Onset Satisfaction and Violation in Malay: An Optimality Account

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1.0 Introduction

Malay generally requires that every surface syllable must have an onset. Underlying vowel sequences derived by morphemic concatenation cannot be syllabified heterosyllabically because it creates an onsetless syllable. The hiatus is then resolved by C-Epenthesis. Although this requirement is crucial, it can be violated in certain environments. There are two instances where the onset requirement is violated in this language, namely the word initial and root medial environments. This fact is observed and well attested in Yunus (1980)[1966], but it is not satisfactorily accounted for in the analyses of Farid (1980) and Teoh (1994).

In this paper, I attempt to demonstrate that the satisfaction and violation of onset conditions can be captured satisfactorily under the constraint-based approach of Optimality Theory (Prince and Smolensky 1993). The pivotal analytical proposal of Optimality Theory is that a grammar is a hierarchical ranking of well-formedness constraints. These constraints are specified in the Universal Grammar, and individual grammars are constructed by imposing a language-particular ranking of those universal well-formedness constraints. The distinguishing feature of OT with respect to other constraint-based approaches is that it allows violation of those universal constraints. Lower ranked constraints can be minimally violated in order to assure the satisfaction of higher ranked constraints.

2.0 Syllabification and Onset Satisfaction

It has long been observed that the basic structure of the Malay syllable is (C)V(C) (Abdullah 1974, Yunus 1980, *Farid 1980). Typologically, this language belongs to a class*

of languages which Clements and Keyser (1983) refer to as a type IV group that has four basic syllable structures, namely V, VC, CV and CVC. This analysis, however, has been challenged by Teoh (1994) claiming that Malay is a type III language with a CV(C) syllable structure, suggesting that every syllable must have an onset.

In contrast to Teoh (1994), I am inclined towards the earlier proposal that the Malay syllable is (C)V(C). The language generally requires that every surface syllable must have an onset. Despite the fact that this requirement is crucial, it can be violated in certain environments, in particular word initially and root internally.

It is a well-established fact that the sonority hierarchy plays a major role in determining the nucleus and margins of the syllable. Vowels are more sonorous than consonants, and basically make more harmonic nuclei and less harmonic margins. In Malay only vowels are permitted in the syllable nucleus position, whereas consonants are invariably associated with the syllable margins, namely onsets and codas. Each syllabic constituent can only be occupied by a single segment, suggesting that the language disfavours segmental clusters.

As commonly accepted by most phonological theories, syllable structures are not present in the lexicon, and are derived in the course of phonological derivation. Within the OT framework, the process of syllabification is a matter of choosing the optimal output from among the possible analyses, rather than algorithmic structure building (Prince and Smolensky 1993:15). Syllable structure is generated in the same way as any other grammatical property by the function GEN, which produces a set of candidates with various possibilities of syllable parsing from each unsyllabified input. These possible candidates are then evaluated in parallel by the function EVAL based on a language particular constraint hierarchy. As expected, a candidate that minimally violates the constraints in the hierarchy is termed optimal and declared the true output.

In early OT (Prince and Smolensky 1993, McCarthy and Prince 1993a, *et seq.*), syllabification is

construed as a process of incorporating segments into higher prosodic constituents. Phonological elements are said to be 'parsed' when they are associated and dominated by the appropriate node of the prosodic hierarchy (Selkirk 1980, McCarthy and Prince 1986, 1990ab), and this is controlled by a formal constraint called PARSE. As a family of constraints, PARSE provides a number of constraints that ensure parsing, such as PARSE-SEGMENT which requires that all segments must belong to moras and PARSE-μ which demands that all moras be parsed into syllables. The crucial idea about a constraint family is that a group of similar and related constraints are all built from a single broad concept (i.e. PARSE) but they are separately rankable in the hierarchy.

With the advent of Correspondence Theory (McCarthy and Prince 1995b), the earlier faithfulness constraint of the PARSE family has been subsumed under the MAX constraint family which requires that every segment of S_1 (input/base) has a correspondent in S_2 (output/reduplicant). PARSE-SEGMENT is now reformulated as MAX-IO, which demands that every segment of the input must have a correspondent in the output. A process of phonological deletion is reckoned as a violation of MAX-IO[1]. Similarly, for PARSE-μ: it can be reformulated as MAX-IO-μ.

The process of syllabification is primarily an interaction of the faithfulness constraint MAX-IO and the syllable structure constraints, such as ONSET, NO CODA and *COMPLEX, which are formally defined as follows:

1. Syllable structure constraints (Prince and Smolensky 1993)
   ONSET - Syllables must have onsets
   NO CODA - Syllables must not have a coda
   *COMPLEX - No more than one segment may associate to any one syllabic constituent (i.e onset, nucleus, coda)

Let us first consider the interaction between MAX-IO and the syllable structure constraint NO CODA. It is apparent that MAX-IO and NO CODA can be in a relation of conflict which means that there are pairs of competing candidates with conflicting constraints. Crucially, one of the candidates (the actual output form) must emerge as optimal.

As noted, MAX-IO demands that all the input segments must appear on the surface regardless of whether the form has an illicit syllable structure, for instance a syllable with a coda. This is to ensure that all underlying segments are parsed. On the other hand, NO CODA disfavours any coda element. Since Malay is a (C)V(C) language which optionally allows codas, the relevant ranking is: MAX-IO dominates NO CODA. This conclusion is illustrated in the following tableau (syllable boundaries are marked by a period '.').

2. MAX-IO >> NO CODA - i.e. /pasti/ 'sure, certain'

/pasti/	MAX-IO	NO CODA
a. pa.ti	*!	
b. ☞ pas.ti		

Tableau (2) shows that faithfulness to the underlying form by parsing all the input segments leads to a violation of a syllable structure constraint. Generally, such a violation can be avoided by epenthesis, which is one way of ensuring that all the input segments are parsed, and concurrently satisfy the syllable structure constraint.

In standard OT analysis, epenthesis is governed by another faithfulness constraint called FILL (Prince and Smolensky 1993, McCarthy and Prince 1994), which states that all nodes of syllable structure must be filled by underlying segments. In the Correspondence Theoretic approach, this constraint is subsumed under the DEP constraint family which demands that every segment of S_2 (output/reduplicant) has a correspondent in S_1 (input/base). FILL is now reformulated as DEP-IO, which requires that