METRICAL STRESS IN MANDAR PHONOLOGY AND POETRY

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ABSTRAK

This short paper is to extend the theory of metrical phonology to the system of stress in one language of Indonesia: Mandar. As the subfamily of South Sulawesi language, Mandar is spoken on the northern coast of West Sulawesi province, from the city of Polewali in the east to the town of Tinambung in the west. The data itself is gathered from native Mandar speaker which provides a good representation of the language. This paper has surveyed the distribution of word-level stress in Mandar from the perspective of the theory of metrical phonology. It has shown that the language typically requires each prosodic word to host a single instance of stress on penultimate syllable. The final proposal is to have the stress pattern emerge from the construction of a single disyllabic trochee at the right edge of the word, with the trochee requires first syllable to be heavy (CVC or CVV) and second syllable to be light (CV or CVC as word-final consonant are non-moraic, but not CVV). From this position, we have shown that our metrical analysis allows us to see another property of traditional Kalinda'da' poetry: beyond showing a regular number of syllables in each line, these poems also require different numbers of stresses. We leave it to future work to extend this result.

Kata kunci: *Phonology, Metrical Phonology, Stress, Poetry, Mandar, Sulawesi*

INTRODUCTION

Phonology is the branch of linguistics that studies the distribution and interaction of particular sounds in language. The subdiscipline of Metrical Phonology is the specific branch of phonology that studies how sounds are grouped together into abstract phonological units at various levels within the phonological word. The fundamental units of metrical phonology are the following:

(1) Fundamental Units of Metrical Phonology:

(a) Phoneme: the smallest distinctive unit of sound, usually a letter like <p> or <b>

(b) Syllable: a phonological unit that contains multiple phonemes, like (per) in *pergi*. The syllable usually contains a vowel, or V, and often contains consonants, or Cs.

(c) Metrical foot: a larger phonological unit that contains multiple syllables. The word *pergi* contains one metrical foot with two syllables: ($_{foot}$ ($_{syll}$ per)($_{syll}$ gi))

(d) Word: an even larger phonological unit that contains at least one metrical foot. The "phonological word" usually corresponds to the "orthographic word," or written word, such that *pergi* is both a written word and a phonological word.

The distribution of syllables and feet has played a central role in the theory of metrical stress: the study of how individual syllables within each word are stressed, or pronounced with greater length and intensity, across the different languages of the world. To provide an example, English is a language that requires one syllable in every word to be stressed, as shown below:

(2) The Stress Pattern of English:

(a) Initial Stress *búcket* *páinting* *rácecar* *cábbage*

(b) Second-to-initial Stress *elízabeth* *sylvéster* *monstrósity*

(c) Third-to-initial stress: *massachúsetts* *winnebágo*

The goal of this short paper is to extend the theory of metrical phonology to the system of stress in one language of Indonesia: Mandar. Mandar is a language of the South Sulawesi subfamily, a group of roughly 20 languages spoken in the provinces of West Sulawesi and South Sulawesi. This paper will focus on the standard variety of the language, which is spoken on the southern coast of West Sulawesi province, from the city of Polewali in the east to the town of Tinambung in the west. All of the data in this paper is from Jupri Talib. We believe that this data provides a good representation of the language, as

the same patterns can be heard in the regular speech of the general population. Similar facts can also be observed in many of the languages nearby.

The Disyllabic Trochee

The following examples show the basic pattern of stress in Mandar. In most words, there is a single instance of stress that falls on the second-to-last syllable. This stress is marked with an accent below. There are generally no other instances of stress within the phonological word.

(3) Word Stress in Mandar

(a)	ánde	(b)	dúndu	(c)	karámbo	(d)	maliŋgáo
	eat		drink		far		tall

The position of stress changes in a regular way when suffixes are added to the end of the word. Mandar has a nominalizing suffix *-ang* which creates nouns from verbal roots. When this suffix is attached to a verb like *ánde*, the stress shifts right so that it falls on the second-to-last syllable. The same pattern is triggered by the genitive agreement suffixes that mark possession, like *-na*.

(4) Word Stress is always on the Second-to-Last Syllable

(a)	andéaŋ		(b)	andeánna	iáli
	ande-aŋ			ande-aŋ-na	i-ali
	makan-an			makan-an-nya	si-ali
	“Food”			“Ali’s food”	

The following diagram shows the major generalization about the distribution of word-level stress: in the phonological word, stress falls in a regular fashion on the second-to-last syllable. This pattern is similar to the stress pattern described in Makassar Malay (Steinhauer 1988) and the patterns of word-level stress described in other languages of the South Sulawesi Subfamily (Mills 1975; Matti 1991; Sikki et al. 1991; Manyambeang et al. 1996; Sande et al. 1997).

(5) Penultimate stress

(a) Diagram: [ω … σ ‘σ σ]

(b) Notation: ω = word, σ = syllable, ‘σ = stressed syllable

I propose that this pattern of stress is caused by a pressure in the phonology of the language to align the right edge of every word with a particular type of metrical foot: a disyllabic trochee. This is a foot that contains two syllables, with stress falling on the first. The result is an analysis that is very similar to that proposed in other languages of the South Sulawesi Subfamily (Mithun & Basri 1986, Aronoff et al. 1987, Friberg & Friberg 1991, McCarthy and Prince 1994, Basri 1999, Selkirk 1999, Basri et al. 2012, Jukes 2006, Laskowske 2016).

(6) The Disyllabic Trochee

(a) Diagram [ω … σ (‘σ σ’]

(b) Notation: parentheses = metrical foot

(c) Terminology: trochee = a metrical foot with stress on the first syllable

The Weight of the Final Syllable

There is a systematic asymmetry in weight between the two syllables in this disyllabic trochee. This asymmetry can be seen in the way that feet are built in words that end in vowel sequences. The following examples illustrate the basic split. In words that end in a sequence of two vowels, the stress always falls on the first of the two vowels (7a). This pattern suggests the parse in (7b): the two vowels are parsed into distinct syllables in the disyllabic trochee at the end of the word.

(7) Word-final Vowel Sequences

(a) Examples: *malái* "return," *masáe* "long,'' *maliŋgáo* "tall"

(b) Parse: [$_{\omega}$ ma ('la.i)]

The stress pattern is different in words where vowel sequences appear outside of the right edge. The following examples illustrate. In words that contain a vowel sequence followed by another syllable, the word-level stress falls on the first vowel within the vowel sequence. This pattern suggests a different phonological parse: the vowel sequence is parsed into a single syllable, and that syllable carries stress within the disyllabic trochee at the right edge of the word.

(8) Word-medial Vowel Sequences

(a) Examples: *báine* "wife," *káijaŋ* "big," *sáejaŋ* "horse

(b) Parse: [$_{\omega}$ ('bai.ne)]

We can summarize this asymmetry as follows. In Mandar, vowel sequences are parsed together into a single syllable when that syllable can carry stress and be initial in the disyllabic trochee. As a result, words like *baine* "wife" receive the parse (bái.ne). But vowel sequences cannot be parsed together into a single syllable when that syllable would receive no stress and would be final in the disyllabic trochee. As a result, words like *malai* "return" cannot be parsed (má.lai). The relevant generalization is summarized in (9) below.

(9) Generalization on Vowel Sequences:

- Vowel sequences are parsed into single syllables when those syllables bear stress
- Vowel sequences are never parsed into single syllables when they would not bear stress

We propose that this asymmetry arises from restrictions on syllable weight within the disyllabic trochee that is preferred in the language. The unstressed syllable in the trochee must be light, in the sense that it can only contain one mora- the smallest unit of metrical weight (Hyman 1985, Hayes 1989, McCarthy & Prince 1993). This constraint, shown in (10), is responsible for the asymmetry above: the final syllable in the trochee can have the shape CV (Consonant-Vowel) but cannot have the shape CVV (Consonant-Diphthong). It is this restriction that forces words like *malai* "return" to be parsed *ma(la.i*) (last syllable = CV) and not (ma.lai) (last syllable = CVV).

(10) Restriction on the Second Syllable

(a) The second syllable in the trochee must be short, having the shape CV and not CVV

(b) The first syllable in the trochee can have the shape CVV.

The Weight of the Initial Syllable

The restrictions on the final syllable are matched by a second pattern within the initial syllable. Mandar is a language that lacks underlying distinctions in vowel length, so there are no vowels that are implicitly short (one mora) and no vowels that are implicitly long (two moras). But when the stressed syllable has the shape CV, it is always audibly lengthened. We illustrate this pattern with the colon below, suggesting that it is similar to the types of lengthening that target stressed CV syllables in other languages of the South Sulawesi Subfamily (e.g., Mithun & Basri 1986).

(11) Stressed Syllables: CV → Lengthening

pó:.le	*púl.le*	*tá:.pa*	*táp.pa*
pole	pulle	tapa	tappa
"come"	"name"	"smoke"	"without"

In light of this pattern, we follow Jukes' (2006) analysis of the related Makassarese and propose that stressed syllables in Mandar must always be phonologically heavy: concretely, they must have one of the shapes CVC (Consonant-Vowel-Consonant) or CVV (Consonant-Vowel-Vowel). When the stressed syllable contains a sequence of vowels, this weight requirement is satisfied by the presence of a second vowel; when the stressed syllable has the surface shape CV, we propose that the vowel is phonologically lengthened to meet the requirement of weight. We summarize this analysis in (12) below.

(12) Weight Requirements in the Disyllabic Trochee

(a) The second syllable in the trochee must be short, having the shape CV and not CVV

(b) The first syllable in the trochee must be long, having the shape CVV or CVC.

The First Challenge: Final Codas

The present analysis can now capture all the stress patterns that we have seen up to this point. But there is a final class of words that raise certain difficulties for our analysis. The words in this class are ones whose final syllables end in coda consonants, yielding the shape CVC. Syllables of the shape CVC are typically assumed to be heavy, like syllables of the shape CVV, so these words seem to violate our generalization about the final syllable in the disyllabic trochee: they end in unstressed syllables that seem to be heavy, breaking from the proposal in (12).

(13) Final CVC syllables

bójaŋ "house" *belúaʔ* "hair" *támbar* "antidote" *támbus* "set"

We propose to integrate these words into our analysis through the hypothesis presented in (14): in word-final position in Mandar, We submit, final codas are non-moraic. The result is that, at the end of the word, CVC syllables are phonologically light in Mandar- as they have been argued to be in many other languages (McCarthy 1979, Hayes 1995), in a case of final extrametricality.

(14) Final Extrametricality: CVC Syllables are light at the right edge of the word in Mandar.

The result is an analysis that analyzes CVC syllables in two ways based on their position in the word: they are heavy when they are initial in the final trochee and light when they are final in it.

(15) The parse of CVC Syllables

(a) Word-medial → heavy [$_{\omega}$ (tán.da)] "sign" = σ_{Heavy} σ_{Light}

(b) Word-final → light [$_{\omega}$ (tám.bar)] "antidote" = σ_{Heavy} σ_{Light}

Interim Evidence: Reduplication

The network of claims that we have advanced up to this point can now be strengthened through a brief foray into the system of reduplication. Mandar has a process of reduplication that copies two syllables from the left edge of a word, as shown in the following examples. No matter the pattern of stress within the base word, the reduplication always shows stress on its first syllable.

(16) Mandar Reduplication

má:nu-má:nuʔ	*bá:la-balá:o*	*má:li-maliŋgá:o*
RED-manuʔ	RED-balao	RED-maliŋgao
"chickens"	"mice"	"somewhat tall"

We propose that the phonology of reduplication can be understood through the proposal in (17): Mandar reduplication copies material from the base word in order to build a disyllabic trochee. This disyllabic trochee, we submit, is the same as the disyllabic trochee in the system of stress.

(17) Reduplication copies a Foot: ($\text{‘}\sigma_{\text{Heavy}}\sigma_{\text{Light}}$) - [$_{\omega}$ Base]

This link allows us to reinforce the two claims that we have made about weight constraints in the trochee. First, we can observe that reduplication always forces its initial syllable to lengthen when it has the shape CV. This pattern suggests that it requires the initial syllable to be heavy.

(18) Reduplication and Lengthening

bá:la-balá:o
RED-balao
“mice”

Second, we can observe that reduplication always forces a pattern of truncation when its second syllable should have the shape CVV or CVC. The following examples illustrate the basic effect: when the second syllable of the reduplicant should host two vowels, it is cut to the shape CV; when the second syllable of the reduplicant should contain a final consonant, it is also reduced.

(19) Reduplication and Shortening

bó:ja-bó:jaŋ	*má:nu-má:nuʔ*
RED-bojaʔ	RED-manuʔ
“houses”	“chickens”

We take these patterns to confirm the proposals that we have advanced above; that Mandar has a disyllabic trochee that requires the first syllable to be heavy and the second syllable to be light.

Degenerate Feet

We can now address one final problem in the system of stress. Mandar has a number of verbal prefixes that exceptionally bear an instance of word stress. These fall into two groups. The first involves the class of elements that Brodkin (2022) identifies as *p*-series prefixes, which combine with verbal roots in various types of nominalizations and which also appear before particular verbs when they host ergative prefixes in the transitive voice.

(20) Word-Level Stress

(a)	*páʔbáluʔ*	(b)	*pépattóaŋ*	(c)	*napáŋípi*
	paʔ-baluʔ		*pe-patto-aŋ*		*na-paŋ-ipi*
	pen-jual		*per-buka-an*		*di-per-mimpi*
	*“*seller”	“window”		“dream about”	

The second class of prefixes that bear word-level stress in Mandar are the antipassive prefixes, which are segmentally identical to the *p*-initial prefixes except that the initial *p*- is replaced by *m*-. The following examples illustrate that word-level stress appears on prefixes of this type; note too that the segmentally-distinct antipassive prefixes also carry stress in Konjo, another language of the South Sulawesi Subfamily at its other geographic extreme (Friberg & Friberg 1991).

(21) Antipassive Prefixes

(a)	*máʔbáluʔ*	(b)	*máʔbóttor*	(c)	*mámbáca*
	maʔ-baluʔ		*maʔ-bottor*		*maŋ-baca*
	ber-jual	*ber-judi*		*mem-baca*	

I take the distribution of stress on these prefixes to suggest that there is another type of foot that is deployed within the phonological word in Mandar: a foot that contains a single syllable.

With this background in place, we can now account for the full distribution of stress in Mandar. The following examples show the way in which we parse words that contain stressed prefixes of this type: the stressed prefixes form degenerate feet and the regular trochee appears at the right edge of the larger word. We assume that the stressed prefixes form independent phonological words, and we extend the same assumption to reduplication, due to the ways in which these prefixes interact with the higher levels of phonological phrasing that are noted in Brodkin 2024.

(21) Parsing Stressed Prefixes.

(d) Word: *mámbáca*

(e) Feet (‘mam) (‘baca)

(f) Phonological Words: [$_{\omega}$ (‘mam)] [$_{\omega}$ (‘baca)]

Kalindaqdaq

With this background in place, we can now turn to traditional Mandar poetry. One component of Mandar oral literature is a type of poem called a *Kalinda’da’ (*derived from the Mandar words *kali* “dig” and *da’da’* “chest”, meaning literally “an act of reaching into the heart”). *Kalinda’da’* poems were traditionally recited and performed across a wide range of social contexts in Mandar society, forming part of the traditional rituals of courtship, marriage, birth, and death, and they can be heard in all these roles in contemporary Mandar theater and specific ceremonies as well.

Muthalib and Sangi (1991) publish a collection of *Kalinda’da’* that were gathered in the Mandar regions of Polewali Mandar and Majene, and they note that, up to that point, *Kalinda’da’* had never been written down and organized in any systematic fashion. Since that time, however, many Mandar authors have published their own collections of *Kalinda’da’* (e.g., Yasil 2012).

Muthalib and Sangi (1991) observe that *Kalinda’da’* can be classified into four categories, based on the age and position of the person who might recite the *Kalinda’da’* (the Mandar word for the reciter is *Pakkalinda’da’*). These categories are shown in diagram (22).

(22) Types of *Kalinda’da’*

(a) *Kalinda’da’ nanaeke* the *Kalinda’da’* of children

(b) *Kalinda’da’ tomanetuo* the *Kalinda’da’* of young adults

(c) K*alinda’da’ tomauweng* the *Kalinda’da’* of adults

Cutting across these divisions, Muthalib and Sangi (1991) note that *Kalinda’da’* share a common shape: they contain four lines, have no common rhyme scheme, and require each line to contain a specific number of syllables. There is systematic variation in the syllable count of the first line, which can contain either seven or eight syllables, but all other lines contain a rigid and consistent number of syllables: the second contains seven, the third has five, and the fourth contains seven.

(23) The shape of *Kalinda’da’*

(a) Line one: 7-8 Syllables

(b) Line two: 7 Syllables

(c) Line three: 5 Syllables

(d) Line four: 7 Syllables

The following example shows a *Kalinda’da’* and its translation, from Muthalib & Sangi 1991.

(22) The Mandar Kalinda’da’

(a)	*Méŋgíliŋ*	*maʔ*	*di*	*líno*
	meŋ-giliŋ	*maʔ*	*di*	*lino*
	VBLZ-turn	PFV.1abs	in	world
	“I’ve been all around the earth”			

(b) *Di baónna dunía*
Di bao-na dunia
In top-3gen world
"Across the face of the world"

(c) *Andíam bándi*
andiaŋ bandi
There is not truly
"Truly, there is not"

(d) *Rapaŋánna batámmu*
rapa*ŋ-aŋ-na bataŋ-mu*
similar-nmlz-3gen body-2gen
"A single person like you"

Jupri Talib, in earlier work, develops an analysis of the meter of the *Kalinda'da'* poems in Yasil 2012 (Talib 2022). Following this analysis in Talib 2022, we observe that there is also a fixed number of word-level stresses in each line of the Kalinda'da': the first line generally contains three, the second line generally contains three, the third line generally has two, and the fourth line generally contains three. We summarize this observation in the following diagram.

(24) The stress patterns of *Kalinda'da'*

(a) Line one: 3 word-level stresses

(b) Line two: 3 word-level stresses

(c) Line three: 2 word-level stresses

(d) Line four: 2 word-level stresses

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The following examples provide evidence for our proposal. Drawing from the *Kalinda'da'* in Muthalib & Sangi 1991, we show the distribution of word-level stress in four *Kalinda'da'* poems. We present these poems in an abbreviated format, in which the four lines of each poem are presented on a single line of text, showing their surface forms, with the metrical line breaks marked with the sign "//", stressed syllables in bold, and the English translation directly below.

(25) The Distribution of Stress in Four Kalinda'da' (from Muthalib & Sangi 1991)

(a) ***Máttá****ŋo aʔ sau su**mó**bal // **Méŋgí**lim maʔ do**má**i // **Á**siʔ baʔ**bán**na // **Á**siʔ pepatto**án**na*
`I stopped while at sea; // I looked to the shore // I saw a lovely door // a lovely window'

(b) *Dotaʔ **d͡ʒáp**poʔ **tún**d͡ʒum **bú**ŋa // Ma**lás**su **tán**di**pá**ke // **Dá**di ba**táŋ**ŋu // Si**pá**ke ba**tám**mu*
`Better I pass away // like a flower unplucked // than that my body // be had by your own"

(c) ***Dí**an **dál**leʔ mulo**lóŋ**aŋ // Damu**gú**la-**gú**la**í** // An**dí**at **túʔ**u // Nasa**dí**an-**dí**anna*
`Now that you have to fortune // waste it not // for it may not // remain to you forever"

(d) **Dí**ap **pó**le kare**wá**na // **Ló**pi **tál**lan di **Lé**ro // An***d͡ʒóro*** lúpa // **Ná**la oro-o**ró***ŋaŋ*
`The news has come // A boat sank in Lero // An empty coconut // They were using to sail"

To show the phonetic shape of this stress pattern, we present the pitch tracks of the four lines of a final *Kalinda'da',* performed by Jupri Talib, in the appendix.

CONCLUSION

This paper has surveyed the distribution of word-level stress in Mandar from the perspective of the theory of metrical phonology. It has shown that the language typically requires each prosodic word to host a single instance of stress on the penultimate syllable. We have proposed that this pattern of stress emerges from the construction of a single disyllabic trochee at the right edge of the word, noting too that this

trochee requires its first syllable to be heavy (CVC or CVV) and its second syllable to be light (CV or CVC, as word-final consonants are non-moraic, but not CVV). From this position, we have shown that our metrical analysis allows us to see another property of traditional *Kalinda'da'* poetry: beyond showing a regular number of syllables in each line, these poems also require different numbers of stresses. We leave it to future work to extend this result.

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