's conclusion that "the phonological component is unable to generate a grammar" that show back vowel or [k] epenthesis is strongly contraindicated by the available empirical evidence.

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