Truncation in Indonesian:
Evidence for Violable Minimal Words and AnchorRight[*]

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1.   Introduction

Indonesian exhibits parallel patterns of truncation in the short forms of terms of address and the short forms of personal names. As illustrated in (1a), many common terms of address are formed from the base of a kinship term and appear in both a "long" and "short" form. It is the short forms that are understood here to be truncated. For personal names, a similar pattern is seen where a vocative or nickname is formed by truncation, as shown in (1b). [1]

(1)   <u>Base</u>   <u>Short form</u>   <u>Gloss</u>
                                        (truncation)
     a. Terms of address
         anak   nak   'child'
         bapak   pak   'father'

     b. Personal names
         Agus   Gus
         Lilik   Lik

The patterns work roughly the same way in both cases. While some variation exists, the most common pattern is for a closed final syllable (CVC) to be taken as the short or truncated form.

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[1] Throughout this paper, examples are presented in Indonesian orthography, which largely represents the phonemic contrasts of the language. Final <k> is realized as [ʔ], *masakan* [masakan] 'cooking', but *masak* [masaʔ] 'cook'.

As we will see, the resulting truncated form is neither an unmarked foot, nor a stressed syllable of the base. This raises interesting questions about the nature of prosodic structure. First, understood to be constrained by prosodic morphology, truncated forms should be possible prosodic units in the language in question (McCarthy and Prince 1986 and subsequent work). As independent words, truncations are hypothesized to respect more general requirements in the language as to what constitutes a well-formed minimal word. Content words are predicted to be at least the size of a well-formed metrical foot (McCarthy and Prince 1986, Hayes 1995). These truncated forms in Indonesian pose a challenge for this hypothesis, since the minimal foot based on stress is bisyllabic. In addition, since the resulting forms cannot be understood as emergence of an unmarked foot, the patterns of truncation in Indonesian also pose a challenge to the formal nature of truncation as understood within the theories of Prosodic Morphology and Optimality Theory.

The goal of this paper is to see the ways in which truncation in Indonesian enriches our understanding of possible patterns of prosodic morphology and the nature of prosodic word requirements. The structure of the paper is as follows. First in §2, I describe the patterns of truncation in Indonesian. In §3, I consider the question of word minimality and evidence for word minimality based on the stress facts of Indonesian. In §4, I describe and consider the implications of two classes of subminimal words in Indonesian, including a class of words containing schwa and the short forms of terms of address and personal names. Both of these classes of words highlight the fact that word well-formedness and word minimality may be violable properties. In §5, I return to the question of truncation as prosodic morphology and briefly consider the Indonesian facts in light of recent theoretical claims about the nature of truncation. Conclusions are drawn in §6.

2.   Pattern of truncation in Indonesian: Prosodic goal = CVC

In this section, I first summarize the patterns observed with terms of address (§2.1), then look in more detail at personal names (§2.2).

2.1.   Short forms of terms of address

In Indonesian, there is a rich class of terms of address that are derived etymologically from kinship terms. There is significant regional variation in the forms used as terms of address, so it is somewhat subjective to define a comprehensive set of these terms. In Cohn (2003), where I give a fuller discussion of these patterns, the observations about the shape and formal properties are based on a set of 47 terms of address described and analyzed by Mahdi (2002). In terms of phonological shape, there are non-alternating types, both long (14/47), and short (4/47), and alternating forms (29/47). It is the alternating forms that are of particular interest to us. The shape of the short forms in these 29 cases is summarized and exemplified in (2).

(2)   Short form of terms of address in the alternating cases

Long form	Short form	Gloss
a. Final CVC (19/29)		
kakèk	kèk	'grandfather'
embok	bok	'mother'
b. Final CV (10/29)		
i.	**Non-final CVC (5/10)**	
papa	pap	'father'
papi	pap	'father'
mama	mam	'mother'
mami	mam	'mother'
nona	non	'Miss'
ii.	**Final CV+[ʔ] (4/10)**	
ibu	bu[ʔ]	'mother'
bibi	bi[ʔ]	'aunt'
cucu	cu[ʔ]	'grandchild'
sinyo	nyo[ʔ]	'young master'
iii.	**Final CV+[h] (1/10)**	
nyonya	nyah	'madam'

The short form always consists of a single syllable. What is noteworthy is the distinct treatment of terms of address ending in a closed syllable vs. those ending in an open syllable. In the 19 forms that end in a closed syllable, the final syllable corresponds to the short form in all cases (illustrated in 2a). Thus, there is a dominant pattern whereby the final syllable of the long form, being a closed syllable, corresponds to the short form. Of the remaining 10 cases where the long form ends in an open syllable (listed exhaustively in 2b), there are three possible shapes for the short form: For five cases, it is the initial CVC sequence that forms the short form (2bi). In the remaining five cases, it is the final CV syllable (2bii & iii). Four of these, while written as CV, are usually heard pronounced with an epenthetic final glottal stop, thereby also resulting in a surface CVC, at least some of the time.[2] For the remaining one, there is an additional final [h], resulting in a short form of the shape CVC.

To summarize then, if the final syllable is closed, then in all cases, this is the form of the short form. If the final syllable is open, either the initial CVC or the final CV with an epenthetic C ([ʔ or h]) forms the short form. The important observation from our

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[2] Realization of the epenthetic glottal stop may depend on the prosodic context of the form.

point of view is that all short forms surface in the shape of CVC. This appears to be a prosodic restriction on what can constitute a minimal short form.

While our focus here is the synchronic shape of these forms, it is interesting to consider their historical source. The historical evidence for alternating long and short forms of terms of address suggests that the short forms are not derived through a synchronic process of truncation as such. As documented by Blust (1979), some of these terms of address have cognates widely throughout the Austronesian family. There are pervasive patterns of vocative formation that are evidenced in various sub-branches of Austronesian. Of the several patterns of vocative formation documented by Blust for Proto-Western Malayo-Polynesian, three in particular are possibly relevant to the case at hand: Accent shift to the final syllable, addition of a final *-q, and subtraction of an initial consonant (possibly with subsequent loss of the initial vowel). The canonical pattern discussed by Blust involves loss of the initial consonant and accent shift. If there were further weakening of the initial vowel, we would then expect the final syllable as the vocative. Blust discusses the fact that the expected reflex of *-q in Javanese and Malay would be [h]; he suggests that the iconic function of vocative formation may have resulted in aberrant retention of [ʔ], reanalyzed as orthographic <k>. It seems that the synchronic shape of the short form in Indonesian is actually a composite of several aspects of the historical development of the vocative form. Nevertheless, the short forms meet a prosodic requirement synchronically, in that they correspond to a closed, rather than an open syllable.

We now turn to patterns of truncation in personal names, where the pattern of truncation is more productive, and where we will see very similar patterns and restrictions at work.

2.2. Short forms of personal names

The short forms of personal names are used as vocatives and nicknames. The short forms of bisyllabic names are always monosyllabic. Names that are greater than two syllables may have several corresponding short forms, at least one of which is monosyllabic. There is some variation in these forms, some of which may be due to regional differences. I focus here on short forms derived from bisyllabic names. The questions we need to address are the following: First, what is the correspondence between the long form (taken here to be the base) and the short form? Second, what generalizations hold of the shape of the resulting short forms? Based on the patterns of terms of address, we make the following predictions: If the final syllable is CVC, this will be the shape of the short form; if the final syllable is CV, the short form will be the initial CVC sequence or final CV+[ʔ].

Due to the observed variation in these forms, characterizing the patterns from impressionistic observation alone may be unrepresentative. To avoid this problem, I sought out a large corpus of Indonesian names, specifically the online source www.kabalarians.com. These forms were checked and corresponding short forms were

produced by one speaker from Northern Sumatra. Once duplicates and errors were removed, the list comprised 172 bisyllabic male and female names. (These forms still need to be checked by additional speakers.) Of these 172 forms, the base form had a closed (CVC) final syllable in 84 cases and the base had an open (CV) final syllable in 88 cases. We consider the short forms for these two subsets in turn.

The long and short forms for personal names ending in a closed syllable are shown in (3).

(3)   Bisyllabic base form: Final CVC = 84

	Long form	Short form
a.	Predicted final CVC:	71/84
	Agus	Gus
	Butet	Tet
	Glison	Son
	Mochtar	Tar
b.	Other:	13/84
i.		Initial CVC or final CVC (4/84)
	Amir	Am/Mir
	Emil	Em/Mil
	Erdin	Er/Din
	Manggih	Mang/Gih
ii.		Initial CVC (9/84)
	Bonjol	Bon
	Hamzah	Ham
	Kasan	Kas
	Luctor	Luk
	Ninah	Nin
	Ramblas	Ram
	Rochmad	Rok
	Sunan	Sun
	Ulfah	Ul

Of the 84 bisyllabic base forms that end in a closed syllable, 71 have a short form that is the final CVC (exemplified in 3a). For the remaining 13 (listed exhaustively in 3b), four have two alternates and nine have the initial (C)VC. Thus, the clear majority of truncated forms ending in a closed syllable have short forms corresponding to the final closed syllable, and for all 84 forms, the short form has the shape (C)VC. The fact that there are some exceptions to the expected pattern may be due to regional variation or to influence of the source language in some cases.

Based on the patterns we saw for terms of address, we expect the short forms of personal names that end in a final open syllable to be formed from the initial CVC sequence or final CV+[ʔ]. The long and short forms for personal names ending in an open syllable are shown in (4).

(4)   Base form: Final CV = 88

<u>Long form</u>   <u>Short form</u>

a.   Initial CVC (48/88)
   Budi   Bud   *Di
   Murni   Mur   *Ni
   Rudy   Rud   *Di
   Riska   Ris   *Ka

b.   Initial CVC or final CV+[ʔ][3] (13/88)
   Etti   Et/Ti[ʔ]
   Soni   Son/Ni[ʔ]
   Yanto   Yan/To[ʔ]

c.   Final CV+[ʔ][3] (27/88)
   Hari   Ri[ʔ]
   Made   De[ʔ]
   Parno   No[ʔ]

Indeed all of the short forms fall into one of these two patterns, 48 initial CVC, 27 final CV[ʔ], and 13 cases with both possibilities. Thus all of the short forms are once again of the shape CVC. There are several factors that may play a role in determining whether it is the initial (C)VC or the final CV+[ʔ] that is preferred as the short form of a bisyllabic name ending in an open syllable. Some of the conditioning factors are illustrated in (5).

(5)   Factors influencing initial (C)VC or final CV+[ʔ] for final CV cases

   a. Initial syllable open or closed

Base:	Initial CV	50		Initial CVC	38
	initial CVC	16		initial CVC	**19**
Truncated	2 alternatives	7		2 alternatives	11
form:	final CV[ʔ]	**26**		final CV[ʔ]	8

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[3] Impressionistically these forms are produced with a final glottal stop and names of two or more syllables ending in an open syllable are not. More systematic study of this issue is warranted, especially considering the possible effect of different prosodic contexts and use of the short forms as vocatives.

b. V-initial (14/88)   Final CV (6), alt (4) (10/14)

Ani   Ni[ʔ]   ʔAn

Eka   Ka[ʔ]   ʔEk

Entji   Tji[ʔ]   ʔEn

c. Initial CVglide (3/88)   Final CV (2), initial CV (1) (3/3)

Bayu   Yu[ʔ]   ʔBay

Dewi   Wi[ʔ]   ʔDew

Maya   Ma[ʔ]   ʔMay

d. Initial CVh (2/88)   Final CV (1), alt (1) (2/2)

Wahyu   Yu[ʔ]   ʔWah

Cahyu   Cah/ Yu[ʔ]   ʔCah

e. $C_1V_1 C_1V_1$ (2)   CV (2/2)

Dede   De[ʔ]

Nini   Ni[ʔ]

First, as summarized in (5a), there is a greater tendency for the initial CVC pattern if the initial syllable is closed, that is, the second C is a member of the same syllable in the base. Secondly, there seems to be some dispreference for vowel-initial forms, such that short forms of vowel-initial names are more likely to be formed from the final syllable. Beyond these two tendencies, there are two generalizations, but each based only on two or three forms: First, monosyllabic forms ending in a glide (5c) or [h] (5d) seem to be avoided. Second, if the form is phonologically a copied syllable (5e), this syllable is the base for the short form. Looking back at (3), we might wonder whether these factors have a role to play in the 13 unexpected cases for final CVC. Indeed, many final CVh forms surface with the initial CVC. There also seems to be a dispreference for short forms of the shape CVl, which is not a phonotactically common pattern in the language.

It is important to note that these patterns are robust and productive. In addition to strong speakers' intuitions, these generalizations also hold of recent borrowings, for example: *Jon* from *Joni*, *Son* from *Wilson, Fit*[4] from *Dafid, Dor* from *Fjedor, Len* from *Allen*.

In summary, we observe that the short forms are always closed syllables; that is, open syllables are systematically excluded. This restriction is in contrast to longer words that can be made up indiscriminately of open and closed syllables and may end in a CV. This suggests that closed monosyllables are "heavier" than open monosyllables and that short forms of personal names and terms of address must meet some sort of word minimality requirement. If the final syllable of the base is closed, this will usually serve as the short form. If the final syllable is open, there is a slight preference for the short

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[4] The final orthographic <t> reflects final devoicing.

form to be formed from the initial (C)VC sequence, but final CV+[ʔ] is also widely observed. There seems to be competition between the expected outcome that the short form be the final syllable, on the one hand, and that the short form consist of a contiguous sequence of sounds from the base, on the other hand. In the next section, we consider the nature of word minimality in the broader context of the prosodic system of Indonesian.

3.   Prosodic morphology and word minimality

In languages that exhibit word minimality effects, we expect that truncated forms should respect these restrictions. By word minimality, we understand that a content word must consist of at least a well-formed metrical foot. This will be a heavy syllable in languages with weight-sensitive stress (e.g. Latin or English). In languages in which the stress system does not draw a distinction between heavy and light syllables, the minimal word is predicted to be at least two syllables (McCarthy and Prince 1986, Hayes 1995). Based on the fact that Indonesian stress is quantity insensitive (Cohn 1989, Cohn 1993), the minimal word in Indonesian is predicted to be two syllables. Thus we are faced with a challenge, since we just saw evidence from truncation (short forms of terms of address and personal names) suggesting that the minimal word in Indonesian is a closed syllable. There appears to be a mismatch between the minimal word for stress assignment and the minimal word for truncation. We review the stress facts of Indonesian and evidence for a bisyllabic minimal word before turning to the issue of subminimality in §4.

The basic pattern of word stress in Indonesian is laid out in (6), following Cohn (1989, 1993).[5]

(6)   Word stress in Indonesian

a.	**cá**ri	'search for'
	bágus	'good'
	bántu	'help'
	bántal	'pillow'
b.	bi**cá**ra	'speak'
	man**dí**ri	'stand alone'
	ka**rám**ba	'basket for fish'
	ka**lí**mat	'sentence'

As illustrated in (6a), stress is always initial (penultimate counting from the right edge) in two-syllable words, no matter whether the initial or final syllable is open or closed. As

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shown in (6b), stress also systematically falls on the penult in three-syllable words, independent of whether any of the syllables is open or closed. This weight-insensitive pattern can be analyzed in terms of syllabic trochees; that is, metrical feet of two syllables with the leftmost one being prominent: (σ .). In Optimality Theoretic terms, the observed pattern results from the combined effect of high ranking constraints FOOT-BINARITY and FOOT-FORM(TROCHAIC). FOOT-BINARITY is met in Indonesian at the level of the syllable (FOOT-BINARITY(σ)), since the weight of syllables does not affect stress placement.

If the widely observed cross-linguistic correlation between well-formed metrical feet and the minimal shape of content words is respected in Indonesian, we predict that the minimal word should consist of two syllables, since the metrical foot consists of two syllables. Indeed with few exceptions, well-formed content words are at least two syllables. There are strikingly few monosyllabic content words in Indonesian and most of those that do occur are clearly borrowings. In the word list in Wolff et al. (1986) of approximately 1300 entries, there are only 16 such forms. An exhaustive list of these is provided in (7).

(7)   Monosyllabic content words in Wolff et al. (1986)

bak	'basin'	lat	'late'
bis	'bus'	map	'folder'
bon	'check, bill'	pas	'fit'
cap	'stamp'	pel	'mop'
es	'ice'	rok	'skirt'
hal	'case, matter'	tas	'bag'
jam	'hour'	teh	'tea'
lap	'towel'	zat	'essence'

It is noteworthy that there are so few such forms, that they are all easily identifiable as borrowed forms (although not necessarily recent ones), and that all of them consist of a closed (CVC) syllable. We conclude then that with very few exceptions the minimal word in Indonesian is a well-formed bisyllabic metrical foot (σ σ).

4.   Subminimal words in Indonesian

However, there are two areas of systematic exception to the generalization that the minimal word in Indonesian is bisyllabic. First, there are the short forms of terms of address and personal names that are systematically monosyllabic, presented above in §2. Second, there are bisyllabic words with schwa [ə] in the first syllable, e.g. *enam* 'six', *kera* 'monkey', even though schwa does not usually count for stress placement. We consider the latter in §4.1 before returning to the former in §4.2.

4.1.   Words with schwa

The prosodic structure of words with schwa is different from those with the other vowels in Indonesian. As discussed by Cohn (1989) and illustrated in (8), schwa acts as though it were invisible for stress assignment.[6]

(8)   Examples of stress assignment with schwa

gáməlan	'Indonesian orchestra'	* gamə́lan
a**pár**təmen	'apartment'	* àpartə́men
cə**rí**təra	'story'	* cəritə́ra
pərəm**pú**an	'woman'	* pə̀rəmpúan

In words with at least two full vowels, syllables with schwa are not part of the computation of stress assignment. Cohn (1989) suggests that schwa does not project prosodic structure visible for the assignment of metrical prominence.

Based on this apparent invisibility of schwa, we would expect that any word with schwa should be at least three syllables long to meet the two-syllable word minimality requirement, since schwa appears not to count toward the metrical computation. Yet words of the shape (C)əCV(C) are quite common (see Cohn and McCarthy 1998 for fuller discussion). A few examples are given in (9):

(9)   Words of the shape (C)əCV(C)

bə**rí**	'give'
kə**rá**	'monkey'
kər**já**	'work'
kə**cíl**	'small'
ə**nám**[7]	'six'
sətə**láh**	'after'

There are three observations about the bisyllabic forms containing schwa in the first syllable that need to be accounted for: First, these forms are quite common and do not give the feeling of not being part of the core vocabulary (the way that the monosyllabic borrowings do). Second, stress falls on the final syllable, rather than the penultimate syllable, as would be expected if the penultimate syllable contained a full vowel. Third, the final syllable, the one that bears the stress, can be open or closed; that is, no weight

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[6] There are dialects of Indonesian where schwa is stressable, or where schwa in a closed syllable is stressable.

[7] Schwa-initial forms may also show an alternative without the schwa: Such as *emas ~ mas* 'gold' *enam ~ nam* 'six'. These are not truncation in the sense discussed above, but are rather probably the results of loss of a prosodically and segmentally weak initial vowel.

restriction holds of this syllable.[8] This then is a second systematic class of subminimal words, in that the syllable with schwa does not function as a full-fledged syllable, since it cannot bear stress.

Cohn and McCarthy (1998) provide an analysis that addresses each of these observations. They account for this class of words by differentiating between the ability of a particular syllable to bear stress and its ability to serve as part of a metrical foot. This is captured in their analysis by teasing apart the distinct requirements imposed by the constraints NON-FOOT(ə) (Schwa-headed syllables have no metrical projection) vs. NON-HEAD(ə) (Stressed [ə] is prohibited). In words with at least two full-voweled syllables, NON-FOOT(ə) plays an active role, showing a dispreference for including schwa syllables in the metrical organization. Words with only one full vowel and one or more schwas are still prosodically interpretable, but at the cost of violating NON-FOOT(ə). In such cases, only high ranking NON-HEAD(ə) is respected in order to meet the requirement of even higher ranking FOOT-BINARITY(σ). The ranking is FOOT-BINARITY(σ) >> NON-HEAD(ə) >> NON-FOOT(ə).

4.2.   Truncated forms

We return now to the truncated forms, which we saw above are monosyllables. These forms are subminimal in the sense that they systematically violate the expected minimal word constraint of (σ σ). However, the short forms must be closed, not open syllables. Open syllables are systematically excluded, while no such restriction holds in longer words. CVC syllables are heavy in contrast to CV syllables, which are light.   Thus we observe a word minimality effect based on syllable weight, even though the stress system does not appear to be sensitive to syllable weight. This suggests a continuum with varying degrees of minimality as shown in (10).

(10)   Degrees of minimality, such that σ σ > CVC > CV > Cə

Cohn and McCarthy (1998) discuss the treatment of the exceptional class of monosyllabic content words such as those above in (7) and suggest that these are analyzed within their own parochial constraint hierarchy. However, the much more systematic class of monosyllabic truncated forms presented here calls for an alternative account. The morphological process of truncation itself requires that the form be monosyllabic (otherwise there would be no short forms). The process of truncation is in direct conflict with FOOT-BINARITY(σ). The imperative of the monosyllabic shape of the truncated form outranks otherwise high ranking FOOT-BINARITY(σ). This is in the spirit of Kurisu's analysis of nonconcatenative morphology. Kurisu (2001) proposes that REALIZEMORPHEME outranks MAX. Templatic truncation results from the following

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[8] There is a fourth observation that I do not address here, which is that there are virtually no words in Indonesian of any length with a schwa in the final syllable. See Cohn and McCarthy (1998) for discussion.

ranking: REALIZEMORPHEME >> PROSODICCONSTRAINTS >> MAX. In the case at hand, when FOOT-BINARITY(σ) is violated by an even higher ranking constraint, as in the case of truncation, the effects of lower ranking FOOT-BINARITY(μ) are seen. The observed pattern results from the following ranking: TRUNCATION >> FOOT-BINARITY(σ) >> FOOT-BINARITY(μ).[9]

What we observe in Indonesian then are two different kinds of subminimality, or violation of the minimal word (σ σ): 1. **Phonologically induced subminimality**: The class of subminimal words with schwa highlights the distinction between footability and stressability, where a schwa syllable can serve under duress as the weak member of a (σ σ́) foot, thereby meeting the requirement of FOOT-BINARITY(σ) (but violating FOOT-FORM(TROCHAIC), since in this case the foot has final stress and is iambic, rather than trochaic). 2. **Morphologically induced subminimality**: The morphological process of truncation differentiates the effects of FOOT-BINARITY(σ) from those of lower ranking FOOT-BINARITY(μ), whose influence is seen when FOOT-BINARITY(σ) is violated by truncation. Notably, the two patterns of subminimality seen here are not exceptions to the prosodic system of Indonesian. These subclasses of data highlight the subtler results of constraint interaction in these cases at the limits of the prosodic system, rather than the core cases where FOOT-BINARITY(σ) can easily be met. The conclusion that word minimality, understood in derivational terms to be an absolute constraint, can be violated under the pressure from higher ranking constraints is in fact predicted by the nature of constraint interaction in Optimality Theory.

5.   Truncation as Prosodic Morphology

Before concluding, I briefly consider implications of these data for formal mechanisms of truncation. McCarthy and Prince (1986) discuss a difficult case for the theory of Prosodic Morphology, that is the case of partial reduplication in Madurese (whereby a root-final syllable is apparently being prefixed), as illustrated in (11).

(11)   Partial reduplication in Madurese

    bit-a**bit**   'finally'
    tre-es**tre**   'wives'

Lacking information about stress assignment in Madurese, McCarthy and Prince (1986, p. 62) suggest that partial reduplication is due to truncation, paralleling other patterns of truncation in the language, and that stress may be final, so it is the stressed syllable that remains.[10]

The facts of truncation in Indonesian pose similar issues and in this case, the facts of stress assignment are well understood. Thus, as discussed above, Indonesian is an

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[9] The effects of lower ranking FOOT-BINARITY(μ) are also seen in the monosyllabic borrowings.

[10] In fact, unpublished data on Madurese (Cohn, notes) show that stress is not final, but rather penultimate in Madurese.

excellent case for understanding the role of prosodic structure in constraining truncation. First, the truncated form does not equal a metrical foot. Second, the final syllable, which in the default case forms the base of the truncated form, is not stressed (except in the case of the (C)əCV(C) forms). Therefore, it cannot be the case that the truncated form corresponds to a stressed syllable. This leads us to two questions: First, if the final syllable is not a metrical foot or even a stressed syllable in the base form, then what is its prosodic status? Second, how is it identified or targeted by the process of truncation?

I consider these questions in light of recent Optimality Theoretic approaches to truncation (e.g. Benua 1995, Ito and Mester 1997, Nelson 1998, Sanders 2000, Kurisu 2001). In most of these approaches, the shape of the truncated form is understood to result from unmarked structure, such as a metrical foot. To account for the fact that some patterns of truncation target the left edge of the word and others the right edge of the word, it has been argued that the family of "anchor" constraints is responsible: ANCHORLEFT and ANCHORRIGHT respectively. The patterns of truncation in Indonesian have implications for both the question of unmarked structure and the question of edge anchoring. In terms of markedness, truncation in Indonesian appears to be a case of antifaithfulness (Alderete 1999), where it is precisely the unmarked foot type that is overridden by REALIZEMORPHEME, resulting in a **more marked** foot type. This is not a surprising result when we understand the tension between morphological imperatives and prosodic ones in terms of constraint interaction.

In terms of anchoring, we have seen that truncation in Indonesian results in both right edge and left edge anchoring, with strong preference for the right edge, if the final syllable of the base is CVC. Framed in terms of ANCHOR constraints, this argues for a high ranking of ANCHORRIGHT. There is also a competition between ANCHORRIGHT and the prosodic requirement that the short form consist of a contiguous sequence of sounds from the base form, resulting in the form consisting of the initial CVC rather than the final CV+[ʔ]. (There is an additional technical question about the interpretation of ANCHORRIGHT vis-à-vis the epenthetic glottal stop that I will not attempt to resolve here.)

What is noteworthy here is the role of high ranking ANCHORRIGHT, even though the final syllable is not stressed. In a recent paper, Nelson (1998) argues against the symmetrical instantiation of ANCHOR, arguing instead that only ANCHORLEFT is operative due to the greater importance of beginnings rather than ends of words. She suggests that cases that appear to be driven by ANCHORRIGHT can be reanalyzed as being cases of ANCHORSTRESSEDSYLLABLE. She provides a reanalysis of truncation in French along these lines. She predicts that there should not be cases of truncation that consist of phonological material from the right edge of a word, where this does not appear to constitute a stressed syllable. Indonesian is just such a case, since we have independent evidence that it is not the stressed syllable serving as an anchor in this case.[11] Indonesian

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[11] As discussed above in §2.1, stress may have played a role in the historical development of short forms of terms of address, since these forms may have arisen through accent shift, with subsequent weakening and loss of the initial syllable. This does not, however, offer a synchronic explanation for the productive pattern of truncation in personal names.

and also Madurese are cases where there is a mismatch between edge and prominence. Truncation in Polish, as discussed by Glowacka (2003), exhibits a similar sort of mismatch.

If this is the right general approach to truncation, then cases such as Indonesian, Madurese and Polish provide evidence for the symmetrical patterning of ANCHOR. This is in fitting with the strong reaffirmation of the need for symmetrical alignment constraints throughout the phonological grammar argued for by Kang (to appear) based on cross-linguistic patterns of stress assignment and epenthesis, as well as phonology-morphology interactions in Korean. The cross-linguistic preference for ANCHORLEFT to play an active role in truncation must arise through constraint interaction and cannot be due to an absolute exclusion of ANCHORRIGHT.

6.   Conclusions

In this paper, I have considered the patterns of short vs. long forms of terms of address and personal names in Indonesian. The short forms of personal names are the synchronic result of a productive process of truncation, resulting in a closed monosyllable. The short forms of terms of address are not synchronically derived as such, but nevertheless respect the prosodic requirements of the language that content words be at least two moras, or a heavy syllable. Both sets of short forms meet this prosodic requirement, but due to their very nature of being monosyllabic do not meet the expected bisyllabic word minimality requirement.

These facts are considered in light of another systematic class of subminimal words in Indonesian, those of (C)əCV(C), where a schwa syllable which usually is not included as part of the metrical computation is coerced into service in order to meet the bisyllabic word minimality requirements. We have thus seen two cases of subminimal words in Indonesian, one phonologically induced, in the case of bisyllabic words with schwa, and one morphologically induced, in the case of short forms of personal names. These cases together highlight the fact that word minimality is violable and observed degrees of minimality can be captured through constraint interaction within Optimality Theory.

These facts also have implications for the formal properties of truncation, understood as prosodic morphology. Truncated forms are not necessarily equal to an unmarked foot, or even a stressed syllable in the base. However, Indonesian truncation can be understood through the high ranking of REALIZEMORPHEME with the symmetrical instantiation of the family of ANCHOR constraints, highlighting the important role that right edges can play (Kang to appear).

References

Adisasmito-Smith, N. and A. Cohn. 1996. Phonetic correlates of primary and secondary stress in Indonesian: A preliminary study. *Working Papers of the Cornell Phonetics Laboratory* 11: 1-15.

Alderete, J. 1999. *Morphologically Governed Accent in Optimality Theory*. Doctoral dissertation, University of Massachusetts, Amherst.

Benua, L. 1995. Identity effects and morphological truncation. In *University of Massachusetts Occasional Papers in Linguistics* 18: *Papers in Optimality Theory*, eds. J. Beckman, S. Urbanczyk and L.Walsh Dickey, 77-136. Department of Linguistics, University of Massachusetts, Amherst.

Blust, R. 1979. Proto-Western Malayo-Polynesian vocatives. *BKI* 135: 205-251.

Cohn, A. 1989. Stress in Indonesian and bracketing paradoxes. *Natural Language and Linguistic Theory* 7: 167-216.

Cohn, A. 1993. The initial dactyl effect in Indonesian. *Linguistic Inquiry* 24: 372-381.

Cohn, A. 2003. Truncation in Indonesian and the minimal word. *Papers from ISMIL 7*.

Cohn, A. and J. McCarthy. 1998. Alignment and parallelism in Indonesian phonology. *Working Papers of the Cornell Phonetics Laboratory* 12: 53-137.

Glowacka, D. 2003. ANCHOR-RIGHT and Polish truncation. Paper presented at the 11th Manchester Phonology Meeting, May 2003.

Hayes, B. 1995. *Metrical Stress Theory: Principles and Case Studies.* Chicago: University of Chicago Press.

Ito, J. and A. Mester. 1997. Sympathy theory and German truncations. Rutgers Optimality Archive #211.

Kang, E. to appear. *Edge Demarcation in Phonology*. Doctoral dissertation, Cornell University.

Kurisu, K. 2001. *The Phonology of Morpheme Realization.* Doctoral dissertation, UC Santa Cruz.

Mahdi, W. 2002. Personal nominal words in Indonesian: An anomaly in morphological classification. In *Issues in Austronesian morphology: A Focusschrift for Byron Bender*, eds J. Bradshaw and K. Rehg, 166-192. Canberra: Pacific Linguistics.

McCarthy, J. and A. Prince. 1986. *Prosodic Morphology.* Ms., Umass and Brandeis.

Nelson, N. 1998. Right Anchor, Aweigh. Rutgers Optimality Archive #284.

Sanders, N. 2000. Intra-representational correspondence and truncation. Rutgers Optimality Archive #394.

Wolff, J., Oetomo, D. and D. Fietkiewicz. 1986. *Beginning Indonesian through Self-Instruction, 2[nd]Revised Edition.* Ithaca, N.Y.: Cornell University, Southeast Asia Program.

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