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Vowel Epenthesis in Malay

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ABSTRAK

This paper re-examines some of the analyses that have been proposed in the literature which attempt to account for the rule of vowel epenthesis in Malay. Previous analyses either the linear or the non-linear of template model fail to offer an adequate explanation to the phenomenon. As an alternative solution, we propose an analysis based on the theory of syllable and rule-driven syllabification. In the present study, vowel epenthesis is analysed as the result of constraint on syllabification. A segment which cannot be syllabified is called a "stray" and it has to be dealt either by stray deletion or stray epenthesis. In the case of Malay, epenthesis rule is chosen as an alternative strategy for dealing with this unsyllabified segment. The current proposal seems to provide a better explanation to the issue.

ABSTRACT

Kertas ini meneliti semula analisis fonologi yang cuba menangani masalah rumus epentesis vokal dalam bahasa Melayu seperti yang telah dikemukakan dalam beberapa kajian lampau. Analisis yang diutarakan sebelum ini sama ada model linear atau pun non-linear gagal memberikan satu penjelasan yang berpada tentang gejala ini. Sebagai satu saranan penyelesaian, kami mengutarakan satu analisis yang berdasarkan teori suku kata dan penyukuan pacuan rumus. Dalam kajian ini, epentesis vokal dianalisis sebagai hasil daripada kekangan penyukuan. Segmen yang tidak boleh disukukatakan dikenali sebagai "stray" dan ia perlu ditangani sama ada secara pengguguran atau epentesis. Dalam kes bahasa Melayu, rumus epentesis telah dipilih sebagai satu strategi untuk mengatasi masalah segmen tanpa suku kata ini. Analisis baru yang disarankan di sini ternyata dapat memberikan suatu penejelasan yang lebih baik dalam menangani isu ini.

INTRODUCTION

In their previous descriptions on some aspects of Malay phonology, Yeoh (1988) and Teoh (1988) make a claim that whenever a nasal prefix / mə́N-/ is attached to monosyllabic stems, vowel epenthesis rule always

applies. This generalization is obviously erroneous because not all monosyllabic stems will undergo this operation. In this paper we will re-examine the analyses that have been suggested by Yeoh (1988) and Teoh (1988) and at the same time we propose a new analysis based on the theory of syllable and syllabification-by-rule model in attempting to account for this phonological phenomenon.

VOWEL EPENTHESIS IN MALAY

Before we review and theoretically evaluate the descriptions proposed in the previous studies, we begin our analysis by examining the data listed in (1) and try to identify and summarize the phonological behaviour of the epenthesis rule.

1.	Stem	Active	Passive	Intransitive
(A)	baca 'to read'	mɔ̃mbaca	dibaca	bɔ̃rbaca
	dakap 'to hug'	mɔ̃ndakap	didakap	bɔ̃rdakap
	gali 'to dig'	mɔ̃ŋngali	digali	bɔ̃rgali
	cari 'to search'	mɔ̃ñcari	dicari	bɔ̃rcari
	jaga 'guard'	mɔ̃ñjaga	dijaga	bɔ̃rjaga
(B)	pandu 'to drive'	mɔ̃mandu	dipandu	bɔ̃rpandu
	tahan 'to stop'	mɔ̃nahan	ditahan	bɔ̃tahan
	kumpul 'to collect'	mɔ̃ŋnumpul	dikumpul	bɔ̃rkumpul
	sapu 'to sweap'	mɔ̃ñapu	disapu	bɔ̃rsapu
(C)	lukis 'to draw'	mɔ̃lukis	dilukis	bɔ̃rlukis
	rasa 'to taste'	mɔ̃rasa	dirasa	bɔ̃rasa
	minta 'to request	mɔ̃minta	diminta	bɔ̃rminta
	nilai 'to evaluate'	mɔ̃nilai	dinilai	bɔ̃rnilai
	ñala 'to light'	mɔ̃ñalakan[1]	diñalakan	bɔ̃rñala
	ŋɔ̃ari 'scary'	mɔ̃ŋɔ̃rikan	diŋɔ̃rikan	–
	warna 'colour'	mɔ̃warnakan	diwarnakan	bɔ̃rwarna
	yakin 'confident'	mɔ̃yakinkan	diyakinkan	–
(D)	hantar 'to send'	mɔ̃ŋhantar	dihantar	bɔ̃rhantar
	aŋkat 'to carry'	mɔ̃ŋaŋkat diangkat		bɔ̃raŋkat
	ikut 'to follow'	mɔ̃ŋikut diikuti		bɔ̃rikut
	ulaŋ 'to repeat'	mɔ̃ŋulang diulang		bɔ̃rulaŋ
	olah 'to make'	mɔ̃ŋolah diolah		bɔ̃ rolah
	edar 'to distribute'	mɔ̃ŋedar diedar		bɔ̃ redar

(E)	pam 'to pumpu'	mɔ̃ŋɔ̃pam	dipam	bɔ̃rpam
	pin 'to pin'	mɔ̃ŋɔ̃pin	dipin	bɔ̃rpin
	pos 'to pos'	mɔ̃ŋɔ̃pos	dipos	bɔ̃rpos
	bin 'son of'	mɔ̃ŋɔ̃binkan @mɔ̃mbinkan	dibinkan	bɔ̃rbin
	bom 'to bomb'	mɔ̃ŋɔ̃bom	dibom	bɔ̃rbom
	tin 'tin'	mɔ̃ŋɔ̃tin	ditin	bɔ̃rtin
	tus 'to dry'	mɔ̃ŋɔ̃tuskan @mɔ̃ntuskan	dituskan	bɔ̃rtus
	dim 'dim'	mɔ̃ŋɔ̃dimkan @ mɔ̃ndimkan	didimkan	bɔ̃rdim
	cap 'chop'	mɔ̃ŋɔ̃cap	dicap	bɔ̃rcap
	cat 'to paint'	mɔ̃ŋɔ̃cat @mɔ̃ñcat	dicat	bɔ̃rcat
	cam 'to indentify'	mɔ̃ŋɔ̃cam	dicam	bɔ̃rcam
	cas 'charge'	mɔ̃ŋɔ̃cas @mɔ̃ñcas	dicas	bɔ̃rcas
	jel 'to jail'	mɔ̃ŋɔ̃jel @ mɔ̃ñjel	dijel	bɔ̃rjel
	sah 'to confirm'	mɔ̃ŋɔ̃sahkan	disahkan	bɔ̃rsah
	zip 'to zip'	mɔ̃ŋɔ̃zip @mɔ̃nzip	dizip	bɔ̃rzip
	šor 'to suggest'	mɔ̃ŋɔ̃šorkan	dišorkan	–
	šak 'doubt'	mɔ̃ŋɔ̃šaki	dišaki	bɔ̃ršak
	mop 'to mop'	mɔ̃ŋɔ̃mop	dimop	bɔ̃rmop
	ñah 'get out'	mɔ̃ŋɔ̃ñahkan	diñahkan	–
	lap 'to wipe'	mɔ̃ŋɔ̃lap	dilap	bɔ̃rlap
	ram 'to lay'	mɔ̃ŋɔ̃ram	diram	bɔ̃ram
	wap 'vapour'	mɔ̃ŋɔ̃wap	diwap	bɔ̃rwap
	ya 'yes'	mɔ̃ŋɔ̃yakan	diyakan	bɔ̃rya
(F)	kod 'code'	mɔ̃ŋkod	dikod	bɔ̃rkod
	gah 'well known'	mɔ̃ŋgahkan	digahkan	bɔ̃rgah
	goŋ'a musical	mɔ̃ŋgoŋkan instrument'	digoŋkan	bɔ̃rgoŋ
	gam 'gum'	mɔ̃ŋgam	digam	bɔ̃rgam
	xas 'special'	mɔ̃ŋxaskan	dixaskan	bɔ̃rxas
	had 'to limit'	mɔ̃ŋhadkan	dihadkan	bɔ̃rhad
	hal 'incident'	mɔ̃ŋhalkan	dihalkan	bɔ̃rhal
	bak 'authority'	mɔ̃ŋhakkan	dihakkan	bɔ̃rhak
	hos 'host'	mɔ̃ŋhoskan	dihoskan	bɔ̃rhos
	hon 'horn'	mɔ̃ŋhonkan	dihonkan	bɔ̃rhon

Based on the given data, there are three significant aspects of morpho-phonological information that condition the application of epenthesis rule which can be summarized as follows. First, the rule only applies to the active not the passive or the intransitive derived forms. Thus it basically affects the nasal prefix /mə/, but not the prefixes /bəp/ and /di/. Second, the stems must be monosyllabic. Stems comprise of two (or more) syllables, generally undergo three different kinds of phonological rules, which are determined by the initial segments of the stems. The rules are (i) nasal assimilation rule (1A), (ii) nasal substitution rule (1B), and (iii) nasal deletion rule (1C). Third, the initial consonants of the monosyllabic stems must be non-velar segments, such as /p, b, t, d, c, j, s, z, š, m, ñ, l, r, y, w/ (1E). On the contrary, the rule never applies to those begin with /k, g, x, h/ (1F).

Among all the informations given, the third condition has always been overlooked by the earlier studies. Due to that shortcoming, they erroneously make an uncorrect prediction and generalization about the rule. As a result, the earlier studies fail to provide an analysis that satisfies the criteria of descriptive and explanatory adequacy. An adequate analysis is one which can offer an explanation why the epenthesis rule is so restricted only to the prefix /mə/, and the stem must be monosyllabic plus its initial segments must be non-velar.

PREVIOUS STUDIES

Generally there are two types of analyses that have been proposed in the previous studies, namely a linear analysis and a non-linear analysis. We will discuss both analyses respectively, and at the same time we will make some comments especially on the theoretical aspects of the analyses.

THE LINEAR ANALYSIS

In his brief article about the active prefix marker in Malay, Yeoh (1988) postulates its basic underlying form as /məŋ/. According to Yeoh, this representation is more appropriate because it corresponds with the basic criteria proposed in the standard theory such as, economy, simplicity, predictability and distribution. With regard to the rule of schwa epenthesis in Malay, Yeoh (1988:140) has formulated it formally as follows.

$$2.\quad \varnothing \rightarrow \begin{bmatrix} V \\ +\text{mid} \\ -\text{low} \end{bmatrix} / \begin{bmatrix} C \\ +\text{nasal} \\ -\text{anterior} \\ -\text{coronal} \end{bmatrix} + \_\_ + \text{CVC\#}$$

This rule states that the vowel schwa is inserted between the velar nasal /ŋ/ and the monosyllabic root. In term of rule application, this rule must precede the nasal assimilation rule and the nasal deletion rule in bleeding order relationship in the derivation. In the linear analysis of generative phonology, phonological rules of a language are apllied in sequence. The choice of what sequence to apply the rules is not free, and it is determined by that particular language.

3. Correct order

Underlying representation	/#mə́ŋ + pam#/	/#mə́ŋ + lap#/
Epenthesis rule	mə́ŋə́pam	mə́ŋə́lap
Nasal Assimilation rule	–	–
Nasal deletion rule	–	–
Surface representation	[mə́ŋə́pam]	[mə́ŋə́lap]

4. Incorrect order

Underlying representation	/# mə́ŋ + pam#/	/#mə́ŋ + lap#/
Nasal Assimilation rule	mə́mpam	–
Nasal deletion rule	–	mə́lap
Epenthesis rule	mə́mə́pam	–
Surface representation	*[mə́mə́pam]	*[mə́lap]

Based on the structural description given in rule (2), it seems that Yeoh is making a generalization that all monosyllabic stems that are prefixed with /mə́ŋ/ must undergo the schwa epenthesis rule. This statement of course is not correct. If we return to data (1), we will see that epenthesis rule only apllies in (1E), but not in (1F). This means Yeoh's rule can only handle (1E), but fails to account for (1F). Obviously, Yeoh's epenthesis rule is an overgeneralised rule.

In his analysis Yeoh also fails to give an explanation why the epenthesis rule only applies to monosyllabic stems that are attached to the prefix /mə́ŋ/, but not to prefixes /bə́ρ/ and /di/. In sum, Yeoh's analysis about the epenthesis rule in Malay is descriptively and explanatorily inadequate.

THE NON-LINEAR ANALYSIS

In accordance with the development of various non-linear analyses in phonology, an attempt to account for this phenomenon in a different perspective has been proposed by Teoh (1988) who adopts a non-linear model of CV phonology. Teoh (1988:163) claims that the motivation of applying epenthesis rule to monosyllabic stems is an attempt on the part of the grammar towards remaking them disyllabic. This assumption is

supported by the fact that the existence of monosyllabic stems in Malay are very few, and most of them are borrowed words. Since monosyllabic stems are so limited in number as relatively compared to the disyllabic stems, there is strong evidence to suggest that the basic form of Malay's stems are inherently disyllabic. With in the framework of CV phonology, the template for a monosyllabic stem in Malay can be postulated as CVCVC, and its phonological representation can be represented as follows:

5. Skeletal Tier C V C V C

   Segmental Tier p a m

When this monosyllabic stem is prefixed with the active prefix marker, then the resulting representation will be as in (6) below.

6. Skeletal Tier C V C C V C V C

   Segmental Tier m ð ŋ p a m

How this input generates a form like [mðŋðpam], is illustrated by Teoh (1988:163) as in the following derivation.

7. (a) Underlying Representation

C V C C V C V C →

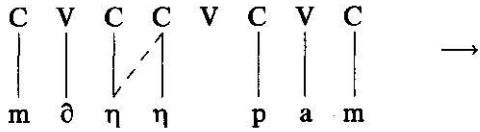
m ð ŋ p a m

(b) Mapping right to left

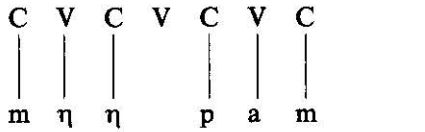
C V C C V C V C →

m ð ŋ p a m

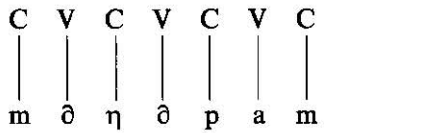
(c) Spreading



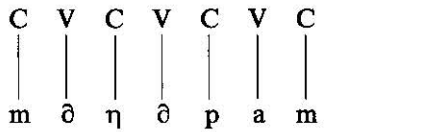
(d) Degemination



(e) Default



(f) Phonetic Representation



Teoh (1988:164) assumes that the active prefix /məŋ/ is already hooked up with its respective CVC skeletal underlyingly. The remainder of the monosyllabic verb stem then hooks up unidirectionally from right to left leaving the remaining CV slots of the template. By the WFC, the empty C slot is then filled with the velar nasal /ŋ/ through spreading. Since Malay does not allow geminates, then there is delinking and presumably stray erasure. A default rule then fills the empty V slot with an epenthetic schwa, and finally we have the surface form [məŋəpam].

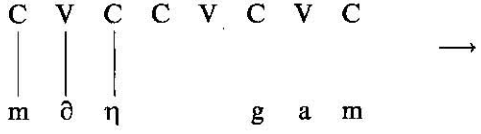
In comparing the solution proposed by Yeoh (1988) and Teoh (1988), theoretically the latter offers a better analysis. By having a template solution, we do not need an extrinsic rule ordering, and in fact the phonological constraints can control rule application effectively. Based on Teoh's phonological representation, it can be predicted and explained why the nasal segmen /ŋ/ does not assimilate with the following obstruent /p/. Since both segments are separated by empty slots

CV, nasal assimilation rule cannot apply because its structural description is not met.

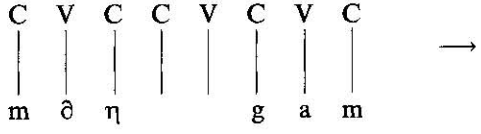
In any case, if nasal assimilation rule applies, then automatically the epenthesis rule can never operate. In Teoh's analysis, assimilation is seen as autosegmental spreading, and even partial assimilation to place feature of articulation creates partly linked structure. Therefore, the epenthesis rule cannot apply because it will result in a crossing of association lines, and this again violates the universal convention of WFC. This indeed can account for the fact that there are no such forms as *[mə̀mə̀bom], *[mə̀mə̀pam] and *[mə̀nə̀sah], but only [mə̀ŋə̀bom], [mə̀ŋə̀pam] and [mə̀ŋə̀sah].

With such theoretical explanations, undoubtedly Teoh's analysis is more adequate as compared to Yeoh's. However, if we check the data given in (1), obviously the template solution can only handle (1E). The same analysis cannot be applied to (1F) because it will generate incorrect derived forms. By having the same derivation as in (7), when the nasal active marker /mə̀ŋ/ is prefixed to a monosyllabic stem /gam/, the derivation will produce incorrect surface form *[mə̀ŋə̀gam], as can be seen in (8).

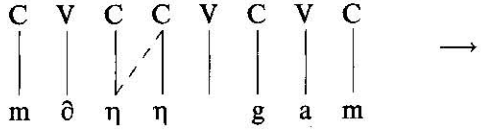
8. (a) Underlying Representation



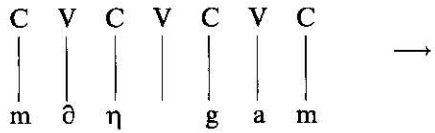
(b) Mapping right to left



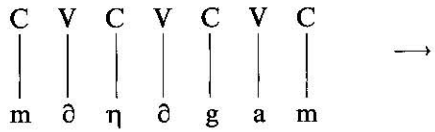
(c) Spreading



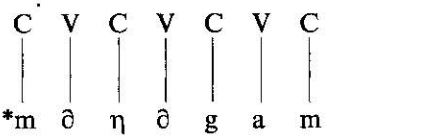
(d) Degemination



(e) Default



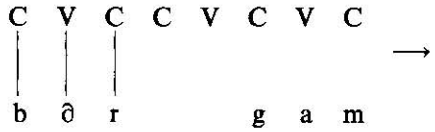
(f) Phonetic Representation



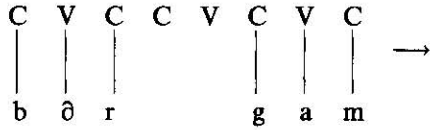
The derivation in (8) has produced wrong result. This shows that the template solution has failed to account for the facts of the Malay data. With this shortcoming, similarly to Yeoh's, Teoh's analysis is also descriptively inadequate.

With regard to the ability of achieving an explanatory level of adequacy, the template solution also owes an explanation why the epenthesis rule restrictly applies to the active prefix marker /məŋ/ only, but not to other prefixes such as /bəp/ and /di/. If we accept Teoh's template solution which claims that the motivation of having the epenthesis rule is an attempt to make monosyllabic word bisyllabic, then the same theoretical motivation must apply to all prefixational processes in Malay. There is no strong reason why this motivation has to exclude the prefixes /bəp/ and /di/ in this particular environment. If we apply the same derivation to /bəp/ and /di/, we will get incorrect forms like *[bərəpam], *[bərə gam], *[bərəbom], *[diyəpam], *[diyəgam] and *[diyəbom], as illustrated in the following derivation.

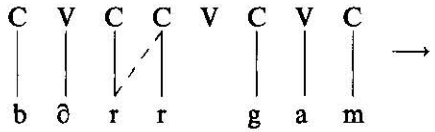
9. (a) Underlying Representation



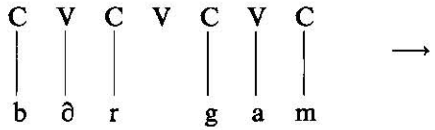
(b) Mapping right to left



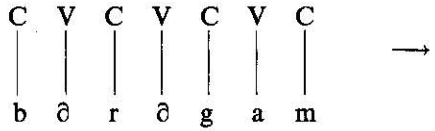
(c) Spreading



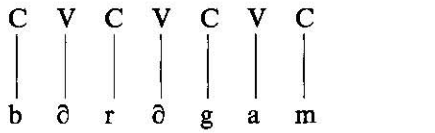
(d) Degemination



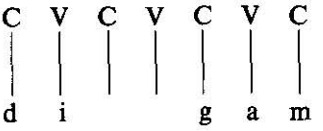
(e) Default



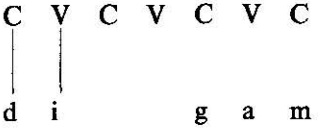
(f) Phonetic Representation



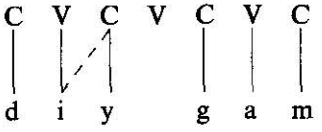
10. (a) Underlying Representation



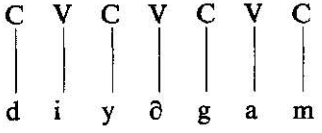
(b) Mapping right to left



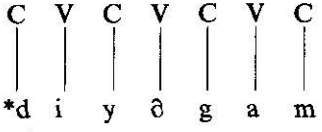
(c) Spreading



(d) Default



(e) Phonetic Representation

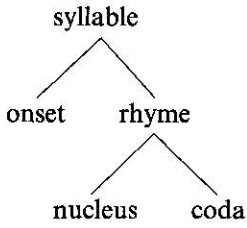


According to the derivations given, it shows that the template analysis is only successful in (7), but the same analysis cannot be apllied in (8), (9) and (10). Thus, this proves that the template analysis fails to offer an adequate explanation in accounting the epenthesis rule in Malay.

A CURRENT ANALYSIS

In the following discussion, we would like to propose an alternative solution which can handle the problem meticulously and provide a better explanation to it. The present study adopts a theoretical framework of the theory of syllable and syllabification-by-rule model. This analysis assumes that syllable structure or syllable template is hierarchical structure organized on the skeletal tier and it may be devided into onset, nucleus and coda. The nucleus and the coda combine together to form a unit called rhyme. The hierarchical structure of the syllable is illustrated in (11).

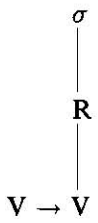
11.



Syllabification is a continuous process of associating a linear string of segmental elements to a syllable structure. Syllabification procedure is performed by a set of rules. A segment which fails to become syllabified during the syllabification process is called extrasyllabic, more specifically contingent extrasyllabicity (Goldsmith 1990:108) or a stray, and basically be dealt either by stray deletion or stray epenthesis.

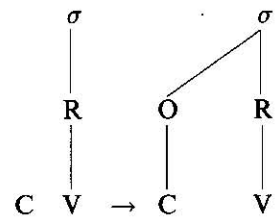
Based on its basic syllable structures, we agree with Teoh (1988:45) that Malay typologically belongs to type III languages, i.e. CV(C) type. Basic syllable structures are built up by an ordered series of basic syllabification rules (SR) which can be formulated as follows.

12. (a) SR 1:



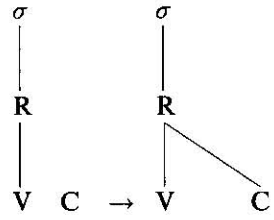
The first rule is to assign a vocalic segment to the R(hyme) - Rhyme Formation.

(b) SR 2:



The second rule assigns a preceding consonant to the O(nset) - Onset Formation.

(c) SR 3:

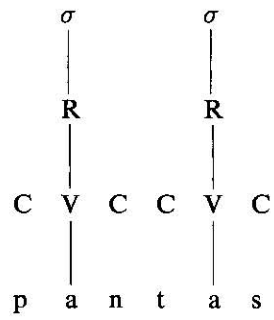


The third rule assigns a following consonant to the coda – Coda Formation.

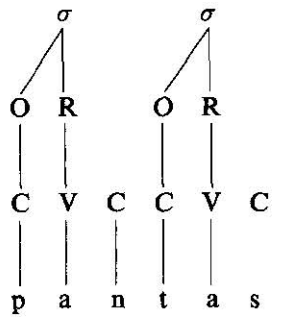
In accordance with the coda formation rule, it should be noted that in Malay, a nasal is permitted in the coda position, if it is homorganic with the obstruent in the following onset. This is called a nasal coda constraint in Malay.

Syllabification rules in Malay apply cyclically that is after all phonological rules at that particular level have applied, syllabification rules then apply and reapply at the subsequent levels, if any, till the final output (Teoh 1988:44). An ordered application of syllabification rules in Malay can be illustrated as follows.

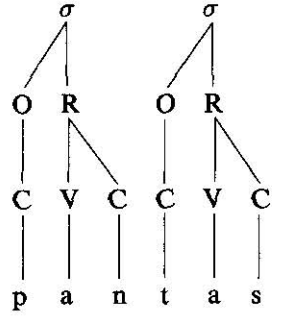
13. (a) SR 1



(b) SR 2



(c) SR 2



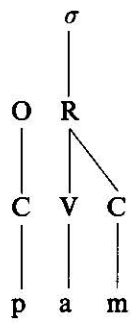
In the present study the rule of schwa epenthesis is analyzed as the result of constraints on syllabification. Epenthesis is a kind of alternative strategy for handling extrasyllabic (unsyllabified) consonant. The epenthesis rule in Malay can be formalized as in (14), where the C' notation indicates a contingently extrasyllabic consonant.

14. $\varnothing \rightarrow$ ə/ C' ____

The rule states that a vowel schwa is inserted after the extrasyllabic consonant. We assume that this rule is a post lexical rule which applies at a later stage in the derivation.

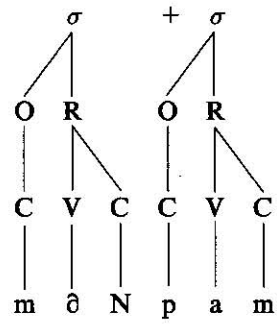
Unlike Teoh (1988), we postulate that the template for monosyllabic stem in Malay is CVC, and its phonological representations is as follows:

15. Syllabic tier



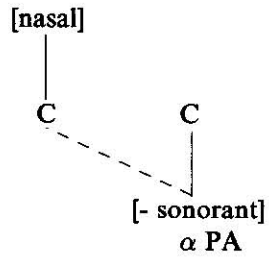
When the monosyllabic stem is prefixed with the active prefix marker /mə/ the resulting representation will be as in (16).

16. Syllabic tier



In this analysis, the basic form of the active prefix marker is represented as /mə/. The underspecified nasal segment /N/ is realised as/ m, n, ñ,ŋ/ by nasal assimilation rule which operates by spreading of feature place of articulation from the following obstruent. If assimilation does not apply, the unspecified nasal is then realised as velaric η by a language- specific default rule. The nasal assimilation rule in Malay can be formalized as follows.

17. Nasal

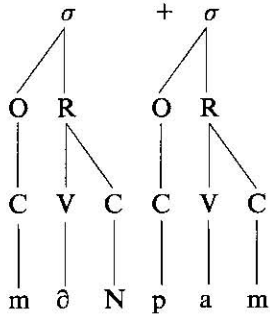


The application of nasal assimilation rule (or nasal default rule) is crucial in the derivation and it must be ordered before the syllabification rule, particularly a coda formation rule. This means that coda formation must be fed by nasal as similation. Thus this implies that syllabification rule must be endowed with the same properties as phonological rule, notable among them the possibility of engaging in ordering relations. This interaction obviously can be captured if syllabification is based on rules rather than by template matching (Roca 1994:147).

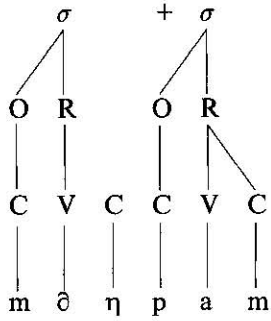
In Malay the nasal segment never assimilates with non-syllabic sonorants (i.e. liquids, glides and nasals). So in such cases, the nasal will get deleted, and we will refer the rule as nasal deletion rule (1c). We assume that nasal assimilation rule and nasal deletion rule are lexical rule, and consequently they apply at an earlier stage in the derivation. Both rules have the characteristic features of lexical as opposed to post-lexical rules. In other words, they are subjected to (i) the presence of lexical exceptions, and (ii) sensitive to the morphological conditioning.

How the present analysis handles the epenthesis rule is illustrated in the following derivation.

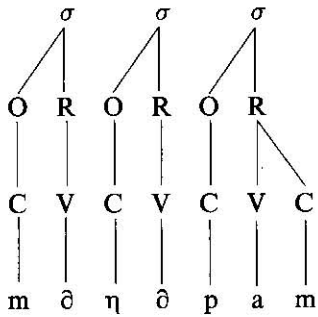
18. (a) Underlying representation



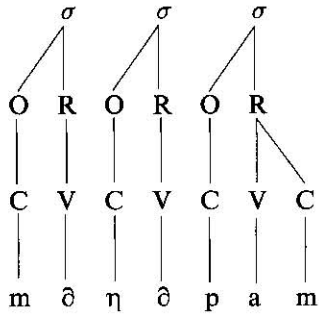
(b) Default rule



(c) Epenthesis rule



(d) Phonetic representation

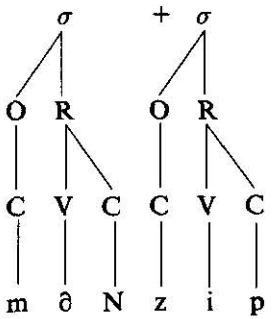


In the above derivation, the nasal element of the active prefix marker does not assimilate with the following obstruent. Thus by default rule, the nasal segment is then realised as velaric ŋ. Since both the nasal and the following obstruent are not homorganic, so in the process of syllabification, the velar nasal cannot be syllabified as coda because it violates the nasal coda constraint in Malay. Consequently, the velar nasal is marked as extrasyllabic or a stray. To accomplish this problem, the epenthesis rule is then applied, and finally we get a surface form [məŋəpam].

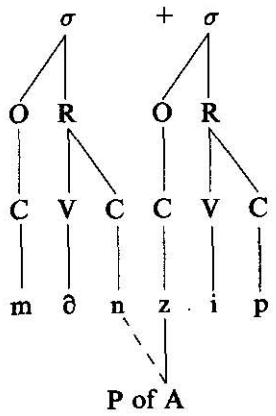
In some lexical items, there are cases where the underspecified nasal does assimilate with the following obstruent. In such cases, significantly if assimilation rule applies, then automatically epenthesis rule cannot be applied. This is because by assimilation rule, the derived nasal will be homorganic with the following obstruent, and subsequently it can be syllabified as coda. Since all segments have been successfully syllabified, there is no phonological motivation for having epenthesis rule. Its application will be redundant and overgenerated. This indeed can

account for the fact that there are forms such as [mðñcas], [mðñjel] and [mðnzip][5], but not *[mðñðcas], *[mðñðcas], *[mðñðjel] and *[mðnðzip].

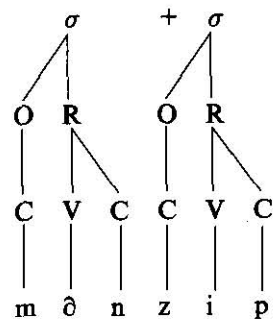
19. (a) Underlying representation



(b) Assimilation rule

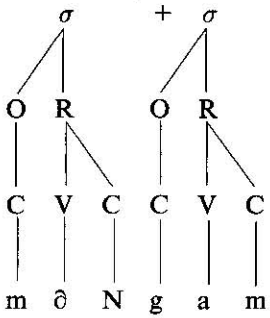


(c) Phonetic representation

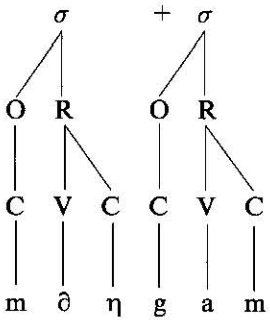


Given that explanation, obviously our theoretical motivation of having epenthesis rule is very different than Teoh's (1988). In the latter, it is the underlying disyllabic template CVCVC that triggers the schwa insertion, while in our analysis it is the result of constraints on syllabification. By adopting the current theoretical motivation we correctly predict that epenthesis rule never applies in 1(F) because it is not needed for any phonological reason. The derivation in (20) gives an illustration how a form like [mɔ̀ŋgam] is derived.

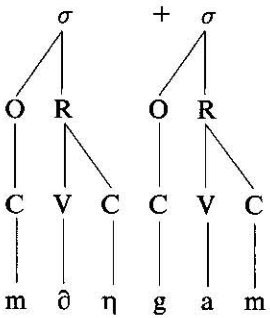
20. (a) Underlying representation



(b) Default rule



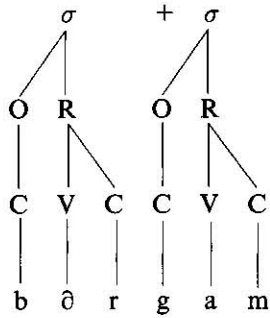
(c) Phonetic representation



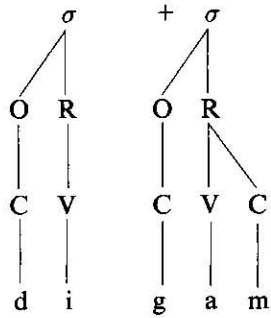
Unlike (18), the velar nasal /ŋ/ in (20) which is also derived by default rule (not by assimilation rule) is not an extrasyllabic nasal. It is homorganic with the following velar stop /g/, and accordingly it can be syllabified as coda. So the refore we don't need any epenthesis rule here because all segments are fully syllabified. The same interpretation, also applies to monosyllabic stems that begin with velar obstruent /k/ and /x/. Although the cluster /h/ and /ŋ/ is not homorganic, but its occurence is permitted in Malay (i.e. [mə̂ŋhantar], [mə̂ŋhalaŋ], [mə̂ŋhilaŋ] etc.).

If epenthesis is viewed as a repair mechanism triggered by syllabification constraints, we can further predict why it never applies in the process of prefixation with /bə̂r/ and /di/. During the process of syllabification, both the stem and the prefix can be syllabified respectively. In other words, there is no segment being left unsyllabified and becomes a stray.

21. (a) Underlying and phonetic representation



(b) Underlying and phonetic representation



CONCLUSION

This paper discusses some of the analyses that have been proposed in the literature which attempt to account for the rule of schwa epenthesis in Malay. We have seen that both the linear analysis and the template analysis fail to offer an adequate explanation to the phenomenon. As an alternative solution, we propose an analysis based on the theory of syllable and rule-driven syllabification. This analysis assumes that epenthesis is a repair mechanism triggered by constraints on syllabification. Undoubtedly, the current proposal provides a better explanation to the issue.

NOTES

1. Some derived forms contain /kan/ and /i/ which are transitive suffic markers. Their presence however does not have any significant effect on the epenthesis rule application. Therefore they will not be considered for further discussion here.
2. Two other affixes that have the same phonological behaviour are the prefix /pəN/ and circumfix /pəN-an/. For purpose of this paper, only /məN/ is examined for discussion. The capital letter N refers to an underspecified nasal which is realized as /m, n, ñ,ŋ/ by the application of nasal assimilation rule. If assimilation does not apply, the underspecified nasal is then realized as velaricŋby a language-specific default rule,
3. Another type of syllabification procedure is syllabification by template matching (Roca 1994:148). It is also refered as total syllabification approach (Goldsmith 1990:117).
4. Under Ito's asumption syllabification is continous, the prefix must be syllabified independently before it attaches to the stem. This process of syllabification would mark the final nasal element as extraprosodic. When the prefix is attached to the stem, the nasal element loses its extraprosodicity and must be syllabified.
5. Based on my available data, both form (məñ cas)/ (məŋəcas), (məñjel)/ (məŋəjel) and (mənzip)/ (məŋəzip) are found in the language. However, forms with epenthetic vowel are more common and widely used.

REFERENCES

Goldsmith, J.A. 1990. *Autosegmental and Metrical Phonology*. Cambridge: Basil Blackwell, Inc.

Itô J. 1986. Syllable Theory in Prosodic Phonology. PhD dissertation, University of Massachusetts at Amherst.

Roca, I. 1994. *Generative Phonology*. London: Routledge.

Teoh Boon Seong. 1988. *Aspects of Malay Phonology Revisited: A Non-linear Approach* . PhD dessertation, University of Illinois.

_____ . 1989. Syarat Koda Suku Kata Dalam Bahasa Melayu.

Dewan Bahasa 33(11):843-850.
Yeoh Chiang Kee. 1988. Kajian Semula Tentang Morfem Dasar Penanda Aktif Dalam Bahasa Melayu. In Farid M. Onn (ed.). *Bunga Rampai Fonologi Bahasa Melayu*. Petaling Jaya: Fajar Bakti.
Zaharani Ahmad. 1993. Pengimbuhan Awalan MeN Dengan Kata Dasar Bersuku Kata Satu: Masalah dan Penyelesaian. *Dewan Bahasa* 37(12):1092-1101.

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