

RHYTHM IN STANDARD THAI

by

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### Abstract

This thesis is divided into three parts. Part I, which is the introductory part, contains three chapters. Chapter One is a brief sketch of the Standard Thai phonological system. A survey of the previous work done on Thai stress and rhythm by eight writers during 1955-1975 is presented in Chapter Two. The definitions of rhythm in general and a historical sketch of the study of rhythm since 1775 are discussed in Chapter Three.

Part II contains four chapters. The physical measurements of the full form and reduced form of syllables are presented in Chapter Four. Chapter Five discusses the nature and role of stress and the correlation of stress with syllable durations. To prove this view, syllable durations in polysyllabic words, compounds, elaborate expressions and sentences are measured. The result conforms quite well with the hypothesis. Functions and durations of phonological pause are illustrated in Chapter Six. Chapter Seven contains the definition of rhythmic foot, the structure and measurement of foot.

Part III is composed of four chapters. A discussion on the difference between timing and rhythm and the characteristics of speech rhythm are given in Chapter Eight. In conclusion, Standard Thai has two kinds of rhythm--syllable-timed and stress-timed. They are used in different styles of speech. The choice of salience both obligatory and optional is described in Chapter Nine. Chapter Ten concerns the linguistic function of rhythm, syllable quantities in rhythmic units and the classification of speech rhythm. The author proposes that historically ancient Thai was a syllable-timed language, but now it

fluctuates between the two types of rhythm mentioned above. To support the claim of several scholars that speech rhythm is the foundation of verse rhythm, rhythmic structures in five major types of Thai poetry are tentatively analysed in the final chapter, Chapter Eleven.

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CIEL

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## PART I: Introduction

### Chapter 1: Brief Phonological Sketch

In order to analyse speech we have to split up into units the unbroken stream of movements and resulting sounds that constitute an utterance. These units can be classified into various categories.<sup>1</sup> In this thesis, the syllable will be used as the basis for a description of speech utterances.

Abercrombie states, "One unit seems an obvious starting point for this purpose, and that is the syllable. Most people seem to be able to say, without much difficulty, how many syllables are contained in a given word or utterance; and, with perhaps somewhat more difficulty, to say where each syllable begins and ends. The syllable would appear to be an intuitively recognizable unit even for primitive peoples."<sup>2</sup>

In analysing the language which is my mother tongue, this theory seems to work well. I have no difficulty in detecting the number of syllables in a Thai utterance, and I can tell immediately where each syllable begins and ends. For people who believe in this theory or people who think that it is useful, the syllable is regarded as the minimum utterance, and "nothing less than a syllable can be pronounced."<sup>3</sup>

How can the syllable be analysed? Abercrombie suggests, "Analysis of the syllable yields segments of the syllable, which are

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<sup>1</sup>D. Abercrombie, Elements of General Phonetics, p. 34

<sup>2</sup>Ibid. p. 35

<sup>3</sup>Ibid.

successive points in the complex sequence of movements of which the syllable consists. These segments fall naturally into two classes, vowels and consonants."<sup>4</sup> Hence, vowels and consonants are defined in terms of their functions in the syllable. Stetson says, "A vowel then is the nucleus or central part of the syllable, a consonant on the other hand is a marginal part, associated with the beginning and ending of the movement of air engendered by the chest-pulse."<sup>5</sup>

Syllables in Thai are composed of two types of features, segmental features--vowels and consonants; and suprasegmental features--tones (or pitches which have linguistic function at word-level).

"The full range of possible human phonetic performance is very wide. There are "many" ways of combining the resulting movement-complexes into sequences." From this full range, only a selection "is put to use by the speakers of any single language."

"It is this selection from the full general human phonetic range which is formed into the patterns which carry the particular language. The selection, and the patterns into which it is formed, constitute the phonology of the language."<sup>6</sup>

The patterns into which the aural medium is capable of being organized can be discovered, analysed and described in terms of two concepts: structure and system. The concept of system deals with the units (paradigmatic relations), and the concept of structure

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<sup>4</sup>Ibid. p. 38-39

<sup>5</sup>Stetson, Motor Phonetics, p. 21. (For the details about the theory of syllable, see Part II, Chapter 4, of this thesis.)

<sup>6</sup>Abercrombie, p. 70.

deals with their arrangement (syntagmatic relations).<sup>7</sup>

Using the symbols V for vowel, C for consonant and T for tone, the patterns of syllable structure in Standard Thai can be represented in a generalized formula as C(C)V(C).<sup>T</sup>

Every language contains a very large number of segments, both vocoids and contoids. But a great deal of the variation in the phonetic quality of segments can be reduced into a limited system. "The items in a system are phonemes, not segments, and there are very much fewer phonemes than segments in a language."<sup>8</sup>

#### Consonants

In the consonant system of Standard Thai, there are twenty-one phonemes: p t k ʔ ph th kh b d tɕ tɕh f s h m n ŋ w l r and j. All of them can occur in the initial position of a syllable. Every syllable must begin in a consonant, and not more than two consonants are permitted. Only p t k ph kh can be the first element of the clusters and must be followed by r, l or w. The restricted combinations can be illustrated by the following chart:

	r	l	w
p	+	+	
t	+		
k	+	+	+
ph	+	+	
kh	+	+	+

<sup>7</sup>Ibid. p. 71.

<sup>8</sup>Ibid. p. 85

### Vowels

The vowel system in Standard Thai consists of nine monophthongs: i e ε w ɣ a u o ɔ, twelve diphthongs: iu eu εu au ui ɣi oi ɔi ai iə wə uə, and three triphthongs: iəu, wəi and uəi. Vowel length in Thai is phonologically significant.

### Tone

Concerning pitch fluctuation, which is one of the features of voice dynamics, Abercrombie says that voice-pitch fluctuation in languages has two functions: an indexical function (non-linguistic) and a linguistic function. In its linguistic function, it may be called speech melody. Speech melody which is found in all languages can be described in terms of structures and systems.<sup>9</sup> He stated, "The linguistic functions of speech melody are very varied, but of two fundamental different kinds. In one case, the function of the speech melody patterns is to be part of the structure of sentences; in the other case, their function is to be part of the structure of words. In the former case, the patterns are called intonation, and in the latter case they are called tone. In every language the function of speech melody is predominantly either of one kind or the other, so that the languages of the world can be divided into two classes, intonation languages and tone languages."<sup>10</sup>

Since it is a tone language, tone is much an integral part of the Thai syllable as are vowels and consonants. Standard Thai has five contrastive tones, namely, Mid (no tone mark), Low (-), Falling (´), High (ˉ) and Rising (ˊ).

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<sup>9</sup>Abercrombie, p. 104.

<sup>10</sup>Ibid.

Examples

sai	'a kind of fish trap'
-sai	'to wear'
`sai	'intestines'
ˉsai	'to prove (with beak)'
,sai	'to push, shove'
lo:	'the name of a Thai alphabet'
-lo:	'to cast (in a mold)'
`lo:	'mule'
ˉlo:	'wheel'
,lo:	'worn-out, e.g. fan,lo: a worn-out tooth'

In prepausal position, there is a tendency to pronounce the mid tone with quite a noticeable fall. The low tone starts lower than the mid tone and gradually moves down. The variant low-level also occurs when the syllables contain any one of the short vowels followed by p, t, k and ʔ. The falling tone starts high and falls to low. The mid tone and the falling tone are clearly distinguished both by their starting pitches and by the manners of their ending. The falling tone begins on a pitch about a minor third above the starting pitch of the mid tone, and is always closed in pre-pausal position by a weak glottal constriction. The high tone is also closed in pre-pausal position by a weak glottal closure. There is an initial short rise followed by a sustained high pitch, with no fall at the end.<sup>11</sup> The variant high-level also occurs when the syllables contain any one

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<sup>11</sup>Henderson, "Marginalia to Siamese Phonetic Studies, "In Honour of Daniel Jones, pp. 416-417.

of the short vowels followed by p, t, k and ʔ. The rising tone is the only compound tone consisting of two movements--somewhat down and then up.

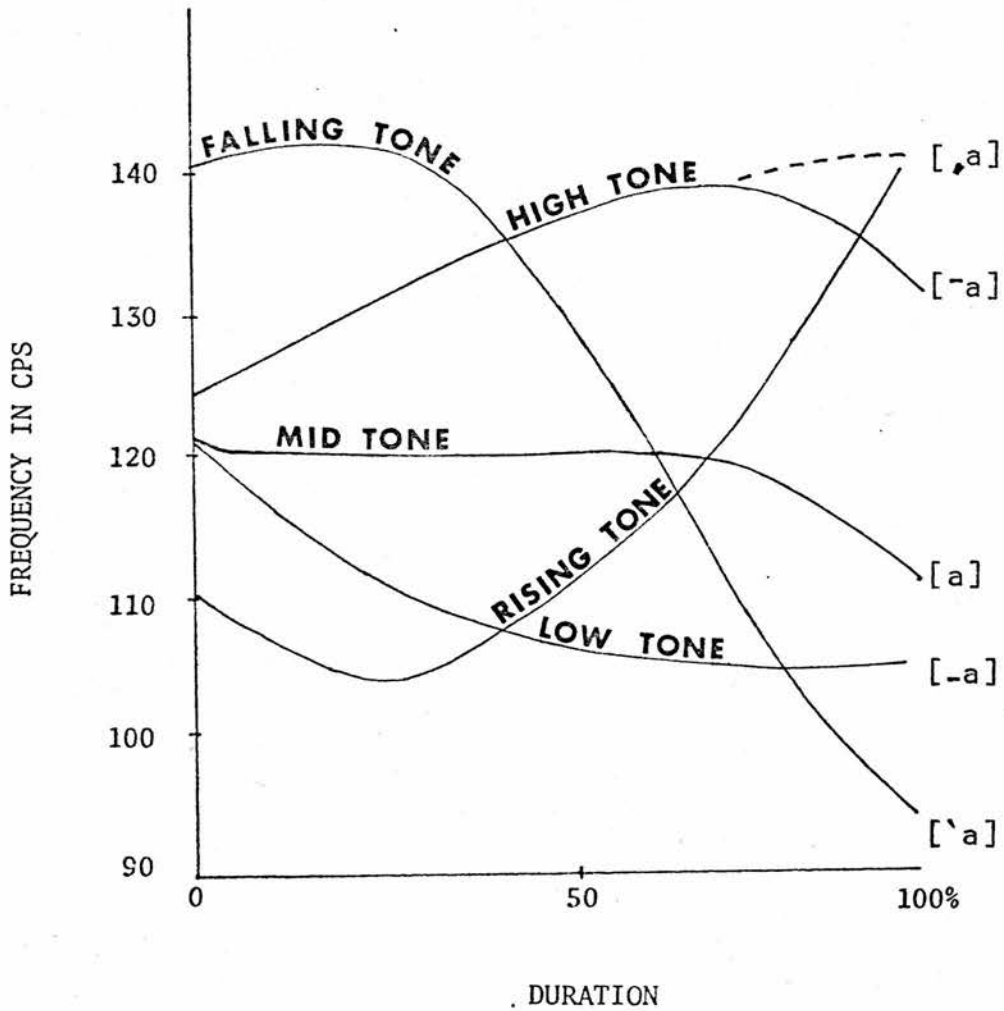


Fig. 1 TONES ON SHORT VOWELS

(ADAPTED FROM ABRAMSON, 1962, Fig. 3.5)

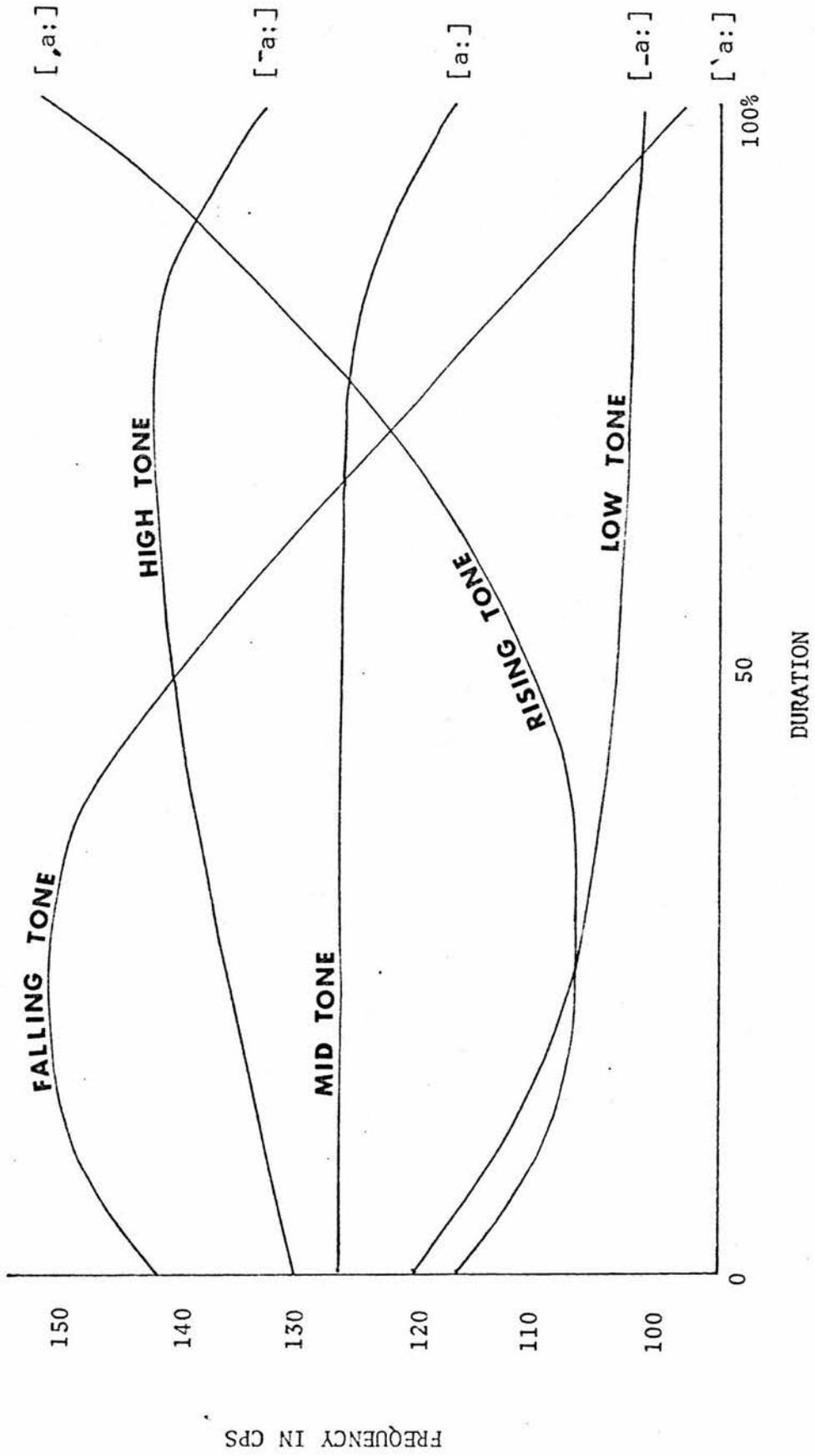


FIG. 2 TONES ON LONG VOWELS

(ADAPTED FROM ABRAMSON, 1962 FIG. 3.6)

### Intonation and Rhythm

Even though Thai is a tone language, I am quite certain that intonation (pitch fluctuation having linguistic function at sentence level) also has a linguistic function besides the affective functions that can be easily observed.<sup>12</sup> I am not going to discuss intonation here since I have never investigated this particular area myself, and from my readings, I still have not got any insight into it yet. Therefore, I would like to pass to another feature of voice dynamics, rhythm, which is the target of this thesis.

In short, rhythm in Standard Thai is significant. Both types of rhythm--stress-timed rhythm and syllable-timed rhythm--occur in Thai. But they play different roles. The detailed discussion on their nature and function will be presented from Chapter 4, Part II, throughout the rest of the thesis.

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<sup>12</sup>See Pantupong, "Pitch, Stress and Rhythm in Thai," Pasaa, pp. 46-51. (In Thai)

Chapter 2: Literature Survey

Almost every linguist who has written on Thai phonology has had something to say about stress, but very few of them have dealt with rhythm in its total context. However, I would like to mention briefly in this chapter the previous work of eight writers: Thawisomboon (1955), Henderson (1964), Hass (1964), Sagarik (1956), Hiranburana (1971), Noss (1972), Pantupong (1973) and Bee (1975).

Thawisomboon is the only writer who attempts to provide phonetic data on Thai rhythm. Instead of the rhythm group Thawisomboon postulates a stress group.

"... there is only one fully stressed syllable in a stress group. A long word or sentence may have more than one stress group. .... within a group, syllables are uttered with a certain rhythm."<sup>1</sup>

He uses a musical notation to indicate the rhythm of an utterance. The quaver (♪), the crotchet (♩), and the crotchet with ictus (♩̇) are used to denote the syllables with weak stress (,x), secondary stress ('x) and full stress ("x) respectively. He observes that a syllable having full stress (or a syllable pronounced with more intensity than a syllable with secondary stress) is usually to be found at

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<sup>1</sup>Thawisomboon, Syllable Junctures Within Stress Groups in Spoken Thai, p. 19. Thawisomboon's system of tone marks is as follows:

a = mid

ǎ = low

à = falling

â = high

ǎ̇ = rising.



susceptible to systematic analysis and description, difficult though this may be. A stride in the right direction has been made by Sanit Thawisomboon in his study of rhythm and stress groups. It still remains, however, for his findings, and the further extensions of which they are capable, to be integrated into a competent grammatical analysis of the spoken language. It is quite clear that many of the rhythmic groupings he describes, together with concomitant features of pitch and duration, are closely linked to grammatical structure."<sup>4</sup> Hiranburana is one of Henderson's students who adopted this idea, and in 1971, did a thorough research on the role of accent in Thai grammar.

While Henderson has been the authority on Thai linguistics in Great Britain, Haas has been the authority in the United States. In the same year (1964), a classic Thai-English student's dictionary, compiled by Haas and her group, came out. Relating rhythm to stress, she simply states, "Each rhythm group has at least one stressed syllable."<sup>5</sup> Stress is marked by a heavy acute accent (´) placed after any syllable uttered with full strength, and where all unmarked syllables are considerably shortened and weakened. There is no spacing between the syllables of a single rhythm group. A hyphen is used when more than two stressed syllables occur within a rhythm group. Besides the statement given above and the transcription that one can gather from the dictionary, Haas does not explain anything else so far as rhythm and rhythm groups are concerned.

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<sup>4</sup>Henderson, pp. 422-423. The underlining is my own.

<sup>5</sup>Haas, Thai-English Students Dictionary, xiii.

Here are some examples from the Thai-English Student's Dictionary:

- a) ?awmaphráawháaw' - maakhǎaj' sǔən' 'to tell someone what he already knows.'
- b) khun' - miithúra?' ?araj' 'What's on your mind?'
- c) tàd' - sǎmphān' thaŋkaanthûud' 'to break off diplomatic relations'

A summary of work done in this general field up to 1965, especially by people who belong to the American School of linguistics, is available in Sagarik (1965). Sagarik herself observes that there are four kinds of stress in Thai: emphatic stress (!), heavy stress ("), reduced stress (') and syncopated stress (no symbol), and the more syllables a rhythm unit contains, the more the instances of syncopated seem to occur.<sup>6</sup>

According to Sagarik, there are five ways of saying the sentence

,khau mi: `swə phrɛ: ,kʰa:u ,sɔ:ŋ tua 'She has two silk blouses'.

The syllables in this utterance can receive different degrees of stress when the rhythm pattern changes. The five ways of saying the above sentence are as follows:<sup>7</sup>

(1) /khǎw mi ŝa phrɛ khǎaw sɔŋ "tua †/

'She has two white silk blouses.'

(more quickly than normal)

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<sup>6</sup>Sagarik, An Analysis of the Elements in Thai That Correspond to Basic Intonation Patterns of English, p. 71.

<sup>7</sup>The underlining indicates the part of the sentence which is emphasized. The two arrows † and ‡ are sustained terminal juncture and falling terminal juncture respectively. Double vowels (e.g. ii, ææ) represent long vowels and the diphthongs †a and ua are equivalent to [wə] and [uə].

- (2) /khǎw 'mii 'sĕa phræ "khǎaw → 'sǒŋ "tua ↓/  
 'She has two white silk blouses.'  
 (normal rhythm)
- (3) /khǎw 'mii → 'sĕa 'phrææ "khǎaw → 'sǒŋ "tua ↓/  
 'She has two white silk blouses.'  
 (emphasizing the idea that she has two blouses)
- (4) /khǎw "mii → "sĕa → 'phrææ "khǎaw → "sǒŋ "tua ↓/  
 'She has two blouses (which are made of) white silk.'  
 (deliberate or thinking as one is speaking)
- (5) / khǎw "mii → '(")sĕa "phrææ → "khǎaw → "sǒŋ "tua ↓/  
 'She has two silk blouses (which are) white.'  
 (more deliberate than 4)

Sagarik suggests, "... the rhythm unit may determine the degrees of stress on the syllables each contain. Each unit, regardless of the difference in the number of syllables, has at least one 'heavy stress' /"/ on the last important morpheme in the unit. The rest of the syllables in the rhythm unit receive graded degrees of stress.<sup>8</sup> She then concludes that rhythm in Thai consists of phonetic features accompanying phonemes of stress. It is predictable, depending on the number of stressed syllables in an utterance; and the unit is generally short, if most of the syllables receive emphatic or heavy stress. In a longer utterance consisting of one rhythm unit, the syllables are contracted except for the last syllable of the last important word,

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<sup>8</sup>Ibid. p. 72

which will be heavily stressed.<sup>9</sup> Concerning degrees of pause, she says, "After a syllable with emphatic stress there is usually a very long break; after a heavily stressed syllable, a long break, and after an unstressed syllable, a short break."<sup>10</sup>

A good review of previous work done in this general field (stress, degrees of stress and all kinds of reductions occurring in unstressed syllables) is available not only in Sagarik but also in Hiranburana.<sup>11</sup> Hiranburana points out many facts although she uses the transformational generative framework in discussing the rôle of accent in Thai grammar. At the end of her dissertation she concludes, "We may come to the conclusion that accent in Thai is predictable and that it has two functions in the language; the syntactic function and the interpretative function."<sup>12</sup>

The most important piece of work that needs to be mentioned is the article by Noss Called "Rhythm in Thai" which was published in Tai Phonetics and Phonology (1972). Noss is the first writer who suggests that rhythm in Thai should be investigated phonetically. At the end of his article he concludes,

".... the investigation of rhythm in most languages, including English and other well-studied languages, is a wide open field. I still am not sure whether rhythm is phonemic in Thai, whether stress is phonemic, or whether both are phonemic. The point I have tried to make is that stress and rhythm must be investigated separately, as phonetic features, before anyone can decide this question

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<sup>9</sup> Ibid. p. 80

<sup>10</sup> Ibid.

<sup>11</sup> Hiranburana, The Rôle of Accent in Thai Grammar, Chapter II.

<sup>12</sup> Ibid. p. 195.

for sure. At any rate more work needs to be done on this subject, not only in Standard Thai but in the major dialects of Thai as well."<sup>13</sup>

Noss discusses rhythm in Thai under four headings: emphasis, previous research, method and conclusion. He points out the difficulties in collecting phonetic data on prosodic features. As far as rhythm is concerned, the most important problem is what will be an effective technique of collecting data on relative syllable length. At the end of the section 'emphasis,' he suggests, "By comparing the percentages for all kinds of five-syllable phrases (like 250 baht) we might be able to arrive at typical rhythmic patterns for the five-syllable phrase. Similarly, we could establish patterns for phrases of two syllables, three syllables, and up to ten, or however many syllables might occur in a single phonetic phrase."<sup>14</sup> Here is the example of the timing of a five-syllable phrase (p. 35):

	sǔɔŋ	rǔɔj	hâa	sìp	bàat	
Absolute:	.20	.28	.22	.14	.31	(=1.15)
	.29	.35	.26	.18	.42	(=1.50)
	.15	.22	.24	.10	.29	(=1.00)
Percentages:	15-19 %	22-25 %	17-22 %	10-12 %	27-29 %	

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<sup>13</sup>Noss, "Rhythm in Thai," *Tai Phonetics and Phonology*, p. 42. (I have been interested in this particular subject since May 1971 when the paper "Rhythm in Thai" was presented by Noss during the conference on Tai Phonetics and Phonology held at the English Language Centre, Bangkok.)

<sup>14</sup>Noss, p. 35.

The phrase '250 baht' (two hundred and fifty baht) was pronounced at different speeds in various contexts and in isolation. Then the percentages of each syllable's duration in terms of the duration of the entire phrase was worked out.

Under the heading 'previous research,' Noss mentions what has been done in the field of rhythm by Haas (1964), Kruatrachue (1960), Sagarik (1965), Noss (1954) and Thawisomboon (1955). Then he comments, "I think that all are agreed on the following two points:

1. Syllables in Thai have different relative lengths which are discernable to speaker and hearer alike; that is, rhythm is a phonetic feature of Thai.

2. There is in Thai some kind of a unit, larger than a syllable and smaller than a whole utterance, which can be determined phonetically. Investigators disagree as to whether this unit is a rhythm group, a stress-group, or simply a pause group."<sup>15</sup>

It also seems that some people who are interested in Thai prosodic features have recognised more or less the same facts, but that most of these facts have been disguised by their phonological frameworks. Each of them suggests something but does not commit himself or herself to a final word. Most of the linguists who have dealt with Thai phonology associate rhythm with stress, degrees of stress and junctures. Noss is the first to suggest that the measurement of relative syllable duration could be a clue to rhythmic patterns in Thai.

Noss's technique described under the heading 'method' might be

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<sup>15</sup>Ibid. p. 37.

questioned. He suggests that in order to collect data, we need three things:<sup>16</sup>

1. Thai speakers whose speech is considered acceptable;
2. a unit larger than a syllable but smaller than a whole utterance;
3. an effective way to measure syllable duration.

My methods of collecting data and measuring syllable duration are entirely different. (See the details in Chapter 4, Part II.)

Noss gives eleven examples, the last nine of which are minimal sets showing how rhythmic contrasts occur in Thai. The relative duration of the syllables within the phrases is indicated by the number beneath each syllable--the number 1 being the longest down to number 5 for the shortest.

Example 3

j`aa	kan	dii	kw`aa	'Better get a divorce.'
1	3	3	2	
j`aa	kan	dii	kw`aa	'Better not block the way.'
3	1	3	2	

In short, Noss gives many good suggestions to anybody who wants to pursue the investigation of rhythm.

It has been assumed that Thai has a syllable-timed rhythm. I could not find out who had started the idea. However, most of the linguists and phoneticians who have done some work on Thai phonology try to avoid answering directly any questions about rhythm in Thai. This might be because they do not have any first-hand experience, and

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<sup>16</sup>Ibid.

at the same time they doubt the assumption that syllables in Thai utterances have equal duration--if Thai is a syllable-timed language. All kinds of reductions can be perceived easily in unstressed syllables.

Pantupong is the only writer who commits herself by saying in her article "Pitch, stress and rhythm in Thai," that rhythm in Thai is a syllable-timed type. She says, "Thai is a language in which the rhythm is determined by the duration of syllables which are equal; no matter whether they receive stress or not."<sup>17</sup> Then she gives the two following examples:

- a) cʌ 'sai nám\* 'ta:n kǐ 'kɔ:n khā //
- 'How many lumps of sugar do you take?'
- b) 'thán ʔʌthǐpbʌ\*di: mai 'jɯ: //
- 'The Director-General is not in.'

Pantupong claims that every syllable in the above two sentences is uttered with the same duration although each receives different degrees of stress.<sup>18</sup>

Bee (1975) has recognised a kind of systematic alternation between stressed and unstressed syllables in Thai. He says that the iambic foot ( ~ ' ) which conveniently defines the rhythm of the following words: kɾədà:t 'paper,' prətɯ: 'door,' səpʰa:n 'bridge,' ləkʰɔ:n 'drama,' məpʰrā:u 'coconut,' and so on, can easily be expanded into the cretic foot ( ' ~ ' ) by the preposing of a stressed beat.<sup>19</sup>

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<sup>17</sup>Pantupong, Pasaa. Vol. III, No. 2, p. 59.

<sup>18</sup>Ibid. p. 60.

<sup>19</sup>Bee, "Restricted phonology in Certain Thai Linker-Syllables," Studies in Tai Linguistics, p. 17

Does Bee imply that rhythm in Thai is a stress-timed type? How can an iambic foot can be expanded into a cretic foot. What criteria does Bee use to mark the boundary of a foot in Thai?

In Summary, there have been three different opinions concerning rhythm in Standard Thai:

1. It is a syllable-timed type;
2. It is a stress-timed type;
3. It is the combination of both or none of the above, or else something yet to be defined.

If the third idea could be proved, the theory of rhythm should be revised since it is not adequate. The time to investigate rhythm in different languages of the world has come; a good theory should not be built only on a few wellknown languages.

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Chapter 3: Theoretical Background

1. The meaning and the origin of the Thai word จังหวะ [tɕaŋ\_waʔ]

According to the Royal Academy,<sup>1</sup> the word จังหวะ 'rhythm' means ตอน [tɔ:n] 'part, section (of space and time),' ส่วน [\_suən] 'part, portion,' and ระยะ [rəːjaʔ] '1. distance 2. period, stage (as of development), interval (of space or time)'.

In the Thai-English Dictionary by McFarland,<sup>2</sup> chjang-wa is given as the pronunciation of the word จังหวะ which is a noun, meaning 'a bar; an interval or division in music; rhythm; final words of lines that rhyme'.

/caŋwàʔ/ is the transcription given by Haas.<sup>3</sup> The word means 'a beat (as in music), timing interval, and rhythm'. The expression ชัดจังหวะ /khàd'caŋwàʔ/ (v) is used as an example of the usage; it means '1. to interrupt, intervene; to break in the middle of 2. to be interspersed (as trees dotting the landscape)'.

Concerning the usage of the word จังหวะ examples are given by Sreshthaputra<sup>4</sup> as follows:

1. timing; swing; rhythm

เธอก้าวเท้าผิดจังหวะ

thɛ: 'ka:u ˀtha:u ˀphit tɕaŋ\_waʔ

'You stepped out of time.'

<sup>1</sup>Thai-Thai Dictionary, Royal Academy (1950), p. 281.

<sup>2</sup>McFarland, Thai English Dictionary, p. 238.

<sup>3</sup>Haas, Thai-English Student's Dictionary, p. 114

<sup>4</sup>Sreshthaputra, The New Model English-Thai Dictionary, p. 294.

จังหวะของคำประกาศนี้พอเหมาะทีเดียว

tɕaŋ\_wa? ,khw:ŋ kham \_pra?-ka:t ˀni: pho:\_mɔ? thi: dieu

'The timing of the declaration is just right.'

โคลงฉันท์กาพย์กลอนต้องมีจังหวะ

khlo:ŋ ,tɕaŋ \_ka:p kɔw:n ˀtoŋ mi: tɕaŋ\_wa?

'Verse must have rhythm.'

โป๊ะขึ้นลงตามจังหวะของน้ำ

ˀpo? ˀkhwŋ loŋ ta:m tɕaŋ\_wa? ,khw:ŋ ˀna:m

'The dock stage goes up and down in accordance with the swing of the tide.'

## 2. spacing

จังหวะระหว่างเสาต่อนึง ๒๐ เมตร

tɕaŋ\_wa? ˀra?-wa:ŋ ,sau ˀkhu: \_nuŋ ˀji: \_sip ˀme:t

'The spacing between any pair of poles is 20 metres.'

As far as the origin of the word จังหวะ is concerned, I could not find anything in the dictionaries, therefore I had to investigate the whole thing myself. From talking to many scholars both Thai and Cambodian,<sup>5</sup> to whom I am greatly indebted, I discovered that the word จังหวะ had been borrowed from the Khmer (Cambodian) word

(n) 'ចក្សវក' [cəŋvə?] which means 'an act of laying plans; an act of making things be in line (with); an act of making things systematic; an act of setting the intervals of time and

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<sup>5</sup>I would like to express my gratitude towards the following scholars who have been very kind and helpful to me: อาจารย์ ดร. บรรจบ พันธุเมธา, อาจารย์ ดร. กาญจนา นาคสกุล, อาจารย์ฉัตร เปรมฤดี และอาจารย์สอง บุคพงษ์

space. The noun <sup>၅</sup> ~~၅~~ vak is derived from the verb 'vak' [va?] meaning 'to lay plans'.

Examples

နိယာယ မှာ ခြောက် ဗဟုသုတ နှစ် နှစ်  
niyaiy mian cəŋvak sənɔp thnɔp l?ɔ:

'speak with good rhythm'

သေ့ မှာ မှာ ခြောက်

dae mun mian cəŋvak

'walk without rhythm'

သက် တံတံ မှာ ခြောက်

dak səɔ mian cəŋvak

'place the poles with equal space'

နိယာယ ခြောက် ခြောက်

niyaiy cəŋvak cəŋvak

'say something in the middle of a conversation'

လား နှစ် ခြောက်

cho: khos cəŋvak

'do not stand properly in the line'

2. Definitions of rhythm

Rhythm, according to the Oxford English Dictionary (Volume VIII, <sup>၆</sup> ~~II. 4. Pros.~~, p. 636)<sup>6</sup>, is 'the measured recurrence of arsis and thesis determined by vowel-quantity or stress, or both combined; kind of metrical movement, as determined by the relation of long and short, or stressed and unstressed, syllables in a foot or a line'. Several

<sup>6</sup>The Oxford English Dictionary, Volume VII, Poy-Ry, Oxford: At the Clarendon Press, p. 636.

meanings of the word 'rhythm' are given in Webster's Third New International Dictionary (U.S.A. 1967, p. 1950),<sup>7</sup> but only the following two meanings are relevant here: "2a: an ordered recurrent alternation of strong and weak elements in the flow of sound and silence in speech including the grouping of weaker elements around stronger, the distribution and relative disposition of strong and weak elements, and the general quantitative relations of these elements and their combinations; 5a: harmonious or orderly movement, fluctuation, or variation with recurrences of action or situation at fairly regular intervals (investigators, concentrating on recurrent processes, have been able to demonstrate the existence of many)."

Woodrow, a famous psychologist, says, "By rhythm, in the psychological sense, is meant the perception of a series of stimuli as a series of groups of stimuli. The successive groups are ordinarily of similar pattern and experienced as repetitive. Each group is perceived as a whole and therefore has a length lying within the psychological present."<sup>8</sup>

Different writers who have investigated rhythm, especially in English prose and verse, try to define what rhythm is and to explain the concept. Here are some examples:

Edwin Guest (1882): "Rhythm in its widest sense may be defined as the law of succession. It is the regulating principle of every whole, that is made up of proportional parts, and is as necessary to

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<sup>7</sup> Webster's Third New International Dictionary of the English language, G & C. Merriam Company, Publishers Springfield, Massachusetts, U.S.A., 1967, p. 1950.

<sup>8</sup> Woodrow, "Time Perception," Handbook of Experimental Psychology, p. 1232.

the regulation of motion, or the arrangement of matter, as to the orderly succession of sounds. .... The rhythmical arrangement of sounds not articulated produces music, while from the like arrangement of articulate sounds we get the cadences of prose and the measures of verse."<sup>9</sup>

William Thomson (1923): "Rhythm has at all times been associated with measurement, especially with that of equality."<sup>10</sup>

E.A. Sonnenschein (1925): "Rhythm is that property of a sequence of events in time which produces on the mind of the observer the impression of proportion between the durations of the several events or groups of events of which the sequence is composed."<sup>11</sup>

Paul Franklin Baum (1923, 1952): "Rhythm, in its simplest sense, is measured motion; but by various natural extensions of meaning the word has come to be used almost as a synonym of regularity of variation. Whatever changes or alternates according to a recognizable system is said to be rhythmic, to possess rhythm. In this sense, rhythm is one of the universal principles of nature. We find it in the stripes of the zebra, the indentation of leaves, the series of teeth or of crystals, the curves of the horizon; in the tides, the phases of the moon, the rising and setting of the sun, the recurrence of seasons, the revolutions of planets; in the vibrations of color, sound, and heat; in breathing, the throbbing of the pulse, the stride of walking. .... Rhythm is, by definition, a series, or the effect

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<sup>9</sup>Guest, A History of English Rhythms, p. 1.

<sup>10</sup>Thomson, The Rhythm of Speech, p. 8.

<sup>11</sup>Sonnenschein, What is Rhythm? p. 16.

of a series, of equal or approximately equal, or seemingly equal, events in time (1952)."<sup>12</sup>

### 3. Effects of rhythm(s)

Psychologists, musicians, metrists and phoneticians have given their attention to what rhythm does. "The diverse effects of particular rhythms have been observed and brought into play by poets and musicians since the dawn of civilization."<sup>13</sup>

Rhythm in general may be said to give pleasure and displeasure to us. Rhythm can be displeasing when it bores us with a sense of monotony; it may put us to sleep. Different rhythms (or rhythmical sequences) produce different effects on our mind--please or displease, excite or lull, soothe or depress, and so forth. Psychologists have mainly directed their attention to the investigation of these and other effects of rhythm or rhythms.<sup>14</sup>

The rhythm of a language is not only noticeable, but also deliberate and designed as part of the expression.<sup>15</sup> A sentence would not have "the same whole meaning if its rhythm were changed, whether the same words were used or not. ... the characteristic effect of rhythm contributes something that could not be otherwise given; and its contribution cannot therefore be exactly described. It may be used to bring certain words or phrases into prominence and endow them

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<sup>12</sup>Baum, The Principles of English Versification (1923), p. 3.

Baum, .... the other harmony of prose--an essay in English prose rhythm (1952), p. 212.

<sup>13</sup>Sonnenschein, p. 4.

<sup>14</sup>Ibid.

<sup>15</sup>L. Abercrombie, Principles of English Prosody, p. 29.

with unusual force; it may be used to imitate natural sounds or suggest definite moods."<sup>16</sup> A given group of words may express affection, anger, weariness, or joy, depending upon the rhythm of its utterance.

Poets and writers of prose always use rhythms as a means to convey different meanings. In the Encyclopedia Americana (Volume 23),<sup>17</sup> Prof. Herbert says, "Rhythm becomes an adjunct to meaning when prose conveys the mood of a person or the quality of a living voice. The Declaration of Independence is often spoken with rhythms that credibly express the resolution of the signers. ...William Faulkner can make swift silent readers feel, through the long reverberations and the sharp snap of his cadences, the vitality of his characters. Most poets in English, though they differ about techniques, are concerned with rhythm not as an adjunct but as an organically essential factor in poetry. .... The relationships in poetry between rhythm and sense are infinitely various. At one extreme the rhythm echoes the motion or sound the line assert, ... At the other extreme an inappropriate rhythm may help turn a tragic meaning into comedy,..."

Both Stetson and D. Abercrombie regard rhythm as one of the most fundamental characteristics of the pronunciation of a language. It is the most difficult thing for an adult speaker to acquire when he wants to learn to communicate in a foreign language. "It is easy to see that the rhythm has a vital influence on the details of pronunciation. ... the rhythm at high speed determines the slurring or the

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<sup>16</sup>Ibid. p. 28.

<sup>17</sup>Herbert, Encyclopedia Americana (Volume 23) p. 480 f.

full pronunciation of syllables."<sup>18</sup> In language teaching "rhythm is a much neglected factor, though intelligibility undoubtedly depends on it to a considerable extent," Abercrombie says.<sup>19</sup> Moreover, rhythm is among the earliest things learnt by the infant.<sup>20</sup> And it also guides the phonetic changes every language undergoes.<sup>21</sup>

#### 4. The source of rhythmic sense in man

Almost every person has a sense of rhythm, but the origin and source of this sense is a matter of uncertainty and dispute. Rhythm exists in three fields of sensation: touch, vision and audition. The sense of rhythm differs remarkably in different individuals--just as the sense of touch, of smell, of hearing, and so on.<sup>22</sup>

The beating of the heart, the pulsation of the blood in our veins, or the regular intake and outflow of breath may be the source of all rhythm. Our striving after rhythm is quite as natural and unconscious a proceeding as breathing. There is a measured movement in everyday language just as in other human activities--in our walk, our laughter, our sobbing and so forth.<sup>23</sup> Thus, the beginning of rhythm is in the senses of the body. There is also a corresponding rhythmic sense distributed through the whole nervous system. The common name for this

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<sup>18</sup>Stetson, Motor Phonetics, p. 206.

<sup>19</sup>D. Abercrombie, p. 36.

<sup>20</sup>Ibid.

<sup>21</sup>Stetson, p. 206.

<sup>22</sup>Baum (1923), p. 14.

<sup>23</sup>Draat, Rhythm in English Prose, pp. 3-4.

is 'body rhythm'.<sup>24</sup> For the idealist, rhythm is "a primary law of being, which manifests itself in all nature, animate and inanimate-- therefore in man, both mind and body."<sup>25</sup>

It is as difficult for a human being not to hear some rhythm in any continuous sound which is not quite uniform, as it is for him not to make a noise rhythmically. For example, a familiar instance is that of a blacksmith who rhythmically divides his hammer-strokes between the anvil and the hardware he is forging.<sup>26</sup>

Concerning speech rhythm, Abercrombie says, "Rhythm, in speech as in other human activities, arises out of the periodic recurrence of some sort of movement, producing an expectation that the regularity of succession will continue. ... Speech rhythm is essentially a muscular rhythm, and the muscles concerned are the breathing muscles."<sup>27</sup> Thus, speech rhythm is experienced as a rhythm of movement directly by the speaker. But how does the hearer perceive rhythm? In a sense the hearer is also the speaker; therefore, he experiences a rhythm of movement as well. Abercrombie says, "We talk, for convenience, about 'hearing' rhythm, but in fact we feel it, entering empathetically into the movements of the speakers, to which the sounds we hear are clues."<sup>28</sup>

##### 5. Perception of rhythm

Human beings tend to consider things in terms of structural

<sup>24</sup>Baum (1952), p. 3

<sup>25</sup>Ibid.

<sup>26</sup>L. Abercrombie, pp. 27-28.

<sup>27</sup>D. Abercrombie, p. 96.

<sup>28</sup>Ibid. p. 97.

groups rather than fragments and the motive is a simple principle of human economy.<sup>29</sup> There is the distinction between objective rhythm and subjective rhythm. The former exists outside ourselves; e.g., a series of organ notes or any pattern of sounds and silences mechanically produced. These events in time may be measured with mathematical accuracy by means of instruments such as the kymograph, the sound spectrograph and the oscillograph. They are "the physical facts on which the psychological facts are based, as a means of controlling the deliverances to the ear."<sup>30</sup> What matters in the perception of rhythm is what the hearer thinks he hears. "It has been found by laboratory experiment that readers may be genuinely susceptible to temporal values without being at all conscious of them. They may pause without knowing it or think they pause when the instruments record no silence. In these and other ways they misapprehend or misinterpret the sounds of speech."<sup>31</sup>

According to Baum (1923), the processes of the subjective organization of rhythm are those of coordination, or partly subjective reduction of actual 'irregularities' to a standard of 'regularity'. He states, "When we hear a haphazard succession of drum taps or the irregular click-click of the type-writer, most of us soon begin to feel a certain orderly arrangement, a rhythmical swing in the repeated sounds, a grouping according to a sort of unit which recurs with nearly equal intervals. The units are not absolutely equal, but are

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<sup>29</sup> Chatman, The Theory of Metre, p. 115.

<sup>30</sup> Sonnenschein, p. 18.

<sup>31</sup> Baum (1952), pp.

elastic, allowing of some contraction and expansion; yet they are so nearly equal, or we feel them so, that the series seems regular."<sup>32</sup>

There is apparently a process of mental equalization at work; rhythmical grouping is determined by the duration of the subjective intervals. The results from experiments show that subjects feel that rhythms continue to be fairly good with as much as 14.5 % displacement of temporal regularity. In other words, people perceive as roughly same intervals in rhythm which are as different in time as 1/7.<sup>33</sup>

Psychologists make a distinction between equivalence and identity categorization. The perception of equal intervals is an equivalence (as the same kind of thing or amounting to the same thing) rather than an identity (exactly the same) categorization.<sup>34</sup> Chatman states, "Indeed, absolutely identical rhythmical repetitions rarely occur in nature; the perception of rhythm is almost always based upon the mental approximations of slightly divergent recurrences. What is important is the impression of proportion or equivalence, not mathematically exact proportion or equivalence itself."<sup>35</sup>

Various theories have been proposed to account for rhythmical grouping, but Woodrow comments: "They are all seriously lacking in factual support and in the precision with which the explanatory concepts are formulated. Without attempting to explain all the known facts, they endeavor to give some notion of the reason for perceived

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<sup>32</sup>Baum (1923), p. 17.

<sup>33</sup>Chatman, p. 21.

<sup>34</sup>Ibid. p. 115.

<sup>35</sup>Ibid. p. 22.

grouping."<sup>36</sup>

6. A historical sketch of the study of rhythm since 1775

J. Steele

Joshua Steele, an Irishman, a Fellow of the Royal Society, is regarded as the founder of a school modern prosody which has been known as the school of "temporal tradition." He pointed out that the studies of music and speech should be joined together to afford mutual support. He states that verse is essentially a matter of musical rhythm, and that not only verse, but also prose, and even every sentence possesses some kind of rhythm. He applies an elaborate notation to both verse and prose. Omond praises Steele by saying that his analytic work is profoundly original, subtle and penetrating, and that nothing like it had been seen before.<sup>37</sup>

In 1775 appeared An Essay towards Establishing the Melody and Measure of Speech, to Be Expressed and Perpetuated by Peculiar Symbols. Four years later followed a second edition improved and enlarged under the title of Prosodia Rationalis; some forty pages of comments from and replies to various critics were added.

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<sup>36</sup>Woodrow, p. 1232.

<sup>37</sup>Omond, English Metrists, p. 93. Concerning the originality of Steele, Fussell (1954, pp. 139 - 140) says, "An almost total neglect of the bulk of the material I have been examining in this chapter and the previous one has caused many modern scholars and critics to give Steele much more credit for originality and priority than he deserves. He is really little more than a highly competent and sensitive practitioner of the hoary bar-foot analogy which, as we have seen, various experiments had been applying since Gildon's first suggestion of it in 1718."

Charles Gildon is one of the first to suggest that English is a strongly accented language and that English poetry requires attention to the structural placement of stresses.

On the first page of Part II of the Essay, Steele expresses his own view as follows: "The art of music, whether applied to speaking, singing, or dancing, is divided into two great branches, sound and measure, more familiarly called tune and time. Instead of which words, I use (for the most part) the Greek terms of melody and rhythmus, being more significant, as generals, than our vulgar terms. ... When the cadences of our language, either poetry or prose, are properly marked in our way, every person initiated in the practical knowledge of music will be able to comprehend our meaning, and to read the words according to the melody and rhythmus we shall mark to them."<sup>38</sup> Melody is now called intonation and rhythmus is rhythm, in the technical language of phoneticians.

The measure of speech, in prose as well as in poetry, is governed by a pulsation of emphatic and remiss. Steele states, "Our breathing, the beating of our pulse, and our movement in walking, make the division of time by pointed and regular cadences familiar and natural to us. Each of these movements, or cadences, is divided into two alternate motions, significantly expressed by the Greek words arsis and thesis, raising and posing, or setting down; the latter of which, coming down as it were with weight, is what we mean to call heavy, being the most energetic or emphatic of the two; the other, being more remiss, and with less emphasis we call light."<sup>39</sup>

There are two general modes of the measurement of time, namely common time and triple time. The former is divided equally by 2, and

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<sup>38</sup>Steele, An Essay Towards Establishing the Melody and Measure of Speech, p. 18.

<sup>39</sup>Ibid. p. 20.



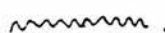
the double cadence, by 4; the latter, may be divided by 6.<sup>40</sup> The length of syllables is various (according to the type of the language). Sometimes words and sentences must be measured by common time and sometimes by triple time.<sup>41</sup>

In general Steele conceives speech as consisting of:

- |                              |                       |  |   |   |   |                      |   |                       |
|------------------------------|-----------------------|--|---|---|---|----------------------|---|-----------------------|
| a. melody by slides          | }                     | acute<br>and<br>grave                  | } | loud or soft  |   |                      |   |                       |
| b. measure<br>or<br>rhythmus | }                     | of motion and rest<br>distinguished by | } | quantity<br>and<br>cadence  |   |                      |   |                       |
|                              |                       |  |   | <table style="border: none; font-size: 1.5em;"> <tr> <td style="font-size: 2em;">}</td> <td style="padding: 0 5px;">long<br/>and<br/>short</td> </tr> <tr> <td style="font-size: 2em;">}</td> <td style="padding: 0 5px;">heavy<br/>and<br/>light</td> </tr> </table> | } | long<br>and<br>short | } | heavy<br>and<br>light |
| }                            | long<br>and<br>short  |  |   |   |   |                      |   |                       |
| }                            | heavy<br>and<br>light |  |   |   |   |                      |   |                       |

There are five orders of accidents incident to melody and measure (p. 24):

1. Accent : Acute /, grave \, or both combined  $\wedge \vee$  .
2. Quantity : Longest  $\sqsupset$ , long  $\uparrow$ , short  $\downarrow$ , shortest  $\lrcorner$ .
3. Pause or Silence : Semibrief rest  $\lrcorner$ , minim rest  $-$ , crotchet rest  $\sqsupset$ , quaver rest  $\sqsupset$ .
4. Emphasis or Cadence : Heavy  $\Delta$ , light  $\circ^\circ$ , lightest  $\circ\circ$  .
5. Force or Quality of Sound : Loud  $\cup$ , louder  $\cup\cup$ , soft  $\cup$ , softer  $\cup\cup$ ,

Increasing in loudness , decreasing in loudness ,  
loudness uniformly continued .

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<sup>40</sup>Ibid. p. 21.

<sup>41</sup>Ibid. p. 22

In summary Steele points out four things:

1. The heavy note (stressed syllable) is always the first in a bar and the rest is always light (unstressed).
2. Pauses are factors of metre. The 'emphatic impulse' can fall during periods of silences, and they are an essential part of its rhythmic effect. Pauses are an integral part of the bar.
3. In English the cadences or bars are of equal length, i.e. the pulsation tends to be periodic--the emphatic impulses come at regular intervals.
4. The regularity does not produce monotony because of the recurrence of pauses. A great variety is given within the regularity by a subtle and individual difference of pause and syllable length which does not change the regular pulsation.

Lord Monboddo<sup>42</sup> accepted Steele's corrections on intonation

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<sup>42</sup> Abercrombie, "Steele, Monboddo and Garrick," Studies in Phonetics and Linguistics, pp. 36-37. "Steele's purpose in publishing his book, though he had 'long nourished the matter of it in private' he said, (he was seventy-five years old when he published it) was to refute another writer who had shown himself insensitive to intonation. This other writer was the eccentric and learned Scottish judge, Lord Monboddo. Monboddo was an acute and original thinker with many unorthodox theories. He was often ridiculed for his evolutionist view that men were descended from apes, and had worn away their tails by their habit of sitting on them. He wrote a long, diffuse, but most interesting book called The Origin and Progress of Language. He said in it many things that would meet with approval today, for instance, that language cannot be studied apart from the society in which it is spoken, and that speech had its origin in the cries of command or exhortation which were 'necessary in carrying on work by joint consent'. But he also said that English when spoken contains no variation of pitch from syllable to syllable. 'The music of our language', he wrote, 'is nothing better than the music of a drum, in which we perceive no difference except that of louder and softer.' "



and other writers praised Steele with dubious compliments. Most of them thought that Steele's attempt was impracticable and useless. Steele went off to the West Indies, and devoted himself to philanthropic work there. Prosody knew him no more, and forgot his teaching. A few followers kept his name alive and systematized his doctrine. Of these were Odell (1806), Thelwall (1812), Chapman (1918) and Roe (1823). Coventry Patmore gives him high praise, and students of phonetics have recognised his value. Alexander John Ellis, an authority on vocal physics, praises and adopts his analysis. "No 'rational prosody' of the future, no prosody based on the actual facts of language, can neglect Steele's analysis. ... The real student will hail Steele as a master, however widely differing from his metrical conclusions, and will pronounce his the first really living work in the evolution of English prosody."<sup>43</sup>

#### J. Odell

In 1806, the second published book of the Steele school, An Essay on the Elements, Accent and Prosody of the English language, by Odell came out. In general he follows Steele's doctrine, but when he deals with prosody he dissents markedly from Steele's teaching. He maintains that prose does not possess 'rhythmical cadences in regular succession'. Pauses are not part of verse structure and no metrical pauses affect the recitation of verse.<sup>44</sup>

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<sup>43</sup>Omond, p. 93.

<sup>44</sup>Ibid. p. 122.

J. Thelwall

The next follower of Steele is John Thelwall who was a friend of Coleridge and Wordsworth, and the editor of the Champion. In 1812, he published a book called Illustrations of English Rhythmus. Thelwall adopts Steele's terminology throughout. The most important section of all is that on "Principles of Metrical Proportion, and of Rhythm." Here he states his general theory with greater exactitude and more detail. Common and triple time--quick triple and slow triple--are distinguished. These are recognised mainly by the number of syllables in a foot, which is not constant. Concerning the rhythm of verse and prose, he says that verse is divided by grammatical pauses and caesurae into obviously proportioned clauses in order to present sensible responses to the ear at proportioned intervals and that prose differs from verse, not in proportion or in the individual character of its cadences, but in the indiscriminate variety of the feet that occupy those cadences, and the irregularity of its clausular divisions. It is composed of all sorts of cadences, arranged without attention to obvious rule, and divided into clauses that have no obviously ascertainable proportion.<sup>45</sup>

Rev. J. Chapman

Rev. James Chapman, a follower of Steele and admirer of Thelwall, published two books: The Music, or Melody and Rhythmus of Language (1818), and The Original Rhythmical Grammar of the English Language (1821). Concerning theory, at any rate, the book unreservedly repeats

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<sup>45</sup>Ibid. p. 127.

Steele.<sup>46</sup>

Rev. R. B. Roe

The book Principles of Rhythm by Rev. Richard (Baillie) Roe appeared in 1823. This is the most systematic work of the Steele school. He constantly refers to music and employs musical signs, seven out of eight chapters deal with rhythm in speech.<sup>47</sup> There are only two points where Roe differs from Steele: 1) he makes an essential difference between prose and verse; 2) he does not regard grammatical pauses as constituents of verse-structure. Roe points out that pulsations differ indefinitely in strength, but may generally be classed as 'primary' and 'secondary'. There are three grades of quantity: 'long,' 'short,' and 'mean'.<sup>48</sup> Feet are either perfect or imperfect. Prose feet are numberless, including all words of but one primary pulsation. Imperfect dissyllabics are common to prose and verse. Verse contains 'irregular feet' formed by inadequate or superadequate syllables which is due to unavoidable defects of language.<sup>49</sup>

C. Patmore

By far the most remarkable contribution of the period between 1850-1900 is Coventry Patmore's Essay on English Metrical Law (1856). He insists that metre is 'a simple series of isochronous intervals, marked by accents'.<sup>50</sup> It exists in all speech, when adequately

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<sup>46</sup>Ibid. p. 131.

<sup>47</sup>Ibid. p. 138.

<sup>48</sup>Ibid. p. 139.

<sup>49</sup>Ibid. p. 140.

<sup>50</sup>Ibid. p. 171.

rendered; time and tone are essential, and the two are inseparable.<sup>51</sup> Patmore thinks that there is no necessary distinction between the right reading of prose and that of verse. The function of metre is to mark certain isochronous intervals. Patmore says, "Metre implies something measured.... 'the thing measured is the time occupied in the delivery of a series of words.'"<sup>52</sup> According to Patmore, the two indispensable conditions of metre are the division of utterance into equal or proportionate spaces, and the manifestation of this division by means of an ictus or beat, physical or mental. In order to make the statement of isochronism less rigid, he says that the equality of metrical intervals between accent and accent is no more than 'general' and 'approximate'. He points out that a satisfactory metrical analysis should take pause into account, and that the ictus can be replaced by a pause.<sup>53</sup> Patmore is aware of the relative character of syllable quantities as well.

#### A. J. Ellis

Alexander John Ellis confirms the idea that verse-rhythm in English depends mainly on periodical succession of clear force-accent or emphasis, and that length of syllables has no part in the fixed laws of English verse--rhythm--but has much influence on the oral effect.<sup>54</sup>

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<sup>51</sup>Ibid.

<sup>52</sup>Ibid.

<sup>53</sup>Sumera, "The temporal tradition in the study of verse structure, Work in Progress no. 6, p. 27.

<sup>54</sup>Omond, loc.cit, p. 189.

T. S. Omond

Omond himself, even though highly praising Steele, absolutely disagrees with Steele's statement that the regular cadences occur in prose as well as in verse. He argues as follows: "With this statement I cannot agree. All musical scansionists of prose seem to me apt to read into it a factitious regularity... No doubt in all speech there is a tendency to be rhythmical, and by exercising a little compulsion we can force prose words to keep time. But the true beauty of prose is lost when we do so. Fundamental irregularity is the law of prose, as fundamental regularity of verse. Certainly, a good prose has its musical movements, which in ordinary parlance are vaguely called 'rhythmical,' in obedience to which a sentence rises or falls, swells or dies away. Isolated phrases will form rhythmical passages, just as isolated words will form 'feet' in our speech as in Greek; but these are not therefore necessary or fundamental. Metre may exist in prose, without being more than an accident; prose may be metric without being emmetric. Too great metrical regularity, we all know, is fatal to good prose. ... In verse, syllables are set to equal time-measures, in prose to unequal. We can contain them to act otherwise if we like, but in doing so we destroy their proper effect. Add to this that no two readers will 'poise' prose sentences in at all the same way, and it will appear how futile to force upon prose the temporal regularity which belongs only to verse. Those who seek to obliterate the dividing line between prose and verse must be somewhat insensible to the prime beauties of either."<sup>55</sup>

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<sup>55</sup>Ibid. pp. 91-92.

W. Thomson

The most significant contribution to the study of rhythm in the early part of this century came from William Thomson. In his early pamphlet "The Basis of English Rhythm" (1904) he raises a number of points. For example, quantity is one of the first things discussed by Thomson. He suggests that instead of the length of vowels we should also consider the length of syllables, whether due to the length of vowels or consonants or of the two combined. A study of the full range of syllable durations in different environments is needed.<sup>56</sup> With regard to syllable durations, he says that the so-called 'long syllable' may have at least three different lengths, and that the length of accented syllables varies according to the character and number of unaccented syllables intervening before the next accent.<sup>57</sup>

The preliminary remarks contained in 'The Basis of English Rhythm' were developed into a big book entitled The Rhythm of Speech which appeared in 1923. Thomson recognises two kinds of rhythm which he calls 'inorganic' and 'organic'. The inorganic rhythm consists of an objective recurrence of the same phenomenon at equal intervals, and the organic rhythm has to do with perception, i.e. it is perceived as consisting of groups of two or three. Thomson states, "It is the organic rhythm super-induced upon the inorganic--one might say woven upon it as upon an underlying fabric--that with its new accents and measures possesses the greater attraction for the mind. ... Objectively what is present is a fast form of the inorganic rhythm which

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<sup>56</sup>Sumera, p. 29.

<sup>57</sup>Ibid. p. 30.

we must always presuppose. It is only subjectively, only in the rationalising mind, that the organic rhythm assumes existence."<sup>58</sup>

In his opinion, two important things need to be mentioned when we talk about rhythm; i.e., measurements and points of measurement. He states, "It is only common sense and common observation that all measurement, in time as in space, is from a point to a point. The prosodists from time immemorial have left out the points; or if, as in English and other modern languages, the points called accents have been forced on their attention, they have left out the measurements. Adding the two omissions we see that they have left out the rhythm."<sup>59</sup> The points of force are regarded by Thomson as occupying no time. The most fundamental truth about rhythm is that it is 'an ordering of blows' which generally occur at equal intervals, not 'an ordering of times'.<sup>60</sup>

"Syllable already implies a blow of some degree of force. ...An unaccented syllable is a relative thing; it is only relatively to a neighbouring stronger syllable that it can be spoken of as unaccented at all,"<sup>61</sup> Thomson says.

Besides the concepts of accent, measure, quantity and musical time in their relation to organic rhythm, Thomson introduces the concepts of three other elements of rhythm, 'ictus,' 'thesis,' and 'arsis'. Thesis and arsis are quantitative in their nature, whereas

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<sup>58</sup>Thomson, The Rhythm of Speech, p. 4.

<sup>59</sup>Ibid. pp. 2-3.

<sup>60</sup>Ibid. p. 28.

<sup>61</sup>Ibid. p. 5.

ictus, being an event, is classed with accent. All three are pertinent to rhythm both in music and speech. He states, "Every measure is divisible into two parts, thesis and arsis, thesis occupying the earlier part to the extent of one-half or two-thirds in duple and triple measures respectively. The thesis-blow, which is also, of course, the main accent, is called ictus; for the arsis-blow there is no corresponding name. Ictus, being main accent, may be said to dominate the whole measure, while as thesis-blow it is, in a special sense, master of the first half or two-thirds of a measure as the case may be."<sup>62</sup>

Pauses, according to Thomson, are an essential part of rhythm. "Sometimes a rhythmical series is interrupted by silences, constituting with the adjoining sounds an essential part of the rhythm, and are called rests,"<sup>63</sup> he says. A syllable may occasionally be replaced by a pause of approximately equal duration, or it may be slightly increased in duration by a pause.<sup>64</sup>

#### D. Abercrombie

Prof. D. Abercrombie is one of the phoneticians who recognize the value of Steele's concept. He maintains that all human speech possesses rhythm (a feature of voice dynamics) which "emerges clearly during those moments when speech is fluent and uninterrupted."<sup>65</sup> His theory of rhythm can be found in Chapter II (pp. 34-36) and in Chapter VI (pp. 96-98) of his book Elements of General Phonetics (1968).

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<sup>62</sup>Ibid. pp. 25-26.

<sup>63</sup>Ibid. p. 27.

<sup>64</sup>Ibid. p. 40.

<sup>65</sup>Abercrombie, p. 96.

Eight important points which can be drawn are as follows:

1. The fundamental unit used as the starting point for the purpose of investigating rhythm is the syllable.<sup>66</sup>
2. The syllable-producing movement of the respiratory muscles has been called a chest-pulse, or breath-pulse, or syllable pulse. The syllable, then, is an audible movement; it is possible for a syllable-pulse to take place silently, producing an inaudible syllable or 'silent syllable'.<sup>67</sup>
3. A syllable produced by a reinforced chest-pulse is called a 'stressed syllable', and the extra strong muscular movement itself is called a stress pulse.<sup>68</sup> (For details about the ~~p~~hysiological aspect of stress, see Ladefoged 1958, 1969.) h/
4. A stress-pulse usually has the effect of producing a louder-sounding syllable, but a silent stressed syllable or 'silent stress' is also possible when there is a reinforced chest-pulse but with no sound at all.<sup>69</sup>
5. Silent stresses play an important part in the structure of English verse and have many functions in everyday speech.<sup>70</sup>
6. Basically, there are two ways in which the chest-pulses and stress-pulses can be combined to give rise to two main kinds of speech-rhythm: (1) a syllable-timed rhythm--the syllables

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<sup>66</sup> Ibid. p. 35.

<sup>67</sup> Ibid.

<sup>68</sup> Ibid.

<sup>69</sup> Ibid. p. 36.

<sup>70</sup> Abercrombie, "A phonetician's View of Verse Structure," Studies in Phonetics and Linguistics, pp. 16-25.  
Abercrombie, "Functions of Silent Stress".

recur approximately at equal intervals of time, i.e. the syllables are isochronous, and (2) a stress-timed rhythm--the stressed syllables recur approximately at equal intervals of time, i.e., the stressed syllables are isochronous.<sup>71</sup>

7. In a language spoken with a stress-timed rhythm, there is considerable variation in syllable-length, whereas in a language spoken with a syllable-timed rhythm the syllables tend to be equal in length.<sup>72</sup>
8. According to relevant authorities, every language of the world is spoken with one kind of rhythm, not both. (This statement is from his Oct. 15, 1973 lecture.)

Sir G. Young, Bt.

Not every prosodist admires Steele and his followers; for example, Sir George Young, Bt. who is the author of the book An English Prosody on Inductive Lines (1928), rejects completely the concept of isochronism by saying: "To regulate such, as by a metronome, were it possible, could only result in an unpleasing monotony."<sup>73</sup> He regards Steele's teaching which has been developed by his followers as a 'chimaera'.<sup>74</sup>

K. L. Pike

The terms 'syllable-timed' and 'stress-timed' were coined by Kenneth L. Pike, in The Intonation of American English. A rhythmic

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<sup>71</sup>Abercrombie, Elements of General Phonetics, p. 97.

<sup>72</sup>Ibid. p. 98.

<sup>73</sup>Sir G. Young, Bt., An English Prosody on Inductive lines, p. 87.

<sup>74</sup>Ibid. p. 86.

succession, according to Pike, is a very important characteristic of English phonological structure.<sup>75</sup>

The rhythm units tend to have a similar time value even though they contain different numbers of syllables. Thus, the syllables of the longer rhythm units are crushed together and pronounced very rapidly, in order to get them all pronounced within time limits. The rhythmic crushing of syllables is the cause of many abbreviations; for example, some syllables may be omitted, the quality of vowels become obscure, and so on. Lengths of English syllables are controlled not only by the lexical phonetic characteristics of their sounds but also by the number of syllables in the particular rhythm unit. Pike uses the following pair of illustrations to support his statement (p. 34):<sup>76</sup>

The	'man's	'here.
3-	°2-4-3/	°2-4//
The	'manager's	'here.
3-	°2-4-3/	°2-4//

It can be seen that the two sentences contain different numbers of syllables but have similar stresses and timing. Pike called this

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<sup>75</sup>Pike, The Intonation of American English, p. 34.

<sup>76</sup>The numbers 1, 2, 3 and 4 represent four significant pitch levels which serve as the basic building blocks for intonation contours in English:

- 1 = extra-high
- 2 = high
- 3 = mid
- 4 = low
- °2-4 = falling contour from high to low
- °2-4-3 = falling-rising contour from high to low then moving up to mid

The single bar (/) and double bar (//) represent two significant types of pause.

type of rhythm unit 'stress-timed'.<sup>77</sup>

"Many languages," Pike says, "use a rhythm which is more closely related to the syllable than the regular stress-timed type of English; in this case, it is the syllables, instead of the stresses which tend to come at more-or-less evenly recurrent intervals--so that, as a result, phrases with extra syllables take proportionately more time, and syllables or vowels are less likely to be shortened and modified."<sup>78</sup>  
This type of rhythm unit is called by Pike 'syllable-timed'.<sup>79</sup>

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<sup>77</sup>Ibid. p. 35.

<sup>78</sup>Ibid.

<sup>79</sup>Ibid.

PART II: Timing of Syllable, Pause and Foot

Chapter 4: Syllable and Syllable Durations

1. Definition of syllable

The syllable is a basic phonetic unit which can be apprehended, but it is not easy to define. It is one of the most controversial things in phonetic studies. Its existence cannot be denied, especially in an analysis of prosodic phenomena as Pulgram said (1970: 13):

... I do not believe a valid analysis of prosodic phenomena can be made without some implicit and explicit definition of the syllable. Without the syllable, the factors of timing [pauses, phonological quantity, stress placement, pitch placement] are meaningless.

There is no agreement among linguistic scholars how the syllable should be best defined. Different theories produce different definitions of the syllable, but none of them is entirely satisfactory.<sup>1</sup>

Ladefoged (1975: 221) concludes:

It does, however, seem possible that syllables are best defined in terms of the activities of the speaker. It may be that they can be defined in terms of some measurable combination of respiratory and laryngeal activity. Alternatively, syllables may be considered to be abstract units that exist at some higher level in the mental activity of a speaker. They may be necessary units in the organization and production of utterances.

In this thesis, the syllable will be regarded as the smallest phonological unit; ~~and that~~ its full form can, by itself, be a rhythmic unit.

It can be said that syllables in Thai have two forms: full form and reduced form. (Their characteristics will be described in

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<sup>1</sup>An extensive survey of opinions on, and definition of, the syllable is to be found in Pike (1971: 410-11), Ladefoged (1975: 219-22), W.S. Allen (1973: 27-45) and Pulgram (1970: 1-65).

detail under 2 and 5.) With regard to monosyllabic words, full and reduced syllables can only be distinguished within a larger utterance, especially in casual running speech.

## 2. Characteristic of the full form of syllables

In comparison with English, syllable structure in Thai is quite simple. It can be summarized into the following formulae:

a.  $C_1(C_2)V_1C_3/T$

b.  $C_1(C_2)V_2(C_3)/T$

$C_1$  = one of the initial consonants p t k ? ph th kh b d tɕ tɕh  
f s h m n ŋ r l w j.

$C_2$  = one of the approximants r l w that can be the second element of consonant clusters.<sup>2</sup>

$C_3$  = one of the final consonants p t k ? m n ŋ.<sup>3</sup>

$V_1$  = one of the short vowels i e ε u ɤ a u o ɔ.

$V_2$  = one of the long vowels i: e: ε: u: ɤ: a: u: o: ɔ:, the diphthongs<sup>4</sup>  
iu eu e:u εu ε:u au a:u ui u:i oi oi ɔ:i ai a:i iə wə uə, and the  
triphthongs iəu wəi uəi.

T = one of the tones: Mid (a), Low (-a), Falling (˘a), High (ˉa)  
and Rising (ˊa).

<sup>2</sup>See restricted combinations in Part I, Chapter 1, p. 3.

<sup>3</sup>After a short vowel ( $V_1$ ),  $C_3$  is always long, e.g. [-p:] [-m:] and so on. This kind of phenomenon also occurs in most Norwegian and Swedish dialects. According to Jensen (1961: 679-681) postvocalic consonants are long after short vowels and short after long vowels in the stressed syllables of most Norwegian and Swedish dialects.

<sup>4</sup>The second element of a diphthong is always long when the first element is short, and vice versa,

e.g.            ai = [ai:]            a:i = [a:i]  
                 au = [au:]            a:u = [a:u]

### 3. Measurement of syllable durations (full form)

In order to measure the length of full syllables and present the results in detail, it is convenient to divide syllables in Thai into twenty types and group them into two groups; i.e. group A and group B. The division is based on three major criteria: a) vowels, b) initial consonants, and c) final consonants. It seems that syllables having an initial cluster CC- are a little bit longer than syllables having a single initial c-; open and checked syllables (C + short vowel + final stop) seem shorter. In Tai linguistics, it is known that final consonants influence the patterns of tonal distribution; for instance, the Bangkok Thai syllables that end with one of the four final stops p t k ʔ will never have mid or rising tone.<sup>5</sup> And so far as syllable length is concerned, it is rather worthwhile to investigate whether the monophthongs, diphthongs and triphthongs signal any differences.

#### Group A

CVN<sup>6</sup>                      dan 'to push'

<sup>5</sup> Short dead or checked syllables (CV + one of the four stops) have either low tone or high tone and long dead syllables (CV: or CVV + one of the four stops) have either low tone or falling tone. Some people may argue that syllables such as 'tɕaʔ, 'khaʔ, 'haʔ, 'tɕak 'tɕak, 'tɕiap, 'tɕiak, (kə) 'ta:k, 'tɕ:t, 'pɛ:t and so on, occur in Thai. Certainly, they do occur, but what kind of words are they? 'tɕaʔ, 'khaʔ and 'haʔ, all of them are final polite particles; and in running speech, the final glottal stop always disappears and vowel [a] is lengthened before a pause, for example, 'mai 'da:i -rɔ:k 'tɕaʔ → ['mai 'da:i -rɔk 'tɕa:] 'No, you can't.' 'kɔ: khɔŋ 'tɕaʔ di: 'khaʔ → ['kɔ khɔŋ tɕa di: 'kha:] 'It may be good.' The words 'tɕak 'tɕak, 'tɕiap, 'tɕiak and (kə) 'ta:k are onomatopoeias; 'tɕ:t and 'pɛ:t are intimate names which do not mean anything. Thai people like to invent intimate names or nicknames for their children--the more different the better. It is regarded as an 'invention', and those names (usually monosyllabic) fill the slots in the syllable distribution chart. Although the words are nonsense, they still contain Thai sounds and tones.

<sup>6</sup> N = one of the final nasals m n and ŋ.

CVS <sup>7</sup>	-dat	'to bend'
CV:	-da:	'to scold'
CV:V	da:i	'to cut (grass)'
CV:N	-da:n	'port of entry'
CV:S	-da:p	'sword'
CVV	dai	'which'
CVVN	dwən	'the moon'
CVVS	-dwæt	'to be boiling'
CVVV	diəu	'only one'

Group B

CCVN	kroŋ	'cage'
CCVS	-krot	'acid'
CCV:	pla:	'fish'
CCV:V	khwa:i	'buffalo'
CCV:N	klw:n	'to swallow'
CCV:S	-kwa:t	'to sweep'
CCVV	klai	'to be far'
CCVVN	triəm	'to prepare'
CCVVS	-kruæt	'pebbles'
CCVVV	plwəi	'to be naked'

To make a physical measurement of Thai syllable lengths a reading list written in the Thai alphabet was prepared. It contained 50 nonsense utterances, and each utterance contained four meaningful monosyllabic words. (Ten samples were chosen at random to represent each syllable type.) The combinations of the four syllables within

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<sup>7</sup>S = one of the final stops p t k and ?.



an utterance were carefully arranged so that the segmentation could be done easily. Nonsense utterances were used to control the speaker's assignment of patterns to any larger phonological groupings. Although the aim was to measure the lengths of four syllables in one utterance, two extra syllables were added after and before a pause: every utterance was begun with the syllable ?a: and ended with the syllable ?a: or na: depending upon what type of syllables came last. It had been shown in the preliminary tests that Thai speakers tended to shorten the first syllable and lengthen the last syllable of the utterances which contain more than one syllable, even although they were nonsense. (One-syllable utterances are often long, of course.) The rest of the syllables do not differ much in lengths.

Recordings were made from the speech of 5 speakers of Standard Thai who spoke no other Thai dialects. (They will be, from now on, referred to as speakers FP, PP, SS, TL and VP. Speaker TL is, myself.) All of them were career women and had similar family and educational backgrounds. The age group was between 28-30. The recordings were made in September, 1976, at CIEL, Bangkok. The speakers were instructed to read the script at moderate speed--not too fast and not too slow. The oscillograms<sup>8</sup> of 1,000 syllables (200 x 5) were made and measured in seconds. The script written in

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<sup>8</sup>To achieve a proper segmentation so that the durations of the syllables and rhythmic feet could be measured accurately, the following instruments were used throughout this thesis:

1. A tape recorder,
2. the FRØKJAER-JENSEN TRANS PITCHMETER,
3. the FRØKJAER-JENSEN INTENSITY METER,
4. the 4-channel SIEMENS OSCILLOMINK.

(Continued on page 53)

Thai alphabet and the transcription is given below. The measurements of durations of the 1,000 syllables uttered by 5 speakers are given in Table 1. The average durations of the twenty types of syllable and the total average of the full form of syllable are illustrated in Table 2.

- |                               |                                      |
|-------------------------------|--------------------------------------|
| 1. (อา) ดีรักนาครีน (อา)      | (?a:) di: ˈrak ˈna:kˈrin (?a:)       |
| 2. (อา) ทองกรดหมวกนวล (อา)    | (?a:) tho:ŋ ˌkrot ˌmuæk nuən (?a:)   |
| 3. (อา) กรอบเรือยกรวดโทย (นา) | (?a:)-kro:p ˈrwei ˌkruət ,ho:i (na:) |
| 4. (อา) กริชแม่ครูกลอย (นา)   | (?a:) ˌkrit ˈme: khru: klo:i (na:)   |
| 5. (อา) โปรมโยกศรีดเร็ว (นา)  | (?a:) pro:i rai_kri:t reu (na:)      |

The trans pitchmeter has two different outputs: the duplex oscillogram and the fundamental frequency, but only the former is used in this thesis. The term "duplex oscillogram" has been introduced by Dr. Gunnar Fant. In the duplex oscillogram, part of the negative half wave of the normal oscillogram is replaced by a high pass filtered and rectified function of the speech wave, i.e. when the intensity curve of the audio frequency spectrum is over 1500 c/s. This means that the two components - the positive part of the audio frequency signal and the intensity curve of the higher frequencies - can be mixed and registered on a mingograph. (From Trans Pitchmeter Instruction Manual and Diagrams.)

The intensity meter consists of a preamplifier where the input level can be adjusted accurately by means of switches with 10 and 2dB steps of attenuation. The amplifier is followed by two circuits for intensity measurements - channel 1 and channel 2. Channel 1, which is used in this thesis, is supplied with a high-pass filter having a cut-off frequency of 500 cps. A logarithmic output from this channel in combination with the duplex oscillogram provide good cues for a segmentation. (From Manual of Instruction for Intensity Meter.)

The oscillomink (a mingograph) is an ink-writing oscillograph: the recorded material or the outputs of the instruments described above were registered on a moving roll of paper by the ink-jets. The four curves used were:

1. 50Hz time marker (10 centimetre per second)
2. Overall speech wave (or speech signal oscillogram)
3. Duplex oscillogram
4. Intensity curve.

I would like to express my gratitude toward Mr. Motherwell, the service manager of the Phonetic Laboratory, Linguistics Department at the University of Edinburgh who had patiently supervised me all the way, so far as the operation of the machine was concerned.

6. (อา) คัดฟันเกรียมแสด (นา) (?a:) \_tit fan kriəm\_sɛ:t (na:)
7. (อา) เปลือยกลอนเคียดทก (นา) (?a:) plwɛi klo:n \_dwɛt \_hok (na:)
8. (อา) กะหวายทรงโตด (นา) (?a:) \_ka? ,wa:i kroŋ \_do:t (na:)
9. (อา) กลวงเรียบเป็นคว่ำ (นา) (?a:) kluəŋ riəm pw:n ˀkhwa: (na:)
10. (อา) กลัวปลายเดี่ยวเกลียด (นา) (?a:) ˀkluə pla:i diəu \_kliɛt (na:)
11. (อา) เปรี้ยวซี่ส้มกลอง (อา) (?a:) phriəu \_pi: ,som \_kloŋ (?a:)
12. (อา) เกลอไปกลางเลือก (นา) (?a:) klɨ: pai kla:ŋ ˀlwək (na:)
13. (อา) เจือกรูแคะร้อย (นา) (?a:) ˀŋwək ˀru: ˀkhrɛ? ˀro:i (na:)
14. (อา) ไตรเดือนบาศิยา (นา) (?a:) trai dwən \_ba:t ˀja: (na:)
15. (อา) กรวยกำกวลุกลิ้น (อา) (?a:) kruəi ˀka:ŋ khluɪ \_klin (?a:)
16. (อา) ทรายเดี่ยวกลืนแหวน (อา) (?a:) \_tra:p ,diəu klw:n ,wɛ:n (?a:)
17. (อา) เคลือบเทาเตรียมพลี (นา) (?a:) ˀkhlwəp ,hau triəm phli: (na:)
18. (อา) เพราเรียวก้าวสุด (นา) (?a:) phrau riəu ˀkra:u \_su:t (na:)
19. (อา) กล้ายแล้วเปราะอิม (อา) (?a:) ˀkluəi ˀle:u \_prɨ? ˀjim (?a:)
20. (อา) กลึงเรียนพลาตหัว (นา) (?a:) klwŋ wiən ˀphla:t ˀha:u (na:)
21. (อา) เพลิงควาเปรียบเมื่อย (นา) (?a:) phlɨ:ŋ da:u \_priəp ˀmwəi (na:)
22. (อา) เกลี้ยงอยากหนึ่งกรู (นา) (?a:) ˀkliəŋ \_ja:k \_nɯŋ kru: (na:)
23. (อา) เพลี้ยจีนเปลวเรือด (นา) (?a:) phliə tɕi:n ple:u ˀrwɛt (na:)
24. (อา) เปรี้ยวเสี้ยนปรุแล้ (นา) (?a:) ˀpriəu ˀlwən \_pru? ˀsɛ: (na:)
25. (อา) กลุ่มเสียดรอกนับ (นา) (?a:) ˀklum ,siə ˀtro:k ˀnap (na:)
26. (อา) พร้อมท้ายพรวนหน (อา) (?a:) ˀphro:m ˀtha:i phruən ,hon (?a:)
27. (อา) เกรียนพรวทรูปสิบ (นา) (?a:) kwian ˀphruet ˀlu:p \_sip (na:)
28. (อา) ตรีหาเกลือให้ (นา) (?a:) tri: ,ha: klwə ˀhai (na:)
29. (อา) พรราวด้วยเกรียวมัด (นา) (?a:) phra:u ˀduai kriəu ˀmat (na:)
30. (อา) พระแดงแกว่งควาน (อา) (?a:) ˀphra? dɛ:ŋ \_kwɛŋ khwa:n (?a:)
31. (อา) กสิบหมวกบาปล้อม (อา) (?a:) \_khli:p \_muət \_ba:p ˀlo:m (?a:)
32. (อา) ครันเปลือกสิเปลืออง (อา) (?a:) ˀkhrw:n \_plwək ,si: plwəŋ (?a:)

33. (อา) แพร่ม้วนกริ้วน้อย (นา) (?a:) phre: ˀmuən ˀkriu ˀno:i (na:)
34. (อา) ควายเขี้ยวเกรี้ยวนะ (นา) (?a:) khwa:i ˀpwei ˀkriəu ˀna? (na:)
35. (อา) กวัดเห็นพร่องสอบ (นา) (?a:) ˀkwat ˀhen ˀphroŋ ˀso:p (na:)
36. (อา) กลอกหลวมกวาดปาด (นา) (?a:) ˀklo:k ˀluem ˀkwa:t ˀpuet (na:)
37. (อา) ตรวจหัวน้ำยาย (นา) (?a:) ˀtruət ˀhuə ˀna:m ja:i (na:)
38. (อา) เครื่องอ่านเกลือกมิด (นา) (?a:) ˀkhrwəŋ ˀʔa:n ˀklwək ˀmi:t (na:)
39. (อา) ผลิเหลือบเลี้ยงเพรียบ (นา) (?a:) ˀphliʔ ˀlwəp ˀliəŋ ˀphriəp (na:)
40. (อา) เพราะเงินบวยบท (นา) (?a:) ˀphroʔ ŋɤn buəi ˀbot (na:)
41. (อา) คลอดหลบแว่นคสิบ (นา) (?a:) ˀkhlɔ:t ˀlop ˀwen ˀkhli:p (na:)
42. (อา) กลบสวยเกรียบเนื้อ (นา) (?a:) ˀklop ˀsuei ˀkriəp ˀnwə (na:)
43. (อา) ปลาถือไถล้วยลอย (นา) (?a:) pla: ˀthw: ˀklai phlɔ:i (na:)
44. (อา) เปรียวกลึงสวดตั้ง (อา) (?a:) priəu ˀkliŋ ˀsuət daŋ (?a:)
45. (อา) เครื่องชื้อตรวนกรอ (นา) (?a:) kre:ŋ ˀsw: truən kro: (na:)
46. (อา) เครื่องเปรียวดวงกล่าว (นา) (?a:) khrwə ˀpliau duəŋ ˀkla:u (na:)
47. (อา) กลั่นกลางเสียงเขวี้ยง (อา) (?a:) ˀklan khla:ŋ ˀsiəŋ ˀkhwieŋ (?a:)
48. (อา) กว่าใส่พล้วยไม้ (นา) (?a:) ˀkwa: ˀsai ˀphlui ˀma:i (na:)
49. (อา) คล้ายเลยพรวยเหี่ยว (นา) (?a:) ˀkhla:i lɤi phruəi ˀhieu (na:)
50. (อา) ควันเปียดแคลงสาม (อา) (?a:) ˀkhwən ˀbiət khle:ŋ ˀsa:m (?a:)

Table 1: The measurement (in seconds) of the durations of the syllables in 50 nonsense utterances as pronounced by 5 speakers

No.	Speaker	Transcription and Measurement					
1		(ʔa:)	di:	ˀrak	ˀna:k	ˀrin	(ʔa:)
	FP		.29	.31	.39	.31	
	PP		.36	.37	.41	.31	
	SS		.40	.30	.42	.27	
	TL		.40	.30	.41	.33	
	VP		.32	.26	.39	.35	
2		(ʔa:)	tho:ŋ	_krot	_mwæk	nuən	(ʔa:)
	FP		.37	.33	.37	.32	
	PP		.44	.38	.37	.39	
	SS		.41	.34	.41	.33	
	TL		.43	.26	.42	.41	
	VP		.40	.39	.44	.36	
3		(ʔa:)	_kro:p	ˀrwei	_kruət	ˀho:i	(na:)
	FP		.44	.33	.38	.37	
	PP		.40	.34	.39	.32	
	SS		.51	.30	.38	.41	
	TL		.42	.33	.36	.38	
	VP		.43	.34	.41	.37	
4		(ʔa:)	_krit	ˀme:	khru:	klɔ:i	(na:)
	FP		.38	.35	.34	.34	
	PP		.46	.30	.37	.43	
	SS		.40	.29	.42	.35	
	TL		.33	.42	.41	.41	
	VP		.44	.35	.37	.38	

No.	Speaker	Transcription and Measurement					
5		(ʔa:)	pro:i	rai	_kri:t	reu	(na:)
	FP		.39	.29	.43	.25	
	PP		.48	.32	.44	.30	
	SS		.47	.28	.48	.26	
	TL		.42	.39	.39	.37	
	VP		.43	.31	.41	.34	
6		(ʔa:)	_tit	fan	kriəm	_se:t	(na:)
	FP		.25	.43	.35	.39	
	PP		.42	.35	.42	.41	
	SS		.41	.39	.45	.42	
	TL		.29	.51	.40	.40	
	VP		.29	.45	.44	.42	
7		(ʔa:)	plwəi	klo:n	_dwət	_hok	(na:)
	FP		.36	.47	.32	.34	
	PP		.45	.44	.35	.34	
	SS		.42	.45	.33	.32	
	TL		.42	.49	.32	.45	
	VP		.46	.45	.30	.40	
8		(ʔa:)	_kaʔ	,wa:i	kron	_do:t	(na:)
	FP		.29	.41	.40	.29	
	PP		.38	.39	.40	.38	
	SS		.38	.36	.46	.36	
	TL		.42	.46	.39	.40	
	VP		.33	.43	.46	.37	

No.	Speaker	Transcription and Measurement					
9		(ʔa:)	kluəŋ	riəm	pɯ:n	˦khwa:	(na:)
	FP		.40	.33	.36	.33	
	PP		.45	.34	.41	.38	
	SS		.49	.37	.46	.46	
	TL		.47	.41	.39	.38	
	VP		.46	.34	.46	.45	
10		(ʔa:)	˦kluə	pla:i	diəu	-kliət	(na:)
	FP		.35	.38	.32	.41	
	PP		.42	.45	.36	.42	
	SS		.40	.39	.34	.41	
	TL		.41	.42	.35	.42	
	VP		.41	.39	.40	.48	
11		(ʔa:)	phriəu	-pi:	˦som	-kloŋ	(ʔa:)
	FP		.43	.32	.36	.40	
	PP		.41	.40	.40	.38	
	SS		.44	.39	.40	.37	
	TL		.42	.33	.47	.39	
	VP		.41	.36	.42	.39	
12		(ʔa:)	kɿ:	pai	kla:ŋ	˦lwək	(na:)
	FP		.39	.30	.42	.35	
	PP		.38	.38	.45	.39	
	SS		.44	.37	.45	.32	
	TL		.41	.37	.49	.35	
	VP		.38	.35	.37	.52	

No.	Speaker	Transcription and Measurement					
13		(ʔa:)	`ŋwək	ˉru:	ˉkhrɛʔ	ˉrɔ:i	(na:)
	FP		.41	.31	.34	.37	
	PP		.42	.31	.36	.37	
	SS		.42	.29	.49	.34	
	TL		.51	.43	.40	.46	
	VP		.39	.36	.47	.39	
14		(ʔa:)	traɪ	dwən	_ba:t	`ja:	(na:)
	FP		.38	.34	.27	.36	
	PP		.48	.44	.38	.33	
	SS		.49	.41	.38	.33	
	TL		.46	.45	.35	.41	
	VP		.39	.40	.42	.42	
15		(ʔa:)	kruəi	`ka:ŋ	khlui	_klin	(ʔa:)
	FP		.40	.44	.35	.41	
	PP		.41	.43	.37	.38	
	SS		.42	.49	.42	.36	
	TL		.43	.44	.37	.37	
	VP		.41	.37	.49	.44	
16		(ʔa:)	_tra:p	,diəu	klw:n	,wɛ:n	(ʔa:)
	FP		.40	.38	.40	.33	
	PP		.46	.36	.44	.36	
	SS		.52	.35	.42	.35	
	TL		.43	.36	.50	.36	
	VP		.47	.38	.49	.36	

No.	Speaker	Transcription and Measurement					
17		(ʔa:)	ˈkhlwəp	,hau	triəm	phli:	(na:)
	FP		.42	.34	.41	.39	
	PP		.45	.36	.39	.40	
	SS		.47	.32	.46	.43	
	TL		.46	.39	.50	.36	
	VP		.37	.41	.44	.41	
18		(ʔa:)	phra:u	riəu	ˈkra:u	_su:t	(na:)
	FP		.47	.34	.43	.31	
	PP		.42	.39	.39	.40	
	SS		.46	.36	.42	.31	
	TL		.45	.38	.40	.45	
	VP		.44	.32	.48	.44	
19		(ʔa:)	ˈkluəi	ˌle:u	_prʏ?	ˌjim	(ʔa:)
	FP		.39	.31	.37	.36	
	PP		.42	.35	.37	.40	
	SS		.40	.29	.43	.35	
	TL		.43	.37	.46	.35	
	VP		.43	.35	.41	.39	
20		(ʔa:)	kluŋ	wiən	ˈphla:t	ˈha:u	(na:)
	FP		.45	.32	.35	.35	
	PP		.49	.31	.42	.34	
	SS		.45	.32	.45	.28	
	TL		.49	.37	.37	.47	
	VP		.41	.33	.38	.42	

No.	Speaker	Transcription and Measurement					
21		(ʔa:)	phlɿ:ŋ	da:u	_priɛp	`mɯɛi	(na:)
	FP		.43	.30	.41	.51	
	PP		.56	.29	.44	.35	
	SS		.51	.30	.48	.31	
	TL		.44	.38	.59	.38	
	VP		.47	.32	.43	.32	
22		(ʔa:)	`kliɛŋ	_ja:k	_nɯŋ	kru:	(na:)
	FP		.47	.50	.28	.39	
	PP		.47	.41	.30	.37	
	SS		.45	.38	.32	.36	
	TL		.43	.41	.33	.43	
	VP		.44	.39	.38	.32	
23		(ʔa:)	phliɛ	tɕi:n	ple:u	`rɯɛt	(na:)
	FP		.44	.36	.38	.35	
	PP		.41	.43	.36	.38	
	SS		.41	.40	.47	.36	
	TL		.41	.45	.43	.35	
	VP		.41	.44	.45	.36	
24		(ʔa:)	`priɛu	`lwən	_pruʔ	`sɛ:	(na:)
	FP		.41	.37	.32	.33	
	PP		.42	.37	.34	.41	
	SS		.44	.33	.44	.38	
	TL		.50	.39	.40	.45	
	VP		.41	.38	.38	.38	

No.	Speaker	Transcription and Measurement					
25		(ʔa:)	_klum	,siə	_trɔ:k	_nap	(na:)
	FP		.36	.35	.42	.29	
	PP		.41	.39	.46	.38	
	SS		.40	.33	.45	.30	
	TL		.42	.42	.46	.50	
	VP		.41	.38	.48	.40	
26		(ʔa:)	_phrɔ:m	_tha:i	phruən	,hon	(ʔa:)
	FP		.44	.38	.42	.31	
	PP		.50	.37	.46	.35	
	SS		.45	.35	.44	.33	
	TL		.44	.38	.44	.34	
	VP		.49	.41	.44	.35	
27		(ʔa:)	kwien	`phruət	`lu:p	_sip	(na:)
	FP		.42	.31	.31	.32	
	PP		.46	.43	.30	.40	
	SS		.42	.43	.33	.32	
	TL		.38	.40	.38	.38	
	VP		.43	.34	.43	.40	
28		(ʔa:)	tri:	,ha:	klwə	`hai	(na:)
	FP		.38	.30	.40	.31	
	PP		.39	.40	.39	.32	
	SS		.39	.35	.39	.30	
	TL		.45	.38	.40	.36	
	VP		.42	.34	.46	.30	

No.	Speaker	Transcription and Measurement					
29		(ʔa:)	phra:u	ˈduəi	kliəu	ˈmat	(na:)
	FP		.43	.32	.38	.34	
	PP		.41	.35	.39	.36	
	SS		.49	.34	.40	.34	
	TL		.42	.38	.38	.33	
	VP		.42	.38	.43	.33	
30		(ʔa:)	ˈphraʔ	dɛ:ŋ	_kwɛŋ	khwa:n	(ʔa:)
	FP		.35	.42	.34	.37	
	PP		.42	.41	.45	.35	
	SS		.42	.38	.40	.36	
	TL		.37	.46	.36	.36	
	VP		.39	.41	.44	.41	
31		(ʔa:)	_kli:p	_muət	_ba:p	ˈlɔ:m	(ʔa:)
	FP		.30	.31	.39	.34	
	PP		.42	.32	.42	.39	
	SS		.48	.34	.43	.35	
	TL		.40	.40	.36	.42	
	VP		.47	.39	.46	.43	
32		(ʔa:)	ˈkhrw:n	_plwək	,si:	plwɛŋ	(ʔa:)
	FP		.42	.32	.38	.42	
	PP		.45	.37	.42	.46	
	SS		.48	.42	.43	.44	
	TL		.56	.50	.41	.41	
	VP		.43	.38	.44	.44	

No.	Speaker	Transcription and Measurement					
33		(ʔa:)	phrɛ:	ˈmuən	ˈkriu	ˈnɔ:i	(na:)
	FP		.38	.38	.35	.28	
	PP		.40	.40	.35	.33	
	SS		.48	.36	.36	.39	
	TL		.40	.43	.39	.40	
	VP		.34	.37	.38	.42	
34		(ʔa:)	khwa:i	ˌpɯəi	ˈkriəu	ˈnaʔ	(na:)
	FP		.42	.35	.38	.32	
	PP		.48	.38	.47	.30	
	SS		.51	.39	.40	.30	
	TL		.48	.36	.43	.44	
	VP		.46	.36	.45	.33	
35		(ʔa:)	ˌkwat	ˌhɛn	ˈphrɔŋ	ˌsɔ:p	(na:)
	FP		.33	.33	.37	.34	
	PP		.39	.37	.38	.48	
	SS		.49	.32	.40	.41	
	TL		.44	.36	.38	.43	
	VP		.33	.38	.40	.39	
36		(ʔa:)	ˌklɔ:k	ˌluəm	ˌkwa:t	ˌpuət	(na:)
	FP		.43	.33	.38	.40	
	PP		.50	.36	.40	.42	
	SS		.47	.32	.39	.38	
	TL		.44	.41	.44	.32	
	VP		.42	.39	.42	.48	

No.	Speaker	Transcription and Measurement					
37		(ʔa:)	_truət	,hua	ˉna:m	ja:i	(na:)
	FP		.33	.33	.45	.30	
	PP		.45	.35	.48	.33	
	SS		.47	.30	.44	.35	
	TL		.42	.37	.44	.35	
	VP		.36	.35	.47	.40	
38		(ʔa:)	`khrwəŋ	_ʔa:n	_klwək	`mi:t	(na:)
	FP		.44	.34	.38	.34	
	PP		.48	.39	.48	.33	
	SS		.46	.33	.39	.33	
	TL		.44	.39	.44	.41	
	VP		.45	.37	.42	.35	
39		(ʔa:)	_phliʔ	_lwəp	ˉliəŋ	`phriəp	(na:)
	FP		.37	.36	.32	.43	
	PP		.42	.45	.40	.39	
	SS		.41	.39	.33	.42	
	TL		.41	.39	.34	.42	
	VP		.41	.38	.37	.42	
40		(ʔa:)	ˉphrɔʔ	ŋɣn	buəi	_bot	(na:)
	FP		.36	.38	.29	.28	
	PP		.42	.38	.36	.35	
	SS		.42	.36	.33	.33	
	TL		.41	.42	.41	.35	
	VP		.31	.51	.35	.37	

No.	Speaker	Transcription and Measurement					
41		(ʔa:)	`khlo:t	_lop	`wen	`khli:p	(na:)
	FP		.38	.32	.31	.38	
	PP		.51	.37	.29	.45	
	SS		.46	.34	.31	.45	
	TL		.44	.35	.35	.45	
	VP		.50	.33	.41	.44	
42		(ʔa:)	_klop	,suəi	_kriəp	_nwe	(na:)
	FP		.30	.38	.42	.31	
	PP		.38	.43	.42	.35	
	SS		.36	.34	.45	.28	
	TL		.36	.43	.40	.34	
	VP		.31	.43	.48	.39	
43		(ʔa:)	pla:	,thw:	`klai	phlo:i	(na:)
	FP		.38	.30	.38	.40	
	PP		.43	.35	.45	.40	
	SS		.45	.37	.41	.34	
	TL		.44	.38	.43	.43	
	VP		.40	.35	.47	.40	
44		(ʔa:)	priəu	`kliŋ	_suet	daŋ	(ʔa:)
	FP		.42	.37	.34	.33	
	PP		.40	.39	.43	.37	
	SS		.45	.38	.40	.32	
	TL		.38	.41	.37	.40	
	VP		.41	.42	.41	.39	

No.	Speaker	Transcription and Measurement					
45		(ʔa:)	khre:ŋ	ˀsw:	truən	krɔ:	(na:)
	FP		.41	.30	.40	.35	
	PP		.42	.37	.46	.39	
	SS		.51	.28	.44	.34	
	TL		.46	.42	.49	.50	
	VP		.45	.33	.45	.40	
46		(ʔa?)	khrwə	_pliəu	duəŋ	_kla:u	(na:)
	FP		.40	.39	.37	.38	
	PP		.43	.39	.39	.35	
	SS		.47	.40	.34	.35	
	TL		.42	.44	.38	.42	
	VP		.39	.39	.43	.44	
47		(ʔa:)	_klan	khla:ŋ	,siəŋ	ˀkwiəŋ	(ʔa:)
	FP		.40	.44	.35	.43	
	PP		.39	.44	.39	.41	
	SS		.41	.37	.38	.42	
	TL		.41	.45	.40	.42	
	VP		.41	.47	.37	.50	
48		(ʔa:)	_kwa:	_sai	ˀphlui	ˀma:i	(na:)
	FP		.39	.35	.37	.30	
	PP		.42	.40	.41	.39	
	SS		.42	.30	.32	.40	
	TL		.44	.47	.35	.40	
	VP		.44	.35	.45	.45	

No.	Speaker						
49		(ʔa:)	-khla:i	lɿi	phruəi	-hliəu	(na:)
	FP		.37	.34	.39	.34	
	PP		.43	.34	.45	.35	
	SS		.46	.28	.41	.33	
	TL		.46	.35	.41	.34	
	VP		.50	.34	.46	.38	
50		(ʔa:)	`khwan	_biət	khle:ŋ	,sa:m	(ʔa:)
	FP		.41	.25	.42	.37	
	PP		.45	.30	.41	.41	
	SS		.43	.28	.39	.39	
	TL		.44	.39	.45	.47	
	VP		.45	.42	.51	.44	

Table 2: The average durations of the twenty types of syllable and the total average duration of the full form of syllable

Syllable Type	Speaker					
	FP	PP	SS	TL	VP	
<u>Group A</u>						
CVN	.34	.35	.34	.38	.40	.36
CVS	.31	.37	.33	.39	.35	.35 ✓
CV:	.32	.37	.35	.39	.37	.36
CV:V	.33	.36	.34	.40	.40	.37
CV:N	.38	.42	.40	.42	.43	.41
CV:S	.35	.39	.38	.39	.41	.38
CVV	.32	.35	.30	.38	.35	.34 ✓
CVVN	.34	.38	.35	.39	.37	.37
CVVS	.35	.38	.36	.38	.41	.38
CVVV	.34	.36	.33	.37	.38	<u>.36</u>
						<u>.37</u>
<u>Group B</u>						
CCVN	.39	.41	.41	.40	.42	.41
CCVS	.35	.39	.42	.38	.38	.38 ✓
CCV:	.37	.39	.42	.42	.39	.40
CCV:V	.39	.42	.43	.43	.44	.42
CCV:N	.43	.45	.44	.47	.45	.45
CCV:S	.39	.46	.46	.42	.44	.43
CCVV	.39	.41	.41	.41	.43	.41
CCVVN	.42	.45	.45	.44	.44	.44
CCVVS	.38	.42	.44	.42	.41	.41
CCVVV	.40	.42	.42	.42	.42	<u>.42</u>
						.42
Total Average	.36	.40	.39	.40	.40	<u>.39</u>

4. Notes and comments on the durations of the full form

1. The average duration of 1,000 syllables said by 5 speakers is .39 second.

2. The syllables containing initial consonant clusters (CC-) are longer than the ones with single initial consonant (C-). The average durations of Group A and B are .37 second and .42 second, respectively.

3. The shortest type of Group A is the CVV type, i.e. .34 second, and the longest type is the CV:N which is .41 second. As for Group B, the CCVS type is the shortest, i.e. .38 second, and the CCV:N type is the longest, at .45 second.

4. Open and checked syllables tend to be shorter while syllables having a long vowel or diphthong + final nasal (e.g. CV:N, CVVN, etc.) tend to be longer in duration.

5. Among the 200 syllables spoken by each speaker, the minimum and maximum durations can be summarized as follows:

Table 3: The range of the durations of the full form of syllable by 5 speakers

Speaker	Shortest	Longest
FP	.25	.50
PP	.29	.56
SS	.25	.52
TL	.26	.56
VP	.26	.52

6. If the range of durations is, for instance from .20 second to .59 second, the percentages of preferred durations can be shown as follows:

Table 4: The average percentages of preferred syllable durations

Speaker	%			
	Syllable Duration in Seconds			
	.20 - .29	.30 - .39	.40 - .49	.50 - .59
FP	06	66	27	01
PP	01	48	48	03
SS	06	45	47	02
TL	02	40	55	03
VP	01	41	55	03

In conclusion, the durations which range from .30 second to .49 second form the highest percentage and are therefore the most preferred durations.

##### 5. Characteristics of the reduced form of syllables

In running connected speech, some syllables, esp. grammatical words (always monosyllabic) are not usually stressed, except when the speaker wants to indicate or emphasize something. Generally speaking, unstressed syllables in Thai seem to be shorter than the stressed ones. Many changes can also be detected both by ear and by machines. As Henderson (1964) says, "It is obvious to any who care to listen to Siamese conversation that, despite the monosyllabic basis often asserted for the language, Siamese utterances are not composed of a sequence of more or less equally stressed and evenly spaced syllables, each pronounced with the tonal contour proper to its pronunciation in

isolation."<sup>9</sup> Unstressed or reduced syllables in Thai speech, pronounced at a moderate tempo may be described as follows:

1. In comparison with stressed syllables, they are shorter.
2. They cannot, by themselves, be a rhythmic unit. (see detailed discussion in Part III, Chapter 8.)
3. Vowel change and vowel reduction are quite common; for example:
  - a.) Vowel length is no longer distinctive: short vowels remain short and long vowels are shortened.

ta:pu	'nail'	→	<u>ta</u> pu: <sup>10</sup> ?
ta:ra:ŋ	'scales'	→	<u>ta</u> ra:ŋ
ta:wan	'the sun'	→	<u>ta</u> wan
mi: pra: _sa:t -tʰet ,laŋ		→	mi: <u>pra-sa:t</u> -tʰet ,laŋ
'There are seven castles.'			
pen `ro:k -pra? -sa:t		→	pen `ro:k <u>pra -sa:t</u>
'nervous breakdown'			

<sup>9</sup>Henderson, "Marginalia to Siamese Phonetic Studies", in In Honour of Daniel Jones, p. 422.

<sup>10</sup>This phenomenon even exists in the spellings of the three words:

'nail'	is	ตะปู	=	ตาปู (ตะ = a, ปู = a:)
'prison'	"	ตะราง	=	ตาราง
'the sun'	"	ตะวัน	=	ตาวัน

ตาปู ตาราง and ตะวัน are believed to be the original spellings. They were noun compounds:

ta: + pu:	'eye + crab'	'nails'
ta: + ra:ŋ	'eye + rail, track'	'scales'
ta: + wan	'eye + day'	'the sun'

Since the second syllable of disyllabic words is stressed, the first syllable then becomes shortened. It is noted at the bottom of page 191 of Thai-English Student's Dictionary as follows: "If a word is not found under ตะ, see ตา." Under the lexical entries ตะปู (p. 191), ตะราง (p. 192) and ตะวัน (p. 192), Haas (1964) says:

ตะปู (ตัว) tapuu' (tua') N nail (for carpentry).

also ตาปู under ตา ๑.

ตะราง ๒ tara:ŋ'. See ตาราง under ตา ๑

ตะวัน (ดวง) tawan' (duan') N eleg. the sun.

Syn. พระอาทิตย์ com. NOTE. Probably originally ตะวัน "eye of the day". The shortened form is now the only one used.

pi: \_ti? 'to be delighted' → pi \_ti?

du: pu: 'to look at a crab' → du pu:

b.) Vowels become centralized, e.g.

tapu: 'nail' → təpu:

kha:ra:wa:n 'caravan' → khərəwa:n

mā: ,ru: \_pla:u 'Will you come?' → mā: rə \_pla:u

c.) Diphthongs become monophthongs, e.g.

`mai ,hen khrai 'to see nobody' → `ma ,hen khrai

kin ,siə \_thɤ? 'Eat it!' → kin sa \_thɤ?

`ma:k ,luə kɤ:n 'very many' → `ma:k ,lɤ kɤ:n

n nuk \_ʔɔ:k lɛ:u 'I can remember now' → n nuk \_ʔɔ:k la

d.) Diphthongs VV [VV:] → [VV] and V:V [V:V] → [VV], e.g:

`hai [hai:] mā: 'allow somebody to come' → `hai mā:

`da:i [da:i] mā: 'to be allowed to come' → `dai mā:

e.) Triphthongs become diphthongs, e.g:

pai `duəi kan 'to go together' → pai `duə kan

rɔ: ,diəu na? 'wait a minute' → rɔ: ,diə na?

4. Tone changes are quite common and rules can be made:<sup>11</sup>









<sup>11</sup> Gandour (1975) wrote an article entitled, "On the Representation of Tone in Siamese". In this article, he made a survey of different opinions on the phonetic shapes of tones in fast, casual speech, and examined a case of tone neutralization in view of different proposed sets of distinctive feature of tone. He says (p. 172):

The facts concerning the phonetic shapes of tones in fast, casual speech have been disputed by Siamese scholars. The disagreement revolves around the number and type (level or contour) of contrastive tones possible in certain unstressed positions. No less than four different presentations of the facts have appeared in the lit literature (Henderson 1949, Noss 1964, Hiranburana 1971, Surintramont 1973, among others).





A summary of the four different presentations was given in this table of sandhi tones in fast casual speech :

(Continued on page 74)





a.) High tone is lowered and low tone is raised to a sort of mid when the syllables are not stressed, e.g.

-tha?le:		'sea'	→	<u>the</u> le	
-ma? ,kha:m		'tamarind'	→	<u>mə</u> ,kha:m	
-tʃa? pai		'will go'	→	<u>tʃə</u> pai	
-kra? 'thom		'hut'	→	<u>krə</u> 'thom	

b.) Falling tone (high falling) starts lower, and falls immediately without sustaining at the beginning, and the glottal constriction which always accompanies this tone disappears, e.g:

'tha: 'tʃhɔ:p		'if you like'	→	'tha 'tʃhɔ:p	
'kɔ: di:		'not bad'	→	'kɔ di:	

c.) Rising tone (low falling-rising) becomes High tone in some grammatical words, e.g. the personal pronouns ,tʃhan 'I (general)', ,khau 'he, she', ,phom 'I (male)', and the secondary verb ,siə which indicates an imperative.

,tʃhan ?e:ŋ		'It's me'	→	ˉtʃhən ?e:ŋ	
pai ,siə _kɔ:n		'better go first'	→	pai ˉsiə _kɔ:n	

Lexical Tones	Sandhi Tones			
	(i) Henderson (1949) Leben (1973)	(ii) Gillette (1955) Noss (1964)	(iii) Hiranburana (1971)	(iv) Warotamasikkhadit (1969) Susintramont (1973)
High	High	High	High	High
Falling	Mid	High	High	Falling
Rising	Mid	High	High/low	Rising
Mid	Mid	Nonhigh	Mid	Mid
Low	Low	Nonhigh	Low	Low

However, the analysis presented in this thesis is my own--tone changes which are the results of rhythmic groupings. Acoustical measurements of tones in casual speech are to be found in Hiranburana (1971) and Gandour (1975).

5. With regard to consonants in unstressed syllables, assimilation and the dropping out of some consonants can easily be detected. The following examples occur quite frequently:

a.) The second element of initial consonant clusters is always dropped, esp. in casual speech.<sup>12</sup>

-pra? t̚cha: t̚hon 'people' → pa t̚cha: t̚hon  
pla: thɔ:ŋ 'goldfish' → pa thɔ:ŋ

b.) The aspirated affricate t̚sh becomes a fricative [ʃ]:

-ja:ŋ ˀnan t̚shieu ,rɣ: 'Is that so?' → -ja:ŋ ˀnan ʃa ,rɣ:  
'kha: ˀra:t ˀt̚sha?ka:n 'civil servant' → 'kha: ˀra:t ʃa ka:n

c.) The glottal stop (both. in initial and final position) is dropped.

-ka? ˀt̚sa:t 'basket' → kə ˀt̚sa:t  
ʔam phɣ: 'district' → əmphɣ:  
-tu?la:khom 'October' → tula:khom

d.) In careful speech, the initial r and l are in contrast. Many minimal pairs can be found, but they are fused together to l in casual speech. (Some Thai speakers, even though well educated, completely drop r.)

ʔaraɪ kan 'What's going on?' → əlaɪ kan  
ˀrɔ:ŋ ˀha:i 'to cry' → ˀlɔ:ŋ ˀha:i

<sup>12</sup> <sup>e</sup>Bebe (1974) did an extensive statistical research on this particular aspect. It is less frequent among the people of the so-called "well-educated class;" e.g, university lecturers, etc., and completely dropped in the speech of lower class people. It was shown earlier that syllables under Group B (CC-), in general, have longer durations than syllables under Group A (C-). Thus, to keep time, one of the two initial consonants is likely to be dropped, especially when the syllable in question is unstressed.

e.) Final consonants which phonetically are long [-C:] become short, e.g:

kin [kin:] `kha:u 'to have a meal' → kin `kha:u

\_tap [tap:] ,mu: 'pig liver' → \_tap ,mu:

f.) The final <sup>-C</sup>C- of an unstressed syllable is assimilated with the initial consonant of the following stressed syllable so that they become homorganic:

`san pen `ba: 'It's terribly short' → `san pem `ba

or `san pem `ma:

*the other way round*

6. In some extreme cases the whole syllable is replaced by a syllabic nasal, and closed syllables become open syllables:

a.) CVN → N

\_sa? ,tha ni:tam \_ruet 'police station' → sa ,tha ni: ɱ ruet

,kha:ŋ thɜ: 'It's yours.' → ŋ thɜ:

ja:ŋ ˉlop 'rubber eraser' → ŋ ˉlop

ro:ŋ rian 'a school' → ŋ rian

?an ,kha:u 'the white one' → ŋ ,kha:u

b.)  $C_i V C_f C_i \dots \rightarrow C_i V C_i \dots$  if  $C_f$  and the following  $C_i$  are identical (e.g. -pp-, -tt-, -kk-, -mm-, -nn-, -ŋŋ-):

\_pa:k ka: 'pen' → \_paka

ˉna:m mon 'holy water' → ˉnamon

wan \_nuŋ 'one day' → wa\_nuŋ

#### 6. Measurement of syllable durations (reduced form)

To demonstrate that syllables in normal running speech, though uttered with the same speed, do not have equal duration, an experiment was conducted. The text of 189 syllables written in Thai script was

prepared. It was the story of a myna bird which was adapted from the story of a parrot told by Blanche Dubois in Tennessee Williams' play, "A Streetcar Named Desire". The words used (mostly monosyllabic) were chosen carefully so that syllable boundaries could be easily detected on oscillograms. (However, there were three places where no other words could be used satisfactorily without changing the meaning of the utterances i.e. <sup>a</sup> wan-nuŋ 'one day' -tʰo:n nai 'a spoon in', and kla:ŋ wan`ni: 'the day'. There was no way to tell where the first nasal stopped and the second nasal started. One may suggest that the total duration of -nn- can be measured and then divided by two. This kind of solution may not be good enough because the syllables wan 'day' and nai 'in' are unstressed; therefore, as a result, the segment lengths may be reduced. (It may be invalid to assume that they are equal. Thus, the two syllables were measured together.) Recordings were made from the speech of the previous 5 speakers, FP, PP, SS, TL and VP. Each speaker (except speaker TL) had about fifteen minutes to go through the script before the actual recordings took place. The following instructions were given: 1.) Study and interpret the text carefully; 2.) think of yourself as a story teller (this means that they should try to convey their own feelings to the listener); 3.) try to make it as close as you can to a spoken style; 4.) use a moderate tempo of speech.

#### Text in Thai Script

##### เรื่องนกเอี้ยง

เอ ... นึกอก่อน เรื่องที่เคยเล่า อ้า ... นึกออกแล้ว เอาเรื่องนกเอี้ยงดีกว่านะ มีนกเอี้ยงตัวหนึ่ง มันดำเก่งเป็นไฟเลย รู้คำหยาบมากมายเหลือเกิน แล้วก็วิธีเดียวที่จะให้มันเงียบได้นั้นก็คือต้องเอาผ้าคลุมกรงเสีย มันจะได้คิดว่ามืดแล้ว ได้เวลานอนเสียที อีตานี้นะ รุ่งเช้าวันหนึ่ง

ยายสาวแก่เจ้าของนกนั้นก็เปิดเอาผ้าที่คลุมกรงออกอย่างเคย รู้ไหมใครเดินผ่านมาพอดี บาดหลวงจ๊ะ ยายเจ้าของแกร็บวิ่งกลับมากลุมกรงเจ้านกอย่างรวดเร็ว แล้วก็วิ่งไปที่ประตูเชิญ บาดหลวงเข้ามาในบ้าน นกมันก็นิ่งเชียว และแล้ว ... ยายสาวแก่ก็ถามพ่อบาดหลวงว่า ให้ใส่ น้ำตาลกี่ช้อนในกาแฟ ไอ้เจ้านกมันก็ตะโกนโพล่งออกมาว่า "แหม ... ให้ตายเถอะนะ ไอ้กลางวัน ผีมันลั่นเป็นบ้าเลยเว้ย!"

### Translation

#### The Story of a Myna Bird

Hm ... let me think ... the story that I have often told. Ah! I can remember now ... the story of a myna. There was a myna who was very keen on using bad language. He knew a lot of dirty words. The only way that he could be made quiet was to cover his cage with a piece of cloth. This would make him think that it was dark and that it was time to go to bed. Well, early one morning, the spinster who was the bird's owner came to uncover the cage as usual. Do you know who was passing by? A Roman Catholic priest! The owner of the bird rushed back to cover the cage as quickly as she could. Then, she ran to the door and invited the priest to come in. The bird was quiet. Finally, the spinster asked the priest, "How much sugar do you want in your coffee?" The bird then shouted out loudly, "Damn it! How come the day is so short!"

(timing in seconds)

1.	`rwəŋ	ˈnɔk	ˈʔiəŋ	'The Story of a Myna Bird'
FP	.23	.38	.37	
PP	.24	.25	.39	
SS	.21	.32	.37	
TL	.24	.17	.48	
VP	.23	.22	.48	

2.	...	<sup>13</sup> ʔe:	...	-nwk	<u>du:</u> <sup>14</sup>	-kɔ:n	'Hm... let me think.'
FP	1.24	.21	<sub>-</sub> <sup>15</sup>	.22	.16	.43	
PP	1.10	.46	.40	.27	.10	.44	
SS	1.34	.31	.29	.17	.11	.43	
TL	.56	.28	-	.18	.19	.46	
VP	1.12	.24	-	.21	.12	.48	
3.	...	ˈrwəŋ	ˈ <u>thi:</u>	khɿi	ˈlau		'The story that I've often told.'
FP	.52	.24	.14	.32	.32		
PP	.54	.21	.11	.33	.37		
SS	.90	.24	.11	.30	.46		
TL	.13	.23	.13	.31	.42		
VP	.68	.26	.08	.32	.34		
4.	...	ˈʔa:	...	-nwk	-ʔɔ:k	-lɛ:u	'Ah! I can remember, now'
FP	.35	.32	-	.26	.26	.30	
PP	.62	.38	.41	.17	.23	.35	
SS	.70	.31	.13	.18	.24	.36	
TL	.77	.43	.38	.17	.28	.22	
VP	.69	.23	-	.15	.31	.32	

<sup>13</sup>... = pause

<sup>14</sup>The underlining indicates that the syllables are unstressed by all speakers and sometimes by 4 speakers.

<sup>15</sup>Speakers FP, TL and VP did not pause here, even though they were supposed to do so, as indicated in the text read.

5.	...	<u>ʔau</u>	\`rwəŋ	\`nok	\`ʔiəŋ	<u>di:</u>	kwa:	\`naʔ	'I'd better
FP	.54	.14	.24	.25	.28	.12	.26	.26	tell the
PP	.65	.14	.17	.21	.23	.09	.31	.24	story of a
SS	.51	.15	.22	.21	.23	.07	.29	.29	myna bird!'
TL	.55	.13	.15	.18	.25	.13	.34	.28	
VP	.60	.13	.16	.14	.32	.07	.31	.30	
6.	...	<u>mi:</u>	\`nok	\`ʔiəŋ	tuə	-nuŋ			'Once, there was a
FP	.76	.21 <sup>16</sup>	.22	.23	.24	.31			myna bird.'
PP	.93	.16	.22	.24	.28	.37			
SS	.82	.15	.25	.24	.25	.29			
TL	.89	.13	.21	.37	.31	.23			
VP	.66	.13	.21	.21	.25	.26			
7.	...	<u>man</u>	-da:	-keŋ	<u>pen</u>	fai	lɿ:i		'He was very keen
FP	.57	.19	.17	.30	.18	.35	.36		on using bad
PP	.54	.17	.22	.28	.17	.35	.35		language.'
SS	.57	.17	.25	.28	.17	.37	.31		
TL	.19	.18	.28	.26	.19	.34	.38		
VP	.42	.15	.29	.24	.15	.39	.31		

<sup>16</sup>Speaker FP happened to stress the word *mi*: 'there is, there are' while the other four speakers did not.

8.	...	ˈru:	kham	-ja:p	ˈma:k	ma:i	ˌlwe	kɣ:n	'He knew a
FP	.56	.18	.30	.26	.29	.24	.15	.42	lot of
PP	.60	.18	.23	.28	.30	-	.35 <sup>17</sup>	.43	vulgar
SS	.63	.22	.25	.29	.29	.26	.12	.48	words.'
TL	.55	.23	.33	.30	.31	.32	.12	.41	
VP	.48	.19	.31	.25	.31	.28	.10	.37	

9.	...	ˈlɛ:u	ˈkɔ:	ˈwi?	thi:	diəu	'Thus, the only way..'		
FP	.70	.20	.23	.09	.22	.29			
PP	.78	.21	.21	.09	.25	.25			
SS	.78	.19	.20	.08	.24	.20			
TL	.51	.10	.15	.12	.27	.19			
VP	.69	.14	.13	.12	.23	.19			

10.	ˈthi:	ˈtɛa?	ˈhai	man	ˈŋiep	ˈda:i	'... that could make		
FP	.10	.15	.22	.17	.31	.35	him quiet...'		
PP	.18	.13	.19	.14	.29	.36			
SS	.16	.17	.14	.17	.31	.42			
TL	.07	.08	.15	.11	.36	.38			
VP	.13	.14	.17	.12	.32	.43			

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<sup>17</sup> Speaker PP left out the word ma:i which was the reduplication of ma:k 'much, many' and stressed the word ˌlwe 'excessive'. The shift of stress will be discussed in the following chapter (Chapter 2).

11.	...	`nan	`kə:	khw:					'... was ...'
FP	.90	.23	.14	.26					
PP	.60	.25	.26 <sup>18</sup>	.19					
SS	.45	.21	.11	.24					
TL	.34	.17	.11	.18					
VP	.90	.23	.14	.26					
12.	`təŋ	ʔau	`pha:	khlum	kroŋ	siə	'... to cover his cage		
FP	.17	.17	.28	.24	.26	.30	with a piece of		
PP	-	.21 <sup>19</sup>	.25	.25	.26	.32	cloth, ..'		
SS	.13	.12	.31	.26	.32	.27			
TL	.15	.13	.29	.28	.36	.32			
VP	.17	.17	.30	.28	.30	.30			
13.	...	man	-təa?	`da:i	-khit	`wa:	`mw:t	-lɛ:u	'so that
FP	.68	.14	.09	.14	.24	.13	.28	.31	he would
PP	.79	.18	.13	.12	.25	.11	.32	.38	think it
SS	.84	.13	.13	.10	.27	.19	.23	.44	was
TL	.55	.14	.09	.16	.19	.14	.30	.33	dark, ...'
VP	.51	.15	.09	.12	.16	.15	.32	.29	

<sup>18</sup>The word `kə: which is an adverb-auxiliary was stressed by speaker PP. I could not find any explanation for this.

<sup>19</sup>Again, here, speaker PP left out the word `təŋ 'have to, must', and stressed the secondary verb ʔau 'to take something in order to do something'.

14.	...	<u>da:i</u>	<u>we:</u>	la:	no:n	<u>,sɿə</u>	thi:	'it was time to	
FP	.62	.23	.08	.17	.27	.15	.34	go to bed.'	
PP	.82	.26	.10	.23	.28	.14	.39		
SS	.65	.19	.13	.17	.30	.15	.49		
TL	.38	.15	.12	.27	.30	.14	.37		
VP	.52	.27	.09	.23	.29	.14	.43		
15.	...	<u>?i:</u>	<u>ta:</u>	ni:	na?			'Well, ...'	
FP	.65	.10	.12	.29	.20				
PP	.68	.09	.16	.28	.27				
SS	1.1	.04	.16	.29	.31				
TL	.60	.14	.16	.30	.28				
VP	.56	.06	.18	.12	.33				
16.	...	<u>ruŋ</u>	<u>tɕha:u</u>	wan_nwŋ				'early one morning...'	
FP	.60	.20	.29	.48					
PP	.53	.21	.33	.48					
SS	.60	.22	.35	.63					
TL	.35	.31	.39	.58					
VP	.31	.24	.36	.54					
17.	...	<u>ja:i</u>	<u>,sa:u</u>	<u>_ke:</u>	<u>tɕau</u>	<u>,kɕo:ŋ</u>	<u>ni:nok</u>	<u>'nan</u>	'the
FP	.43	.24 <sup>20</sup>	.30	.31	.16	.19	.36	.26	spinster
PP	.56	.11	.34	.23	.14	.31	.22	.18	who was the
SS	.47	.19	.36	.34	.14	.31	.26	.22	owner of
TL	.66	.15	.35	.30	.12	.27	.24	.14	the bird...'
VP	.27	.18	.31	.30	.11	.25	.27	.22	

<sup>20</sup>Speaker FP was the only one who stressed the word ja:i 'title for girl or woman'.

19.	<u>'kɔ:</u>	<u>-pɣ:t</u>	<u>ʔau</u>	<u>'pha:</u>	<u>'thi:</u>	khlum	kroŋ	<u>-ʔɔ:k</u> <sup>21</sup>	'came to
FP	.14	.25	.11	.27	.11	.27	.27	.27	uncover the
PP	.12	.26	.10	.26	.10	.27	.27	.25	cage...'
SS	.16	.35	.09	.29	.12	.29	.35	.18	
TL	.10	.25	.12	.21	.12	.28	.23	.16	
VP	.14	.24	.15	.25	.11	.28	.23	.12	

20.	<u>-ja:ŋ</u>	khɣ:i	'as usual'					
FP	.15	.40						
PP	.11	.41						
SS	.22	.49						
TL	.20	.39						
VP	.34 <sup>22</sup>	.41						

21.	...	<u>-ru:</u>	<u>,mai</u>	khrai	dɣ:n	<u>-pha:n ma:</u>	<u>phɔ:</u>	di:	'Do you
FP	.52	.16	.27	.29	.25	.50	.14	.30	know who
PP	.62	.18	.22	.19	.25	.36	.13	.37	was
SS	.76	.16	.24	.25	.26	.38	.16	.38	passing
TL	.61	.17	.20	.27	.28	.39	.15	.31	by?'
VP	.58	.10	.14	.21	.23	.41	.13	.38	

<sup>21</sup>I decided not to count the word -ʔɔ:k 'secondary verb meaning off' because the first two speakers, FP and PP, did not stress this word but the other three speakers did.

<sup>22</sup>The structure word -ja:ŋ 'in ... a manner' was stressed by only one speaker, VP. It was a matter of choice more than any reason.

22.	...	ba:t	luəŋ	tʰa?	'A Roman Catholic priest!'					
FP	.49	.19	.31	.30						
PP	.67	.42	.33	.30						
SS	.56	.25	.33	.28						
TL	.78	.25	.34	.27						
VP	.55	.21	.34	.37						
23.	...	ja:i	tʰau	khə:ŋ	ke:	ri:p	wiŋ	klap	ma:	'The
FP	.50	.19	.17	.30	.13	.25	.17	.21	.12	owner of
PP	.62	.22	.12	.30	.13	.21	.18	.26	.07	the bird
SS	.72	.23	.15	.34	.22	.28	.19	.28	.12	rushed
TL	.64	.14	.12	.29	.10	.16	.26	.16	.13	back...'
VP	.80	.15	.16	.32	.15	.18	.23	.21	.11	
24.	khlum	kroŋ	tʰau	nok	ja:ŋ	reu	wai	'to cover the		
FP	.24	.32	.14	.24	.19	.25	.30	cage as quickly		
PP	.29	.27	.11	.26	.16	.24	.33	as she could.'		
SS	.29	.32	.17	.27	.18	.27	.36			
TL	.28	.26	.10	.27	.16	.28	.35			
VP	.28	.29	.12	.22	.24 <sup>23</sup>	.28	.31			
25.	...	le:u	ko:	wiŋ	pai	thi:	pra?	tu:	'Then, she	
FP	.69	.17	.16	.23	.11	.18	.13	.30	ran to the	
PP	.58	.18	.17	.19	.10	.16	.16	.29	door...'	
SS	.44	.17	.17	.23	.11	.17	.17	.29		
TL	.51	.12	.13	.20	.09	.15	.13	.24		
VP	.53	.12	.12	.18	.10	.14	.13	.24		

<sup>23</sup>The same explanation as in 20.

26.	təhɿ:n	-ba:t	luəŋ	khau	ma:	nai	ba:n	'and invited
FP	.20	.26	.26	.13	.19	.13	.30	the priest to
PP	.28	.13	.25	.12	.22	.12	.43	come into the
SS	.30	.25	.28	.12	.18	.15	.42	house.'
TL	.28	.27	.21	.06	.13	.13	.42	
VP	.26	.17	.25	.09	.11	.11	.45	

27.	...	nok	man	ko:	niŋ təhiəu			'The bird was quiet.'
FP	.72	.22	.19	.12	.31	.36		
PP	.71	.25	.20	.15	.26	.39		
SS	.74	.22	.15	.11	.32	.40		
TL	.62	.27	.18	.10	.33	.37		
VP	.76	.19	.15	.12	.34	.31		

28.	...	le?	le:u	...	ja:i	sa:u	ke:	'Then, the
FP	.64	.14	.35	.47	.19	.28	.23	spinster...'
PP	.56	.09	.41	.42	.06	.34	.25	
SS	.88	.22	.48	.58	.15	.32	.34	
TL	.50	.17	.46	.44	.17	.28	.23	
VP	.76	.18	.36	.40	.14	.28	.22	

29.	ko:	tha:m	pho:	-ba:t	luəŋ	wa:		'asked the priest...'
FP	.13	.28	.13	.24	.20	.33		
PP	.12	.32	.12	.25	.18	.39		
SS	.14	.34	.14	.29	.30	.30		
TL	.10	.34	.12	.22	.19	.40		
VP	.11	.28	.11	.15	.31	.36		

30.	...	<u>'hai</u>	-sai	<u>'na:m</u>	ta:n	<u>-ki:</u>	tsho:n	nai	<u>ka:</u>	fe:	'How
FP	.65	.10	.19	.15	.28	.17	.48	.13	.40		much
PP	.53	.12	.27	.17	.27	.15	.37	.14	.52		sugar
SS	.40	.13	.27	.13	.24	.18	.41	.17	.40		do you
TL	.38	.14	.18	.17	.28	.20	.44	.14	.44		want
VP	.53	.16	.19	.16	.26	.13	.43	.13	.50		in your coffee?

31.	...	<u>'?ai</u>	<u>'təau</u>	-nok	<u>man</u>	<u>'kə:</u>	'the bird then ...'				
FP	.60	.05	.15	.30	.14	.10					
PP	.74	.15	.14	.27	.14	.11					
SS	.58	.05	.15	.31	.13	.11					
TL	.69	.12	.13	.20	.14	.12					
VP	.50	.12	.11	.20	.12	.12					

32.	<u>-ta?</u>	ko:n	<u>'phlo:n</u>	<u>-?ə:k</u>	ma:	<u>'wa:</u>	'shouted out loudly...'				
FP	.13	.31	.25	.17	.23	.25					
PP	.13	.30	.28	.17	.13	.26					
SS	.13	.37	.30	.09	.20	.32					
TL	.13	.33	.28	.16	.18	.34					
VP	.12	.34	.31	.07	.20	.38					

33.	...	<u>'me:</u>	<u>'hai</u>	ta:i	<u>-thɿ?</u>	<u>'na?</u>	'Damn it!'				
FP	.59	.46	.07	.37	.13	.27					
PP	.48	.31	.17	.34	.15	.25					
SS	.70	.61	.28	.37	.16	.27					
TL	.66	.40	.15	.30	.12	.30					
VP	.98	.44	.16	.32	.16	.33					

34.	...	<u>'ʔai</u>	kla:ŋ	wan`ni:	'How come the day...'
FP	.47	.07	.30	.28	
PP	.46	.04	.35	.28	
SS	.55	.11	.24	.28	
TL	.23	.12	.21	.29	
VP	.09	.15	.22	.49	

35.	<u>man</u>	<u>'san</u>	<u>pen</u>	<u>'ba:</u>	<u>lxi</u>	<u>ˈwx:i</u>	'is so short!'
FP	.16	.35	.10	.32	.16	.34	
PP	.21	.31	.10	.31	.17	.32	
SS	.19	.30	.14	.31	.13	.29	
TL	.17	.29	.18	.20	.21	.37	
VP	.18	.27	.14	.30	.17	.46	

#### 7. Notes and comments on the durations of the reduced form

The measurements of syllable durations, appearing in the text have shown that some syllables are rather short in comparison with the others around them. The text, as stated before, contains 189 syllables. It seems that 63 syllables are likely to be unstressed or reduced in length by the 5 speakers. (Only 6 of them, mentioned in the footnotes 14-18 and 21, are stressed by one speaker and unstressed by the rest.) It is quite noticeable that the 65 reduced syllables are either the first syllables, of two-syllable words and two-syllable compounds, or monosyllabic words belonging to certain word classes, e.g. conjunctions, adverb-auxiliaries, pronouns, prepositions, secondary verbs and so forth. Broadly speaking, 34% of syllables in the text has shorter

durations than the average duration of the full form of syllables, which is .39 second. The average durations of the 65 reduced syllables range from .09 second to .18 second; however, the durations of .13 second to .14 second seem to be the most preferred. This means that the average durations of the reduced form of syllables are between  $\frac{1}{3}$  and  $\frac{1}{2}$  of the durations of the full form. The percentages of preferred durations are shown in the table below.

Table 5: The average percentages of the preferred durations of the reduced form of syllable

Second	.09	.10	.11	.12	<u>.13</u>	<u>.14</u>	.15	.16	.17	.18
%	02	11	09	08	10	20	09	09	11	02

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## Chapter 5: Stress and Its Correlation with Syllable Durations

### 1. Definition of stress

In this thesis, only 'stress' and 'unstress' are recognized. Thus, a syllable is either 'stressed' or 'unstressed', as shown in the preceding chapter. Abercrombie (1967 and 1976), following a Stetsonian line, defines stress in terms of the pulmonic air-stream: "a reinforcement of a breath-pulse, a muscular action which produces a higher subglottal air pressure (of which the speaker is kinesthetically aware, and of which the listener may be aware by 'empathy'".<sup>1</sup>

Stress is something that a person can feel exists when he is speaking, listening to and even thinking about the languages with which he is familiar. Too many stresses within a short period of time can make one feel tired and exhausted both from speaking and listening to other people's speech. Abercrombie states that objective, instrumental evidence of the occurrence of stress can be provided, but he is prepared to take the speaker's word for it.<sup>2</sup> With regard to the psychological nature of stress, Classe (1939: 20) says, "... the stress is felt where the listener would naturally put it himself - that is, so long as no markedly abnormal factor is present (as, for example, when foreigners both shift the stress and alter length and vowel quality)."

### 2. Nature and rôle of stress

1. Every single syllable in Thai utterances can be stressed if the speaker so wishes e.g., in emphatic speech. For example,

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<sup>1</sup>Abercrombie, "Stress and Some Other Terms", Work in Progress, no, 9, 1976, p. 51.

<sup>2</sup>Ibid, p. 52.

Normal: `hai' -jip rɔŋ' -tha:u `mai' `təhai ,thun' -tha:u<sup>3</sup>

"I told you to bring me my shoes, not socks."

Emphatic: `hai -jip rɔ:ŋ -tha:u `mai' `təhai ,thun -tha:u

"I told you to bring me my shoes, not socks. (Did you hear me, silly girl?)

2. Normally, not every syllable is stressed in both casual and careful speech. There are patterns of stress placement, and the controlling factors are both grammatical and phonetic. In general, among monosyllabic words, content words always receive stress but grammatical words do not; in polysyllabic words, linker-syllables<sup>4</sup> are not stressed.

<sup>3</sup>Stressed syllables are underlined.

<sup>4</sup>The term "linker-syllables" was used by Bee (1975), and it has been adopted as a useful term. In the first paragraph of his article entitled, "Restricted Phonology in Certain Thai Linker-Syllables," Bee says:

Phonologists agree that vowel quantity is phonemic in Thai. The syllables which I wish to term linker-syllables have as vowel the phoneme /a/, a short vowel quantitatively speaking, usually realized as [ə].

Bee gives some examples, e.g. sàttawát, rətthabaan, sàppada [sic], etc.; the middle syllables of the three words which are underlined here are called linker-syllables by Bee. In his note (1), he refers to a similar comment made by Henderson (1949: 198). He then continues:

they do not conform to the accepted phonological rule that all Thai syllables which are phonemically short must close with some final consonant or other. Only in artificial 'dictation' style do they close with a glottal final. Only in dictation style, moreover, do they bear the phonemic tone we would expect from their spelling. Otherwise, (in normal speech, that is) the pitch of the syllables seems to be self-adjusting, as unobtrusive as a linker should be, accommodating itself to the clear realization of tones in what went before and what to come after.

Ex. 1

-tɛ:    ʼmɛ:    ʼmai            ʼda:i                    tɕɣ:            ʼphɔ:  
 but    mother   not (indicating past time)   to meet    father

-tɛ ʼ ʼmɛ: ʼmɛi ʼdɛi ʼ tɕɣ: ʼ ʼphɔ: ʼBut I (mother) didn't meet  
 your father.'

Ex. 2

-tɕa?    pen    ,jiŋ    ,ru:    tɕha:i            ʼkɔ:            ʼmai    ʼru:  
 will    be    girl    or    boy    adverb-auxiliary    not    know

tɕə pen ʼ ,jiŋ ,rə ʼ tɕha:i ʼkɔ ʼmai ʼ ʼru: ʼIt'll be a girl or a  
 boy, I've no idea.'

Ex. 3

-pra?,diəu    -tɕa?    mi:    ka:n    -sa?dɛ:ŋ    pa:-tha?-ka?,tha:  
 in a moment    will    have            a show                    lecture

prə ʼ ,diəu tɕə mi ʼka:n sə ʼdɛ:ŋ ʼpa: -thəkə ʼ ,tha: ʼThere will be a  
 lecture in a  
 moment.'

Ex. 4

-ma?,ha:    -pra? ʼthe:t    ʼsa:ŋ    -ra?-bɣ:t    -ma?,ha:    -pra?lai  
 great            country    build            bomb            great    devastating

mə ʼ ,ha: prə ʼ ʼthe:t ʼ ʼsa:ŋ rə ʼ -bɣ:t mə ʼ ,ha: pə ʼ lai ʼPowerful  
 countries build  
 devastating  
 bomb.'

3. Stress rules can be postulated<sup>5</sup> for polysyllabic words and compounds. It is quite predictable; they are, very often, determined by the phonetic features and position of the syllable.

a.) Polysyllabic words<sup>6</sup>

	SYLL. STRUCTURE	CASUAL	CAREFUL
2 - Syllable A <sub>1</sub>	CV?.S <sup>7</sup>	-	-
	A <sub>2</sub> CVN.S		

<sup>5</sup>Warotamasikkhadit (1968), following a generative framework, postulates a set of 14 rules which must be applied in order. He states (p. 167) that the aim of his paper is to demonstrate how to predict stresses (three degrees of stress) and tone shifts in Thai in order to obtain correct pronunciation of any words. It seems that his complicated rules do not work very well. The inadequacy of data and his loyalty to the generative approach are two reasons which make his presentation not very successful. For example, some weakness is shown in Rule 6 (p. 171):

<sup>6</sup>[- stress] → [+ stress] in env.  $\left\{ \begin{array}{l} \begin{array}{l} \# \\ - \text{ dif} \\ - \text{ grv} \\ - \text{ dif} \\ + \text{ flt} \end{array} \\ \begin{array}{l} + \text{ voc} \\ - \text{ cns} \\ + \text{ dif} \\ - \text{ grv} \end{array} \end{array} \right\} \begin{array}{l} [- \text{ stress}] \\ \text{b} [+ \text{ stress}] \end{array}$

This rule states that

- the last syllable of the word is stressed;
- an unstressed syllable containing either a vowel [e] or [æ] is stressed;
- an unstressed syllable containing either a vowel [o] or [ɔ] is stressed;
- an unstressed syllable containing a vowel [i] preceded by an unstressed syllable must be stressed.

If Warotamasikkhadit had been aware of the words  $\text{ต๋ชช} [-tʰhi'-tʰha?]$ ,  $\text{พู่ช} [-pu'pa?]$ ,  $\text{ต๋ท} [-tw'-tw?]$ ,  $\text{นชชช} [-nʰ'-na?]$  and  $\text{นชช} [-ka'-'tha?]$ , and had included them in his corpus, he would have postulated a more simple and economical rule: b, c and d could have been put together. The rule might have been read like this: an unstressed syllable containing any short vowel [i e ε w ɤ a u o ɔ] is stressed. Thus, less features would have been needed in postulating rule 6.

Another weak point is that he does not differentiate between styles of speech; therefore, his paper seems to be a "hotch-potch".

(Continued on page 94)

	SYLL. STRUCTURE	CASUAL	CAREFUL
3 - Syllable A	S.CV?.S	— —	—
	B <sub>1</sub> CV?.CV:.S	— —	— —
	B <sub>2</sub> CV:.CV:.S		
	C CV?.CV?.S	— —	— —
4 - Syllable A	CV?.S.CV?.S	— — —	—   —
	B S.CV?.S.S	— — —	—
	C S.CV?.CV?.S	— — —	— —
5 - Syllable A	S.CV?.S.CV?.S	— —   —	—   —
	B CV?.S.S.CV?.S	—   — —	—     —
	C CV?.S.CV?.S.S.	— — —	—   —

Most polysyllabic words in Thai are loan words from Pali, Sanskrit, Khmer and other oriental languages, such as Malay, Persian and so forth. Learned and scientific words are, usually, coined from Pali and Sanskrit,<sup>8</sup> which one can recognise immediately from the spellings. Rules are given by Thai language scholars of how the words should be pronounced; otherwise, one would not know how to say or read them

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Three years later, Hiranburana (1971) presented a better analysis. She took into account different styles and tempo of speech; instrumental evidence (e.g. from spectographic and oscillographic studies) and the results obtained from perception testing were used to support her hypothesis; the rule of stress (accent) was demonstrated.

<sup>6</sup>See Appendix I.

<sup>7</sup>CV? = linker-syllable (Bee, 1975) or weak syllable (Warotamasikkhadit, 1968)  
 . = syllable boundary  
 S = any syllable  
 — = unstress

<sup>8</sup>Nowadays, young scholars tend to reject the idea of coining new words from Pali and Sanskrit resources. It is no longer considered as "elegant" as it used to be.

correctly. Among polysyllabic words, 6-syllable words are very rare. All of them are coined by combining Pali and/or Sanskrit words together by means of the technique called *สมาส* [sa-ma:t] and *สนธิ* [ ,son`thi?]. As a result, various patterns of stress placement can be found; it depends upon the 'ingredients' of each word for example:

-ʔe:k -ʔak -kha? `ra:t -t<sup>h</sup>cha? `thu:t 'ambassador (from a monarchy)'  
 -ʔe:k, -ʔe:k -ka?... 'prime, highest'  
 -ʔak, -ʔak -kha?... , -ʔak-kha?-ra?... bound form meaning  
 'pre-eminent'

`ra:t, ra: -tcha?... 'king, royal'  
<sup>h</sup>  
 `tu:t, thu:-ta?... 'ambassador'

เอกอัครราชทูต -ʔek -ʔak -kha? `ra:t-tcha?`thu:t 'ambassador'  
 S.S.CV?.S.CV?.S | ~ ~ ~ | | | ~ | ~ |

อสังหาริมทรัพย์ -ʔa? ,san,ha:rim-ma?-sap 'moveable assets'  
 CV?.S.S.S.CV?.S ~ ~ | ~ ~ | ~ | | | ~ |

ประกาศนียบัตร -pra?-ka:t-sa?ni:-ja?-bat 'certificate'  
 CV?.S.CV?.S.CV?.S ~ | ~ ~ ~ | ~ | ~ | ~ |

ปูชนียสถาน pu:-tcha?ni:-ja?-sa?,tha:n 'place that one should worship'  
 S.CV?.S.CV?.CV?.S ~ ~ | ~ ~ | | ~ | ~ ~ |

บุคลิกลักษณะ -buk-kha?-lik-lak-sa?-na? 'personality'  
 S.CV?.S.S.CV?.CV? ~ ~ | ~ ~ | | ~ | | ~ |

b.) Compounds

	CASUAL	CAREFUL
2 - Syllable	~	~
<u>Ex.</u> -na:m,kheŋ	'ice'	
-rotfai	'train'	
-dɔ:k-ma:i	'flower'	

3 - Syllable<sup>9</sup>

		CASUAL	CAREFUL
A.		— —	—
<u>Ex.</u>	,si:~na:m ta:n		'brown colour'
	,hen-kɛ:tue		'to be selfish'
	maurwebin		'to be airsick'
B.		— —	—
	~na:m~som~khan		'fresh orange juice'
	-toklonɕai		'to make a decision'
	~ma:i-khi:tfai		'matches'

c.) Reduplication<sup>10</sup>

		CASUAL	CAREFUL
2 - Syllable		—	—
<u>Ex.</u>			
	-ʔw:n-ʔw:n		'and so forth'
	reureu		'to be quickly'
	'san'san		'to be short (not long)'
	ŋɔ: ŋɛ:		'to be fussy, children'
	wonwian		'to go round (within an area)'
	'juŋ,jɣ:ŋ		'to be confusing'

<sup>9</sup> Some 3-syllable compounds have stress pattern A and some have stress pattern B. An explanation for this is that their internal structures are different:

A.	,si:~na:m ta:n	is from	,si: + (~na:m + ta:n)
			'colour'      'sugar'
	~na:m~som~khan	is from	(~na:m + ,som) + ~khan'
			'orange juice'      'squeeze'

<sup>10</sup> See Haas (1942 and 1946).

	CASUAL	CAREFUL
4 - Syllable	—   —	—   —
<u>Ex.</u>		
-raʔ-mat-raʔ waŋ	'to be cautious'	
-thaʔjɯ:-thaʔja:n	'to be ambitious'	
-saʔ-nuk-saʔ,na:n	'to have fun'	

d.) Elaborate Expressions<sup>11</sup>

	CASUAL	CAREFUL
4 - Syllable	—   —	—   —
<u>Ex.</u>		
-rɔ:n-ʔok-rɔ:n tɕai	'to be worried'	
`ja:k di: mi: tɕon	'whether rich or poor'	
jo:n,hue jo:n`kɔi	'to flip a coin'	
`wa:nɔ:n,sɔ:n`ŋa:i	'to be obedient'	

4. Nothing is absolute about the rules of stress placement as suggested in 2 and 3; there is only a 'tendency' to be that way. In rapid connected speech, stress may be shifted, which depends upon the speaker's interpretation of a particular statement, style of speech, the position of the word or syllable in utterances, tempo and so on. For instance, more syllables are stressed in slow careful speech than in fast and moderate casual speech; and the syllable that precedes a pause is always stressed.

<sup>11</sup>Four-syllable elaborate expressions are very frequent in Thai speech. They help to make speech more rhythmical and sound like verse. The rhythmic pattern is always — | — |. These elaborate expressions can be divided into two groups:

Group A: X Y X Z, e.g. -rɔ:n -ʔok-rɔ:n tɕai

Group B: X Y<sub>1</sub> Y<sub>2</sub> Z, e.g. `ja:k di: mi: tɕon  
(Y<sub>2</sub> rhymes with Y<sub>1</sub>)

A good collection can be found in the Thai-English Student's Dictionary (Haas, 1964).

- Ex. 1    `rwəŋ ˈnok ˈʔiəŋ            'the story of a myna bird'  
 A.        ˈˈrwəŋ'ˈnok'ˈʔiəŋ            (slow deliberate)  
 B.        ˈˈrwəŋ ˈnok'ˈʔiəŋ            (moderate casual)  
 C.        ˈrwə ˈno'ˈʔiəŋ                (fast casual)

Ex. 2    ka:n tham ɲa:n ˌkʰɔ:ŋ ˌkʰau ˈmai ˈda:i ˌphon  
 di: ˈnak ˌrɔ:k ˌrw: ˈkʰa? khun

'Is the job he did not so successful?'

(Moderate casual speech)

'ka:nthem'ɲa:n

kenthəm 'ɲa:n ˌkʰɔŋ'ˈkʰau

kenthəm 'ɲa:n ˌkʰɔŋ 'ˈkʰau ˈmɔi ˈdɔi ˌˌphon

kenthəm 'ɲa:n ˌkʰɔŋ 'ˈkʰau ˈmɔi ˈdɔi ˌˌphon 'di:

kenthəm 'ɲa:n ˌkʰɔŋ 'ˈkʰau ˈmɔi ˈdɔi ˌˌphon di 'ˈnak

kenthəm 'ɲa:n ˌkʰɔŋ 'ˈkʰau ˈmɔi ˈdɔi ˌˌphon di ˈˈnek ˌˌrɔ:k

kenthəm 'ɲa:n ˌkʰɔŋ 'ˈkʰau ˈmɔi ˈdɔi ˌˌphon di 'ˈnak ˌˌrɔk ˌˌrw:

kenthəm 'ɲa:n ˌkʰɔŋ 'ˈkʰau ˈmɔi ˈdɔi ˌˌphon di ˈˈnek ˌˌrɔ:k ˌˌrə ˈˈkʰa

kenthəm 'ɲa:n ˌkʰɔŋ 'ˈkʰau ˈmɔi ˈdɔi ˌˌphon di ˈˈnek ˌˌrɔ:k rə ˈˈkʰə ˈˈkhun

5. Based on its functions, there are two kinds of stress in Thai:

(1) Rhythmic or logical stress which is autonomous and always present in connected speech as shown under 4.; and

(2) Emphatic stress which adds extra flavour or meaning to an utterance. The syllable that receives an emphatic stress is, usually, much longer and louder than neighbouring syllables and is always accompanied (followed) by a pause.

Ex. 1    ˌkʰau ˈphu:t ˈwa: ˌtʰə? ma:

'He said that he would come.'

- A. ˈkhəu ˈˈphu:t ˈwə tɕə' ma: (without emphatic stress)  
 'He said that he would come.'
- B. ˈkhəu ˈˈphu:t ˈwə \* tɕa? ...<sup>12</sup> 'ma: (with emphatic stress)  
 'He said that he \* would come.'

Ex. 2 dɛ:ŋ tham ˈtɛ:k

'Daeng broke it.'

- A. ˈdɛ:ŋ tham ˈˈtɛ:k (without emphatic stress)  
 'Daeng broke it.'
- B. \*dɛ:ŋ... tham ˈˈtɛ:k (with emphatic stress)  
 'It's \*Daeng who broke it.'

Ex. 3 ,khəu ˈrak kan

'They are in love.'

- A. ˈkhəu ˈˈrak ˈkan (without emphatic stress)  
 'They are in love.'
- B. ˈkhəu \*rak... ˈkan (with emphatic stress)  
 'They are in \*love!'

6. Regarding domains of stress, word-level stress in Thai is not linguistically significant,<sup>13</sup> but phrase-level stress is syntactically significant.

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<sup>12</sup>\* = emphatic stress

... = pause.

<sup>13</sup>Thai has stress but not accent. According to Abercrombie (1976: 52), accent exists only at the lexical level and there are no auditory and no physiological characteristics attached to it, therefore, it is not a general phonetic term. He states, "The various possible realisations of accent may have nothing phonetic in common. An accented syllable may be realised with stress, with various features of pitch, of syllable length and segment-length, of loudness, and of articulatory characteristics in various combinations. But none of these are included in the definition of accent."

Ex. 1 -ja: kan di: -kwa:

A. -jə 'kan di '-kwa:

'You'd better not be in my way.'

B. '-ja: kən di '-kwa:

'We'd better get a divorce.'

Ex. 2 'hai ma: -lɛ:u

A. 'həi 'ma: 'lɛ:u

'(I) have already permitted (someone) to come.'

B. 'hai mə '-lɛ:u

'(I) have already given it to (someone).'

Ex. 3 'da:i pai -lɛ:u

A. 'dəi 'pai '-lɛ:u

'(I) was allowed to go'

B. 'da:i pəi '-lɛ:u

'(Somebody) has already got it.'

Ex. 4 'da:i kan -lɛ:u

A. 'dəi 'kan '-lɛ:u

'(I) have already tried to prevent it.'

B. 'da:i kən '-lɛ:u

'(They) have already been in bed (before getting married).'

Ex. 5 'mai lɜ:i 'kha?

A. 'məi 'lɜ:i 'kha.

'(We) haven't passed it yet.'

B. 'mai lɜ:i 'kha.

'No. (I don't think so).'

7. There is some correlation between stress and length in Thai as pointed out by Thawisomboon (1956: 20)<sup>14</sup> Relatively speaking, stressed syllables are likely to be longer than unstressed syllables. According to Fry (1955, 1958) and Lehiste (1970), there are at least three suprasegmental cues that signal the difference between stressed and unstressed syllables: 1.) the loudness of syllables (intensity), 2.) the length of syllables (duration), and 3.) the pitch of syllable (fundamental frequency). Lehiste states:

While increase in respiratory effort provides an obvious physiological cause for increases in intensity and increases in the rate of vocal fold vibration, no such reason is apparent for a frequent third phonetic correlate of stressedness: greater duration. There are many languages in which a stressed syllable is longer than an unstressed one. This appears to be a language-determined phenomenon; the presumed generality of the feature, sometimes implied in the literature may be due to the fact that duration is indeed a stress cue in many Western European languages that have been subjected to instrumental phonetic study.<sup>15</sup>

Thai seems to be another language in which stressed syllables seem to be longer than the unstressed ones. To support this hypothesis the oscillograms of polysyllabic words, compounds, reduplication, elaborate expressions and other longer phrases were made and measured

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<sup>14</sup>Thawisomboon did a kymogram of the utterance *tā: \_suk pa: ka:* 'Old Sook is throwing stones at the crows'. The results obtained were that the syllable with secondary stress *pā:* 'to throw' was shorter than the fully stressed syllable *kā:* 'crow' and that the weakly stressed syllable *tā:* 'a title for men' was the shortest. Hence, he commented, "This appears to indicate that there is some correlation between the degree of stress and the relative duration of the syllables concerned."

<sup>15</sup>Lehiste, Suprasegmentals, p. 125.

in seconds.<sup>16</sup> The oscillogram measurements support very well the rules of stress placement in 3. and the hypothesis that stressed syllables are longer than the unstressed ones. The syllables which are 'reduced in strength'<sup>17</sup> are also 'reduced in length'. Syllable durations in 2-syllable words, 2-syllable compounds, 2-syllable complete reduplication, 2-syllable partial reduplication, 3-syllable words, 3-syllable compounds, 4-syllable words, 4-syllable partial reduplication, 4-syllable elaborate expressions, 5-syllable words and 6-syllable words will be shown respectively in Tables 6-16. Table 17 contains 5 pairs of 3 or 4 syllable-phrases showing contrastive syntactic stress and syllable durations. Relationship between the shift of syntactic stress and the change of syllable durations will be demonstrated in Table 18.

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<sup>16</sup>So far as timing is concerned, it has already been shown in the preceding chapter that I speak the same way as the other four Thais do. In this chapter, the analysis will be based entirely on my own speech. Since there is nothing absolute about stress placement in Thai, so the results obtained from oscillogram measurements here are not claimed to represent timing in Thai speech. Such a claim would not be possible without using a sophisticated statistical method. The measurements shown in Table 6 to 18 are only a demonstration which is based on a single speaker at one time.

a/ <sup>17</sup>Hass (1964: xiii).

Table 6: Stress and syllable durations in 2-syllable words  
(in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. มาลัย 'garland of flowers'	mə'lai .13 .48	.62
2. เสบียง 'provisions'	sə'biəŋ .17 .51	.68
3. มะเดื่อ 'fig'	mə' _dwe .17 .41	.58
4. ละเมอ 'to talk in one's sleep'	lə'mɔ: .15 .49	.64
5. ระบม 'to be stiff and sore'	rə'bom .13 .44	.57
6. บรรยาย 'to lecture'	bən'ja:i .24 .49	.73
7. สมบูรณ์ 'to be healthy'	som'bu:n .29 .43	.72
8. อุดม 'to be fertile'	u' dom .15 .40	.55
9. รบ 'to battle'	nə'roŋ .16 .39	.55
10. สะดุ้ง 'to be startled'	sə'`duŋ .17 .40	.57
Average Duration		.62

Table 7: Stress and syllable durations in 2-syllable compounds  
(in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. น้ำแข็ง 'ice'	ˈnəm ˈkheŋ .18 .46	.64
2. เสื้อคลุม 'a coat'	ˈswə ˈkhlum .28 .48	.76
3. วัวควาย 'cattle'	wue ˈkhwa:i .23 .57	.80
4. เรือแพ 'watercraft'	rue ˈphe: .29 .50	.79
5. ลูกหลาน 'descendants'	luk ˈ,la:n .15 .56	.71
6. รถไฟ 'a train'	ˈrot ˈfai .13 .56	.69
7. ไฟฟ้า 'electricity'	fai ˈfa: .17 .54	.71
8. โรงเรียน 'school'	roŋ ˈriən .30 .38	.68
9. ดีใจ 'to be glad'	di ˈtʃai .22 .52	.74
10. ดอกไม้ 'flower'	-dɔk ˈma:i .21 .49	.70
Average Duration		.72

Table 8: Stress and syllable durations in 2-syllable complete reduplication (in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. คำดำ 'black'	dem'dam .30 .41	.71
2. บ้าบ้า 'to be crazy'	'be 'ba .12 .56	.78
3. ลายลาย 'to be striped'	ləi'la:i .23 .57	.80
4. เร็วเร็ว 'fast'	reu'reu .30 .40	.70
5. สั้นสั้น 'to be short'	'sən'san .29 .45	.74
6. แรงแรง 'forcefully'	rɛŋ'rɛ:ŋ .30 .48	.78
7. อื่นอื่น 'others'	-wn' -ʔw:n .23 .48	.71
8. หอมหอม 'to be fragrant'	,hɔm',hɔ:m .27 .50	.77
9. เบาเบา 'softly'	bɛu'bau .21 .49	.70
10. สายสาย 'lately'	,sɛi',sa:i .24 .50	.74
Average Duration		.74

Table 9: Stress and syllable durations in 2-syllable partial reduplication (in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. วนเวียน 'to go around'	won'wien .30 .40	.70
2. เฮฮา 'sound of hearty laughter'	he ' ha: .21 .49	.70
3. ยุ่งเหยิง 'to be confusing'	'jun' ,jɯ:ŋ .23 .51	.74
4. โทรงทรง 'to be sparse'	,roŋ' ,re:ŋ .29 .44	.73
5. โลเล 'to be ever-changing'	lo'le: .23.52	.75
6. งอแง 'to be fussy'	ŋɔ'ŋɛ: .25 .52	.77
7. เข้าขี้ 'to coax repeatedly'	-səu'-si .33 .48	.81
8. เชื้อขำ 'to be blunderingly foolish'	'sɯ' 'sa: .30 .47	.77
9. เห็นอยหน้าย 'listlessly'	-nɯəi' -na:i .35 .51	.86
10. ฝัน 'to dream of'	-fəi' ,fan .32 .45	.77
Average Duration		.76

Table 10: Stress and syllable durations in 3-syllable words  
(in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. โหระพา 'sweet basil'	,ho rə 'pha: .12 .14 .51	.77
2. บริวาร 'subordinates'	bɔ ri' wa:n .13 .17 .49	.79
3. นฤมล 'without sins'	nə ru 'mon .15.12 .45	.72
4. มะละกอ 'papaya'	mə lə' kɔ: .11 .14 .50	.75
5. เกรียงจันทน์ 'beast'	de rə 'tɕha:n .09 .14 .55	.78
6. มีนาคม 'March'	mi nə' khom .10 .20 .43	.73
7. ฆมพบาล 'Satan'	jom phə' ba:n .18 .11 .48	.77
8. สาลิกา 'the common myna'	,sə li' ka: .19 .14 .51	.84
9. หัวใจ 'heart'	hə ru 'thai .12 .15 .48	.75
10. โสเภณี 'prostitute'	,so phe' ni: .16 .16 .45	.77
Average Duration		.77

Table 11: Stress and syllable durations in 3-syllable compounds  
(in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. รองเท้ายาง 'tennis shoes'	rɔŋ ˈthau ˈja:ŋ .13 .21 .50	.84
2. รถโดยสาร 'public transport'	ˈrot doi ˈ,sa:n .11 .18 .51	.80
3. สีน้ำตาล 'brown colour'	,si ˈnam'ta:n .20 .22 .51	.93
4. น้ำตาลทราย 'sugar'	ˈnam tan ˈsa:i .12 .27 .59	.98
5. น้ำส้มคั้น 'orange juice'	ˈnam ,som ˈkhan .16 .28 .40	.84
6. เห็นแก่ตัว 'to be selfish'	,hen ˌke'tue .18 .11 .48	.77
7. มีแก่ใจ 'to be kind enough to'	mi ˌke'tɕai .16 .16 .50	.82
8. เมาเครื่องบิน 'to be airsick'	ˈmæu rwe' bin .20 .15 .42	.77
9. ยกมากล่าว 'to quote'	ˈjok mə ˈkla:u .13 .16 .56	.85
10. รางรถไฟ 'railroad track'	ˈraŋ ˈrot'fai .22 .13 .51	.86
Average Duration		.85

Table 12: Stress and syllable durations in 4-syllable words  
(in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. อเมริกา 'America'	ə me ri 'ka: .08 .18 .13 .46	.85
2.สวัสดิการ 'social security'	sə _wət di 'ka:n .13 .18 .14 .52	.97
3. นิทรรศการ 'exhibition'	ˈni ˈtʰə sə 'ka:n .11 .17 .17 .51	.96
4. อสุรกาย 'a kind of ghost'	ə su rə 'ka:i .08 .16 .17 .52	.93
5. อันตรธาน 'to disappear'	ən tə rə 'tʰa:n .16 .10 .15 .50	.91
6. วรรณคดี 'literature'	wə nə khə 'di: .15 .16 .12 .39	.82
7. โบราณคดี 'archaeology'	bo'ra:n khə 'di: .15 .32 .13 .38	.98
8. อุทกภัย 'disaster caused by flood'	u ˈtʰə kə' phai .15 .15 .16 .43	.89
9. นมัสการ 'to pay respect'	nə ˈmə sə' ka:n .09 .17 .19 .52	.97
10. สุพรรณบุรี 'name of a province'	su'phan bu' ri: .18 .27 .13 .39	.97
Average Duration		.93

Table 13: Stress and syllable durations in 4-syllable partial reduplication (in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. วิภาควิจารณ์ 'to criticise'	-wi 'pha:k-wi'tɕa:n .14 .33 .15 .59	1.21
2. ระมัดระวัง 'to be cautious'	rə'mat rə'wəŋ .11 .30 .20 .47	1.08
3. ะส่ำระสาย 'to be scattered in disorder'	rə 'sam rə 'sa:i .14 .32 .14 .61	1.21
4. ละมุนละไม 'to be gentle, smooth'	lə'mun lə'mai .12 .41 .10 .50	1.13
5. ละลอบละล้ง 'to intrude'	lə'la:p lə'luəŋ .12 .39 .11 .50	1.12
6. ละล้าละล้ง 'to be worried'	lə'-la:lə'laŋ .14 .29 .13 .52	1.08
7. สะทกสะท้าน 'to shake with fear'	sə'-thok sə '-tha:n .17 .27 .18 .54	1.16
8. สะอาดสะอ้าน 'to be clean'	sə'-'a:t sə''a:n .18 .31 .23 .44	1.16
9. สะดวกสบาย 'to be convenient and comfortable'	sə'-duək sə'ba:i .14 .28 .18 .52	1.12
10. สนุกสนาน 'to have fun'	sə '-nuk sə ',na:n .17 .23 .17 .51	1.08
Average Duration		1.14

Table 14: Stress and syllable durations in 4-syllable elaborate expressions (in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. ร้อนกร้อนใจ 'to be worried'	-ron'-ʔok -ron'tɕai .26 .21 .39 .45	1.31
2. สิมหุสิมตา 'to pay attention to what is around one'	lum' hu: lum ' ta: .26 .24 .32 .47	1.29
3. ทียบเล็กทียบน้อย 'to pilfer'	-jip' -lek -jip' nɔ:i .19 .31 .23 .51	1.24
4. โยนหัวโยนก้อย 'to flip a coin'	jon 'huə jon''kɔi .32 .28 .32 .41	1.33
5. ให้สินให้พร 'to bless'	'həi' ,sin 'həi 'phɔ:n .27 .31 .20 .48	1.26
6. หูป่าตาเลื่อน 'to be ignorant of what is going on'	,hu' -pa: ta' -thwən .19 .31 .28 .48	1.26
7. หุนหันพลันแล่น 'to act on impulse'	,hun' ,han phlan'' lən .21 .28 .23 .46	1.18
8. ยากดีมีเงิน 'whether rich or poor'	jak' di: mi' tɕon .27 .22 .27 .46	1.22
9. น้ำใสใจจริง 'sincerity'	-nam' ,sai tɕai'tɕiŋ .23 .30 .26 .41	1.20
10. ลูกเด็กเล็กแดง 'infants and young children'	'luk' -dek -lek' dɛ:ŋ .23 .26 .28 .46	1.23
Average Duration		1.25

Table 15: Stress and syllable durations in 5-syllable words  
(in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. สัมพันธไมตรี 'relationship'	,səm'phanthə'mai' tri: .22 .20 .08 .24 .47	1.21
2. (ชื่อ) ไปรษณียกร 'postage stamp'	'prai sə ni jə 'kɔ:n .24 .12 .17 .15 .49	1.17
3. อนารยชน 'uncivilized people'	ə 'na: rə jə 'təhon .07 .23 .10 .17 .44	1.01
4. รัตนโกสินทร์ 'Bangkok (official name)'	-rə tətə'nə? ko 'sin .09 .09 .22 .28 .42	1.10
5. (ชื่อ) พจนานุกรม 'dictionary'	-photə'na: 'nu'krom .15 .12 .21 .13 .46	1.07
6. (เป็น) ประชาธิปไตย 'democracy'	prə'tɕa: 'thi pə' tai .12 .25 .08 .13 .44	1.02
7. (นับถือ) พุทธศาสนา 'Buddhism'	-phu thə' -sa:t sə',na: .10 .10 .19 .12 .45	.96
8. (เดือน) กรกฎาคม 'July'	kə -rə kə 'da: 'khom .12 .12 .12 .28 .41	1.05
9. รัฐธรรมนูญ 'constitution of a nation'	-rət thə 'tham ə 'nu:n .12 .10 .20 .07 .45	.94
10. สหประชาชาติ (สั่ง) 'United Nations'	sə '-ha? pə 'tɕha: 'tɕha:t .13 .20 .18 .25 .30	1.06
Average Duration		1.06

Table 16: Stress and syllable durations in 6-syllable words

(in seconds)

Thai Script and Translation	Allophonic Transcription Indicating Stress and Syll. Durations	Duration of Each Utterance
1. (มี) อสังหาริมทรัพย์ (มาก) 'moveable property'	ə',saŋ',ha: ri mə'-sap .12 .25 .24 .11 .15 .28	1.14
2. บุคคลลักษณะ (ดี) 'personality'	-bu khə -'lik'-lak sə'-na? .09 .15 .17 .17 .16 .28	1.02
3. (ไปจ) ุชณียสถาน 'a place that one should pay respect to'	pu tʃhə'ni: jə sə',tha:n .13 .12 .18 .14 .15 .50	1.22
4. อาโลกิตศวร 'name of a mythological figure'	ə wə'lo: ki'te:' ,suən .09.12.25.13 .27 .47	1.33
5. อภินันทนาการ 'compliment'	ə -phi'nan the'na:'ka:n .11 .12 .24 .09 .24 .52	1.32
6. อนามาธาชน 'person's name'	ə nu'ma:n `rə tʃhə'thon .09 .15 .31 .15 .14 .43	1.27
7. (ใน) พระราชอุทยาน 'a royal garden'	phrə''ra:t ʃə ?u the'ja:n .12 .19 .13 .15 .15 .48	1.22
8. บุคคลลาธิษฐาน 'a wish made by an individual'	-bu khə'la: -'thi sə',tha:n .10 .17 .20 .12 .18 .50	1.27
9. อธิกรสูรทิน 'the extra day in a leap year (Feb. 29)'	ə '-thi kə'-su? rə'thin .09 .18 .11 .19 .16 .42	1.15
10. (ทำ) ประกาศนียบัตร (หาย) 'certificate'	prə'ka:t sə ni jə'-bat .14 .23 .11.09 .14 .35	1.06
Average Duration		1.20

Table 17: Contrastive syntactic stress and syllable durations  
(in seconds)

Transcription and Translation	Allophonic Transcription Indicating Stress and Syll. Durations
1a. อย่ากัณดึกกว่า    -ja: kan di: -kwa: You'd better not be in my way.	-jə'kan di' -kwa: .17 .35 .07 .47
b. หย่ากัณดึกกว่า    -ja: kan di: -kwa: We'd better get a divorce.	'-ja: kən di' -kwa: .32 .08 .11 .48
2a. ให้มาแล้ว        `hai ma: -lɛ:u (I) have already allowed him to come.	'hai 'ma: '-lɛ:u .15 .31 .46
b. ให้มาแล้ว        `hai ma: -lɛ:u (I) have already given it to him.	'`hai mə '-lɛ:u .24 .17 .46
3a. ได้ไปแล้ว        `da:i pai -lɛ:u (I) was allowed to go.	'dəi 'pai '-lɛ:u .14 .40 .47
b. ได้ไปแล้ว        `da:i pai -lɛ:u (Somebody) has already got it.	'`da:i pɛi '-lɛ:u .26 .17 .42
4a. ได้กัณแล้ว        `da:i kan -lɛ:u (I) have already tried to prevent it.	'dəi 'kan '-lɛ:u .16 .32 .50
b. ได้กัณแล้ว        `da:i kan -lɛ:u (They) have already been in bed (before getting married).	'`da:i kən '-lɛ:u .33 .17 .47
5a. ไม่เลยคะ        `mai lɛ:i `kha? (We) haven't passed by it yet.	'məi 'lɛ:i '`kha. .15 .36 .31
b. ไม่เลยคะ        `mai lɛ:i `kha? No. (I don't think so.)	'`mai lɛ:i `kha. .29 .16 .35

Table 18: The shift of stress and the change of syllable durations  
(in seconds)

แล้วก็จะมาไหมละคุณ ˈlɛːu ˈkɔː ˌtʃaʔ maː ˌmai ˈlaʔ khun 'Then, (tell me) will you come or not?'		Durations
1. ˈlɛːu .53		.53
2. ˈlɛu ˈkɔː .18 .51		.69
3. ˈlɛu ˈkɔ ˈtʃaʔ .17 .15 .33		.65
4. ˈlɛu ˈkɔ tʃə ˈmaː .14 .15 .14 .53		.96
5. ˈlɛːu ˈkɔ tʃə ˈmaː ˈmai .20 .13 .13 .31 .39		1.16
6. ˈlɛu ˈkɔ tʃə ˈmaː ˈmai ˈlaʔ .12 .14 .12 .32 .12 .35		1.17
7. ˈlɛu ˈkɔ tʃə ˈmaː ˈmai ˈlɛ ˈkhun .12 .14 .12 .30 .13 .17 .41		1.39

### 3. Notes and comments on stress and relative syllable durations

It is clear, up to this point, that stress plays an important role in a study of not only Thai rhythm but also Thai syntax, or one may as well say that rhythm is part of Thai grammar (Chomsky's sense).

Syllable durations (shorter or longer) are mainly determined by stress placement in utterances. Ignoring stress, one will never be able to analyse successfully a unit of speech which is larger than a syllable. Such a unit must be located by stress. Instrumental evidence supports very well the hypothesis that a stress syllable is longer than an unstressed one, relatively speaking.

In comparison with the other types of syllable, the so-called "linker-syllables" are very short. This is the reason why polysyllabic words tend to have shorter durations (between .10 - .30 second) than compounds or reduplication; for example:

Type of Utterance	Average Duration in Seconds
2-syllable words	.62
2-syllable compounds	.72
2-syllable complete reduplication	.74
2-syllable partial reduplication	.76
4-syllable words	.93
4-syllable partial reduplication	1.14
4-syllable elaborate expressions	1.25

The last syllable of an utterance before a pause seems to be very long<sup>18</sup>, much longer than any other syllables in the same utterance, and most of the time, even longer than the average duration of full form of syllable (not before or after a pause) in my speech, which is about .40 seconds (See Table 2 on p. 69)

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Stetson (1905: 316) tries to explain this phenomenon, as follows:

"The sense of finality is often produced by a heavy accent. This accent is often determined by some qualitative factor which attracts attention and receives emphasis.

The heavy impact at the close seems not only to mark the event, but to release quickly all the tensions of the movement; (the tension of the respiratory muscles) all the tensions of the movement seem to culminate in this effort and then disappear."

## Chapter 6: Functions and Durations of Phonological Pause

### 1. Functions of pause

Should pause be included in the study of a language? Does it have any significant functions in speech? Will speech be intelligible without the presence of pause?<sup>1</sup>

Linguists and phoneticians, no matter to what school they belong, take pause into their analysis of a language. For example, phonemicists discuss pauses (both internal and external) under "junctures".<sup>2</sup> Abercrombie points out the five functions of phonological pause or "silent stress" in English: syntactic, emphatic, terminal, tentative and rhetorical.<sup>3</sup> It is interesting to see whether phonological pause in Thai has any significant role which is equivalent to the one in English or not.

I believe that phonological pause in Thai has many functions, and its durations must be included in a study of rhythm. There is something systematic about the way Thai speakers pause when their speech is fluent.

<sup>1</sup>Wallin (1901: 81) points out the laws of mental activity as follows: "..... The laws of mental activity seem to demand that the words in speaking be grouped into short unities that agree, in the main, with the unity of consciousness; and that frequent, though brief, pauses be made to enable the mind to easily grasp and synthesize this manifold of sensation.

..... The mind conserves its energy by dividing its work into brief, but forceful, efforts, and by introducing brief and frequent, rather than long and infrequent, rests. This demand is unconsciously fulfilled in spoken language. The frequent pauses afford momentary opportunities for rest for both speaker and listener. Hence the possibility of listening attentively to a long discourse."

<sup>2</sup>See Trager and Smith, "An Outline of English Structure", 1951, pp. 38-39, and pp. 44-50.

<sup>3</sup>Abercrombie, "Some Functions of Silent Stress", 1971.

This will be demonstrated later in this chapter.

There is a close relationship between stress and pause in Thai; for example, any syllable (a monosyllabic structure word, a monosyllabic function word, the last syllable of a polysyllabic word, etc.) before a pause is always stressed, and pause always accompanies an emphatic stress.

It is quite controversial among Thai linguistic scholars what makes a pair like ˈna:m,khɛŋ, a compound noun meaning 'ice' and ˈna:m ,khɛŋ, a sentence meaning 'the water becomes icy' differ in meanings--stress or pause (plus juncture).<sup>4</sup>

Solution a: ˈna:m ,khɛŋ = 'ice'  
                   3      1  
           ˈna:m khɛŋ = 'The water becomes icy'.  
                   1      1

Solution B: ˈna:m ,khɛŋ = 'ice'  
           ˈna:m + ,khɛŋ = 'The water becomes icy'.

Both features--stress and pause--seem equally important. Pause has syntactic function as well as stress has; sometimes it is obligatory and sometimes it is optional.

#### 1. Obligatory syntactic function

Pause is considered obligatory when, with or without its presence, the meanings of phrases or sentences can be affected. One may argue that it is not only pause but also some other phonetic features. I entirely agree with this argument. It has been stated before that (a) pause and stress have close relationship and should be analysed together, and (b) various kinds of change, both segmental and supra-

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<sup>4</sup>For example, Sagarik (1965) favours solution B (the presence of plus juncture / + /), whereas Hiranburana (1971) favours Solution A (the presence of different degrees of accent).

segmental, occur when syllables are unstressed. To make this analysis clear and simple, only two prominent features, i.e. stress and pause, are taken into account. The following are some examples:

Ex. 1 `tha: pai \_khit `wa: -tʃa? -ju: -sak dwən -nɔŋ

a. `thə'pai ˌ'khit `wə tʃə'-ju: -sək'dwən -nɔŋ

'If I could go, I would stay for a month.'

b. `thə pəi'-khit `wə tʃə'-ju: -sək'dwən'-nɔŋ

'If you think that you'll stay for a month...'

Ex. 2 `mwə khw:n \_kɔ:n nɔ:n

a. `mwə'khwɪn ˌ\_kɔn'nɔ:n

'Last night, before I went to bed...'

b. `mwə khwɪn'-kɔ:n ˌ nɔ:n

'The night before, I slept...'

Ex. 3 tham mai ma: ?au \_si: mo:ŋ

a. thəm'mai'ma: ˌ əu '-si:'mo:ŋ

'Why do you choose to come at four?'

b. thəm'mai mə?'au -si'mo:ŋ

'Why do you come to get it at 4 o'clock?'

Ex. 4 khun `mɛ: ,phom kin `kha:u -lɛ:u

a. khun ˌ `mɛ: ,phom kin `kha:u'-lɛ:u

'Dear, my mother has already had her meal.'

b. khun``mɛ: phom'kin``kha:u'-lɛ:u

'My mother has already had her meal.'

c. khun``mɛ: ˌ ,phom'kin``kha:u'-lɛ:u

'Mother, I have already had my meal.'

Ex. 5 `phɔ: ta: ˉnɔ:ŋ ˉtɕɛp

- a. `phɔ: ˌ tɛ'ˉnɔ:ŋ'ˉtɕɛp  
'Father, Ta Nong is ill.'
- b. `phɔ'ta: ˉnɔŋ'ˉtɕɛp  
'My father-in-law is ill.'
- c. `phɔ: tɛ 'ˉnɔ:ŋ 'ˉtɕɛp  
'Ta Nong's father is ill.'
- d. `phɔ: ˌ 'ta: ˉnɔŋ 'ˉtɕɛp  
'Father, I have sore eyes.'

Ex. 6 `mɛ: ˉna:m ˉjɯʔ tɕaŋ

- a. `mɛ 'ˉna:m ˉjɯʔ tɕaŋ  
'There are many rivers!'
- b. `mɛ: ˌ 'ˉna:m 'ˉjɯʔ tɕaŋ  
'Mother, there is a lot of water!'

Ex. 7 mi: ˉna:m `phwŋ ˉlɛʔ pla:

- a. mi 'ˉna:m ˌ `phwŋ ˌ ˉlɛ pla:  
'There are water, bees and fish.'
- b. mi ˉnɛm `phwŋ ˌ ˉlɛ pla:  
'There is honey and fish.'

Ex. 8 '-jip `hai `mɛ: ˌ nɔi `tɕaʔ

- a. '-jip `hei `mɛ: ˌ nɔi `tɕaʔ  
'Bring it to Mummy, please.'
- b. '-jip `hei `mɛ'ˌnɔi `tɕaʔ  
'Bring it to Noi.'

## 2. Optional syntactic pause

There is an expression in Thai: พูดยังทว่าจะโดน `phu:t mi:

tʂaŋ\_waʔ \_tʂaʔ kho:n 'to speak with rhythm (or to speak in a pleasant manner)', and vice versa; i.e. one can speak without rhythm (or speak in an unpleasant manner). What do people mean or how do they feel when they use this expression? I have heard many people complain: "One of the announcers of the National Broadcasting Station who read the radio news at 8 o'clock (p.m.) is very bad. He reads with no rhythm at all." When I asked, "What do you mean when you say that he reads without rhythm?" the reply was, "He pauses where he wants to pause, but not where he should pause. Because of this, sometimes the messages are ambiguous. I am annoyed whenever I listen to him."

It is quite fortunate that I could manage to tape this particular announcer one night, in 1975. Some examples from the recording and my attempt to make them "sound better" are presented below (∧ = pause):

Ex. 1

-thəŋ-ni: ˉphrɔʔ ˈwa: kɔ:ŋ -thap thai ˌsa: ˈma:t ˈpɔŋ kan ˉpraʔ ˈthe:t  
 ˈda:i do:i ˈmai tʂəm pen ∧ ˈtɔŋ ʔau -thaʔ ˌha:n ˉta:ŋ ˈda:u ma:  
 ˈtʂhuəi ˉrop

'This is because the armed forces of Thailand can protect the country without the aid of foreign troops.'

(My improvement)

[-thəŋˈ-ni: ∧ -phrɔ ˈwə kɔŋ ˈ-thap ˈthai ˌsa ˈˈma:t ˈpɔŋ ˈkanprə ˈˈthe:t  
 ˈda:i ∧ doi ˈməi tʂəm ˈpen ˈtɔŋ ʔau the ˈˌha:n ˉtaŋ ˈˈda:u mə  
 ˈˈtʂhuəi ˈˈ-rop]

Ex. 2

nai ˈrwəŋ -ni: tha:ŋ ˉfa:i ˉsaʔ ˉhaʔ -rat ˈsa:p ∧ ˉju: di: ˈwa: ˉpraʔ  
 ˈthe:t thai pen -mit ˈthi: di: ˌkhɔ:ŋ ˌkhau ∧ ˉja:ŋ rai

'In this case, the United States well knows that Thailand is a good friend.'

(My improvement)

[nəi 'rwəŋ '-ni: ˌ thəŋ 'fa:i sə hə '-rat 'sa:p ˌ ju 'di: ˌ wə  
prə 'the:t 'thai pen '-mit 'thi 'di: ˌ khəŋ '-khau ˌ jəŋ 'rai]

Ex. 3

do:i ˌ kra? suəŋ ˌ kra? la: ˌ ho:m ˌ sa? ˌ ha? ˌ rat 'mai ˌ sa: 'ma:t 'thi:  
ˌ tʃa? ˌ ʔa? ˌ thi? ba:i 'hai ˌ rat ˌ tha? ˌ sa? pha: ˌ 'khau tʃai ˌ sa?  
'pha:p 'thi: pen tʃiŋ 'da:i

'The fact that the U.S. Dept. of Defence could not explain and make the congress understand the real situation...

(My improvement)

[doikrə 'suəŋ kələ 'ho:m sə hə '-rat ˌ 'mɛi ˌ sa 'ma:t 'thi tʃə  
ʔə thi 'ba:i ˌ 'hɛi '-rat thə sə 'pha: 'khəu 'tʃai ˌ sə 'pha:p 'thi  
pen 'tʃiŋ 'da:i]

### 3. Emphatic function

A pause always comes immediately after the syllable that carries an emphatic stress. It makes the climax or the most important part of an utterance stand out and attract the listener's attention.

Ex. 1

'khrai pen 'khon \*\_phit ˌ kən 'ne:

'I wonder who's wrong!'

Ex. 2

\*khon ˌ 'ta:ŋ ˌ kap \*\_sat ˌ 'nə 'thɜ:

'Man is different from animal, dear.'

Ex. 3

`thə \*\_ja:k ʌ `kɔ 'tʃhɜ:n

'If you have a desire, go ahead.'

4. Creating a feeling of suspense. Another function of pause is to provoke suspense. It makes the listener or the audience get involved with what the speaker is going to say next.

Ex. 1

-khəu them 'tha: 'mwən ʌ 'phi: tai 'sa:k

'He acted as if he were ... a zombie.'

Ex. 2

`thə khəm 'tɔ:p wə 'mai ʌ `kɔ tʃə 'kɜ:t 'rwəŋ

'If the answer were "no" ... a disaster would come.'

Ex. 3

-khəu 'wiŋ ʌk 'pai ʌ ʌsək 'khru: ʌ 'siəŋ 'pw:n 'lan

'He ran out. Then, after a while, ... we heard a gun fire.'

I believe that the other functions of pause, terminal, tentative and rhetoric, also exist in Thai, but they are less frequent in daily usage. Their scope is limited to people who have something to do with public speaking, e.g. politicians, radio and T.V. announcers, lecturers and so forth. No definite rules can be given where or when one should pause. It is something personal and more artistic than scientific; therefore, I shall not discuss it in detail here.

## 2. Durations of pause

1. In reading the list of 50 nonsense utterances on pages 53-55; each speaker, controlled by the text, had to pause 49 times. The first pause came after the first utterance (?a:) di: ʌrak 'na:k ʌrin (?a:),

and the last pause counted for this purpose was the one which came before the last utterance (?a:) `khwan \_biət khle:ŋ ,sa:m (?a:). Objectively measured, the duration of pause varied a lot for each speaker. Some speakers preferred shorter pauses and some speakers preferred longer pauses. However, the way in which each speaker paused is quite systematic. A summary can be given in the following tables:

Table 19: Durations of pause in comparison with the durations of the whole text (in seconds) and the average percentages of pause (50 nonsense utterances)

Speaker	Duration of Text	Duration of Pause	Percentage %
FP	161.38 (2.69 minutes)	47.29	29.30
PP	158.83 (2.65 minutes)	36.84	23.19
SS	150.68 (2.51 minutes)	26.21	17.39
TL	161.10 (2.69 minutes)	24.97	15.50
VP	155.90 (2.60 minutes)	35.58	22.82

Table 20: Range of the durations of pause (in seconds)

Speaker	Shortest	Longest
FP	.69	1.25
PP	.61	.96
SS	.38	1.28
TL	.32	.78
VP	.55	1.03

Table 21: Average percentages of the durations of pause (50 nonsense utterances)

Speaker	%							
	Duration of Pause in Seconds							
	.30-.39	.40-.49	.50-.57	.60-.69	.70-.79	.80-.89	.90-.99	1.00-
FP	-	-	-	2.04	8.16	22.45	26.53	40.82
PP	-	-	-	22.45	51.02	24.49	2.04	-
SS	2.04	36.74	46.94	12.24	2.04	-	-	2.04
TL	10.20	42.86	28.58	8.16	10.20	-	-	-
VP	-	-	10.20	22.45	38.78	16.33	8.16	4.08

2. Every speaker seemed to spend a similar amount of time (155.90-161.38 seconds) in reading the list of 50 utterances as shown in Table 1. The duration of pause varies from 24.97 seconds (speaker TL) to 47.29 seconds (speaker FP). However, the duration of pause is not more than 30% of the total duration. Speakers SS and TL seemed to prefer shorter pauses while the other three preferred longer pauses. As for speaker SS, the range of pause is from .30 to .79 second; it is peculiar that this speaker made a very long pause (1.25 seconds) which is not within the range at all. The explanation is that this very long pause occurred when speaker SS finished reading the last item (utterance no. 25) on the first page of the list which contained two pages. The common core duration of pause seems to be .60-.79 second which is about the duration of two syllables.

3. It is interesting to see the duration of pause in running

connected speech, e.g. when one tells a story. The length of pause occurring in the Story of a Myna Bird which was read by five speakers was measured. According to the text, every speaker was supposed to pause at 26 places, but when the reading actually took place, only two speakers (speakers PP and SS) followed the text exactly; one speaker (speaker TL) skipped one pause and the other two speakers (speakers FP and VP) skipped two pauses. The result of the measurements is summarized and presented in the two tables below.

Table 22: Durations of pause in comparison with the durations of the whole text (in seconds) and the average percentages of pause (the Story of a Myna Bird)

Speaker	No. of Pauses	Duration of Text	Duration of Pause	%
FP	24	58.20	14.99	25.75
PP	26	59.77	16.94	28.34
SS	26	62.82	17.69	28.15
TL	25	56.09	13.47	24.01
VP	24	57.05	14.49	25.40

Table 23: Average percentages of the durations of pause

(the Story of A Myna Bird)

Speaker	Duration of Pause in Seconds										
	.10-.19	.20-.29	.30-.39	.40-.49	.50-.59	.60-.69	.70-.79	.80-.89	.90-.99	1.00-	
FP	-	-	4.17	12.50	29.16	33.33	12.50	-	4.17	4.17	4.17
PP	-	-	-	15.38	26.92	30.77	15.38	3.85	3.85	3.85	3.85
SS	3.85	3.85	-	15.38	19.23	11.54	23.08	11.54	3.85	3.85	7.68
TL	8.00	4.00	20.00	-	28.00	28.00	8.00	4.00	-	-	-
VP	4.17	4.17	4.17	8.33	33.33	20.83	8.33	4.17	8.33	8.33	4.17

4. Pauses seem to vary a lot in length. However, the highest percentage falls between .50 second and .79 second which is about the length of two full syllables. The longest pause made by almost all speakers (except speaker TL) is the one that comes after the title of the story: 1.24, 1.10, 1.34 and 1.12 seconds, by speakers FP, PP, SS and VP respectively. Generally, speaker TL, which was myself, made rather short pauses, in comparison with the other four speakers. (This may be because she was so familiar with the text that she could recite it from memory.) Thus, pauses seem to be shorter in more fluent speech. It is difficult, sometimes, to separate the length of pause belonging to the rhythmic system and the one which results from hesitation or when a speech is not fluent.

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## Chapter 7: Feet and Their Durations

### 1. Definition of Foot

The smallest phonological unit which can be a rhythmic unit as defined in Chapter 1, Part II, is the syllable. The next phonological unit which is larger than a syllable but smaller than a tone-group is a "foot".<sup>1</sup> The domain of a foot extends from a salient syllable--audible or inaudible (e.g. a phonological pause)--up to but not including the next salience. Thus, the first syllable of a foot or the salient syllable is identical with stressed syllable, the other unstressed syllables in a foot (if these are any), are weak syllables. Using vertical lines to indicate foot boundaries, the following sentence contains seven feet:

1		2		3		4		5		6		7
tʂam	ə	rai	ˈkhwɪn	ma:	ˈkɔ	-luən	_tɛ	khwa:m	-thuk	-thəŋ	-nan	

'What I remember are only sufferings.'

In this sentence, there are seven salient (or stressed) syllables and five weak (or unstressed) syllables. Foot is not a grammatical unit. Hence, it has nothing to do with the morphemes or words of a language. As Chatman (1965: 117) says:

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<sup>1</sup>According to Halliday (1967: 12-15), the hierarchical organization of the phonology of a language is composed of four units in descending order: tone group, foot, syllable and phoneme. He says (p. 12):

They are related taxonomically as are the units of the grammatical rank scale; each one consists of one or more of the one below it. This therefore specifies a set of phonological constituent types parallel to, but not in one to one correspondence with, those of the grammar; and without the possibility of rank shift.

See also Pike (1971: 409) and Brosnahan and Malmberg (1970: 139-140).

Feet have nothing else to do with language: they are non-grammatical and non-lexical, and so do not bear any relation to word-integrity, phonological juncture, or any other real linguistic feature. Foot boundaries may split words, and two words separated by even the strongest juncture (say the one represented by a period) may occur within the same foot. Feet, in short, are purely "notional."

## 2. Foot Structure

Based on the internal composition, it can be said that Thai has five types of feet:

- |                |             |                   |
|----------------|-------------|-------------------|
| 1.   S         |             | = 1-syllable foot |
| 2.   S W       |             | = 2-syllable foot |
| 3.   S W W     |             | = 3-syllable foot |
| 4.   S W W W   | (rare)      | = 4-syllable foot |
| 5.   S W W W W | (very rare) | = 5-syllable foot |

S = salient syllable

W = weak syllable

Briefly stated, the five types of foot structure can be schematized as follows:

$$\left| S W_{0-4} \right|$$

In some cases, the audible salient syllable (S) can be replaced by an inaudible salience, or in other words, a phonological pause (P).

Thus the foot structure can be written as:

$$\left| \left\{ \begin{array}{c} S \\ P \end{array} \right\} W_{0-4} \right|$$

Here are some examples:

### 1-syllable foot

Ex. 1 | khwa:m | -so:k | 'sau |  
           | S       | S       | S       |

'sorrow, grief'

Ex. 2 | -kɔ̃ːt | | -kɛ: | | -tɕəp | | ta:i |  
 S | P | S | P | S | P | S

'To be born, to be old, to be sick and to die.'

2-syllable foot

Ex. 3 | -kɔ:-wi | | ˈna:t sə | kam  
 S W | S W

'to cause destruction'

3-syllable foot

Ex. 4 | -mɛ tɕə | mi: -ʔu pə | -sək ˈkɔ ˈmɛi | klɯə  
 P W N | S W W | S W W

'Although there may be some obstacles, I'm not afraid.'

Ex. 5 | ˈkɔ | ˌtha:m pɛi jəŋ | -ŋan ˈdɛi -mɛi | ˈla.  
 S W W | S W W

'Can you ask (them) in that way?'

4-syllable foot

Ex. 6 | the:n ˈthi tɕə pɛi | ta:m | ,mɔ:  
 S W W W

'instead of calling for a doctor.'

Ex. 7 | pɛi ˈthi prə | tu: si | thɯ:  
 P W W W

'Go to the door.'

5-syllable foot

Ex. 8 tɕu | la: | loŋ kə rə nɛ mɛ | ,ha:-wi jə | lai  
 S W W W W

'Chulalongkorn University'

Ex. 9 | ˈthɛ tɕə ˈhɛi mən | ˈŋiap -ju nan | na:n  
 P W W W W

'If you want it to keep quiet for a long time, ...'

Ex. 10 | -lɛ ˈkɔ mɛ lə | kɔ: -ʔik | ˈha: | ˈlu:k  
 P W W W W

'... and also five papayas.'



syllable the rhythmic beats fall. So far as the rhythm of English is concerned, most writers, in the literature, have been inclined to take the nuclear vowels of the stressed syllables or the release of the last consonant before the nuclear vowels as the locations of the beats of English speech rhythm, e.g. Thomson (1923) and Classe (1939). Allan (1967) comments: "These locations were chosen probably because the acoustic and physiological patterns of speech change drastically during the transition from consonant to nuclear vowel, and so both locations are acceptable from either a motoric or a perceptual point of view."<sup>2</sup>

In order to find out the location of rhythmic beat within the syllable, Allan conducted three experiments. In the first experiment, three subjects, native speakers of English, tapped their fingers in time to the rhythm of the syllables of selected conversational utterances, and the locations of the subjects' taps relative to the syllables were measured. The result was that the subjects tapped with greater accuracy to the stressed syllables than to the unstressed ones. He also found in this experiment that the subjects' average tap locations were between the release of the last consonant before the nuclear vowel and the onset of the nuclear vowel. In the second experiment, the same subjects were asked to move an audible click instead of tapping their fingers, and once again many click locations were measured for each syllable. The resulting click locations were partly in agreement with the tap locations of the first experiment. The third experiment was run in pilot form to investigate the relationship between the beat and the nuclear vowel

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<sup>2</sup>Allan, "Experiments on the Rhythm of English Speech", in UCLA Working Papers in Phonetics, No. 10, 1968, p. 42.

onset which depended on the initial consonant sequence. The result was that the subjects showed agreement in the way their click location changed depending on the phonetic character of the test syllables. He concludes, "Nevertheless, this small set of data shows us that the location of the syllable beat is not a simple function of the nuclear vowel onset and the release of the initial consonant, although one can choose either of these events as a first approximation."<sup>3</sup> Rapp (1971) also did an extended version of the work done by Allan. The best location in Swedish syllables and its relation to various aspects of timing of speech segments were investigated. Three Swedish male subjects were asked to read 12 lists of nonsense words. Regarding pulse locations in relation to acoustic segments, Rapp states, "There is a large inter-subject variation as to the absolute pulse location, subject no. 2 placing pulses at least 55 m sec. earlier than the other subjects. However, if we compare the pulse locations of the three subjects on a relational basis subjects are found to be consistent in that pulses are placed earlier in words containing voiceless intervocalic consonants or consonant clusters than in words having a voiced consonant in the same position".<sup>4</sup>

The technique used by Allan and Rapp may not work well for Thai speakers since Thai is not a genuine stress-timed language like English and Swedish. (See detailed discussion in Chap. 8, Part III). However, it may be challenging to an experimental psychologist and an experimental phonetician who care for the timing perception of Thai speakers to

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<sup>3</sup>Ibid. p. 45.

<sup>4</sup>Rapp, "A Study of Syllable Timings," in STL-QPSR 1/1971, p. 17.

collaborate and investigate extensively this area.

In this thesis, I shall follow the second theory because it is easier to see where a foot begins and ends. This concept of rhythmic foot was put forward for English by Abercrombie (1964) and it has been practised both by lecturers<sup>5</sup> and students in the Linguistics Department.

2. To achieve a reliable measurement of foot durations and syllable durations within different types of feet, three forms of speech were investigated: phrases or sentences that can come up in every-day conversation, a story and a prose extract. To a certain extent, they represent what actually occurs in Thai so far as rhythmic feet are concerned. Three sets of data were prepared for the purpose:

The first set consisted of 30 meaningful utterances which were either phrases or sentences; 10 utterances contained 2-syllable feet, 10 contained 3-syllable feet and 10 contained 4-syllable feet. 1-syllable and 5-syllable feet were left out. This is because the average duration of 1-syllable feet can be expected, more or less, to be the same as the average duration of the full form of syllable given in Table 2. 5-syllable feet, which are very rare, occur only in fast speech; therefore, there is no need to include them here since interest has been focused on moderate speech tempo. The same material was recorded three times, so that the results of measurements could be compared.

The second and the third sets were running connected speech, the story of a myna bird and a piece of prose extracted from a book called

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<sup>5</sup> See Smith's two articles: "Syllable-Structure and Rhythm in Japanese," in Work in Progress, No. 8, 1975, pp. 1-13, and "The Timing of French, with Reflections on Syllable Timing," in Work in Progress, No. 9, 1975, pp. 97-108.

สมเด็จพระศรีสวรินทิรา [som-det -phra ,si: -sa -wa rin -thi -ra]. One speaker (myself) was used in the experiments. Speech rhythm is something personal and subjective, especially the way the silent syllables are placed; in some cases, there are several alternatives. Therefore, I would rather describe my own speech. As a secondary aid machine can be useful sometimes, but not always.

The oscillograms were made from the recordings of the materials described above. The segmentation, especially, of the last one presented some difficulties. The text was an extract from a book; thus, no alterations could be made. The case was different from the other two in which I was free to choose and arrange the combination of syllables in a way that syllable boundaries could be seen easily. The problems were (i) when a voiceless stop came immediately before and after a pause, and (ii) when two identical segments occurred next to each other, and one was the final of the preceding syllable and the other was the initial of the following syllable, e.g. [ta:m.ma:] 'to follow', [ta:k. `kluəi] 'to dry bananas in the sun' and so on.

I solved the above problems by making an estimation which was based on my observation of what had happened concerning segment durations in the rest of the text. As a rule, the segment durations estimated were:

(i) .05 second for a voiceless unaspirated initial before the onset of any vowels;

(ii) .02 second for a voiceless aspirated initial stop before the aspirated release which is about .03 second before vowel onset;

(iii) .15 second for a voiceless unaspirated final stop before a pause when the syllable had a short vowel and .05 second when it had a long vowel; (The last foot of an utterance is always a monosyllabic foot

and much longer than the other monosyllabic feet in the same utterance. There is only one exception, i.e. when an utterance ended with a final particle, e.g. -naʔ, 'khaʔ, si:, etc., the final particle may be stressed or unstressed. It depends upon each individual speaker and occasion. For example, I, usually, do not stress the final particles, unless I want to emphasize my attitudes or to be firm and definite.)

(iv)  $\frac{2}{3}$  of the duration of abutting consonants is for final position and  $\frac{1}{3}$  for the initial one.

3. The following are the data and the result of measurements of the three types of feet stated earlier in this chapter.

#### 2-syllable feet

1. ที่แล้วมานี้  
'what happened previously'
2. ประการที่สอง  
'the second thing, secondly'
3. มีความรู้สึกว่  
'to have a feeling that'
4. ในต่างประเทศนั้น  
'in foreign countries'
5. ดูเหมือนเป็นคน  
'It seems like a human being.'
6. เป็นคืนข้างแรม  
'to be a dark night'
7. อยากเล่นก็เล่น  
'Play, if you want to play.'
8. จะมาให้ได้  
'to try hard to come'

9. คุณพูดอย่างไร  
'How did you say it?'
10. ถ้าหากว่าเสีย  
'if it didn't work well...'

Table 24: Durations of 2-syllable feet in seconds

Transcription	1st Recording		2nd Recording		3rd Recording	
		Total		Total		Total
1. `thi   -le:u me   `ni:	.34	.11	.45	.30	.16	.46
2. pre   ka:n `thi   ,so:ŋ	.38	.15	.53	.36	.17	.53
3. mi   khwa:m -ru   _swk...	.28	.14	.42	.37	.12	.49
4. nei   -ta:ŋ pre   `the:t	.30	.12	.42	.32	.11	.43
5. du   ,muen pen   khon	.32	.18	.50	.29	.22	.51
6. pen   khw:n `khaŋ   re:m	.32	.24	.56	.32	.24	.56
7. -ja:k   `len `ko   `len	.28	.09	.37	.31	.11	.42
8. tɕa   ma: `hei   `da:l	.28	.15	.43	.32	.15	.47
9. khun   `phu:t -jəŋ   rai	.28	.18	.46	.29	.19	.48
10. `the   _ha:k `wə   ,slə	.21	.14	.35	.25	.15	.40
Total Average	.30	.15	.45	.31	.16	.47
				.30	.17	.47
				.32	.13	.45
				.39	.19	.58
				.26	.14	.40
				.28	.11	.39
				.30	.20	.50
				.30	.24	.54
				.33	.10	.43
				.30	.18	.48
				.28	.20	.48
				.23	.16	.39

3-syllable feet

1. ถึงตายก็ไม่กลัว  
'I'm not afraid although I may die.'
2. อ่านพงศาวดาร  
'to read historical annals'
3. แนะนำให้ไปเที่ยว  
'to recommend someone to go somewhere'
4. โรงเรียนประชาบาล  
'a municipal school'
5. ใส่สะระแหน่ด้วย  
'also put mint'
6. ฉันอยากกาแฟเย็น  
'I'd like to have ice coffee.'
7. กินปลาจระเม็ด  
'to eat butterflyfish.'
8. ไม้อาจจะถึง  
'may arrive soon'
9. ทำได้ก็ไม่ได้  
'(You) can do it, but you can't do it well.'
10. เรือนี้ก็แพง  
'This boat is also expensive.'

Table 25: Durations of 3-syllable feet in seconds

Transcription	1st Recording		2nd Recording		3rd Recording							
		Total		Total		Total						
1. <u>thun</u>   <u>ta:l</u> <u>ko me</u>   <u>klue</u>	.32	.09	.18	.59	.31	.08	.15	.54	.29	.07	.14	.50
2. <u>da:n</u>   <u>phongsew</u>   <u>da:n</u>	.23	.17	.12	.52	.25	.15	.14	.54	.20	.13	.11	.44
3. <u>ne?</u>   <u>nam</u> <u>hai pei</u>   <u>thleu</u>	.29	.09	.12	.50	.29	.12	.14	.55	.28	.08	.14	.50
4. <u>roŋ</u>   <u>riənprətəha</u>   <u>ba:n</u>	.28	.11	.15	.54	.26	.11	.15	.52	.23	.12	.18	.53
5. <u>sai sere</u>   <u>ne:</u>   <u>duei</u>	.29	.12	.12	.53	.29	.12	.15	.56	.25	.12	.15	.52
6. <u>təhən</u>   <u>ʔaukəfɛ</u>   <u>jen</u>	.18	.17	.21	.56	.24	.16	.15	.55	.23	.15	.12	.50
7. <u>kin</u>   <u>pla:təre</u>   <u>met</u>	.30	.10	.13	.53	.20	.14	.19	.53	.22	.13	.17	.52
8. <u>məl</u>   <u>təha:khəŋ tɕə</u>   <u>thun</u>	.30	.16	.12	.58	.33	.15	.10	.58	.29	.11	.10	.50
9. <u>thəm</u>   <u>da:l</u> <u>ko me</u>   <u>di:</u>	.24	.08	.19	.51	.32	.23	.10	.65	.26	.19	.11	.56
10. <u>rue</u> <u>ni</u> <u>ko</u>   <u>phɛ:ŋ</u>	.21	.19	.12	.52	.29	.25	.22	.76	.24	.11	.17	.52
Total Average	.26	.13	.15	.54	.28	.15	.15	.58	.25	.12	.14	.51

4-syllable feet

1. แต่แม่ไม่เคยได้เจอ  
'But I (Mother) haven't met (them).'
2. ส่วนใหญ่ก็คงจะเป็น  
'Most of them will be...'
3. ประเทศอเมริกา  
'the United States of America.'
4. ก็เรียนให้ทางสภาทราบ  
'Then, (we) reported to the Parliament.'
5. ถ้าคุณได้เข้าไปหา  
'If you had an opportunity to go to see (him).'
6. จะมีถึงวันที่สาม  
'It will be on show until the 3rd of ...'
7. ก็ดีที่จะไปตาม  
'It's a good idea to bring (him) back.'
8. เขาย้ำแต่ว่าจะทิ้ง  
'He always emphasizes that he's going to forsake her.'
9. คงมาไม่ได้แน่ ๆ  
'It's certain that (he) can't come.'
10. ไปเรียนท่านคณบดี  
'to go and report (it) to the Dean.'

Table 26: Durations of 4-syllable feet in seconds

Transcription	1st Recording		2nd Recording		3rd Recording	
		Total		Total		Total
1. -te   'me: 'mei khi 'del   ...	.22 .14 .24 .16	.76	.17 .16 .19 .14	.66	.18 .15 .17 .15	.65
2. -suan   -jal 'ko khon tse   ...	.32 .13 .09 .13	.68	.25 .12 .12 .12	.61	.27 .11 .09 .12	.59
3. pre   'the: t e me ri   ka:	.25 .07 .18 .12	.62	.19 .07 .18 .13	.57	.21 .08 .14 .13	.56
4. 'ko   rien 'hel than se   ..	.22 .07 .20 .12	.61	.17 .14 .18 .12	.61	.23 .14 .20 .13	.70
5. 'the   khun 'del 'kheu pel   ..	.24 .12 .18 .18	.72	.20 .10 .19 .14	.63	.26 .12 .16 .13	.67
6. tse   mi: 'thun wen 'thi   ...	.21 .12 .16 .13	.62	.21 .13 .18 .15	.67	.23 .16 .21 .14	.74
7. 'ko   di: 'thitse pel   ...	.18 .10 .16 .14	.58	.20 .10 .16 .14	.60	.22 .12 .16 .14	.64
8. 'keu   -jam_te 'we tse   ..	.27 .13 .12 .16	.68	.25 .11 .13 .12	.61	.26 .10 .12 .13	.61
9. khon   ma: 'mel 'dei_ne   ...	.21 .17 .22 .15	.75	.21 .18 .22 .15	.76	.22 .18 .20 .11	.71
10. ...rien   'than khe-ne be   ..	.23 .07 .16 .11	.57	.22 .09 .16 .10	.57	.25 .07 .15 .13	.60
Total Average	.24 .11 .17 .14	.66	.21 .12 .17 .13	.63	.23 .12 .16 .13	.64

4. The following is the measurement of feet occurring in the Story of a Myna Bird. (See the text and translation on page 78.) The numbers above the transcription indicate foot durations and the ones below indicate syllable durations.

	.41		.48		.56	.28		.37		.46		.13								
	\`rwəŋ	-nok		\`ʔiəŋ		ʔe:	-nwk du		-kɔ:n		^	.13								
	.24	.17		.48		.56	.28		.18	.19		.46								
	.36		.31		.42		.77		.43		.55		.50		.55					
	\`rwəŋ	\`thi		khɿi		\`lau	^   ^		-ʔa:		-nwk		-ʔɔ:k	-lə		^   ^				
	.23	.13		.31		.42	^   ^		.43		.38	.17		.28	.22		^   ^			
əu	\`rwə-nok		.38		.34		.28		.89		.37		.31							
.13.15	.18		.25	.13		-kwa:	-na:		^   ^	mi-nok		\`ʔiəŋ	tue							
.13.15	.18		.25	.13		.34	.28		^   ^	.13	.21		.37	.31						
	.23		.37		.28		.45		.34		.38		.55		.23		.33			
	-nwk		mən		-da:		-kəŋ pen		fai		lɿ:i		^		-ru:		kham			
	.23		.19	.18		.28	.26	.19		.34		.38		^		.23		.33		
	.30		.31		.44		.41		.51		-lɛ	\`kɔ	-wi		.27		thi:	diəu	\`thi	
	-ja:p		\`ma:k		ma:i	-lɛ		kɿ:n	^   ^		.10	.15	.12		.27		.19	.17		
	.30		.31		.32	.12		.41	^   ^		.10	.15	.12		.27		.19	.17		
tə	\`həi mən		.36		.38		.62		.46		.29		.28							
.08	.15	.11		.36		.38	.34	.17	.11		.18	.15	.13		.29		.28			
.08	.15	.11		.36		.38	.34	.17	.11		.18	.15	.13		.29		.28			
	.36		.32		.55		.33		.30		.33		^	.38						
	kroŋ		-siə		^   ^	mən tə	\`dəi		-khit	\`wə		\`mu:t		-lɛ:u		^	.38			
	.36		.32		.55		.33		.30		.33		^	.38						
.65		.27		.44		.37		.60		.30		.28		.35		.31				
\`dəi we		la:		nɔ:n	-sə		thi:		^   ^	ʔi tə		-ni:		-na:		^	\`ruŋ			
.15	.12		.27		.30	.14		.37		^   ^	.14	.16		.30		.28		.35		.31
	.39		.27		.31		.66		.35		.42		.27							
	-təha:u		wan		-nwk		^   ^	jəi		\`sa:u		-kɛ:	\`təəu		\`kɔ:ŋ					
	.39		.27		.31		.66		.35		.42		.27							
	.39		.27		.31		.66		.35		.42		.27							
	.48		.37		.33		.28		.59											
	-nok	\`nən	\`kɔ		-pɿ:t	əu		\`pha:	\`thi		khlum		kroŋ	-ɔk	-jəŋ					
	.24	.14	.10		.25	.12		.21	.12		.28		.23	.16	.20					
	.39		.61		.27		.28		.54		.31		.78							
	khɿ:i		^   ^		-ru-məi	khrai		dɿ:n		-pha:n mə	phɔ		di:		^   ^					
	.39		^   ^		.17	.20		.27		.28		.28	.11	.15		.31		^   ^		

.25	.34	.27	.64	.55		
-ba:t	,luəŋ	'təa?	^   ^   jəi 'təəu	,khəŋ kə 'rip		
.25	.34	.27	.14   .12	.29   .10   .16		
.55	.28	.36	.43	.28   .35   .51		
'wiŋ-kləp mə	khlum	kɾəŋ 'təəu	-nok -jəŋ	reu   wai   ^   ^   -lɛ		
.26   .16   .13	.28   .26   .10	.27   .10   .28	.35	.12		
.57	.24	.28	.27	.53		
'kə   'wiŋ pəi 'thi pə	tu:   təhɣ:n	-ba:t	,luəŋ 'khe mə nəi			
.13   .20   .09   .15   .13	.24   .28	.27	.21   .06   .13   .13			
.42	.62	.55	.33	.37	.50	.46
ba:n	^   ^	-nok mən 'kə	'niŋ	təhiəu	^   ^   -lɛ	-lɛ:u
.42	.27   .18   .10	.33	.37	.17	.46	
.44	.28	.33	.46	.41	.40	
^   ^   jəi	,sa:u	-kɛ: 'kə	,tha:m 'phə	-ba:t ,luəŋ	'wa:	
.17	.28	.23   .10	.34   .12	.22   .19	.40	
.52	.35	.48	.58	.44	.69	
'həi	-sai -nəm	ta:n_ki	-təhɔ:n nəi kə	fɛ:	^   ^   'əi 'təəu	
.38   .14	.18   .17	.28   .20	.32   .12   .14	.44	.12   .13	
.59	.33	.62	.34	.66	.55	
-nok mən 'kə tə	ko:n	'phlo:ŋ-ɔk mə	'wa:	^   ^	,mɛ: 'həi	
.20   .14   .12   .13	.33	.28   .16   .18	.34	.40	.15	
.42	.30	.56	.46	.47		
ta:i thɣ	'na:	'əi kləŋ	wan 'ni mən	'san pen		
.30   .12	.30   .23   .12   .21	.20   .09   .17	.29   .18			
.41	.37					
'ba: ləi	-wɣ:i					
.20   .21	.37					

a.) The five types of foot structure described earlier in this chapter occur in this passage; altogether, there are 141 feet. 1-syllable feet are the most frequent and 5-syllable feet are the least frequent; in fact, only one example can be found, i.e. -wi | thi: | diəu 'thi təə 'həi mən | 'ŋiəp 'the only way that could make him quiet'. The frequency of the occurrence of each type of foot is given in percentages in the table below:

Table 27: Percentages of the occurrence of the five types of foot structure (the Story of a Myna Bird)

(141 feet = 100%)	%		
	S W 0-4	P W 0-4	Total
1-syllable feet	43.97	17.02	60.99
2-syllable feet	16.31	4.26	20.57
3-syllable feet	7.09	6.38	13.47
4-syllable feet	2.13	2.13	4.26
5-syllable feet	0.71	-	0.71
Total	70.21	29.79	100.00

b.) The durations of the 62 monosyllabic feet (43.97%) occurring in the Story of a Myna Bird range from .23 second to .48 second. In general, the ones before pauses seem to be longer than the others that occur elsewhere. To give a clear picture, then, they are divided into two sub-groups, /S/ and /S/ #. The more syllables a foot contains, the longer the length of the foot. But the duration of a 2-syllable foot is not the double of a 1-syllable foot for instance. The increase of foot length is rather subtle. There is a point where the durations of different types of feet overlap. The details about the percentages of foot durations are presented in the following table:

Table 28: Percentages of the durations (in seconds) of feet containing audible saliences (the Story of a Myna Bird).

Type of Foot	Range of Foot Duration	%				
		.20-.29	.30-.39	.40-.49	.50-.59	.60-.69
S	.23-.39	51.35	48.65	-	-	-
S   #	.23-.48	16.00	48.00	36.00	-	-
S W	.33-.55	-	39.13	52.17	8.70	-
S W W	.46-.62	-	-	30.00	60.00	10.69
S W W W	.53-.59	-	-	-	100.00	-
S W W W W	.60-	-	-	-	-	100.00

c.) The so-called "silent stress" or "silent salience" causes some difficulties in the measurement of foot durations. Sometimes they are very short (.13 second) and sometimes very long (.89 second). The placing of foot boundaries, e.g. | ^ |, | ^ | ^ | and | ^ | ^ W<sub>1-3</sub> |, is rather an estimation or "guesswork", even though there is something systematic about it. For example, a long duration of phonological pause as .77 second has been analysed as two silent feet. It is not claimed that the analysis given here is definite. It is only an attempt which seems to work quite well.

In order to make the analysis of feet having silent salience clear, they are divided into seven different types: | ^ |, | ^ W |, | ^ WW |, | ^ | ^ |, | ^ | ^ W |, | ^ | ^ WW | and | ^ | ^ WWW |. The number of times of their occurrences and the durations of silent salient syllables are presented in the following table:

Table 29: Durations of silent saliences occurring in the Story of a Myna Bird (in seconds)

Type of Foot	No.	Durations in Seconds					
P	4	.13	.35	.55	.55		
P W	3	.19	.38	.38			
P W W	3	.23	.34	.38			
P  P	4	.62	.66	.77	.78		
P  P W	3	.44	.50	.66			
P  P W W	6	.51	.60	.61	.64	.69	.89
P  P W W W	3	.51	.55	.55			

5. The following is the measurement of feet which occur in the passage extracted from a book referred to earlier in this chapter. The actual text, written in Thai script, and the English translation will be given. The passage is about a queen who has lived a very miserable life. The author describes how she feels after the cremation of her only daughter.

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เฝ้ายอมอยู่ตลอดเวลา ฉลองพระองค์และพระภูษาสีคำช่วยให้พระฉวี  
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ซี อย่างนี้เขาเรียกว่า พระจันทร์ร้องไห้"

ไม่มีคำกราบบังคมทูลตอบใครเลยจะพูดอะไรออกในเวลา  
อย่างนั้น ร้ายกาจจริง ๆ ส่งสารเหมือนใจจะขาด อยากจะ  
ร้องไห้ออกมาดัง ๆ ก็ทำไม่ได้ ท่านหญิงผู้ตามเสด็จจึงได้  
แต่ก้มพักตร์เม้มโอษฐ์แน่น

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เมื่อรตพระที่นั่งเทียบหน้าตำหนัก สมเด็จพระเจ้า ๑ เสด็จตรงขึ้นไป  
ไปขึ้นบนสู่ห้องพระที่นั่งที่ ทรงวางห่อพระทนต์ทุลกระหม่อมฟ้าหญิง  
ไว้หน้าพระ แล้วทรุดพระองค์ลงทรงหมอบนมัสการ

"ขอให้สิม สิมให้หมด อย่าให้มีความจำอะไรเลย จำอะไร  
ขึ้นมาก็ล้วนแต่ความทุกข์ทั้งนั้น ขอให้สิม ขอให้สิม"

พระอธิษฐานของสมเด็จพระเจ้า ๑ กว่าจะสัมฤทธิ์ผลก็เมื่อเวลา  
ผ่านไปหลายปี

"จำอะไรขึ้นมาก็ล้วนแต่ความทุกข์ทั้งนั้น"

พระราชดำรัสนี้เป็นความจริงแท้ เท่าที่ศึกษามาจาก  
พงศาวดาร ตั้งแต่กรุงสุโขทัย กรุงศรีอยุธยา จนถึงกรุงรัตน-  
โกสินทร์ ไม่เคยได้พบว่าพระอรุณมเหสีพระองค์ใดจะทรงมี  
ความทุกข์เท่าสมเด็จพระศรีสุวรินทิราฯ บรมราชเทวีพระองค์นี้  
ความทุกข์ของสมเด็จพระเจ้า ๑ นั้นแสนสาหัสและครบถ้วนครบถ้วนความ  
ที่ปรากฏอยู่ในอริยสัจ ๔ นับแต่เกิด แก่ เจ็บ ตาย ความโศกเศร้า  
ความร่ำไรร่ำพัน ความโทมัส ความคับแค้นใจ ความประสพ  
ด้วยสิ่งที่ไม่เป็นที่รักทั้งหลาย ความพลัดพรากจากสิ่งที่รักทั้งหลาย  
ความผิดหวัง พระราชประวัติของพระองค์เป็นเรื่องที่น่าศึกษาว่า  
เสด็จอยู่ได้อย่างไรในกองทุกข์ตลอดเวลาอันยาวนาน โดยตั้ง  
พระองค์ไว้ด้วยดีด้วยชอบ ทรงใช้ธรรมะอันใดเป็นเครื่องยึดเหนี่ยว  
พระราชหฤทัย

Translation

Queen Srisawarinthira

It was a dark night of the period of the waning moon. The moon had just risen. The moonlight shining through the hollow part of a tree illuminated slightly the road from the crematorium at the Phra Meru Ground to the Srapathum Palace. The dimness of the moon and the passiveness of the wind added melancholy to the tranquil and sad atmosphere. While the car was running along the road, Her Majesty sat quietly all the time. Her black dress made her complexion look fairer. Her face was calm and her eyes were dry. She held tightly in her right hand the remains of her daughter's teeth wrapped in a piece of cloth. At last, in the middle of the serene atmosphere, she said:

"The whole atmosphere is with me. Look! Look at the moon. This is what people have called the weeping moon."

There was no reply. Could anyone say a word in such a situation? "It was absolutely horrible. I was so sympathetic to her that I was heartsick. I felt like crying loudly, but I could not do it; it was not appropriate, of course. To suppress my feeling, I bowed my head and compressed my lips very hard," said the lady-in-waiting.

As soon as the car was parked in front of the royal lodging, Her Majesty went straight to the sacred room. She placed the bundle containing the teeth on the shrine, then knelt down and prayed,

"My Lord Buddha, let me forget, forget everything completely. What I remember are always my sufferings. Let me forget, let me forget, My Lord."

Many years later, her prayer did come true, and her sorrow was over.

"What I remember are always my sufferings."

It is true. In Thai history from the Sukho-thai, the Ayudhaya up to the Ratanakosinthara periods, no other queen has had such a miserable life as Queen Srisawarinthira. Her suffering is exactly like what is described in the teaching of the Lord Buddha about the Four Stages in the life circle of every human being, i.e. being born, being old and being dead, in which man cannot avoid grief, lament, sorrow, distress, facing what one dislikes, departing from what one loves, and despair. The history of her life needs to be studied. How could she live long among a pile of sufferings? How could she manage to live a decent life? What kind of moral standards (Dhama) did she follow?

.33	.35	.49	.38	.39	.46	.25	.48
ˌsom	-det-phrə	ˌsi:səwə	rin thi	ra:	khw:n	-nan pen	
.33	.19 .16	.25 11.13	.22 .16	.39	.46	.25	.29 .19
.53	.60	.51	.41	.46	.42	.37	
khw:n	ˌkhaŋ	rɛ:m -pra	tɕan ˌpɤŋ	ˌkhwɪn	ˌsɛ:ŋ -prə	tɕan ˌthi	
.28 .25	.43 .17	.29 .22	.41 .46	.30 .12	.29 .08		
.34	.34	.34	.29	.31	.32	.44	.30
lɔ:t	-pha:n	phro:ŋ	-ma:i	ma:	tham ˌhəi	tha:ŋ ˌthi sə	-det -phrə
.34	.34	.34	.29	.31	.20 .12	.20 .11 .13	.20 .10
.42	.55	.56	.32	.50			
ˌra:t tɕhə dəm	nɤ:n -tɕək prə	me:n -thoŋ sə	ˌna:m	ˌluəŋ pəi			
.10 .10 .13	.29 .14 .12	.26 .20 .10	.32	.24 .10			
.53	.40	.50	.36	.79	.35		
jəŋ	wəŋ -sə pə	thum sə	-wa:ŋ rəm	rai	khwa:m		
.16	.28 .13 .12	.25 .15	.27 .23	.36	.35		
.51	.32	.46	.18	.39	.48	.35	
-khlam	ˌkhəŋ	duəŋ	tɕan	khwa:m sə	-ŋat ˌkhəŋ	ˌsa:i	
.34	.17	.32	.46 .18	.29 .10	.25 .23	.35	
.37	.65	.41	.43	.33	.52		
lom	thəm ˌhəi	ban ja	-ka:t ˌthi	ˌsau -ju	-lɛ:u sə		
.37	.14 .10	.20 .21	.29 .14	.23 .10	.38 .13		
.48	.39	.55	.45	.30	.37		
-lot ˌjiŋ	ˌkhwɪn	-rot	jon-phrə ˌthi	ˌnaŋ	ˌlɛn-tɕhə		
.26 .22	.39	.20	.21 .14 .10	.30	.23 .14		
.41	.40	.40	.38	.32	.25		
-tɕha: pəi	ta:m thə	ˌnon	ˌsom	-det prə	-thap	ˌŋiap	
.29 .12	.30 .10	.40 .38	.22	.19 .13	.25	.27	
.48	.38	.46	.53	.37	.43	.27	
-ju tə	-lɔ:t wə	la:	tɕhə	ˌlɔ:ŋ -prə	ʔəŋ -lɛ -phrə	phu:	
.09 .12	.25 .13	.46 .36	.17	.26 .11	.17 .14 .12	.27	
.33	.23	.27	.42	.41	.36	.43	
ˌsa:	ˌsi:	dam	ˌtɕhuəi ˌhəi -phrə	-thɕa? ˌwi	ˌkha:u	ˌkhwɪn	
.33	.23 .27	.18 .09 .15	.20 .21	.36	.43		
.59	.49	.56	.39	.37	.51	.47	.25
-phrə	-phak	ˌtɕhɤ:i	-phrə	ˌne:t	ˌhɛ:ŋ	-phrə	-hat
.44	.15	.49	.56	.19	.10	.37	.51 .34 .14
.33	.39	.27	.45	.31	.24	.28	
khwa:	kam -phrə	phu:	sa: ˌthi	-hɔ: -phrə	thon	thu:n krə	
.33	.28 .11	.27	.30 .15	.17 .14	.24	.18 .14	



.52	.29	.23	.24	.23	.29	.28							
'kwn pəi	-tʃhan	bon	-su:	'həŋ	-phra?	than							
.14 .09	.29	.23	.24	.23	.29	.28							
.41	.37	.32	.33	.41	.28	.33	.29						
thi:	^soŋ	wa:ŋ	-hə:	-phrə	ton	tu:n	krə	-məm					
.41	.37	.32	.33	.24	.17	.28	.21	.12	.29				
.31	.48	.29	.31	.66	.34								
-fa:	^jin	-wei	'thi	'na:	-phra?	^	-leu	-sut	-phrə				
.31	.25	.10	.13	.29	.31	.15	.22	.12					
.27	.23	.26	.42	.34	.53								
?əŋ	loŋ	soŋ	-mə:p	nə	-mat	sə	ka:n						
.27	.23	.26	.30	.12	.18	.16	.53						
.55	.38	.52	.31	.40	.33	.46	.23						
^55	khə:	'həi	lw:m	lw:m	'həi	-mot	-ja	'həi	mi:				
.22	.16	.52	.31	.28	.12	.33	.24	.11	.11	.23			
.32	.31	.26	.40	.34	.32	.38							
khwa:m	tʃam ə	rai	lɜ:i	^	tʃam ə	rai	'khwn						
.32	.23	.08	.26	.40	.34	.24	.08	.23	.15				
.35	.36	.35	.41	.35	.38								
ma:	'kə	-luən	-tɛ	khwa:m	-thuk	-thəŋ	-nan	^					
.23	.12	.23	.13	.35	.26	.15	.35	.38					
.35	.58	.57	.46	.46									
khə:	'həi	lw:m	^	khə	'həi	lw:m	^	-phrə	?ə	-thi			
.20	.15	.58	.27	.17	.13	.46	.14	.05	.15				
.56	.24	.24	.50	.25	.64								
^	tha:n	khəŋ	^	səm	-det	-kwa:	tʃə	səm	-rit	^	phon	'kə	
.38	.18	.24	.24	.24	.11	.15	.25	.25	.29	.10			
.26	.41	.32	.43	.48	.33	.34	.38						
'mwə	we	la:	-pa:n	pəi	^	la:i	pi:	^	tʃam ə	rai	'khwn	ma:	'kə
.18	.09	.26	.30	.11	.32	.43	.48	.24	.09	.19	.15	.25	.13
.31	.36	.40	.35	.54	.49	.24							
-luən	-tɛ	khwa:m	-thuk	-thəŋ	-nan	^	-phrə	'ra:t	thə	dəm	-rat		
.20	.11	.36	.25	.15	.35	.40	.10	.19	.13	.17	.24		
.45	.34	.34	.48	.41	.50	.62							
-ni:	pen	khwa:m	tʃəŋ	-thɛ:	^	'thau	'thi	-suk	^	sa:	mə	tʃak	
.24	.21	.34	.34	.48	.41	.22	.11	.17	.29	.15	.19		
.48	.55	.35	.26	.43	.37								
phon	^	sə	wə	da:n	'təŋ	-tɛ	krəŋ	su	^	khə:	thai	^	
.24	.12	.12	.25	.12	.18	.23	.12	.26	.43	.37			

	.66		.47		.40		.40		.25
	krun ,si -ju the		ja:		tson ,thwŋ		krun -rə tə		-na?
	.23 .15 .12 .16		.47		.20 .20		.22 .09 .09		.25
	.26		.41		.56		.34		.41
	ko: ,sin		məi		khɣi `dəi		-phop `wə phrə		._?ak khə mə
	.26		.41		.40 .16		.23 .11		.18 .14 .08
	.29		.40		.29		.38		.47
	,he: ,si:-phrə		?oŋ dai tə		son mi khwa:m		-thuk `thəu		.34
	.29		.26 .14		.29 .27 .11		.30 .17		.38
	.54		.44		.34		.61		.29
	,som -det phrə		,si: sə wə		rin thi		ra: bə rom mə		,ra:t tɕhə
	.18 .14 .12		.21 .10 .13		.22 .12		.20 .14 .15 .12		.19 .10
	.29		.49		.50		.72		.29
	the: wi: -phrə ?oŋ		-ni:		khwa:m		-thuk ,khəŋ		,som
	.29 .17 .16 .16		.50		^   ^		.29		.38
	.40		.43		.36		.34		.29
	-det-nan		,sə:n		,sa: -hat -lɛ		-khrop		,thuən krə
	.20 .20		.43		.36		.20 .14		.29
	.42		.47		.41		.26		.47
	khwa:m `thi		pra:-kot -ju		nai ?ə -ri jə		-sat -si:		^
	.30 .12		.25 .15 .07		.13 .09 .07 .12		.26		.47
	.38		.55		.35		.52		.29
	-nap -tɛ		-kɣ:t		-kɛ:		.29		.37
	.24 .14		.55		.35		.52		.29
	.34		.34		.51		.33		.33
	khwa:m		-so:k		,sau		khwa:m		,ram
	.34		.34		.51		.33		.30
	.40		.34		.32		.38		.37
	phan		khwa:m		tho: mə		-nat		.30
	.40		.34		.32		.24 .14		.37
	.38		.46		.85		.43		.40
	-khe:n		tɕai		khwa:m prə		-sop `duəi		-sin `thi `məi
	.38		.46		^   ^		.28 .15		.25 .15
	.43		.42		.51		.42		.25
	pen `thi		-rak -thəŋ		,la:i		khwa:m		-phlat
	.23 .20		.25 .17		.51		.42		.25
	.42		.37		.52		.38		.28
	-tɕək		-sin `thi		,la:i		khwa:m		-phit
	.15		.27 .15		.23 .14		.52		.38
							.28		.26

.46	.42	.50	.52	.42		
,wəŋ	^ -prə	'ra:t tʰə prə	-wat ,khəŋ -prə	?əŋ pen		
.46	.31 .11	.21 .12 .17	.22 .18 .12	.24 .18		
.32	.39	.65	.33	.41		
'rwəŋ 'thi	'na: -swk	,sa: 'wə sə	-det -ju	'da:i -jəŋ		
.21 .11	.23 .16	.39 .13 .13	.24 .09	.21 .20		
.35	.34	.30	.30	.44	.28	
rai nəi	kwa:m	-thuk tə	-lɔ:t we	la: ən	ja:u	
.22 .13	.34	.21 .09	.21 .09	.30 .14	.28	
.47	.47	.40	.58	.43	.46	
na:n	^   ^ doi	'taŋ -prə	?əŋ-wəi 'duəi	di: 'duəi	'tʰɔ:p	
.47	.20	.28 .12	.25 .18 .15	.25 .18	.46	
.31	.28	.48	.43	.50	.30	.30
^ soŋ	-tʰai thəm	-ma? ən	dai pen	'khrwəŋ	-jwɪ	
.31	.28	.28 .20	.22 .21	.27 .23	.30	.30
.40	.58	.40				
-niəu -prə	'ra:t tʰə hə rw	thai				
.24 .16	.21 .13 .12 .12	.40				

a.) The passage "Queen Srisawarinthira" is composed of 551 syllables. Stressed and unstressed syllables are grouped together into 327 rhythmic feet. This means that 327 syllables are the saliences and 226 syllables are the subordinates. There are 53 places of pause. Some pauses are very short and some are very long. The long ones, e.g. .85 second, 1.41 seconds, etc. then are divided into 2 and 3 silent feet respectively. The passage contains a total of 391 feet--325 feet having audible saliences and 66 feet having silent saliences. Only four types of feet, 1-syllable, 2-syllable, 3-syllable and 4-syllable, occur. The frequency of the occurrence of each type is given in percentages in the table below:

Table 30: Percentages of the occurrence of the four types of feet in the passage "Queen Srisawarinthira"

(391 feet = 100%)	%		
	S W 0-3	P W 0-3	Total
1-syllable feet	43.48	12.53	56.01
2-syllable feet	28.39	3.58	31.97
3-syllable feet	9.72	0.51	10.23
4-syllable feet	1.53	0.26	1.79
Total	83.12	16.88	100.00

b.) Here, again, it is noticeable that monosyllabic and disyllabic feet are the most preferred types of feet--71.87%, not including silent feet. Monosyllabic feet have the highest percentage of occurrence--43.48%, almost the same as in the Story of a Myna Bird--43.97%. In general, 1-syllable feet before pauses seem to be longer than the ones elsewhere. Compare the two following tables with Tables 28 and 29 on pages 147 and 148 respectively.

Table 31: Percentages of the durations (in seconds) of feet having audible saliences in the passage "Queen Srisawarinthira"

Type of Foot	range of Foot Duration	%				
		.20-.29	.30-.39	.40-.49	.50-.59	.60-.69
S	.22-.47	50.42	47.90	1.68	-	-
S #	.28-.58	1.96	27.45	45.10	25.49	-
S W	.28-.56	1.80	47.75	42.34	8.10	-
S W W	.40-.65	-	-	52.63	39.47	7.90
S W W W	.41-.66	-	-	16.67	16.67	66.66

Table 32: Durations of silent saliences occurring in the passage "Queen Srisawarinthira (in seconds)

Type of Foot	No.	Duration in Seconds
P	28	.10 .18 .24 .29 .30 .31 .31 .33 .34 .34 .34 .35 .37 .37 .37 .38 .38 .38 .38 .41 .42 .44 .46 .46 .47 .48 .48 .55
P W	8	.19 .31 .33 .34 .36 .40 .44 .44
P W W	2	.24 .27
P P	4	.61 .72 .79 .85
P P W	5	.47 .48 .55 .66 .73
P P W W	4	.48 .65 .65 .71
P P W W W	1	.46
P P P P W	1	1.41

PART III: Rhythmic Structures of Thai

Chapter 8: Characteristics of Speech Rhythm

1. Timing and rhythm

Part I illustrated the syllable-length and foot-length timing. Part III will discuss and illustrate speech rhythm in Thai.

Speech timing and speech rhythm are two different things: timing is an objective instrumental measurement, e.g. of segments, syllables, etc., while rhythm is a subjective measurement of the human mind. The latter involves many complex elements. In talking about rhythm, one must take into account, at least, the following components: 1.) speech timing, 2.) the psychology of time, and 3.) the phonology and syntax of the language in question; for example, word level stress in Thai is not phonologically significant, but sentence level stress is; and there is also a close relationship between stress and syllable duration which is one of the main points in the description of speech rhythm. Allan (1968) said:

Rhythm is by definition the structure of, or the structure imposed upon, the timing, and .... we can perceive a rhythm independently of the exact timing.<sup>1</sup>

Allan defines the timing of speech as "the exact neuro-motor program of articulation which is performed when we speak", and the rhythm of language as "the time independent sequential character of the code we use to communicate."<sup>2</sup> He discusses rhythm as "a constraint on linguistic performance" and also relates rhythm to "linguistic competence".

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<sup>1</sup>Allan, "The Place of Rhythm in a Theory of Language," in UCLA Working Papers in Phonetics, no. 10, 1968, p. 79.

<sup>2</sup>Ibid. p. 74.

He says, "... , there are rhythmic structures of a more general sort in language, structures that relate most directly to grammatical rules, hence, these general rhythms belong in theories of competence."<sup>3</sup>

So far as the perception of rhythm is concerned, he states:

... we perceive language as being rhythmic because it is fairly regular in its sequential characteristics often enough that we can impose on it simple rhythmic structures. This argument holds for any language because all languages are produced in basically the same manner, by organized movements of the respiratory and articulatory muscles. ... some of the structural characteristics of English speech rhythm are related to our human perceptual abilities; this argument should hold for other languages as well, since all languages have accents around which rhythmic groups can perform.<sup>4</sup>

Phoneticians have recently paid attention to timing in speech, but many psychologists [e.g. Bolton (1894), Triplett (1901), Squire (1901), Stetson (1903, 1905), Woodrow (1909), Wallin (1901, 1912), Adams (1915), Dunlap (1916), Isaacs (1920), etc.] had studied and conducted experiments on various aspects of rhythm many decades earlier.

Bolton (1894) says, "Rhythm is so universal a phenomenon in nature and in physiological activity and underlies so completely speech....."<sup>5</sup>  
He describes speech rhythm as follows:

The most distinguishing, and in many respects the most important, function of the human body is vocal utterance and articulate speech. Being an involuntary and habitual function in a large measure, it might be expected upon a priori grounds to be rhythmical. Speech becomes rhythmical not simply by sounds succeeded by pauses, but also by the regular recurrence of strongly accented sounds in a

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<sup>3</sup>Ibid. p. 76.

<sup>4</sup>Ibid. p. 74.

<sup>5</sup>Bolton, "Rhythm," in American Journal of Psychology, vol. 6, 1894, p. 146.

series..... Every word that contains more than one syllable consists of strong and weak syllables. These accents occur upon every other syllable in varying intensity, or at most the accented syllables. As regards vocal utterances, they can be considered from four different aspects--their regular succession, intensity, pitch and quality. ... unities are formed out of the simplest elements of speech by co-ordinating some with others in respect to their time relations; secondly, unities are formed of unities by subordinating them with respect to their intensities, and sometimes, their time values, thirdly, by co-ordinations and subordinations with respect to intensities and qualities, higher unities still are formed; fourthly, by co-ordinations and subordinations with respect to theme and aesthetic forms, the greatest unities are accomplished. In the first place vocal utterances are related as regards time, that is, the same sound may recur at regular intervals, in which case the series thus formed might be termed a rhythmic series - a series which may become rhythmical. In the next place this series might be made up of louder and weaker sounds alternating with each other. The series would then be composed of groups of sounds and might be called a rhythmical series. This is a rhythm in speech.<sup>6</sup>

According to Isaacs (1920), there are four elements in the impression of rhythm: 1) the perception of the "objective stimulation", 2.) the experience of the periodic reflex response, 3.) accentuation and grouping resulting from attention, and 4.) the "affective tone" (e.g. feelings and emotion) from repetition of movement.<sup>7</sup>

Isaacs' "objective stimuli" is, more or less, similar to the modern phonetic term "speech timing". He makes an interesting comment: "In poetic rhythm, there is the possibility of greater correlation between the regularity of the periodic response and the occurrence of the objective stimuli."<sup>8</sup>

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<sup>6</sup>Ibid pp. 156-157.

<sup>7</sup>Isaacs, "The Nature of the Rhythm Experience," in Psychological Review, vol. 27, 1920, p. 297.

<sup>8</sup>Ibid p. 293.

## 2. Thai as a syllable-timed language

If Thai had a syllable-timed rhythm, syllables in Thai would recur approximately at equal intervals of time, or would tend to be equal in length.

It is true, to a certain extent, that syllables in Thai have approximately equal length. This assumption has been confirmed not only by the comments of many listeners, both native speakers and foreigners, after listening to the tapes, but also by the results of oscillographic measurements which have already been presented in Chapter 4, Part II. (See Tables 1, 2 and 3 on pages 56-69 and 70.)

However, syllable-timing is not normally used in ordinary everyday speech. Its usage is rather limited to some styles of speech; for example:

- 1.) Reading nonsense utterances;<sup>9</sup>
- 2.) Reading aloud of children or grown-up people who do not read well;
- 3.) Reading and speaking a foreign language which one has not yet mastered;
- 4.) Reciting lines in a play of child actors and unskillful amateur actors;

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<sup>9</sup> See Table 1: The measurement (in seconds) of the durations of the syllables in 50 nonsense utterances uttered by 5 speakers (pp. 56-68) and Table 2: The average durations of the twenty types of syllable and the total average duration of the full form of syllable (p. 69)

- 5.) Announcing important messages or dictating;<sup>10</sup>
- 6.) Preaching by Buddhist monks;
- 7.) Chanting a prayer;
- 8.) Speech of a funny and ridiculous character in foreign movies when they are dubbed into Thai;
- 9.) Reciting some types of poetry.<sup>11</sup>

In conclusion, a syllable-time rhythm is used when one speaks or reads without feelings and emotions. It can create a hallowed atmosphere and formality as well as childishness and foolishness. Very old people and young children sometimes use a syllable-timed rhythm. In comparison with the other age groups, their speech seems to be slow and not very fluent. Smith mentions in her article, "The Timing of French, with Reflections on Syllable Timing", that English children have used syllable-timing before moving on to stress timing when they are older. She says:

More seriously, it is sometimes said that in general, children learning to speak develop syllable-timing before they move on to stress-timing, even in a language like

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<sup>10</sup>When I was a school-girl, I was asked quite often by some of my teachers to dictate their well-written lessons to my classmates. (This is quite common in Thai schools when the teachers are sick or have another engagement.) We were supposed to write down every word. It was quite a hard job for me since I had to do two things at the same time, i.e., dictate the lesson and write down everything I was dictating. To make my dictation clear as well as to keep myself from being too fatigued and exhausted, I used syllable-timed rhythm. I did not stress or emphasize every single syllable, I am certain. How can one (especially a little girl) use "reinforced chest-pulses" all the time? One would drop dead before the task can be fulfilled. In my case, each period contained 50 minutes; and I remember that sometimes I had to dictate two or three lessons next to each other.

<sup>11</sup>See Chapter 11, Part III.

English. Perhaps this is not the zig-zag development it seems to be, with the earlier skill replaced by the ultimate one. Perhaps it is a hierarchic development.<sup>12</sup>

### 3. Thai as a stress-timed language

If rhythm in Thai were a stress-timed type, it would have the following characteristics described by Allan:

1.) The rate of succession of the rhythmic beats or the rate of succession of stressed syllables must be within the range of preferred rates of rhythmic succession in other motor tasks, namely 0.2 to 2.0 second between beats.<sup>13</sup>

2.) There must be a tendency toward equality of interstress intervals manifested by the jamming together of the unstressed syllables contained in the intervals.<sup>14</sup>

Concerning the rate of succession of the rhythmic beats, Allan gives the following report:

Experiments have determined that different people prefer acting at different rates, and personally "preferred" rates (Woodrow, 1951) have been found to range around an average of about two acts per second. If we translate this into a time interval measure, this means that when people perform some rhythmic motor task, they tend to act at the rate of one beat every .5 seconds. Wundt found preferred rates of between .3 and .5 seconds between acts (Fraisse, 1963, p. 80). Fraisse writes that the rate of succession of the "important" notes in a musical composition is between .15 and .90 seconds between notes (*ibid.*). In a study by Miles (1937), 80% of 200 subjects preferred rates of between .2 and .7 seconds between acts, although 11% preferred rates of greater than a second between acts (Michon, 1967, p. 9). There are of

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<sup>12</sup>Smith, "The Timing of French, with Reflections on Syllable-Timing" in Work in Progress, no. 9, p. 107.

<sup>13</sup>Allan, "The Place of Rhythm in a Theory of Language," in UCLA Working Papers in Phonetics, no. 10, p. 71.

<sup>14</sup>Allan, "On Testing for Certain Stress-timing Effects," in UCLA Working Papers in Phonetics, no. 10, p. 47.

course differences in preferred rate of succession that depend on who we are and what we are doing, but on the average we have limits of about 0.2 and 1.0 seconds between acts when we are doing some motor task at our natural preferred rate.

Since speech is a motor activity, we might expect that the rate of succession of our rhythm, i.e. speech acts, will fall into this same .2 to 1. second interval. Shen and Peterson (1962) measured the intervals between all the stresses of a few minutes' reading by three English speakers. Although many of the intervals span terminal junctures, and so perhaps are not directly relevant to the measurement of rhythm, most of their measurements were between .2 and .8 seconds. Allan (1967) found interstress intervals ranging from .3 to .6 seconds in a small number of conversational English utterances from three speakers. Abe (1967) measured intervals in a "fast reading", and most of them fell in the range from .4 to .7 seconds. These three sets of data all relate well to the predicted .2 to 1. second range.<sup>15</sup>

It is interesting to see how the rhythmic beats behave in Thai. For the time being, let us assume that the onset of the nuclear vowel of a syllable is a potential rhythmic beat in Thai speech as well as in English. I shall, then, proceed towards the same direction as did Shen and Peterson (1962), Allan (1967) and Abe (1967). The interstress intervals in Thai speech may be measured in the same manner. However, there is at least one problem, i.e. when a stressed syllable is preceded or followed immediately by a phonological pause, there is no way to guess where the rhythmic beat of a silent stress falls; therefore, they have been left unmeasured.

The same materials, the Story of a Myna Bird and the "Queen Srisawarithira" passage used in Chapter 7, Part II, will be used again for this particular purpose. The measurements of feet by means of the Edinburgh technique and the measurements of interstress intervals by

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<sup>15</sup>Allan Loc. cit. p. 69.

means of the non-Edinburgh one, which have already been explained in Chapter 7, Part II, will be compared and illustrated later. Briefly, the results obtained are very satisfactory.

The Story of a Myna Bird

`r | wəŋ -nok `? | iəŋ ... ? | e: -n | wk du -k | ɔ:n ... `r | wəŋ `thi  
 .44 .36 .36 .41  
 kh | ɣi ` | au ... ?a: ... -nwk \_?ɔ:k -lə ... əu `rwəŋ -nok `? | iəŋ di -kw  
 .29 .39  
 | a: -n | a? ... mi-nok `? | iəŋ t | uə n | wŋ ... mən -d | a: -k | əŋ pen f | ai  
 .31 .36 .29 .33 .48 .32  
 | | ɣ:i ... -r | u: kh | am -j | a:p `m | a:k m | a:i | ə k | ɣ:n ... -lɛ `kɔ-wi  
 .27 .31 .29 .36 .45  
 th | i: d | iəu `thi tɕə `həi mən `ŋ | iəp `d | a:i ... `nən `kɔ kh | w: `təŋ  
 .25 .68 .30 .47  
 əu `ph | a: kh | lum kr | oŋ -s | iə ... mən tɕə `dəi-kh | it `wə `m | w:t -l | ɛ:u  
 .30 .28 .38 .35 .29  
 ... `dəi we l | a: n | ɔ:n -sə th | i: ... i tə-n | i: -n | a? ... `r | uŋ -tɕh | a:u  
 .29 .45 .30 .34 .36  
 w | an -n | wŋ ... jəi ,s | a:u -k | ɛ: `tɕəu kh | ɔ:ŋ -n | ok `nən `kɔ -p | ɣ:t  
 .29 .32 .44 .29 .48 .34  
 əu `ph | a: `thi kh | lum kr | oŋ -ɔk -jəŋ kh | ɣ:i ... -ru-məi kh | r | ai  
 .37 .24 .62 .22  
 d | ɣ:n -ph | a:n mə phɔ d | i: ... -b | a:t ,l | uəŋ `tɕ | a ... jəi `tɕəu  
 .30 .55 .25 .36  
 ,kh | ɔ:ŋ kɛ `rip `w | iŋ -kləp mə kh | lum kr | oŋ `tɕəu -n | ok -jəŋ  
 .53 .58 .26 .40 .38  
 r | e u w | ai ... -lɛ `kɔ `w | iŋ pəi `thi pə t | u: tɕh | ɣ:n -b | a:t  
 .26 .60 .25 .25 .30  
 ,l | uəŋ `khəu mə nəi `b | a:n ... -n | ok m | an `kɔ `n | iŋ tɕh | iəu  
 .55 .23 .34 .34  
 ... -lɛ-lɛ:u ... jəi ,s | a:u -k | ɛ: `kɔ ,th | a:m `phɔ -b | a:t ,l | uəŋ `w | a: ...  
 .29 .33 .44 .49  
 `həi -s | ai-nəm t | a:n -ki -tɕh | ɔ:n nəi kə f | ɛ: ... `əi `tɕəu -n | ok mən  
 .35 .52 .60 .61

`kɔ tɛ k|o:n `phl|o:n ɔk mə `w|a: ... ,m|ɛ: `həi t|a:i thɜ `n|a?

.32                      .61                      .55                      .43

... `əi kləŋ w|an `ni mən `s|an pen `b|a: lɜi -w|ɜ:i

.50                      .41                      .50

In this story, only 74 interstress intervals were measured. Their durations range from .22 second to .68 second. This means that the rate of succession of the rhythmic speech rate in Thai falls into the .2 to 1. second interval, which is similar to the one in English as pointed out by Allan. In fact, there is hardly any difference between the two techniques of measuring time intervals described earlier. By means of the Edinburgh technique, the durations of feet occurring in the Story of a Myna Bird range from .23 second to .60 second. Thus, we may as well say that both techniques are equally good since they yield almost the same result. However, the technique of measuring rhythmic feet used in Chapter 7, Part II is somewhat superior because nothing has been left out, e.g., phonological pauses which are not less important than the other components of speech rhythm are measured accurately. The relationships between stressed syllables and their subordinates or unstressed syllables can be seen clearly. Moreover, the scansion or notation is less complicated; therefore, it is easier for the reader to follow the transcription.

The result of the measurements of the intervals between the rhythmic beats is illustrated in the table below:

Table 33: Average percentages of the durations of the interstress intervals occurring in the Story of a Myna Bird.

.20-.29	.30-.39	.40-.49	.50-.59	.60-.69	Second
25.67	37.84	17.57	10.81	8.11	%

## Queen Srisawarinthira

ˌs|om\_d|et -phrə ˌs|i: sə wə r|in thi r|a: ... kh|w:n-n|an pen  
 .24 .43 .42 .38 .23 .49  
 kh|w:n `khəŋ r|ɛ:m-prə tɕ|an `pɤŋ `kh|wn ..., ˌs|ɛ:ŋ -phrə tɕ|an `thi  
 .54 .60 .53 .40 .37  
 `l|ɔ:t\_ph|a:n phr|o:ŋ -m|a:i m|a: th|am `həi th|a:ŋ `thi sə\_d|et prə  
 .32 .41 .29 .31 .29 .31 .42 .27  
 `r|a:t tɕə dəm n|ɤ:n -tɕak-prə m|e:n-thəŋ sə ˌn|a:m ˌl|uəŋ pəi jəŋ  
 .49 .54 .54 .30 .52  
 w|aŋ\_sə pə th|um sə\_w|a:ŋ rəm r|ai...khw|a:m -khl|am ˌkhəŋ d|uəŋ tɕ|an  
 .54 .37 .50 .35 .51 .34  
 ...khw|a:m sə\_ŋ|at ˌkhəŋ ˌs|a:i l|om...thəm `həi b|an jə\_k|a:t `thi  
 .44 .46 .36 .44 .46  
 s|au \_ju -l|ɛ:u sə -l|ot `jɪŋ `kh|wn...-rot j|on -phrə `thi `n|aŋ  
 .37 .45 .49 .48 .29  
 `lɛ|n -tɕhə -tɕh|a: pəi t|a:m thə ˌn|on...ˌsɔm\_d|et prə -th|ap `ŋ|iap  
 .43 .39 .41 .36 .25  
 -ju tɕə -l|ɔ:t wə l|a: ... tɕhə ˌl|ɔ:ŋ -phrə ?|ŋ -lɛ -phrə ph|u:  
 .47 .42 .33 .50 .29  
 ˌs|a: ˌs|i: d|am `tɕh|uəi `həi -phrə -tɕh|a? ˌwi ˌkh|a:u `kh|wn...  
 .29 .20 .29 .44 .43 .40  
 -phrə -ph|ak tɕh|ɤ:i ... -phrə `n|e:t `h|ɛ:ŋ ... -phrə\_h|at ˌkhw|a:  
 .35 .36 .31 .32  
 k|am -phrə ph|u: ˌs|a: `thi \_h|ɔ: -phrə th|on th|u:n krəm|ɔm -f|a:  
 .41 .27 .40 .35 .20 .35 .26 .23  
 ˌj|iŋ -phrə `r|a:t tɕhə thi d|a: -wəi `n|en ... nəi `thi\_s|ut\_tr|at  
 .29 .45 .45 .25  
 `khwn|mə `th|a:m kl|a:ŋ kh|wa:m `ŋ|iəp `w|a: ... dɪn -f|a: ə\_k|a:t `ni  
 .61 .29 .36 .31 .32 .40 .57  
 `kɔ `kh|au\_kəp-tɕh|an mɪn k|an ... `ni: ... d|u: `s|i: ... du  
 .43 .44 .38  
 -phrə tɕ|an `s|i: ... -jəŋ -n|i: -khəu `r|iək `wə -phrə tɕ|an  
 .37 .36 .60 .31  
 -r|ɔ:ŋ `h|a:i... `məi mi kh|am\_kr|a:p bəŋ kh|om th|u:n  
 .43 .25 .47 .27 .38

- t|ɔ:p ... kh|r|ai | |x:i tɕə `ph|u:t ə r|ai -?|ɔ:k nɛi wɛ | |a:  
 .29 .42 .23 .29 .49 .50
- jəŋ -n|an ... -r|a:i -k|a:t tɕ|iŋ tɕ|iŋ ,s|oŋ' ,s|a:n ,mɯn  
 .36 .30 .28 .27 .27 .48
- tɕ|əi tɕə -kh|a:t -j|a:k tɕə-r|ɔ:ŋ `h|a:i -ɔk mə d|aŋ  
 .39 .38 .33 .49 .22
- d|aŋ `kɔ th|am `mɛi `d|a:i ... `than ,j|iŋ `phu t|a:m sə  
 .38 .33 .35 .37
- d|et tɕwŋ `dəi -tɛ `k|om -ph|ak -m|em -?|o:t `n|ɛn ...  
 .69 .28 .31 .28 .33
- `mwə -r|ot -phrə `thi `n|aŋ `th|iəp `n|a: tɛm -n|ak ... ,s|om -d|et sə  
 .52 .34 .26 .43 .21 .35
- d|et tr|oŋ `khwŋ pəi -tɕh|an b|on -s|u: `h|oŋ -phr|a? th|an  
 .27 .53 .26 .29 .21 .23 .29 .30
- th|i: ... s|oŋ w|a:ŋ -h|ɔ: -phrə th|on th|u:n krə -m|ɔm -f|a:  
 .25 .34 .45 .25 .36 .30 .29
- ,j|iŋ -wəi `thi `n|a: -phr|a? ... -lɛu -s|ut -phrə ?|oŋ | |oŋ s|oŋ  
 .50 .30 .28 .28 .27 .29
- m|ɔ:p nɛ -m|at sə k|a:n ... kh|ɔ: `həi | |w:m ... | |w:m `həi  
 .39 .36 .43 .41
- m|ot ... -jə `həi m|i: khw|a:m tɕ|am ə r|ai | |x:i ...  
 .21 .32 .29 .29
- tɕ|am ə r|ai `khwŋ m|a: `kɔ -l|uən -tɛ khw|a:m -th|uk-thəŋ  
 .27 .42 .32 .43 .32 .42
- n|an ... ,kh|ɔ: `həi | |w:m ... ,khɔ `həi | |w:m ... -phrə ɛ-thi  
 .42
- ,th|a n ,khəŋ ,s|om -d|et -kw|a: tɕə ,sɛm -r|it ,ph|on `kɔ  
 .57 .20 .34 .45 .24
- `mwə wɛ | |a: -ph|a:n pəi ,l|a:i p|i: ... tɕ|am ə r|ai `khwŋ  
 .67 .24 .46 .33 .29 .40
- m|a: `kɔ -l|uən -tɛ khw|a:m -th|uk-thəŋ -n|an ... -phrə  
 .36 .37 .32 .40
- `r|a:t tɕhə dem -r|at -n|i: pɛn khw|a:m tɕ|iŋ -th|ɛ: ..  
 .50 .28 .45 .37 .29

`th|au `thi \_swk ,s|a: mə tək ph|oŋ ,sə wə d|a:n `təŋ \_tə  
 .55 .59 .47 .56  
 kr|uŋ su ,kh|o: th|ai ... kr|uŋ ,si -ju thə j|a: tɕ|oŋ ,thwŋ  
 .37 .25 .67 .49 .39  
 kr|uŋ -rə tə -n|a? k|o: ,s|in ... məi kh|ɣi `dəi -ph|op `wə -phrə  
 .42 .26|.31 .35 .35  
 -?|ək khə mə ,h|e: ,s| i: -phrə ?|oŋ d ai tɕə s|oŋ mi khw|a:m  
 .50 .30 .34 .26 .47 .47 .33  
 -th|uk `thəu ,s|om \_det phrə ,s|i: səwə r|in thi r|a bə rom  
 .33 .48 .37 .34 .60  
 mə `r|a:t tɕhə th|e: w|i -phrə ?oŋ -n|i: ... khw|a:m -th|uk ,khŋ  
 .37 .22|.62 .29|.38  
 ,s|om \_d|et -nan ,s|ɛ:n ,s|a: \_h|at -lɛ -khr|op `th|uən krə  
 .22|.48 .42|.28|.42 .24|.42  
 b|uən khw|a:m `thi pr|a: -kot \_ju n|ai ə -ri jə \_s|at \_s|i:  
 .32|.44 .42|.46 .32  
 ... -n|ap \_tɛ \_k|ɣ:t ... \_k|ɛ: ... \_tɕ|ep ... t|a:i ... khw|a:m \_s|o:k  
 .47 .38|.37  
 `s|au ... khw|a:m r|am r|ai rəm ph|an ... khw|a:m th|o: mə  
 .30|.29|.52 .35|.42  
 -n|at ... khw|a:m -kh|ap -kh|ɛ:n tɕ|ai ... khw|a:m prə \_s|op  
 .37|.30|.39 .44  
 `duəi \_s|iŋ `thi `məi p|en `thi -r|ak -thəŋ l|a:i ... khw|a:m  
 .42 .45 .41 .43 .25  
 -ph|at `pr|a:k \_tək \_s|iŋ `thi -r|ak -thəŋ ,l|a:i ... khw|a:m  
 .28|.52 .32|.45 .30  
 -ph|it ,w|aŋ ... -phrə `r|a:t tɕhə prə \_w|at ,khŋ -phrə ?|oŋ  
 .28 .51|.52  
 pen `r|wəŋ `thi `n|a: \_swk ,s|a: `wə sə \_d|et \_ju `d|a:i  
 .40 .37 .46 .58 .32|.41  
 -jəŋ r|ai nəi k|ɔ:ŋ -th|uk tə -l|ɔ:t wə l|a: en -j|a:u  
 .41|.32|.25|.34|.42|.32  
 n|a:n ... doi `t|aŋ -phrə ?|oŋ -wəi `duəi d|i: `duəi `tɕ|ɔ:p  
 .36 .63|.45

... s|oŋ -tɕh|ai thəm -m|aʔ ən d|ai pen `khr|wəŋ -j|wt  
 .27 .48 .40 .56 .35 .23  
 -n|iəu phrə `r|a:t tɕhə \_hə ru th|ai  
 .40 .65

Only 271 interstress intervals occurring in the passage "Queen Srisawarithira" were measured. Many rhythmic beats had been left out because of the presence of phonological pauses; for example:

-k|ɣ:t ... -k|ɛ: ... -tɕ|ep ... t|a:i ..., etc.

'to be born, to be old, to be sick, to be dead.'

Here, again, the rate of succession of the rhythmic beats falls into the .2 to 1. second interval. They range from .20 second to .69 second, which is the range close to the one presented in Chapter 7, Part II, i.e. .22 second to .66 second. This supports very well the hypothesis that there is hardly any difference between the two techniques of measuring time intervals between rhythmic beats. Compare the table below with Table 31 on page 159:

Table 34: The average percentages of the durations of the interstress intervals occurring in the passage "Queen Srisawarithira"

.20-.29	.30-.39	.40-.49	.50-.59	.60-.69	Second
25.83	32.47	28.41	9.60	3.69	%

In conclusion, the preferred rate of the rhythmic beats in Thai is similar to the one in English reported by <sup>A</sup>Ibe (1967), Allan (1967), Shen and Peterson (1962). This similarity is applicable only to my speech, and no claim is made that other Thai speakers prefer the same rate. More research towards this area should be done in the future,

and researchers must be aware and take into account the variability with which people act when they are acting rhythmically. Taig (1929) remarks, "personal preferences and individual speech-habits lead to divergences, slight in themselves but powerful in their cumulative effect. Normal accent and a rough distinction between shorter and longer syllables are our only indications of the rhythm felt by the writer."<sup>16</sup> With regard to this aspect of the production of rhythm and time intervals, Allan (1968) mentions the research done by many experimental psychologists:

Various sources (Fraisse, 1963; Michon, 1967; Woodrow, 1951; Treisman, 1963) report various ranges for the error variability with which people produce time intervals, the overall range being about 3 to 11% of the length of the interval they are producing. There is a difference between reproducing a given interval, in which case the error will be at the high end of the range, and producing one's own intervals, when the error will be lower. For example, if a subject is presented with a train of clicks, equally spaced and x seconds apart (where x is in our .2 to 1. second range), and if he is asked to tap his finger at the same rate as the clicks, but after they have been turned off, then he will do so with average errors of about 7 to 11% of the standard interval. If he is allowed to tap at his own rate, however, with no standard to match, his errors will be only 3 to 5% of the average.<sup>17</sup>

#### 4. A tendency toward equality of rhythmic feet

At this point, it seems that Thai has a stress-timed rhythm. This means that stressed syllables in Thai recur approximately at equal intervals of time, or in other words, the stressed syllables are isochronous. It has been shown by means of oscillographic measurements that in running connected speech the durations of feet range from .2

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<sup>16</sup>Taig, Rhythm and Metre, p. 27

<sup>17</sup>Allan, loc. cit. p. 70.

second to .6 second. How can one claim that the duration of .2 second is approximately equal to .6 second? It is rather dubious. To re-examine the problem of isochrony of rhythmic feet in English speech and to investigate the relationship between rhythmic and syntactic units of speech production and perception, Lehiste (1973) conducted a set of experiments. The result obtained shows that there is some evidence for isochrony in production as well as in perception. Lehiste states the result as follows:

If the listeners cannot focus on the differences in the duration of spoken rhythmic units, it seems reasonable to assume that they hear these rhythmic-units as being in some sense of equal duration. It is likely that there is a connection here between production and perception. In production, the durations of metric feet will differ somewhat depending on the phonetic structure of the lexical items comprising the metric feet. It stands to reason that differences of a similar type are not heard as differences: the listener makes allowances for them. The same latitude that is observed in the production of metric feet of the same type may be expected to obtain in the perception of the duration of metric feet of the same type. With non-speech materials, listeners do not make the same allowances; hence they achieve significantly better results in estimating the duration of filled intervals.<sup>18</sup>

Some people have argued that feet are not isochronous and tried to prove their argument by showing the results obtained from instrumental measurements.

In order to compromise, we may say something like this:

"Objectively, rhythmic feet are not isochronous, but subjectively, they are." Perceived duration is not identical with physical duration. The different physical durations of time intervals can be said to be approximately equal when they do not exceed or fall much below certain

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<sup>18</sup>Lehiste, "Rhythmic Units and Syntactic Units in Production and Perception," in JASA, vol. 54, no. 5, 1973, pp. 1233-1234.

time limits (Bolton, 1894: 157). The physical measurements of time interval must be transposed, first, to the psychological plane.

X Höring, as early as 1864, found that among intervals ranging from .3 to 1.4 seconds, the shortest were overestimated and the longest underestimated. This discovery led to the concept of an indifferent point or indifferent zone (Fraisse, 1964: 118). The indifferent zone was determined by Woodrow (1934) to be between .59 and .62 second; and an interval of .3 second was found to be overestimated by up to 6.2 percent, the underestimation of an interval of 1.2 seconds, 2.1 percent (Fraisse, 1964: 119).

One may discard the concept of isochrony when one talks about speech timing, i.e. the physical measurements of time, but one must regard isochronism when one discusses<sup>es</sup> speech rhythm. The former belongs to instrumental phonetics, but the latter, more abstract, belongs to phonetics and phonology of a language. One must look for a rhythmic structure instead of the exact timing of feet or syllables. For example, a foot, having one syllable (|S|) up to 4 syllables (|S W W W|), can be said to have the time values of three time-units. (One must keep in mind that it is only a system of notation, and that it is not the same thing as triple time in music.)

1.) | S | = 3

Ex. 

3	3	3	3
khwa:m	-khap	-khe:n	tɕai
.33	.30	.38	.46

2.) | S W | = 2:1

Ex. 

2:1	2:1	2:1	2:1
tɕam e	rai `khun	ma: `ko	-luən _te
.23 .15	.23 .12	.23 .13	.26 .15

$$3.) \quad |S W W| = 1\frac{1}{2} : \frac{3}{4} \frac{3}{4}$$

Ex. 
$$\left| \begin{array}{l} 1\frac{1}{2} : \frac{3}{4} \frac{3}{4} \\ ,si: s\acute{o} w\acute{e} \\ .25 .11 .13 \end{array} \right| \text{rin}$$

$$\left| \begin{array}{l} 1\frac{1}{2} : \frac{3}{4} \frac{3}{4} \\ w\acute{a}ŋ \_s\acute{o} p\acute{e} \\ .28 .13 .13 \end{array} \right| \text{thum}$$

$$\left| \begin{array}{l} 1\frac{1}{2} : \frac{3}{4} \frac{3}{4} \\ \_t\text{rat} \text{ `khun} m\acute{e} \\ .29 .14 .17 \end{array} \right|$$

$$4.) \quad |S W W W| = 1 : \frac{2}{3} \frac{2}{3} \frac{2}{3}$$

Ex. 
$$\text{thi} \left| \begin{array}{l} 1 : \frac{2}{3} \frac{2}{3} \frac{2}{3} \\ ra: b\acute{e} r\acute{o}m m\acute{e} \\ .20 .14 .15.12 \end{array} \right| \text{`ra:t}$$

$$\left| \begin{array}{l} 1 : \frac{2}{3} \frac{2}{3} \frac{2}{3} \\ \text{`ra:t} th\acute{e} \_h\acute{e} r\acute{w} \\ .21 .13 .12 .12 \end{array} \right| \text{thai}$$

At an abstract level; a tendency toward equality of interstress intervals (3 time-units) causes both the stressed and unstressed syllables to get shorter when the number of unstressed syllables in the interval increases. In Thai, 5-syllable feet are very rare. This is because it is difficult to keep time. Both the salient and weak elements within a polysyllabic foot can be shortened to a minimum (which, perhaps, a statistical method may be able to tell). Ideally, it should work the way stated above, but as Stetson (1905) and Sumera (1974) comment:

*are*

"Radical changes of a rhythm<sub>^</sub> due to mere changes of tempo."<sup>19</sup>

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<sup>19</sup> Stetson, "A Motor Theory of Rhythm and Discrete Succession," in Psychological Review, vol. 12, 1905, p. 340.

"Strict isochrony would have to imply a uniform Time and tempo. However, these conditions are seldom met with over long stretches of speech."<sup>20</sup>

At the phonetic level, rhythmic feet are not equal. For example, in the extract from the book called "Queen Srisawarithra", the average durations of the 4 types of feet and the average durations of syllables in each type of feet are as follows:

S	=	.30 second
S W	=	.40 second or   .25 : .15
S W W	=	.49 second or   .23 : .13 .13
S W W W	=	.59 second or   .21 : .12 .13 .13

This means that about .10 second is added to the interval when one unstressed syllable is added. (See also Tables 24, 25 and 26 on pages 139, 141 and 143 respectively.) The ratio of the time-values seem to be 3:4:5:6 for one-syllable, two-syllable, three-syllable and four-syllable feet respectively.

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<sup>20</sup>Sumera, "The Concept of Isochrony: Some Problems of Analysis," in Work in Progress, no. 7, p. 36.



## 2. Obligatory and optional audible salience

Even though the placement of salience seems to be different, there is still a common core: every speaker tends to choose a content word and the stressed syllables of a polysyllabic word as salience or the strong element of a foot. I shall attempt to postulate some rules, which seem to underlie my actual pronunciation. However, one must keep in mind that there is nothing absolute about them and that the following rules of salience placement are based only on my speech and my personal taste, which may be or may not be applicable to the way in which other Thais speak.

Rule 1. The last syllable of an utterance before a pause is always a salience, e.g.

Ex. 1 'tɔŋ | -thɕai mə | -phra:u `duəi | -mai  
(question particle)

'Do we also have to use the coconut?'

Ex. 2 pəi | `wiŋ | `lən `thi sə | ,na:m kən | -thɤ?  
(imperative particle)

'Let's go and play in the playground.'

Ex. 3 | -khɪt `wə | tuə-wi | -se:t sə | ,mɤ:  
(disyllabic word)

'He always thinks that he is superior.'

Ex. 4 tɕhi | -wit ,khɔŋ | -lɔn ləm | -ba:k | `ma:k  
(secondary verb)

'She has a very hard life.'

Ex. 5 pəi -rot | fai sə | -duək -kwa | -khlap  
(status particle)

'It's more convenient to travel by train.'

Ex. 6 tɕə | ʔau ən | -ni:  
(demonstrative adjective)

'I want to have this one.'

Exception: In casual talk, the last syllable of an utterance, especially, a particle, may not be salient. This indicates intimacy of the people who are involved in the conversation; for example,

Ex. 1    `khau tɕai -lɛ:u

          `khəu|tɕai -lɛ     'Now, I understand.'

Ex. 2    `mɛ: khun `ŋiap -thɿ?

          mɛ | -khun |    ^ | `ŋiap hɛ    'My dear, you'd better shut up.'

Ex. 3    `jɛ: tɕaŋ -na?

          | `jɛ: | tɕaŋ -nɛ     'It's awful, isn't it?'

Rule 2. Content words (C)<sup>1</sup> and the stressed syllables (S) of polysyllabic words and compounds<sup>2</sup> tend to be saliences, but grammatical words (G) and the unstressed syllables (US) do not, for example,

Ex. 1    a.    | C            C            C            C |  
          | mɛ:u | `tɕhɔ:p | kin | pla: |

          'Cats like to eat fish .

          b.    | C            G            C            C            C |  
          | mɛ:u | `mɛi | `tɕhɔ:p | kin | pla: |

          'Cats don't like to eat fish.'

          c.    | C            G            G            C            C            C |  
          | mɛ:u | `kɔ | `mɛi | `tɕhɔ:p | kin | pla: |

          'Cats don't like to eat fish either.'

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<sup>1</sup>Content words = nouns, verbs and adjectives  
Grammatical words = adverb-auxiliaries, conjunctions, prepositions, pronouns, particles, secondary verbs, demonstrative adjectives and demonstrative pronouns.  
(See the examples in Hass, 1964, xx-xxii)

<sup>2</sup>See pp. 93-97 and Appendix I.

a/

Ex. 2 | C US | S | S US | S  
riən -wi | tʰa: | \_sat thə | \_sa:t

'to study phonetics'

Ex. 3 | S | S US | S US | S | C US | S US US  
\_ʔe:k | \_ʔak khə | `ra:t tʰə | `thu:t | thai prə | tʰam sə hə  
| S US | S US | S  
\_rat ə | mə: ri | ka:

'the Thai Ambassadors to the United States'

Ex. 4 G | C G | C  
'mɛi | \_ja:k tʰə | pai

'I don't want to go.'

Ex. 5 US | S G US | S | G | C G | C  
'mwə | wa:n `mɛi sə | ba:i | ɿ | nɔ:n -thəŋ | wan

'Yesterday, I was so sick that I slept all day.'

Ex. 6 G | C G G | C US | S  
-khəu | ,waŋ `wə tʰə | pai -ju | \_ro:p

'He hopes that he can go to Europe.'

Ex. 7 US US | S US US | S US | S G | C US | S  
ə hi | wa: \_tə kə | `ro:k rə | \_ba:t thəŋ | `pha:k i | ,sa:n

'The cholera is spreading in the Northeast'

Ex. 8 US | S US | S G US | S  
'sɛi | \_krɔ:k əŋ | \_krit `mɛi ə | \_rɔi

'British sausages are not delicious.'

Exceptions: When three or four grammatical words and the unstressed syllables of polysyllabic words and compounds occur in a row, one of them can become the salience of the next rhythmic foot. If the symbol X stands for C and S, and the symbol Y stands for G and US, the rules can be written as follows:

Rule 1. | X Y Y Y | X → | X Y | Y Y | X

Ex. 1 |`phu:t \_ɔk mə `dəi | lɜ:i → |`phu:t \_ɔk | ma: `dəi | lɜ:i  
 'You can say it out, now'

Ex. 2 |`wiŋ pəi `thi prə | tu: → |`wiŋ pəi | `thi: prə | tu:  
 'to run to the door'

Rule 2. a. | X Y Y Y Y | X → | X Y Y | Y Y | X

b. | X Y Y Y Y | X → | X Y | Y Y Y | X

Ex. 1 -wi | thi: | diəu `thi tɕə `həi mən | `ŋiap  
 -wi | thi: | diəu `thi tɕə | `həi mən | `ŋiap  
 'The only way that can make him quiet'

Ex. 2 | `tɕhuəi `həi -phrə hə ru | thai  
 | `tɕhuəi `həi | -phrə? hə ru | thai  
 'to help her royal mind'

The choice of 2a or 2b depends upon the grammatical relationship of the Y elements. For example, in Ex. 1., -tɕə? 'will' is an adverb-auxiliary, then, it is less likely to be a salience than `həi, which is a secondary verb meaning 'to have someone do something'. In Ex. 2., the syllable -phrə? is 'a title placed before places and things associated with the monarch', thus, it should be with the word [hə ru 'thai] 'heart', 'mind'. The syllables [hə] and [ru] are reduced from the full forms \_hə? and -ru? which are linker-syllables; it has been stated earlier in this thesis that linker syllables are always unstressed; therefore, they are unlikely to be saliences.

Sometimes, the first element of a compound and reduplication can be salient. There is no definite explanation for this phenomenon. Perhaps, the tendency toward equality of rhythmic feet may be the cause of it, or perhaps by means of assigning salience in a special way, the

speaker is able to show his feelings, emotions or attitudes toward the situation. For example:

-ja:k tʃəʔ -rɔ:ŋ `ha:i -ʔɔ:k ma: daŋ daŋ `kɔ:

'to wish will to cry out to come loudly adv-aux.

tham `mai `da:i

to do not can'

| -ja:k tʃəʔ | -rɔ:ŋ | `ha:i ɔ:k mə | daŋ | daŋ `kɔ | tham `mɛi | `da:i

'I felt like crying loudly, but I couldn't do it.'

Rule 3. In an emphatic speech, every syllable may be stressed;  
therefore, all syllables can be salient, no matter whether  
they are C, G, S, or US, for example,

Normal: US | S G US | S  
rɔ:ŋ | -tha:u ,rə ,thuŋ | -tha:u

'Shoes or socks?'

Emphatic: | rɔ:ŋ | -tha:u | ,rw: | ,thuŋ | -tha:u

'Shoes or socks, (could you tell me again?)'

The choice of audible salience is obligatory when the alteration of salience placement can change the meaning of the whole utterance. There is a group of words<sup>3</sup> that have two roles -- as content word in one context and as grammatical word or the unstressed syllable of a compound in another context. Actually, in the lexical entry of the language, they are called "homonyms," e.g. man (noun) 'potato' and man (pronoun) 'it', `kha:u jen 'left-over rice' and `kha:u jen 'the rice is cold', etc.

<sup>3</sup>The list of words having dual functions and homonyms (two words, identical in sound and spelling, but differing in meaning) is to be found in Appendix II.

A pair of utterances, containing the same lexical items, can have different meanings by means of the different choices of salience.

There are three patterns of obligatory salience placement:

Pattern A.        C        C        vs.         $\left\{ \begin{array}{cc} C & G \\ G & C \end{array} \right\}$

Pattern B.        G        C        vs.        C        G

Pattern C.        US        S        vs.         $\left\{ \begin{array}{cc} C & C \\ C & G \end{array} \right\}$

Pattern A.    A set of two words occurring in utterance A and utterance B, the meaning will be X if they function as C C, and the meaning will be Y if they function as C G or G C.

For example:

Ex. 1    -nok `mai kin man \_rɔ:k

Utterance A:     $\left| \begin{array}{c} -nok \\ \text{'m} \end{array} \right| \begin{array}{c} C \\ kin \end{array} \left| \begin{array}{c} C \\ man \end{array} \right| \begin{array}{c} \\ \_rɔ:k \end{array}$   
 'Birds don't eat potato.'

Utterance B:     $\left| \begin{array}{c} -nok \\ \text{'m} \end{array} \right| \begin{array}{c} C \\ kin \end{array} \begin{array}{c} G \\ mən \end{array} \left| \begin{array}{c} \\ \_rɔ:k \end{array}$   
 'Birds don't eat it.'

Ex. 2    `jiŋ `ha:m \_kləp `jiŋ \_ja:k

Utterance A:     $\text{'jiŋ} \left| \begin{array}{c} C \\ \text{'h} \end{array} \right| \begin{array}{c} C \\ \_kləp \end{array} \text{'jiŋ} \left| \begin{array}{c} \\ \_ja:k \end{array} \right. \text{ (-kləp)}$   
 'The more I was told not to return, the more I  
 wanted to (return).'

Utterance B:     $\text{'jiŋ} \left| \begin{array}{c} C \\ \text{'h} \end{array} \right| \begin{array}{c} G \\ \_kləp \end{array} \text{'jiŋ} \left| \begin{array}{c} \\ \_ja:k \end{array} \right.$   
 'The more I tried to stop him, the more he wanted  
 to do it.'

Ex. 3    `tha: -tʃhan ,su:ŋ \_ʔi:k \_nɔi

Utterance A:     $\text{'th} \left| \begin{array}{c} C \\ \_tʃhan \end{array} \right| \begin{array}{c} C \\ ,su:ŋ \end{array} \_ik \left| \begin{array}{c} \\ \_nɔi \end{array} \right.$   
 'If the case were a little bit taller, ...'

Utterance B: 'thə-təhən | <sup>G</sup> ,su:ŋ -ik | <sup>C</sup> -nɔi

'If I were a little bit taller, ...'

Note: In order to make the above utterances clearer and contrast in an obvious way, a silent salience may be inserted. Silent salience can make the syllable before it more noticeable and the one after it less noticeable. For example:

Ex. 1 -nok 'mai kin man -rɔ:k

Utterance A: | -nok 'mɛi | <sup>C</sup> kin | <sup>C</sup> man | <sub>^</sub> | -rɔ:k

'Birds don't eat potato'

Utterance B: | -nok 'mɛi | <sup>C</sup> kin | <sub>^</sub> <sup>G</sup> mən | -rɔ:k

'Birds don't eat it.'

Ex. 2 'jiŋ 'ha:m -klap 'jiŋ -ja:k

Utterance A: 'jiŋ | <sup>C</sup> 'ha:m | <sup>C</sup> -klap | <sub>^</sub> 'jiŋ | -ja:k..

'The more I was told not to return, the more I wanted to..'

Utterance B: 'jiŋ | <sup>C</sup> ha:m | <sub>^</sub> <sup>G</sup> -kləp 'jiŋ | -ja:k

'The more I tried to stop him, the more he wanted to do it.'

Pattern B. A set of two words occurring in utterance A and utterance B, the meaning will be X if they function as G C, and the meaning will be Y if they function as C G. For the sequence C G, an optional silent salience may be inserted, then, C G becomes C <sub>^</sub> G, in order to avoid ambiguity.

Ex. 1 -khau tham ,siə -mot -lɛ:u

Utterance A: -khəu tham | <sup>G</sup> ,siə -mot | <sup>C</sup> -lɛ:u

'He has ruined it completely.'

Utterance B: -khəu | <sup>C</sup>tham <sup>G</sup>-sə | \_mot | -lɛ:u  
 -khəu | <sup>C</sup>tham | <sup>OR</sup> <sub>^</sub> <sup>G</sup>-sə -mot | -lɛ:u  
 'He has finished everything.'

Ex. 2 tham mai ma: ?au \_si: mo:ŋ

Utterance A: them | <sup>G</sup>mai mə | <sup>C</sup>?au | \_si: | mo:ŋ  
 'Why do you come to get it at 4 o'clock?'

Utterance B: them | mai | <sup>C</sup>ma: <sup>G</sup>əu | \_si: | mo:ŋ  
 or  
 them | mai | <sup>C</sup>ma: | <sub>^</sub> <sup>G</sup>əu | \_si: | mo:ŋ  
 'Why do you come at 4 o'clock?'

Ex. 3 `da:i kan -lɛ:u

Utterance A: <sup>G</sup>`dəi | <sup>C</sup>kan | -lɛ:u  
 'I've already tried to prevent it.'

Utterance B: | <sup>C</sup>da:i | <sup>G</sup>kən | -lɛ:u  
 or  
 | <sup>C</sup>da:i | <sub>^</sub> <sup>G</sup>kən | -lɛ:u  
 'They have already been in bed (before getting married).'

Pattern C. A set of two syllables occurring in utterance A and utterance B, the meaning will be X if they function as a compound (or US S), and the meaning will be Y if they function as C C or C G. For the latter an optional silent salience may be inserted to make the meaning clear, then, C C → C <sub>^</sub> C and C G → C <sub>^</sub> .G.

Ex. 1 -na:m -kha:ŋ \_ju: bon ,laŋ kha:

Utterance A:      US | S |  
-nəm | -kha:ŋ -ju | bon ləŋ | kha:

'Dew is on the roof.'

Utterance B:      | C | C |  
-na:m | -kha:ŋ -ju | bon ,ləŋ | kha:

or

| C |    | C |  
-na:m |    | -kha:ŋ -ju | bon ,ləŋ | kha:

'There is some water left on the roof.'

Ex. 2    -təhan `mai -ru: -təa? -tə:p the:n thɜ: -ja:ŋ rai

Utterance A:    -təhən `mɛi | -ru: tɕə -təp | the:n thɜ: -jəŋ | rai

'I don't know how I can repay your kindness.'

Utterance B:    -təhən `mɛi | -ru: tɕə | -tə:p | the:n thɜ: -jəŋ | rai

or

-təhən `mɛi | -ru: tɕə | -tə:p |    | the:n thɜ: -jəŋ | rai

'I don't know how I could help you answer the question.'

Ex. 3    ta: -nɔ:ŋ -tɕəp

Utterance A:    US | S |  
tə | -nɔ:ŋ | -tɕəp

'Ta Nong is ill.'

Utterance B:    | C    G |  
ta: -nɔ:ŋ | -tɕəp

or

| C |    G |  
ta: |    -nɔ:ŋ | -tɕəp

'I have sore eyes.'

Ex. 4    -jok tuə -ja:ŋ `ma:k

Utterance A:    | US | S |  
-jok tuə | -ja:ŋ | `ma:k

'to give a lot of examples'

Utterance B:     | -jok | <sup>C</sup> tuə | <sup>G</sup> -jəŋ | 'ma:k

or

| -jok | <sup>C</sup> tuə | <sub>^</sub> | <sup>G</sup> -jəŋ | 'ma:k

'to regard oneself as superior'

### 3. Obligatory and optional silent salience

As well as audible salience, silent salience may be optional or obligatory. It is optional when its presence does not cause any change of meaning, but makes the meaning of an utterance clearer, as illustrated above. An optional silent salience also can make a long continuous sentence sound better and easier for the listener to follow. The following example is from the book called "Queen Srisawarithira" by Somphop Chantharaprabha (p. 3). This particular sentence is very long; it contains 36 syllables and has no indication where the reader can make optional pauses. It is quite an effort to say or read the whole thing without making a few pauses. Where will the logical places be, then? Certainly, one must know the grammar of Thai. But there are still many choices. If I had to recite the sentence in question, I would divide the sentence into four parts of a similar length, (of course I had to use my knowledge of Thai grammar). Since the presence of a silent salience can make the syllable which comes immediately after it become less noticeable, then the three silent saliences must be placed between the sequences such as S ... US, C ... US, S ... G and C ... G.

The original sentence may be recited as follows:

ˌsom | ˌdet soŋ | pen -phrə | 'ra:t tɔhə -thi | da: nɔi -phrə | ˌba:t ˌsom  
| ˌdet -phrə pə rə | mɛ:n thə rə mə | ˌha: moŋ | ˌkut -phrə | tɔ:m | 'kla:u

|`tʃa:u \_ju | ,huə \_kəp `tʃəu | tʃə:m man | da: | \_piam

'She (Queen Srisawarithra) was the daughter of King Rama IV and Chau Chom Maandaa Piam.'

With the insertion of three silent saliences:

,som | \_det soŋ | pen -phrə | `ra:t tʃhə -thi | da: |     <sup>G</sup> nɛi phrə  
 | \_ba:t som | \_det -phrə pə rə | me:n thə rə mə | ,ha moŋ | \_<sup>S</sup> kut  
    <sup>US</sup> phrə | tʃə:m | `klau `tʃəu \_ju | ,huə |     <sup>G</sup> -kəp `tʃəu | tʃə:m  
 man | da: | \_piam.

Silent salience is obligatory when it carries linguistic functions. Its presence is necessary. There are at least four important roles played by an obligatory silent salience:

1.  $\left\{ \begin{array}{c} \text{Imperative} \\ \text{or} \\ \text{Question} \end{array} \right\}$  vs. Statement

Ex. 1 -nɔ:ŋ dɛ:ŋ dʌ:n `da:i -lɛ:u

Utterance A: -nɔ:ŋ | dɛ:ŋ |     | dʌ:n `dɛi | -lɛ:u

'Brother Daeng, you can walk, now.'

Utterance B: -nɔ:ŋ | dɛ:ŋ | dʌ:n `dɛi | -lɛ:u

'Brother Daeng can walk, now.'

Ex. 2 dɛ:ŋ ,khɔ: hɔ:m \_nɔi

Utterance A: | dɛ:ŋ |     ,khɔ | ,hɔ:m | \_nɔi

'Daeng, may I give you a kiss?'

Utterance B: | dɛ:ŋ ,khɔ | ,hɔ:m | \_nɔi

'Daeng asked if she could kiss Noi'

2. Addressing some one to vs. Saying something without  
tell something addressing anyone

Ex. 1    `mɛ: -na:m -jʌ? tɕəŋ

Utterance A:    | `mɛ: |    | -na:m | -jʌ? | tɕəŋ  
                   'Mother, there is a lot of water.'

Utterance B:    `mɛ | -na:m | -jʌ? | tɕəŋ  
                   'There are many rivers.'

Ex. 2    -tha? ,ha:n rwə ma:

Utterance A:    thə | ,ha:n |    | rwə | ma:  
                   'Soldiers, the boat is coming.'

Utterance B:    thə | ,ha:n | rwə | ma:  
                   'A member of the navy is coming.'

3.    2 verb phrases                    vs.            1 verb phrase

Ex. 1    `tha: pai -khit `wa: -tɕə? \_ju: \_sək dwən \_nʌŋ

Utterance A:    `thə pai |    | -khit `wə tɕə | \_ju: -sək | dwən | \_nʌŋ  
                   'If I went, I (thought I) would stay for one month.'

Utterance B:    `thə pəi | -khit `wə tɕə | \_ju: -sək | dwən | \_nʌŋ  
                   'If you think about staying for a month...'

Ex. 2    tɕhʌ:n \_pra? tɕha: tɕhon -tɕhak -lɛ? \_pra? \_dap thoŋ `tɕha:t

Utterance A:    | tɕhʌ:n prə | tɕha: | tɕhon | -tɕhak |    | -lɛ prə \_dap  
                   | thoŋ | `tɕha:t  
                   'to encourage people to have muscular spasms and to  
                   decorate their places with flags.'

Utterance B:    | tɕhʌ:n prə | tɕha: | tɕhon | -tɕhak -lɛ prə | -dap  
                   | thoŋ | `tɕha:t  
                   'to encourage people to raise the flag.'

4.    2 separate items                    vs.            1 single item

Ex. 1    mi: -na:m `phʌŋ -lɛ? pla:

Utterance A: mi | -na:m | ^ | ^phwŋ | ( ^ -lɛ | pla:)

'There are water, bees and fish.'

Utterance B: mi-nəm | ^phwŋ | ( ^ -lɛ | pla:)

'There is honey and fish.'

Ex. 2 -ma:i kha:n -lɛ? ,sau -hak

Utterance A: | -ma:i | ^ | kha:n | ( ^ -lɛ | ,sau | \_hak)

'A piece of wood, a horizontal beam and a pole broke.'

Utterance B: -məi | kha:n | ( ^ -lɛ | ,sau | \_hak)

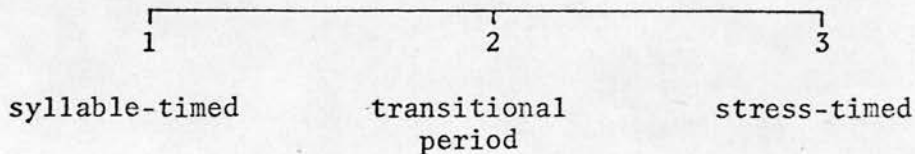
'A bamboo pole used for carrying loads on the shoulder and a pole broke.'

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Chapter 10: The Rhythm of Thai

1. The transitional period from a syllable-timed to stress-timed rhythm

It has been known that there are two kinds of speech rhythm-- syllable-timed and stress-timed. Every language of the world is spoken with one kind of rhythm, not both. (See Pike 1946 and Abercrombie 1968.) Is the dichotomy, i.e. syllable timing vs. stress timing, sufficient for describing the rhythm of every language of the world?<sup>1</sup> Regarding rhythm in Thai, I am reluctant to say that it is one or another. It fluctuates between the two divisions, i.e. sometimes a syllable-timed rhythm is used, and sometimes a stress-timed type is used. It depends upon the styles of speech and the preference of each speaker. Therefore, instead of two, we might need three divisions:



(Syllable-timed and Stress-timed)

By means of the above divisions, it can be said that a language like

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<sup>1</sup>Ladefoged (1975: 222) comments:

Perhaps a better typology of rhythmic differences among languages would be to divide languages into those that have variable word stress (such as English and German), those that have fixed word stress (such as Czech, Polish and Swahili), and those that have fixed phrase stress (such as French). This is, however, another area in which phoneticians must do more research.... There are many languages that do not seem to fit into any of these divisions.

Thai belongs to the second category.<sup>2</sup> I believe that, historically, ancient Tai was a syllable-timed language when the language was monosyllabic and simple (grammatical words were not rich). In reading the oldest inscription on stone, which was inscribed during the reign of King Ramakhamhaeng of Sukhothai (about 1283 A.D.), one can not avoid using a syllable-timed rhythm. This is because of the language used in the inscription. It may be described as a kind of prose that is full of the repetition of words; grammatical words, such as conjunc-

<sup>2</sup>We must accept the fact that we do not know much about rhythms in oriental languages. So far, Japanese has been said to be a syllable-timed language, and according to Pike (1970), Newari, Chepang, Gurung and Tamang, Tibeto-Burman languages spoken in Nepal have stress-timing. Pike discusses the characteristics of rhythmic feet and the rôle of nuclei (saliences) of feet in the analysis of tone in these languages. He says that a foot is present in all the languages mentioned above. The foot is somewhat isochronic, with a number of syllables variable, while time is constant. In a fast speech, two feet which occur in a slower speech may fuse to one. The salience of the foot is often made prominent by loudness and length. (See details in Pike, 1970, pp. 153-164.) The claim that Newari has a syllable-timed rhythm is confirmed by Tej Kansakar, a native speaker of Newari (personal communication).

From Ronald Morse's paper on rhythm in Chomi Lisu (private circulation), Chomi Lisu seems to be a syllable-timed language. He made the spectrographic measurements of the durations of the syllables occurring in the story, "How the Lisu Lost Their Script" to support his claim (time in seconds, ... = pause):

a	nɔ̃	tsho	ɕʒ	a	dʒʒ	te	...	vɥ <sup>o</sup>	sa	ni	...	tho	yw	gv <sup>o</sup> a		
.15	.26	.28	.26	.26	.26	.46		.20	.29	.26	.26	.29	.19	.30		
tha	...	li	sv <sup>o</sup>	te	gyw	gv <sup>o</sup>	lao	ɕʒ	...	xwa	dʒʒ	phi	thi	ma	kwa	...
.34		.26	.29	.29	.26	.25	.27	.36		.25	.29	.26	.23	.24	.44	
bo	go?	la	sʒ	...	mw	tsha	lɔ̃	ña	ma	kwa	...	a	na	la	sʒ	
.26	.23	.23	.35	.33	.18	.33	.26	.26	.26	.38		.14	.22	.24	.29	
dza	ji	ni	...	phi?	ʒio	ɕʒ	na	...	be	ni	tɕa	tɕi?a	dzo			
.27	.17	.35		.23	.24	.25	.64		.23	.22	.25	.31	.26			

Translation: Long long ago, when God was giving all the tribes of the world their scripts, the Lisu were also given a script. It was written for them on an animal skin, so they put it out in the sun to dry. While it was drying, a group of dogs came, and finding the skin, ate it. That is the legend of how the Lisu lost their (original) script.

tions, prepositions and adverb-auxiliaries, are rarely used. There are no elaborate expressions, most of the sentences are short and simple (not flowery). For example:

เมื่อชั่วพ่อกู กูบำเรอแก่พ่อกู กูบำเรอแก่แม่กู กูได้ตัวเนื้อตัวปลา กูเอามาแก่พ่อกู  
 กูได้หมากส้มหมากหวานอันใด กินอร่อย กินดี กูเอามาแก่พ่อกู กูไปตีหนังวังช้างได้  
 กูเอามาแก่พ่อกู กูไปที่บ้านที่เมือง ได้ช้างได้งวง ได้บัวได้นาง ได้เงินได้ทอง กูเอามา  
 เวนแก่พ่อกู พ่อกูตาย ยั้งพี่กู กูพรำบำเรอแก่พี่กู ตั้งบำเรอแก่พ่อกู พี่กูตาย จึงได้เมืองแก่  
 กูทั้งกลม<sup>3</sup>

`mwe `tshue `pho: ku: ...<sup>4</sup> ku: bam rx:<sup>5</sup> \_kɛ: `pho: ku: ... ku:  
 bam rx: \_kɛ: `mɛ: ku: ... ku: `da:i tuə-nwə tuə pla: ku: ?au ma:  
 \_kɛ: `pho: ku: ... ku: `da:i \_ma:k `som \_ma:k ,wa:n ?an dai ... kin  
 ?a-rɔi ... kin di: ... ku: ?au ma: kɛ: `pho: ku: ... ku: pai ti:  
 ,nəŋ wəŋ -tɕha:ŋ `da:i ... ku: ?au ma: \_kɛ: pho: ku: ... ku: pai  
 `tho: `ba:n `tho: mweŋ `da:i -tɕha:ŋ `da:i ɲuəŋ ... `da:i -puə  
 `da:i na:ŋ ... `da:i ɲɔn `da:i tho:ŋ ... ku: ?au ma: we:n  
 \_kɛ: `pho: ku: ... `pho: ku: ta:i ... jaŋ `phi: ku: ... ku: `phram  
 bam rx: \_kɛ: `phi: ku: ...-daŋ bam rx: \_kɛ: `pho: ku: ... `phi:  
 ku: ta:i ... -tɕwəŋ `da:i mweŋ \_kɛ: ku: -thaŋ klom ...

'During my father's reign, I served and entertained both my father and my mother. I always brought them nice meat, fish and fruits. When I won in a war, I always brought back valuable plunder, e.g. elephants, slaves, silver and gold, I presented all

<sup>3</sup>The extract is from The History of (Thai) Literature and the Principle of Versification by Vilavarn, 1968, p. 17.

<sup>4</sup>... = pause or silent syllable

<sup>5</sup>bam rx: = disyllabic word (Khmer origin).

to my father. After my father died, my brother succeeded<sup>e to</sup> the throne; I did the same for him. When my brother died, then, I became king and possessed everything.'

About the 14th century, after the fall of the Sukhothai Kingdom, Ayudhaya became the second kingdom of the Thais in the Indochina Peninsula. Because of the wars and invasions in India, a lot of Dravidian scholars had left the country and fled to Southeast Asia. They also brought with them their culture. Many of them became 'gurus' or 'teachers' in the Thai court. As a result, the simple way of life became more and more sophisticated. The kings were no longer the fathers of their people, but the rulers who possessed divine right. Buddhism, which had been a philosophy of life, became a mixture of Buddhism, Hinduism and Brahminism, which was full of sophisticated rituals and ceremonies. A large number of Pali and Sanskrit polysyllabic words had been imported into Thai. It was considered elegant among scholars and well-educated people to use a kind of flowery language which was full of superfluous Pali and Sanskrit loan words. Shortly, being pedantic was very fashionable. Some of the pieces of literary work written in this period are not very readable. I feel that I have to use a stress timed rhythm when I read them; otherwise, I find them monotonous, boring and unpleasant. Some superfluous and unnecessary words or syllables must be made less noticeable by making them short and less loud by means of unstressing them.

The passage given below is an example of what can be called "a flowery language". It is an extract from สลิลโองการขนงน้ำ [-li? -lit ʔo:ŋ ka:n `tʃhɛ:ŋ -na:m] which was written in the early 14th century

by a Brahmin who had to perform the ceremony of swearing an oath of allegiance to the divine king. The whole book was read out loudly during the ceremony. This particular extract is an address to one of the three Hindu gods who is called "Narayana" in Thai literature:

It is written in an old form of verse called ร่ายโบราณ [*'ra:i bo: ra:n*] which may be described as "prose having rhymes", i.e. the last syllable of a preceding metrical section must rhyme with one of the syllables in the next section.

(Each section is supposed to contain 5 syllables which is not true here.)<sup>6</sup>

โอมสิทธีสรวงศรีเกล้า แผ้วมฤตยู เอาจูเป็นแท่น แก่วนกสินฟ้ากสินดิน  
 ปินเอาครุฑมาขี่ สีมือถือสังข์จักรธรรณี ภิรวอดตาร อสุรแลงลายพิภพชาติภพนิยาย<sup>7</sup>

|ʔo:m | \_sit thi | ,suəŋ | ,si: | `kle:u | ^ | `pʰe:u mə -rw te  
 |ju: | ^ əu | ŋu: pen | `then | ^ | \_kwen | klw:n | -fa:  
 |klw:n | din | ^ | pi:n əu | -khrut mə | \_khi: | ^ | \_si:  
 |mw: | ,thw: | ,səŋ | -tɕak khə | tha: thə rə | ni: | ^ | phi:  
 | -raʔə wə | ta:n | ^ ə su | -raʔ | lɛ:ŋ | la:n | -thak  
 |,kha: | ^ | -thak khi | na: tɕə rə | na:i | ^ |

'Oh, the Mighty God, who conquers death, who has a big snake curling around as his seat, who swallows the sky and the earth, who

<sup>6</sup> ... ʔo:m \_sit -thi? ,suəŋ ,si: `kle:u ... 6 syllables  
 ... `pʰe:u \_ma? \_rwət \_tha? ju: ... 5 syllables  
 ... ʔau ŋu: pen `then ... 4 syllables  
 ... \_kwen klw:n -fa: klw:n din ... 5 syllables  
 ... pi:n ʔau -khrut ma: \_khi: 5 syllables  
 ... \_si: mw: ,thw: ,səŋ \_tɕak -kha? tha: thə: -ra? ni:...10 syllables  
 ... phi: -ra? \_ʔa? -wa? ta:n ... 5 syllables  
 ... ʔa? \_su? -ra? lɛ:ŋ la:n -thak ,kha: ... 7 syllables  
 ... -thak \_khi? na: \_tɕə? -ra? na:i ... 6 syllables

<sup>7</sup> Vilavarn, loc. cit. p. 29. The underlining, which is my own, indicates Pali or Sanskrit loanwords.

has the Garuda (a mythical bird) as his vehicle, the one whose four hands carrying a couch, a discus, a sceptre, and the earth, the one who defeats devils...'

The next passage is from the episode called มหาพน [mə ,ha: phon] from เวสสันดรชาดก ['we:t ,sən do:n t̃ha: \_dok] which was a ร่ายยาว ['ra:i ja:u]<sup>8</sup> written in 1807 A.D. (during the reign of King Rama I of Ratanakhosin). The extract is a description of the sacred pond named มุจลินท์ [-mut \_t̃sə lin]. The language used is very flowery:

อุกรมหาพราหมณ์ผู้ประพฤติพรตพรหมจรรยา เราจะพรรณนาถึงสระศรีอันมีอยู่แทบ  
พระอาศรมทิวาวาส แห่งสมเด็จพระบรมบาทพิตรพิชิตพิชัยเฉลิมขาวเชตุครราชธานี  
มีนามมุจลินท์สินธุสระสนาน สี่เหลี่ยมเขี่ยมไปด้วยชลธารขลุโลก เทียบเทียมนิพศุขยจินดา  
ดวงอุสสะอาด เย็นยะเยือกหยาดอย่างอมฤตวารี ฯ<sup>9</sup>

[du: kə rə mə | ,ha: | phra:m | `phu:prə | -phrut | -phrot | phrom  
mə | t̃sən | ja: | ^ | rau t̃sə | phan nə | na: | ,thwŋ | \_sa? | ,si:  
| ^ ən | mi: \_ju | `thē:p -phrə | ?a: | ,som si | wa: | `wa:t |  
| \_həŋ ,som | \_det -phrə bə | rom mə | \_ba:t bə | -phit -phi | -t̃hit  
-phi | t̃hai t̃hə | ,l̃x:m | t̃ha:u | t̃hē: tu | do:n | `ra:t t̃hə  
| tha: | ni: | ^ | mi: | na:m | -mut t̃sə | lin thə | ,sin thu | \_sa?  
sə | ,na:n | ^ | \_si: | \_liəm | \_piəm pəi | `duəi t̃hə lə | tha:n t̃hə  
| lo: | -thok | `thiəp | thiəm | phai | thu: rə -jə | t̃əin | da: | duəŋ  
du | ,sai sə | \_?a:t | ^ | jen jə | `jwək | \_ja:t | \_ja:ŋ ə mə  
| -rit t̃ə | wa: | rin | ^ |

'Listen, Brahmin, you who keep your soul purified, I shall describe to you a pond near the hermitage of the Great King of the

<sup>8</sup>ra:i ja:u is a type of old prose that has a rhyme scheme. See details in Chapter 11, Part III, under 'ra:i (pp. 255)

<sup>9</sup>Vilavarn, loc. cit. p. 137.

people of Chetudorn. The name of the pond is Mutjalín. It is a square pond full of water which is as clear as crystal and as cool as heavenly water.'

There are numerous polysyllabic words in modern Thai. The majority of them are Indic (especially Pali and Sanskrit) loanwords;<sup>10</sup> they are considered learned words. Because of international trades and modern technology, a large number of foreign words from both western and oriental languages have been imported into Thai. Here are some examples.<sup>11</sup>

ชาละเป่า	[sələ'pau]	'a kind of Chinese dumpling'	(Chinese)
กะละปังหา	[kələ'paŋ',ha:]	'coral'	(Malay)
เจียรไน	['tɕiə rə'nai]	'to cut diamonds, jewels, crystal	(Malay)
ปะวะหล้า	[pəwə'_lam]	'a type of jewelry'	(Tamil)
ตรีขัณฑ์	['tri:'jəm pə 'wa:i]	'a ceremony'	(Tamil)
คาราวาน	[khərə'wa:n]	'caravan'	(Persian)
กุหลาบ	[ku'_la:p]	'rose'	(Persian)
น้ำมะเน็ต	['-na:m mə '-net]	'lemonade'	(English)
ตอร์ปิโด	['tɔ: pi 'do:]	'Torpedo'	(English)
สัมมนา	[',sam mə 'na:]	'seminar'	(English)

To suit the need of modern civilization, some of the polysyllabic words have been recently coined from both Thai and Indic origins by specialists in different fields, e.g. mass communication, politics, economics, medicine, linguistics, and so forth. The following are some examples:

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<sup>10</sup> See Gedney (1947) and Henderson (1951)

<sup>11</sup> Phongphaiboon, The Structure of Thai Language (in Thai), 1970 pp. 14-19.

โทรทัศน์	[ 'tho: rə '-that ]	'television'
ภาพยนตร์	[ 'pha:p phə 'jon ]	'cinema'
สหประชาชาติ	[ sə '_ha? prə 'tʃha: 'tʃha:t ]	'the United Nations'
สาธารณรัฐ	[ 'sa: thə rə '-na? '-rat ]	'the Republic of ...'
ประชาธิปไตย	[ prə 'tʃha: -thi pə 'tai ]	'democracy'
ระเบิดปรมาณู	[ ra '_bɜ:t pə rə mə 'nu: ]	'atomic bomb'
มะเร็งในเม็ดโลหิต	[ mə 'rɛŋ nɛi '-met lo '_hit ]	'leukemia'
ไวยากรณ์ परिवรรต	[ 'wai jə 'kɔ:n pə ri '-wat ]	'transformational grammar'

Although polysyllabic words constitute a portion of the Thai lexicon, the basic vocabulary of Thai is still monosyllabic. In general, children use not only simple words but also a simple grammatical structure (NP + VP). This is an explanation why they tend to use a syllable-timed rhythm. On the other hand, an adult's language is very redundant. Sophisticated adults have a tendency to use 'big words' and long complex sentences, especially when they want to be formal and elegant. Their language is full of elaborate expressions, unnecessary structure words, the repetition of words having similar or identical meanings, loanwords and modern coined words. In order to draw the listener's attention to particular points in a stream of speech which are the important semantic clues, some syllables must be made prominent. This can be achieved by means of stressing them. As a result, the unstressed syllables become short in order to keep time. The following extract<sup>12</sup> is from the speech made by Field Marshal Thanom Kittikajorn in memory of Mr. Malai Chupinit who was a very well-known contemporary writer and journalist. (The symbol # indicates word

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<sup>12</sup>Vilavarn, loc. cit. p. 357

boundaries; the Indic loanwords are underlined.)

# ,khɔ: # de: -tʃha? # -phra? si: -rat \_ta? -na? trai # -le? #  
\_ku? ,son # ,phon -la? bun # khun -na? tham # khwa:m di: # `thi  
 # khun # ma:lai # `da:i # tham # -wai #

,khɔ: 'to ask for (something), to beg, to require'

de:-tʃha? 'power, might'

khun 'the virtues (of)'

-phra? si:-rat\_ta?-na? trai 'the three gems of Buddhism; Buddha, his  
 teaching and his disciples (Bhikkus)'

-le? 'and'

\_ku? ,son 'good deeds, merits'

,phon-la? bun 'the results of virtues'

khun -na? tham 'virtue, goodness; moral principles'

khwa:m di: 'virtue, goodness (noun compound)'

`thi: 'which, that'

khun 'title used before the first names of both men and women'

ma:lai 'a name, meaning garland of flowers.'

`da:i 'adverb auxiliary, indicating past tense'

tham 'to make, to do'

-wai 'up, away (secondary verb)

The whole passage simply means "May the virtues and the good deeds that Mr. Malai did in the past...". There are, at least, five words which mean almost the same thing, i.e. virtue or goodness. The presence of some words are not necessary at all; in fact, they are rather excessive. However, the technique of using big words and rhyming (e.g. ,son and ,phon, bun and khun, tham and khwa:m) makes the

speech sound flowery and elegant. This is considered "a beautiful speech" by the scholars of the Thai language. In reading or reciting this long utterance, one has to use a stress-timed rhythm; otherwise, it will be very long, monotonous and dull. This is the way I would do it, if I had to recite this speech:

| ^ ,kʰo de | -tʰaʔ | khun phrə | ,si: | -rat tə -nə | trai | ^  
 -lɛ ku | ,son | ,phon lə | bun | khun nə | tham | kwa:m | di: | ^ `thi | khun  
 mə | lai `dɔi | tham | -wai | ^ |

In comparison with English, Thai is not a genuine stress-timed language. It has been illustrated earlier that phrase-level stress and phonological pause can be significant sometimes; however, it is on a small scale, and a Thai speaker may ignore them completely by using extra words instead of stress vs. unstressed or contrastive syllable quantities. The use of contrastive rhythmic patterns is limited to some social classes and age groups. We may need a trichotomy: syllable-timed rhythm (e.g. Lisu), syllable-stress-timed rhythm (e.g. Standard Thai) and stress-timed rhythm (e.g. English), instead of a sharp cut between syllable-timed and stress-timed types. The use of the two kind of rhythms in Thai speech seems to fluctuate to a certain extent. Besides the different styles of speech, it also depends upon the preference of each individual speaker. Generally I prefer using a stress-timed rhythm to a syllable-timed rhythm because I feel that I can convey better not only the linguistic meaning but also my feelings and attitudes. However, when I have to talk Thai to a group of people which is composed of Thai adults, Thai children and foreigners who understand Thai, I usually switch back and forth, i.e. a stress-timed

rhythm to the Thai adults and a syllable-timed rhythm to the rest of the group. I tend to use the syllable-timed rhythm when I want to talk slowly and clearly. It may be argued that I emphasize or stress every single syllable. Usually, I try to avoid doing that because some people may take it as an insult. It is like saying, "You stupid ones, listen to me carefully." Being rude and impertinent is considered very bad in Thai culture. Moreover, using "reinforced-chestpulses" all the time can make one tired and exhausted. The two problems, then, can be solved by using a syllable-timed rhythm. This means that I will be able to make my speech clear as well as avoid offending the listener.

## 2. Syllable quantities in rhythmic units

At an abstract level, all rhythmic units in Thai may be said to possess the time-values of 3 time-units, or in other words, they are approximately equal subjectively. Instrumentally measured, rhythmic feet are not equal as shown in Chapter 7, Part II. They range from .2 to .6 second. I would like to propose a new solution: the underlying rhythmic feet can be said to be approximately equal, even though they are not likely to be that way in actual speech in the phonetic representation. The derived syllable quantities can be predicted by a set of rules. When syllable-timed rhythm is used, one syllable is by itself one rhythmic unit, thus, it contains 3 time-units. In actual pronunciation, the 3-time-unit rhythmic units will be realized as containing 2-time-units, 3-time-units, 4-time-units and 5-time-units which will depend upon their positions in an utterance. Let us say 1-time unit is about .10 second in an utterance in moderate tempo. A set of four rules can be made as follows:



-tɕa?    -tɕap    khrai    kin    `hai    -mot ... thɣ:    khuən    `ri:p    -klap  
           3           3           3           3           3           3           3           3           3           3           3  
 `ba:n ... -ʔɛ:p    `hai    di:    -na? ... -ja:    `hai    ,khou    ,hen  
           3           3           3           3           3           3           3           3           3           3  
 `da:i    lɣi    thi:    diəu ... -tɕa?    `da:i    -plo:t    phai ...  
           3           3           3           3           3           3           3           3           3           3  
 `tha:    ,khou    ,hen    thɣ:    `khou    -la?    `kɔ: ... thɣ:    khon  
           3           3           3           3           3           3           3           3           3  
 -tɕa?    `jɛ:    `nɛ: ... -kra?    -ta:i    -no:i    -tɔ:p ...  
           3           3           3           3           3           3           3

"It is true. I have seen it with my own eyes. He looked starving, and he wanted to eat us all. You should go back home quickly and hide yourself well. Don't let him see you so that you will be safe. If he saw you, you would be in danger," the little rabbit answered.

After the rules of syllable quantities have been applied, the phonetic representation can be expected to be as follows:

tɕiŋ    tɕiŋ    `na    si: ... -tɕhan    ,hen    -kap    ta:    lɣi  
           2           3           2   4   3           2           3           2   3   2  
 thi:    diəu ... du:    `tha:    tha:ŋ    -khou    ,hiu    -tɕat ... -lɛ  
           2           4   3           2           2           3           2           3           3           2  
 -ja:k    tɕa    -tɕap    khrai    kin    `hai    -mot ... thɣ:    khuən  
           3           2           3           3           3           2           3   3           2           2  
 `ri:p    -klap    `ba:n ... ʔɛ:p    `hai    di:    -na ... -ja:    `hai  
           3           3           4   3   2           2           3           3   3           2           2  
 -khou    ,hen    `da:i    lɣi    thi:    diəu ... -tɕa    `da:i    -plo:t  
           2           3           2           2   2           4   3           2           2           3  
 phai ...    `tha:    -khou    ,hen    thɣ:    `khou    la    `kɔ: ... thɣ:  
           4   3           2           2   3           2           2   2   4   3           2  
 khon    tɕa    `jɛ:    `nɛ: ... kra    -ta:i    -no:i    -tɔ:p ...  
           2           2           3           4   3           2           3           3           4   3

Perhaps it may be possible to postulate the same kind of rules

when a stress-timed rhythm is used. At an abstract level, it does not matter how many syllables the rhythmic feet contain, each rhythmic unit possesses the time-value of 3 time-units. The relative syllable quantities in each type of foot are as follows:

$$\begin{aligned} | S | &= 3 \\ | S W | &= 2 : 1 \\ | S W W | &= 1\frac{1}{2} : \frac{3}{4} \frac{3}{4} \\ | S W W W | &= 1 : \frac{2}{3} \frac{2}{3} \frac{2}{3} \end{aligned}$$

1. 1-syllable foot (neutral foot)

Rule 1. Length 3 → Length 2 when the foot is in utterance-initial position (immediately after a pause).

Rule 2. Length 3 → Length 4 when the foot is in utterance-final position (before a pause) and does not have the CVS structure.

Rule 3. Length 3 → Length 5 when the foot occurs in the same environment as in Rule 2; the extra length helps the utterance to sound more pleasant and smooth.

Rule 4. Length 3 → Length 3 when the foot occurs elsewhere.

2. 2-syllable foot

Rule 5. Length 2:1 → Length 2:2 when a.) the salient syllable has the structure CVS; b.) the salience is a silent salience and the weak element is the first element of a compound or reduplication that does not have the syllable structure CVS; c.) both the salient and weak elements

are grammatical words.

Rule 6. Length 2:1  $\rightarrow$  Length  $2\frac{1}{2} : 1\frac{1}{2}$  when a disyllabic foot has another type of internal composition and Rule 5 can not be applied.

### 3. 3-syllable foot

Rule 7. Length  $1\frac{1}{2} : \frac{3}{4} \frac{3}{4}$   $\rightarrow$   $1\frac{2}{3} : 1\frac{2}{3} 1\frac{2}{3}$  when a.) the salience has the syllabic structure CVS; b.) the salient syllable is in utterance-initial position (immediately after a pause); c.) the salience is a grammatical word and the weak elements are two grammatical words or a grammatical word and a linker-syllable.

Rule 8. Length  $1\frac{1}{2} : \frac{3}{4} \frac{3}{4}$   $\rightarrow$   $2\frac{1}{2} : 1\frac{1}{4} 1\frac{1}{4}$  when a trisyllabic foot has another type of internal composition where Rule 7 cannot be applied.

### 4. 4-syllable foot

Rule 9. Length 1 :  $\frac{2}{3} \frac{2}{3} \frac{2}{3}$   $\rightarrow$  Length  $1\frac{1}{2} : 1\frac{1}{2} 1\frac{1}{2} 1\frac{1}{2}$  when the salient syllable has the syllabic structure CVS.

Rule 10. Length 1 :  $\frac{2}{3} \frac{2}{3} \frac{2}{3}$   $\rightarrow$  Length 2: 1 2 1 when the second weak element has the syllabic structures CV:C (e.g. [tha:ŋ] , etc.) or CV:V (e.g. [ˈda:i] [kɰ:i] etc.)

Rule 11. Length 1 :  $\frac{2}{3} \frac{2}{3} \frac{2}{3}$   $\rightarrow$  Length 2 :  $1\frac{1}{3} 1\frac{1}{3} 1\frac{1}{3}$  when a 4-syllable foot has another type of internal composition when Rules 9 and 10 cannot be applied.

The following is an example of how the rules above may be applied. The extract is the last paragraph of the speech made by Field Marshal Thanom Kittikajorn in memory of Mr. Malai Chupinit. The order of the presentation will be: the transcription showing the abstract rhythmic patterns and syllable quantities, the translation of the text and the transcription indicating rhythmic patterns and relative syllable quantities which are expected to find in actual speech.

$\left  \begin{array}{c} \hat{1} \\ 1\frac{1}{2} \end{array} : \begin{array}{c} 3 \\ 4 \end{array} \right  \begin{array}{c} \text{'kha:} \\ 3 \end{array} \begin{array}{c} \text{-pha?} \\ 3 \\ 4 \end{array} \left  \begin{array}{c} \text{'təau} \\ 2 \end{array} : \begin{array}{c} \text{-ru:} \\ 1 \end{array} \right  \begin{array}{c} \text{-swk} \\ 3 \end{array} \left  \begin{array}{c} \text{'sau} \\ 2 \end{array} : \begin{array}{c} \text{-sa?} \\ 1 \end{array} \right  \begin{array}{c} \text{-lot} \\ 1\frac{1}{2} \end{array} :$
$\begin{array}{c} \text{-lɛ?} \\ 3 \\ 4 \end{array} \begin{array}{c} \text{ʔa:} \\ 3 \\ 4 \end{array} \left  \begin{array}{c} \text{lai} \\ 3 \end{array} \right  \begin{array}{c} \hat{2} \\ 2 \end{array} : \begin{array}{c} \text{nai} \\ 1 \end{array} \left  \begin{array}{c} \text{ka:n} \\ 1\frac{1}{2} \end{array} : \begin{array}{c} \text{thun} \\ 3 \\ 4 \end{array} \begin{array}{c} \text{-kɛ:} \\ 3 \\ 4 \end{array} \left  \begin{array}{c} \text{mɔ:} \\ 1\frac{1}{2} \end{array} : \begin{array}{c} \text{-ra?} \\ 3 \\ 4 \end{array} \begin{array}{c} \text{-na?} \\ 3 \\ 4 \end{array}$
$\left  \begin{array}{c} \text{kam} \\ 2 \end{array} : \begin{array}{c} \text{,khɔ:ŋ} \\ 1 \end{array} \right  \begin{array}{c} \text{khun} \\ 2 \end{array} : \begin{array}{c} \text{ma:} \\ 1 \end{array} \left  \begin{array}{c} \text{lai} \\ 1\frac{1}{2} \end{array} : \begin{array}{c} \text{pen} \\ 3 \\ 4 \end{array} \begin{array}{c} \text{ʔan} \\ 3 \\ 4 \end{array} \left  \begin{array}{c} \text{'ma:k} \\ 3 \end{array} \right  \begin{array}{c} \hat{2} \\ 2 \end{array} : \begin{array}{c} \text{-lɛ?} \\ 1 \end{array}$
$\left  \begin{array}{c} \text{,khɔ:} \\ 2 \end{array} : \begin{array}{c} \text{-sa?} \\ 1 \end{array} \right  \begin{array}{c} \text{dɛ:ŋ} \\ 3 \end{array} \left  \begin{array}{c} \text{khwa:m} \\ 2 \end{array} : \begin{array}{c} \text{,siə} \\ 1 \end{array} \right  \begin{array}{c} \text{təai} \\ 2 \end{array} : \begin{array}{c} \text{-tɔ:} \\ 1 \end{array} \left  \begin{array}{c} \text{'khrɔ:p} \\ 3 \end{array} \right  \begin{array}{c} \text{khrue} \\ 2 \end{array} :$
$\begin{array}{c} \text{,khɔ:ŋ} \\ 1 \end{array} \left  \begin{array}{c} \text{khun} \\ 2 \end{array} : \begin{array}{c} \text{ma:} \\ 1 \end{array} \right  \begin{array}{c} \text{lai} \\ 3 \end{array} \left  \begin{array}{c} \hat{1} \\ 1\frac{1}{2} \end{array} : \begin{array}{c} \text{'duəi} \\ 3 \\ 4 \end{array} \begin{array}{c} \text{-na:m} \\ 3 \\ 4 \end{array} \left  \begin{array}{c} \text{,sai} \\ 2 \end{array} : \begin{array}{c} \text{təai} \\ 1 \end{array} \right  \begin{array}{c} \text{təiŋ} \\ 3 \end{array} \left  \begin{array}{c} \hat{1} \\ 1\frac{1}{2} \end{array} \begin{array}{c} \text{,khɔ:} \\ 3 \\ 4 \end{array}$
$\begin{array}{c} \text{de:} \\ 3 \\ 4 \end{array} \left  \begin{array}{c} \text{-təha?} \\ 3 \end{array} \right  \begin{array}{c} \text{khun} \\ 2 \end{array} : \begin{array}{c} \text{-phra?} \\ 1 \end{array} \left  \begin{array}{c} \text{,si:} \\ 3 \end{array} \right  \begin{array}{c} \text{-rat} \\ 1\frac{1}{2} \end{array} : \begin{array}{c} \text{-ta?} \\ 3 \\ 4 \end{array} \begin{array}{c} \text{-na?} \\ 3 \\ 4 \end{array} \left  \text{tra:} \right  \begin{array}{c} \hat{1} \\ 1\frac{1}{2} \end{array} : \begin{array}{c} \text{lɛ?} \\ 3 \\ 4 \end{array} \begin{array}{c} \text{-ku?} \\ 3 \\ 4 \end{array}$
$\left  \begin{array}{c} \text{,son} \\ 3 \end{array} \right  \begin{array}{c} \text{,phon} \\ 2 \end{array} : \begin{array}{c} \text{-la?} \\ 1 \end{array} \left  \begin{array}{c} \text{bun} \\ 3 \end{array} \right  \begin{array}{c} \text{khun} \\ 2 \end{array} : \begin{array}{c} \text{-na?} \\ 1 \end{array} \left  \begin{array}{c} \text{tham} \\ 3 \end{array} \right  \begin{array}{c} \text{khwa:m} \\ 3 \end{array} \left  \begin{array}{c} \text{di:} \\ 2 \end{array} : \begin{array}{c} \text{thi:} \\ 1 \end{array}$
$\left  \begin{array}{c} \text{khun} \\ 2 \end{array} : \begin{array}{c} \text{ma:} \\ 1 \end{array} \right  \begin{array}{c} \text{lai} \\ 2 \end{array} : \begin{array}{c} \text{'da:i} \\ 1 \end{array} \left  \begin{array}{c} \text{tham} \\ 2 \end{array} : \begin{array}{c} \text{-wai} \\ 1 \end{array} \right  \begin{array}{c} \hat{2} \\ 2 \end{array} : \begin{array}{c} \text{-ta?} \\ 1 \end{array} \left  \begin{array}{c} \text{-lɔ:t} \\ 2 \end{array} : \begin{array}{c} \text{tɔn} \\ 1 \end{array}$
$\left  \begin{array}{c} \text{,phon} \\ 3 \end{array} \right  \begin{array}{c} \text{bun} \\ 2 \end{array} : \begin{array}{c} \text{-ja?} \\ 1 \end{array} \left  \begin{array}{c} \text{ra:} \\ 3 \end{array} \right  \begin{array}{c} \text{,si:} \\ 3 \end{array} \left  \begin{array}{c} \text{-thak} \\ 2 \end{array} : \begin{array}{c} \text{-si?} \\ 1 \end{array} \right  \begin{array}{c} \text{na:} \\ 1\frac{1}{2} \end{array} : \begin{array}{c} \text{-nu?} \\ 3 \\ 4 \end{array} \begin{array}{c} \text{-pa?} \\ 3 \\ 4 \end{array}$
$\left  \begin{array}{c} \text{tha:n} \\ 3 \end{array} \right  \begin{array}{c} \hat{1} \\ 1 \end{array} : \begin{array}{c} \text{thi:} \\ 2 \\ 3 \end{array} \begin{array}{c} \text{'than} \\ 2 \\ 3 \end{array} \begin{array}{c} \text{'təau} \\ 2 \\ 3 \end{array} \left  \begin{array}{c} \text{'pha:p} \\ 1\frac{1}{2} \end{array} : \begin{array}{c} \text{'da:i} \\ 3 \\ 4 \end{array} \begin{array}{c} \text{bam} \\ 3 \\ 4 \end{array} \left  \begin{array}{c} \text{phen} \\ 3 \end{array} \right.$
$\left  \begin{array}{c} \hat{1} \\ 1 \end{array} : \begin{array}{c} \text{tɔŋ} \\ 2 \\ 3 \end{array} \begin{array}{c} \text{pen} \\ 2 \\ 3 \end{array} \begin{array}{c} \text{-pat} \\ 2 \\ 3 \end{array} \right  \begin{array}{c} \text{təai} \\ 3 \end{array} \left  \begin{array}{c} \text{,nun} \\ 3 \end{array} \right  \begin{array}{c} \text{nam} \\ 3 \end{array} \left  \begin{array}{c} \hat{2} \\ 2 \end{array} : \begin{array}{c} \text{hai} \\ 1 \end{array} \right  \begin{array}{c} \text{duəŋ} \\ 2 \end{array} : \begin{array}{c} \text{win} \\ 1 \end{array}$



$\begin{array}{c} \text{,khɔŋ} \\ 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{khun mə} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 5 \\ \text{lai pen ɛn} \\ 2\frac{1}{2} : 1\frac{1}{4} 1\frac{1}{4} \end{array}$	$\begin{array}{c} 4 \\ \text{'ma:k} \\ 4 \end{array}$	$\begin{array}{c} 4 \\ \text{2}\hat{1}\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{-lɛ} \\ 1\frac{1}{2} \end{array}$				
$\begin{array}{c} 4 \\ \text{,khɔ} \\ 2\frac{1}{2} \end{array}$	$\begin{array}{c} : \\ \text{sə} \\ 1\frac{1}{2} \end{array}$	$\begin{array}{c} 3 \\ \text{de:ŋ} \\ 3 \end{array}$	$\begin{array}{c} 4 \\ \text{khwa:m ,siə} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{təai _tɔ} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 3 \\ \text{'khrɔ:p} \\ 3 \end{array}$				
$\begin{array}{c} 4 \\ \text{khruə} \\ 2\frac{1}{2} \end{array}$	$\begin{array}{c} \text{,khɔŋ} \\ 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{khun -mə} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{lai} \\ 4 \end{array}$	$\begin{array}{c} 5 \\ \text{'duə -nəm} \\ 2\frac{1}{2} : 1\frac{1}{4} 1\frac{1}{4} \end{array}$	$\begin{array}{c} 4 \\ \text{,sai} \\ 2\frac{1}{2} : \end{array}$				
$\begin{array}{c} \text{təai} \\ 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{təiŋ} \\ 4 \end{array}$	$\begin{array}{c} 5 \\ \text{2}\hat{1}\frac{1}{2} : 1\frac{1}{4} 1\frac{1}{4} \end{array}$	$\begin{array}{c} \text{,khɔ de} \\ 1\frac{1}{4} 1\frac{1}{4} \end{array}$	$\begin{array}{c} 3 \\ \text{-təha?} \\ 3 \end{array}$	$\begin{array}{c} 4 \\ \text{khun -phrə} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 3 \\ \text{,si:} \\ 3 \end{array}$			
$\begin{array}{c} \text{-rat} \\ 1\frac{2}{3} \end{array}$	$\begin{array}{c} 5 \\ \text{tə -nə} \\ 1\frac{2}{3} 1\frac{2}{3} \end{array}$	$\begin{array}{c} 4 \\ \text{trai} \\ 4 \end{array}$	$\begin{array}{c} 5 \\ \text{-lɛ ku} \\ 1\frac{1}{4} 1\frac{1}{4} \end{array}$	$\begin{array}{c} 3 \\ \text{,son} \\ 3 \end{array}$	$\begin{array}{c} 4 \\ \text{,phon lə} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 3 \\ \text{bun} \\ 3 \end{array}$			
$\begin{array}{c} 4 \\ \text{khun nə} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 3 \\ \text{tham} \\ 3 \end{array}$	$\begin{array}{c} 3 \\ \text{khwa:m} \\ 3 \end{array}$	$\begin{array}{c} 4 \\ \text{di:} \\ 2\frac{1}{2} \end{array}$	$\begin{array}{c} \text{'thi} \\ 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{khun mə} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$				
$\begin{array}{c} 4 \\ \text{lai} \\ 2\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{'dəi} \\ 1\frac{1}{2} \end{array}$	$\begin{array}{c} 3 \\ \text{tham} \\ 3 \end{array}$	$\begin{array}{c} 4 \\ \text{-wai} \\ 4 \end{array}$	$\begin{array}{c} 4 \\ \text{tə} \\ 2\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{-lɔ:t tson} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 3 \\ \text{,phon} \\ 3 \end{array}$			
$\begin{array}{c} 4 \\ \text{bun} \\ 2\frac{1}{2} \end{array}$	$\begin{array}{c} \text{jə} \\ 1\frac{1}{2} \end{array}$	$\begin{array}{c} 3 \\ \text{ra:} \\ 3 \end{array}$	$\begin{array}{c} 3 \\ \text{,si:} \\ 3 \end{array}$	$\begin{array}{c} 4 \\ \text{-thak si} \\ 2 : 2 \end{array}$	$\begin{array}{c} 5 \\ \text{na: -nu pə} \\ 2\frac{1}{2} : 1\frac{1}{4} 1\frac{1}{4} \end{array}$	$\begin{array}{c} 4 \\ \text{tha:n} \\ 4 \end{array}$	$\begin{array}{c} \text{'thi} \\ 2 \\ 1\frac{1}{3} \end{array}$		
$\begin{array}{c} 6 \\ \text{'thən} \\ 1\frac{1}{3} \end{array}$	$\begin{array}{c} \text{'təu} \\ 1\frac{1}{3} \end{array}$	$\begin{array}{c} 4 \\ \text{'pha:p} \\ 2\frac{1}{2} \end{array}$	$\begin{array}{c} \text{'dəi} \\ 1\frac{1}{2} \end{array}$	$\begin{array}{c} 3 \\ \text{bam} \\ 3 \end{array}$	$\begin{array}{c} 4 \\ \text{phen} \\ 4 \end{array}$	$\begin{array}{c} 6 \\ \text{2} : 1\frac{1}{3} \end{array}$	$\begin{array}{c} \text{təŋ} \\ 1\frac{1}{3} \end{array}$	$\begin{array}{c} \text{pen} \\ 1\frac{1}{3} \end{array}$	$\begin{array}{c} \text{-pət} \\ 1\frac{1}{3} \end{array}$
$\begin{array}{c} 3 \\ \text{təai} \\ 3 \end{array}$	$\begin{array}{c} 3 \\ \text{,nun} \\ 3 \end{array}$	$\begin{array}{c} 4 \\ \text{nam} \\ 4 \end{array}$	$\begin{array}{c} 4 \\ \text{2}\hat{1}\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} \text{'həi} \\ 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{duəŋ win} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 6 \\ \text{jə:n ɛn bə} \\ 2 : 1\frac{1}{2} 1\frac{1}{2} \end{array}$			
$\begin{array}{c} \text{ri} \\ 1\frac{1}{3} \end{array}$	$\begin{array}{c} 4 \\ \text{-sut} \\ 2 \end{array}$	$\begin{array}{c} \text{,khɔŋ} \\ 2 \end{array}$	$\begin{array}{c} 4 \\ \text{khun mə} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{lai pəi} \\ 2\frac{1}{2} : 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{-su:} \\ 2\frac{1}{2} \end{array}$	$\begin{array}{c} \text{-tə} \\ 1\frac{1}{2} \end{array}$	$\begin{array}{c} 4 \\ \text{su?} \\ 2 \end{array}$		

khe 2	3 _ti?	4 sə	_thit	5 _ju	_thi	6 -thip	phə	-jə	sə
	3	$2\frac{1}{2} : 1\frac{1}{2}$	$1\frac{2}{3} :$	$1\frac{2}{3}$	$1\frac{2}{3}$	$1\frac{1}{2} :$	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
4 _tha:n	phi	4 ma:n	nəi	4 _suəŋ	sə	4 _wan	4	$2\frac{1}{2} :$	$1\frac{1}{4}$
	$2\frac{1}{2} :$	$1\frac{1}{2}$	$2\frac{1}{2} :$	$1\frac{1}{2}$	$2\frac{1}{2} :$	$1\frac{1}{2}$	4	$2\frac{1}{2} :$	$1\frac{1}{4}$
prə	4 _sop	_tə	3 khwa:m	4 _suk	-wi	4 bu:n	lə	4 _phon	4
$1\frac{1}{4}$	2 :	2	3	2 :	2	$2\frac{1}{2} :$	$1\frac{1}{2}$	4	4
4 ^ nəl	3 _sam	4 pra:	jə	3 -phop	4 -thuk	prə	4 ka:n	^	^
$2\frac{1}{2} :$	$1\frac{1}{2}$	3	$2\frac{1}{2} :$	$1\frac{1}{2}$	3	2 :	2	4	^

### 3. Linguistic function of rhythm

Rhythm in Thai is linguistically significant. Two utterances containing the same lexical items, the same consonants, vowels and tones, can have different meanings when different rhythmic patterns and syllable quantities are assigned; for example, the sentence composed of the words 'phi:, ta:, dɛ:ŋ and -rɔ:ŋ can be said three ways and convey three different meanings:

$$1. \quad \left| \begin{array}{c} \text{phi:} \\ 3 \end{array} \right| \left| \begin{array}{c} \hat{2} \\ \text{ta:} \\ : 1 \end{array} \right| \left| \begin{array}{c} \text{dɛ:ŋ} \\ 3 \end{array} \right| \left| \begin{array}{c} \text{-rɔ:ŋ} \\ 3 \end{array} \right|$$

'Brother, Ta Daeng is crying.'

$$2. \quad \left| \begin{array}{c} \hat{2} \\ \text{'phi:} \\ : 1 \end{array} \right| \left| \begin{array}{c} \text{ta:} \\ 3 \end{array} \right| \left| \begin{array}{c} \hat{2} \\ \text{dɛ:ŋ} \\ : 1 \end{array} \right| \left| \begin{array}{c} \text{-rɔ:ŋ} \\ 3 \end{array} \right|$$

'Brother Ta, Daeng is crying.'

$$3. \quad \left| \begin{array}{c} \text{'phi: ta:} \\ 2 : 1 \end{array} \right| \left| \begin{array}{c} \text{dɛ:ŋ} \\ 3 \end{array} \right| \left| \begin{array}{c} \text{rɔ:ŋ} \\ 3 \end{array} \right|$$

'Ta Daeng's brother is crying.'

Utterances 1 and 2 contain four rhythmic feet, but they differ in internal composition--syllable quantities:

| 3 | 2:1 | 3 | 3 |      vs.      | 2:1 | 3 | 2:1 | 3 |

Utterance 3 differs from the other two utterances both in the number of rhythmic feet and syllable quantities. Therefore, there are three-way contrast: | 3 | 2:1 | 3 | 3 | vs. | 2:1 | 3 | 2:1 | 3 | vs. | 2:1 | 3 | 3 | . From the data that I have in my corpus, the main contrastive time-units seem to gather around 6 : 3, 6 : 6 and 6 : 9. The constant 6 time-units can have several combinations, but the combinations | 3 | 3 | , | 3 | 2:1 | , | 2:1 | 2:1 | and | 2:1 | 3 | seem to be the most frequent. Based on this fact, the rhythmic contrast of Thai can be said to have four patterns:

<u>Pattern I</u>	3   3   vs.	{	a.   2:1	}
			b.   2:1   3	}
			c.   3   3   3	}
<u>Pattern II</u>	3   2:1   vs.	{	a.   2:1	}
			b.   2:1   3	}
			c.   3   3   2:1	}
<u>Pattern III</u>	2:1   2:1   vs.	{	a.   $1\frac{1}{2}$ : $\frac{3}{4}$ $\frac{3}{4}$	}
			b.   $1\frac{1}{2}$ : $\frac{3}{4}$ $\frac{3}{4}$   3	}
			c.   2:1   3	}
			d.   3   2:1   3	}
<u>Pattern IV</u>	2:1   3   vs.	{	a.   2:1	}
			b.   $1\frac{1}{2}$ : $\frac{3}{4}$ $\frac{3}{4}$   3	}
			c.   3   3   3	}
			d.   3   3   2:1	}

Although the analysis is my own, many of the examples given below are not new at all to the reader who is familiar with Thai phonology. Some of them, in fact, have been mentioned and treated



Ex. 1 -nok ,khau `mai kin man \_ɾ:k

A. (-nok ,khau `mai) | kin | man | (\_ɾ:k)  
                                   3    3

'Birds don't eat potato.'

B. (-nok ,khau `mai) | kin man | (\_ɾ:k)  
                                   2 : 1

'Birds don't eat it.'

Ex. 2 tham di: \_kwa:

A. | tham | di: | (\_kwa:)  
           3    3

'to do it better'

B. | tham di: | (\_kwa:)  
           2 : 1

'had better do it.'

Pattern 1b | 3 | 3 | vs. | 2:1 | 3 |

Ex. 3 na:i `tʃhɔ:p kin \_khai

A. | na:i | `tʃhɔ:p | (kin \_khai)  
           3            3

'The master likes eating eggs.'

B. | <sup>^</sup>na:i | `tʃhɔ:p | (kin \_khai)  
           2 : 1            3

'Chorp likes eating eggs.'

Ex. 4 `kha:u jen \_mot

A. | `kha:u | jen | (\_mot)  
           3            3

'The rice becomes cold.'

B. | <sup>^</sup>`kha:u | jen | (\_mot)  
           2 : 1            3

'The left-over rice's gone.'

Ex. 5    -tɔ:p    thɛ:n    thɿ:

A.    | -tɔ:p |    thɛ:n |    (thɿ:)  
          |    3    |    3    |

'to help you answer.'

B.    |    ^    -tɔ:p |    thɛ:n |    (thɿ:)  
          |    2    1    |    3    |

'to repay your gratitude.'

Ex. 6    -kha:t    thun    ,rw:

A.    | -kha:t |    thun |    (,rw:)  
          |    3    |    3    |

'Don't you have money to invest?'

B.    |    ^    -kha:t |    thun |    (,rw:)  
          |    2 : 1    |    3    |

'Did you lose your capital?'

Ex. 7    -tɕhan    ,su:ŋ    `ma:k

A.    | -tɕhan |    ,su:ŋ |    (`ma:k)  
          |    3    |    3    |

'The shelf is very tall.'

B.    |    ^    -tɕhan |    ,su:ŋ |    (ma:k)  
          |    2 : 1    |    3    |

'I'm very tall.'

Pattern 1c    | 3 | 3 |        vs.    | 3 | 3 | 3 |

Ex. 8    na:i    `tɕhɔ:p    kin    \_khai

A.    | na:i |    `tɕhɔ:p |    (kin \_khai)  
          |    3    |    3    |

'The master likes eating eggs.'

B.    | na:i |    ^    |    `tɕhɔ:p |    (kin \_khai)  
          |    3    |    3    |    3    |

'Master, Chorp is eating eggs.'

Pattern II | 3 | 2:1 | vs.  $\left. \begin{array}{l} \text{a. } | 2:1 | \\ \text{b. } | 2:1 | 3 | \\ \text{c. } | 3 | 3 | 2:1 | \end{array} \right\}$

Pattern IIa | 3 | 2:1 | vs. | 2:1 |

Ex. 9 `mɛ: ,phom kin `kha:u -lɛ:u

A.  $\left| \begin{array}{l} \text{`mɛ:} \\ 3 \end{array} \right| \hat{2} \left| \begin{array}{l} \text{,phom} \\ 1 \end{array} \right| (\text{kin `kha:u -lɛ:u})$

'Mother, I've already had my meal.'

B.  $\left| \begin{array}{l} \text{`mɛ:} \\ 2 : 1 \end{array} \right| \text{phom} \left| \begin{array}{l} (\text{kin `kha:u -lɛ:u}) \end{array} \right|$

'My mother has already had her meal.'

Pattern IIb. | 3 | 2:1 | vs. | 2:1 | 3 |

Ex. 10 -jok tuə -ja:ŋ `ma:k

A.  $\left| \begin{array}{l} \text{-jok} \\ 3 \end{array} \right| \left| \begin{array}{l} \text{tuə} \\ 2 : 1 \end{array} \right| \left| \begin{array}{l} \text{-ja:ŋ} \\ 1 \end{array} \right| (\text{`ma:k})$

'to regard oneself superior.'

B.  $\left| \begin{array}{l} \text{-jok tuə} \\ 2 : 1 \end{array} \right| \left| \begin{array}{l} \text{-ja:ŋ} \\ 3 \end{array} \right| (\text{`ma:k})$

'to give a lot of examples.'

Pattern IIc | 3 | 2:1 | vs. | 3 | 3 | 2:1 |

Ex. 11 -tha? ,ha:n rwə ma: -lɛ:u

A.  $(\text{-tha?}) \left| \begin{array}{l} \text{,ha:n} \\ 3 \end{array} \right| \left| \begin{array}{l} \text{rwə ma:} \\ 2 : 1 \end{array} \right| (\text{-lɛ:u})$

'The sailors have come.'

B.  $(\text{-tha?}) \left| \begin{array}{l} \text{,ha:n} \\ 3 \end{array} \right| \hat{3} \left| \begin{array}{l} \text{rwə ma:} \\ 2 : 1 \end{array} \right| (\text{-lɛ:u})$

'Soldiers, the ship has come.'

$$\text{Pattern III} \quad |2:1|2:1| \quad \text{vs.} \quad \left. \begin{array}{l} \text{a.} \quad |1\frac{1}{2} : \frac{3}{4} \frac{3}{4}| \\ \text{b.} \quad |1\frac{1}{2} : \frac{3}{4} \frac{3}{4}| \quad 3| \\ \text{c.} \quad |2:1|3| \\ \text{d.} \quad |3|2:1|3| \\ \text{e.} \quad |3|3|2:1| \end{array} \right\}$$

$$\text{Pattern IIIa} \quad |2:1|2:1| \quad \text{vs.} \quad |1\frac{1}{2} : \frac{3}{4} \frac{3}{4}|$$

Ex. 12    ,naŋ `rwəŋ -ni: man di: ,mwən kan

A.    (,naŋ `rwəŋ -ni:)     $\left| \begin{array}{c} \hat{2} \\ 2 \end{array} : 1 \right| \begin{array}{c} \text{man} \\ 2 \end{array} | \begin{array}{c} \text{di:} \\ 2 \end{array} : \begin{array}{c} ,\text{mwən} \\ 1 \end{array} | \quad (\text{kan})$

'This film is quite good.'

B.    (,naŋ `rwəŋ -ni:)     $\left| \begin{array}{c} 1\frac{1}{2} \\ 2 \end{array} : \frac{3}{4} \frac{3}{4} \right| \begin{array}{c} \text{man di:} \\ 3 \end{array} : \begin{array}{c} ,\text{mwən} \\ 4 \end{array} | \quad (\text{kan})$

'This film is quite exciting.'

Ex. 13    -ja: kan di:    \_kwa:

A.     $\left| \begin{array}{c} \hat{2} \\ 2 \end{array} : 1 \right| \begin{array}{c} \text{-ja:} \\ 2 \end{array} | \begin{array}{c} \text{kan di:} \\ 2 \end{array} : \begin{array}{c} \text{(-kwa:)} \\ 1 \end{array} |$

'You'd better not be in my way.'

B.     $\left| \begin{array}{c} 1\frac{1}{2} \\ 2 \end{array} : \frac{3}{4} \frac{3}{4} \right| \begin{array}{c} \text{-ja: kan di:} \\ 3 \end{array} : \begin{array}{c} \text{(-kwa:)} \\ 4 \end{array} |$

'We'd better have a divorce.'

$$\text{Pattern IIIb} \quad |2:1|2:1| \quad \text{vs.} \quad |1\frac{1}{2} : \frac{3}{4} \frac{3}{4}| \quad 3|$$

Ex. 14    -jip `hai `mɛ: \_noi `tɕa?

A.     $\left| \begin{array}{c} 2 \\ 2 \end{array} : 1 \right| \begin{array}{c} \text{-jip `hai} \\ 2 \end{array} | \begin{array}{c} \text{'mɛ: _noi} \\ 2 \end{array} : \begin{array}{c} \text{('tɕa?)} \\ 1 \end{array} |$

'Please bring it to Mum.'

B.     $\left| \begin{array}{c} 1\frac{1}{2} \\ 2 \end{array} : \frac{3}{4} \frac{3}{4} \right| \begin{array}{c} \text{-jip `hai `mɛ:} \\ 3 \end{array} : \begin{array}{c} \text{-noi} \\ 3 \end{array} | \quad \text{('tɕa?)}$

'Bring it to Noi, please.'

Pattern IIIc |2:1| 2:1| vs. |2:1| 3|

Ex. 15 `phɔ: ta: -nɔ:ŋ \_tɕɛp

A.  $\left| \begin{array}{c} \hat{2} \\ 2 : 1 \end{array} \right| \begin{array}{c} \text{'phɔ:} \\ 2 : 1 \end{array} \left| \begin{array}{c} \text{ta:} \\ 2 : 1 \end{array} \right| \begin{array}{c} \text{-nɔ:ŋ} \\ 2 : 1 \end{array} \left| \text{(-tɕɛp)} \right.$

'My father-in-law is ill.'

B.  $\left| \begin{array}{c} \text{'phɔ:} \\ 2 : 1 \end{array} \right| \begin{array}{c} \text{ta:} \\ 2 : 1 \end{array} \left| \begin{array}{c} \text{-nɔ:ŋ} \\ 3 \end{array} \right| \left| \text{(-tɕɛp)} \right.$

"Ta Nong's father is ill."

Pattern IIIId |2:1| 2:1| vs. [3|2:1|3|

Ex. 16 `phɔ: ta: -nɔ:ŋ \_tɕɛp

A.  $\left| \begin{array}{c} \hat{2} \\ 2 : 1 \end{array} \right| \begin{array}{c} \text{'phɔ:} \\ 2 : 1 \end{array} \left| \begin{array}{c} \text{ta:} \\ 2 : 1 \end{array} \right| \begin{array}{c} \text{-nɔ:ŋ} \\ 2 : 1 \end{array} \left| \text{(-tɕɛp)} \right.$

'My father-in-law is ill.'

B.  $\left| \begin{array}{c} \text{'phɔ:} \\ 3 \end{array} \right| \begin{array}{c} \hat{2} \\ 2 : 1 \end{array} \left| \begin{array}{c} \text{ta:} \\ 2 : 1 \end{array} \right| \begin{array}{c} \text{-nɔ:ŋ} \\ 3 \end{array} \left| \text{(-tɕɛp)} \right.$

'Father, Ta Nong is ill.'

Pattern IIIe |2:1| 2:1| vs. [3|3|2:1|

Ex. 17 `phɔ: ta: -nɔ:ŋ \_tɕɛp

A.  $\left| \begin{array}{c} \hat{2} \\ 2 : 1 \end{array} \right| \begin{array}{c} \text{'phɔ:} \\ 2 : 1 \end{array} \left| \begin{array}{c} \text{ta:} \\ 2 : 1 \end{array} \right| \begin{array}{c} \text{-nɔ:ŋ} \\ 2 : 1 \end{array} \left| \text{(-tɕɛp)} \right.$

'My father-in-law is ill.'

B.  $\left| \begin{array}{c} \text{'phɔ:} \\ 3 \end{array} \right| \begin{array}{c} \hat{3} \\ 2 : 1 \end{array} \left| \begin{array}{c} \text{ta:} \\ 2 : 1 \end{array} \right| \begin{array}{c} \text{-nɔ:ŋ} \\ 2 : 1 \end{array} \left| \text{(-tɕɛp)} \right.$

'Father, my eyes are sore.'

Pattern IV |2:1| 3| vs.

$$\left. \begin{array}{l} \text{a. } |2:1| \\ \text{b. } \left| \begin{array}{c} 1\frac{1}{2} : \frac{3}{4} \quad \frac{3}{4} \\ 3 \end{array} \right| \\ \text{c. } |3|3|3| \\ \text{d. } |3|3|2:1| \end{array} \right\}$$

Pattern IVa |2:1| 3| vs. |2:1|

Ex. 18 ja:i `ni: \_keŋ tɕiŋ

A.  $\left| \begin{array}{c} \text{ja:i} \\ \hat{2} : 1 \end{array} \right| \left| \begin{array}{c} \text{'ni:} \\ 3 \end{array} \right| \text{ (-ken tɕin)}$

'This woman is very clever.'

B.  $\left| \text{ja:i} \text{'ni:} \right| \text{ (-ken tɕin)}$   
 $\left| \begin{array}{c} 2 \\ : \\ 1 \end{array} \right|$

'Grandma, you're very clever.'

Ex. 19     $\text{'thi:} \text{'ni:} \text{di:} \text{,mai}$

A.  $\left| \begin{array}{c} \text{'thi:} \\ \hat{2} : 1 \end{array} \right| \left| \begin{array}{c} \text{'ni:} \\ 3 \end{array} \right| \text{ (di: ,mai)}$

'Is this place good?'

B.  $\left| \text{'thi:} \text{'ni:} \right| \text{ (di: ,mai)}$   
 $\left| \begin{array}{c} 2 \\ : \\ 1 \end{array} \right|$

'Is this piece of land good?'

Pattern IVb     $\left| 2:1 \right| 3 \left| \right.$     vs.     $\left| 1\frac{1}{2} : \frac{3}{4} \frac{3}{4} \right| 3 \left| \right.$

Ex. 20     $\text{pai -na? -kha?}$

A.  $\left| \text{pai -na?} \right| \left| \text{-kha?} \right|$   
 $\left| \begin{array}{c} 2 \\ : \\ 1 \end{array} \right| \left| \begin{array}{c} 3 \end{array} \right|$

'Do come (, if you can.)'

B.  $\left| \begin{array}{c} \hat{1} \\ 1\frac{1}{2} : \frac{3}{4} \end{array} \right| \left| \begin{array}{c} \text{pai -na?} \\ \frac{3}{4} \end{array} \right| \left| \text{-kha?} \right|$   
 $\left| \begin{array}{c} 3 \end{array} \right|$

'I'm going now (Good-bye.)'

Pattern IVc     $\left| 2:1 \right| 3 \left| \right.$     vs.     $\left| 3 \right| 3 \left| 3 \right|$

Ex. 21     $\text{dwən mi: na:}$

A.  $\left| \text{dwən mi:} \right| \left| \text{na:} \right|$   
 $\left| \begin{array}{c} 2 \\ : \\ 1 \end{array} \right| \left| \begin{array}{c} 3 \end{array} \right|$

'March. (The 3rd month of they year.)'

B.  $\left| \text{dwən} \right| \left| \text{mi:} \right| \left| \text{na:} \right|$   
 $\left| \begin{array}{c} 3 \end{array} \right| \left| \begin{array}{c} 3 \end{array} \right| \left| \begin{array}{c} 3 \end{array} \right|$

'Düan has rice fields.'

Ex. 22    `mɛ    ˉna:m  \_jʰ? tɕaŋ

A.     $\left| \begin{array}{c} \hat{2} : \\ 1 \end{array} \right| \begin{array}{c} \text{'mɛ:} \\ 3 \end{array} \left| \begin{array}{c} \text{-na:m} \\ 3 \end{array} \right| \text{(-jʰ? tɕaŋ)}$

'There are a lot of rivers!'

B.     $\left| \begin{array}{c} \text{'mɛ:} \\ 3 \end{array} \right| \left| \begin{array}{c} \hat{3} \\ 3 \end{array} \right| \left| \begin{array}{c} \text{-na:m} \\ 3 \end{array} \right| \text{(-jʰ? tɕaŋ)}$

'Mother, there is a lot of water!'

Pattern IVd    |2:1| 3|    vs.    |3|3|2:1|

Ex. 23    `phɔ: ta:  -nɔ:ŋ  \_tɕɛp

A.     $\left| \begin{array}{c} \text{'phɔ: ta:} \\ 2 : 1 \end{array} \right| \left| \begin{array}{c} \text{-nɔ:ŋ} \\ 3 \end{array} \right| \text{(_tɕɛp)}$

'Ta Nong's father is ill.'

B.     $\left| \begin{array}{c} \text{'phɔ:} \\ 3 \end{array} \right| \left| \begin{array}{c} \hat{3} \\ 3 \end{array} \right| \left| \begin{array}{c} \text{ta: -nɔ:ŋ} \\ 2 : 1 \end{array} \right| \text{(_tɕɛp)}$

'Father, my eyes are sore.'

Ex. 24    tham mai ma: ʔau  \_si: mo:ŋ

A.    (tham)  $\left| \begin{array}{c} \text{mai ma:} \\ 2 : 1 \end{array} \right| \left| \begin{array}{c} \text{ʔau} \\ 3 \end{array} \right| \text{(_si: mo:ŋ)}$

'Why do you come to get it at 4 o'clock.'

B.    (tham)  $\left| \begin{array}{c} \text{mai} \\ 3 \end{array} \right| \left| \begin{array}{c} \text{ma:} \\ 3 \end{array} \right| \left| \begin{array}{c} \hat{2} : \\ 1 \end{array} \right| \left| \begin{array}{c} \text{ʔau} \\ 3 \end{array} \right| \text{(_si: mo:ŋ)}$

'Why do you come at 4 o'clock.'

Ex. 25    -fai `mai  ,thwŋ mwəŋ

A.     $\left| \begin{array}{c} \text{fai `mai} \\ 2 : 1 \end{array} \right| \left| \begin{array}{c} \text{,thwŋ} \\ 3 \end{array} \right| \text{(mwəŋ)}$

'The electricity doesn't reach the town.'

B.     $\left| \begin{array}{c} \text{fai} \\ 3 \end{array} \right| \left| \begin{array}{c} \text{'mai} \\ 3 \end{array} \right| \left| \begin{array}{c} \hat{2} : \\ 1 \end{array} \right| \left| \begin{array}{c} \text{,thwŋ} \\ 3 \end{array} \right| \text{(mwəŋ)}$

'The fire reached the town.'

Perhaps many more contrastive patterns would be found with further search. One may doubt how the meanings can be differentiated if the

examples given above are said with a syllable-timed rhythm, this means when stress has no rôle in the rhythmic structure of Thai. The problem can be solved easily by means of adding, deleting, or altering some words; for example:

|<sub>^</sub> \_ja: | kan di: | \_kwa: → \_ja: \_ki:t kan di: \_kwa:

'You'd better not be in my way.'

|\_ja: kan di: | \_kwa: → rau \_ja: kan di: \_kwa:

'We'd better have a divorce.'

|\_jip `hai | `mɛ: \_noi | (`tɕa?) → \_jip `hai `mɛ: thi: `tɕa?

'Please bring it to Mum.'

|<sub>^</sub> tham | mai | ma: ?au | \_si:mo:ŋ → tham mai ma: \_si: mo:ŋ

'Why do you come at 4 o'clock?'

|<sub>^</sub> `thi: | `ni: | di: | ,mai → `thi: troŋ -ni: di: ,mai

'Is this place good?'

|`thi: `ni: | di: | ,mai → `thi ,phw:n -ni: di: ,mai

'Is this piece of land good?'

#### 4. Why should the rhythm of a language be studied?

1. Stress, phonological pause and relative syllable lengths (the main ingredients that constitute rhythm in human speech) should be analysed simultaneously as one single complex unit in the phonology of a language. One cannot deny the fact that the three components of speech mentioned above have a close relationship. Length is the most important clue to determine stress in Thai. (As a foreign learner of English, I feel<sup>e</sup> that pitch is the clue for stress judgement in English. It is quite common that a Thai speaker tends to assign the Thai high tone to stressed syllables in English polysyllabic words; because to

the Thai ears, stressed syllables in English seem to carry a higher pitch than the other syllables which do not receive stress, for example, carnation — — — — —, exercise — — — — —, arithmetic — — — — —, difficult — — — — —, engineering — — — — —, university — — — — —.) Since Thai is a tone language, pitch is unlikely to be the clue for stress judgement. Instrumental measurements have shown that stressed syllables in Thai tend to be longer than the unstressed one. Another factor that influences syllable lengths is the location of the syllable. The last syllable of an utterance always receives stress; thus, it is always long. There is one exception: when the last syllable of an utterance is a particle and the utterance is said in a casual and intimate manner. On the other hand, the syllable seems to be shorter when it is in utterance-initial position; for example:

ma:	du:	liŋ		'The dog looks at the monkey.'
2	3	4		
liŋ	du:	ma:		'The monkey looks at the dog.'
2	3	4		

Emphatic stress is always accompanied by a pause, e.g., khun\* | \_da: |  
| ^ | ,phom 'You \*scold me!'

There is some correlation between Hiranburana's 4 degrees of accent and my relative syllable lengths. Hiranbura (1971) demonstrates in her thesis the role of accent in Thai grammar. She believes that the assignment of different accentual patterns to the lexical items which are identical in their phonological representation will yield different surface structures. To support this hypothesis, 35 pairs of utterances were chosen for a recognition test. They were recorded on a tape and played back to 40 subjects. The result of the test agrees

with her native intuition that if one of the pair is spoken with the accentual pattern 2 1 or 3 1 on one lexical item, that lexical item would be recognised as a compound noun, whereas if the other utterance is spoken with the accentual patterns other than 2 1 or 3 1, it would be recognised as belonging to another surface structure (Hiranburana, 1971: 45). Here are some of the utterances used by Hiranburana in the recognition test. The numbers underneath each syllable indicate the degrees of accent. Compare them with my syllable quantities:

# 3. -na:m `tom `da:i -lɛ:u (p. 46)

A.        3    1    3    1    'The boiled water is ready'

B.        1    1    3    1    'Water, boil it now.'

A.    |  $\hat{2}$    -na:m | `tom `da:i | -lɛ:u  
       | 2 : 1 | 2 : 1 | 3

B.    | -na:m |  $\hat{3}$  | `tom da:i | -lɛ:u  
       | 3    | 2 : 1 | 3

# 27. ,ma: `ba:n -nan `tɕhwəŋ (p. 49)

A.        2    1    3    1    'Domesticated dogs are tame.'

B.        1    3    1    1    'The dog in that house is tame!'

A.    |  $\hat{2}$    ,ma: | `ba:n |  $\hat{2}$    -nan | `tɕhwəŋ  
       | 2 : 1 | 3    | 2 : 1 | 3

B.    | ,ma: `ba:n | -nan | `tɕhwəŋ  
       | 2 : 1 | 3    | 3

The syllable lengths of 2 and 3 time-units seem to correspond very well with Hiranburana's accents 1 and 2. It is stated in the conclusion that ten utterances (i.e. 4A, 5A, 10A, 14A, 29A, 11B, 14B, 19B, and 23B) have failed to produce the expected result. In my opinion, there are at least three possible explanations for the failure:

1) Hiranburana does not take phonological pause into account and tries to handle everything in terms of limited accentual patterns.

2) Some of the utterances, e.g. utterance # 14 (p. 48) ,khau -kep -wai ,lan `tu:, should not have been used as test items.

# 14. ,khau -kep -wai ,lan `tu:

- A.           3    1    3    2    1    'He kept it on top of the cupboard.'  
 B.           3    1    3    1    1    'He kept it behind the cupboard.'

To imagine that something is on top of a cupboard is more natural than to imagine that it is behind a cupboard, since normally a cupboard is placed against the wall.

3) It is doubtful how well the speaker performed when the recording was made.

According to Hiranburana, the accentual pattern 2 1 or 3 1 always induce a noun compound. How about the word [-tɔ:p the:n] 'to repay, pay back' which also can have the accentual pattern 2 1 or 3 1 but happens to be a verb? Whereas the word [ro:ŋ riən] is always a noun compound and nothing else as pointed out by Noss (1975: 279):

But how does one account for the perceptibly different stresses one hears on the first syllable of โรงเรียน [ro:ŋ riən] 'school' in expressions like เรียกว่าโรงเรียน ['riək `wa: ro:ŋ riən] 'It's called a school' and เดินไปโรงเรียน [dɛ:n pai ro:ŋ riən] 'Walk to school'? Whether [ro:ŋ riən] is an 'institutionalized compound' or not, it certainly behaves differently in different phonological contexts, and its stress pattern cannot possibly be covered by a single rule.

There is no doubt that the three utterances, i.e. [ro:ŋ riən], ['riək `wa: ro:ŋ riən] and [dɛ:n pai ro:ŋ riən], cited by Noss, in fact, contain different rhythmic patterns:

- 1)   |    ro:ŋ   |   riən                   'school'  
      |    2̂ :   1   |  
 2)   | `riək   |   `wa:   |   ro:ŋ   |   riən           'It's called a school.'  
      |    3    |    3    |    3    |    3  
 3)   |   dɛ:n   pai   ro:ŋ   |   riən           'Walk to school.'  
      |    1̂/2 :   3/4    3/4   |   3

What has been described by Noss as "the perceptibly different stresses" seems to be the same thing as "different syllable quantities" in my analysis of rhythm.

2. Rhythm is the cause of sound and tone changes in Thai. At the phonological level, the full form of every type of syllable can be said to possess the time value of 3 time-units which is equivalent to the time-value of a rhythmic unit. It has been illustrated earlier in this thesis that there are five kinds of foot structure. This means that a rhythmic foot in Thai can consist of one, two, three, four or five syllables. Thus, when a foot contains many syllables, in order to keep time, those syllables have to be jammed together. The whole process causes many types of changes both segmental and suprasegmental. (A detailed discussion and the instrumental evidence is to be found in Hiranburana, 1971: 91-194). Segmental lengths have been affected the most. The nine basic vowels in citation forms, i.e. i e ε u ɤ a u o and ɔ, have been specified in the literature as having a long-short distinction. Sittachit (1972) and Abramson (1962 and 1974) have made instrumental studies of vowel length in Thai; the results of the two studies seem to confirm the analysis. Noss (1975) has raised the problem of vowel length in running speech. He gives the following argument:

The factors muddy up the vowel quantity picture when we come to forms in running speech. The first is a failure by some phonologists to discriminate between (unpredictable) lexical variants and (predictable) phonological variants. Thus the often-cited example of น้ำ 'water', which is pronounced |ná:m| by itself but |nám| in compounds like น้ำมัน 'oil' tells us nothing about what happens to ร้าน 'store' which also has a long vowel a: and high tone in isolation: |rá:n|. As a matter of fact, the vowel of |ra:n| does get shortened in compounds

in a predictable way, but not as much as the vowel of [na:m]. A 'phonological rule' which applies to only one, or a small set of lexical items need not concern us here. We are interested in rules which are applicable to syllables, or sequences of syllables, under clearly stated phonological conditions.

A second confusing factor is that the long-short vowel distinction is not only relative, like all quantity distinctions, but the basis of vowel length comparison may extend over only a short span--a phrase, or rhythmic unit--rather than over a whole utterance. For example, the compound ผู้หญิง 'woman, female' has a citation form [phû yŋ], in which the vowel of the first syllable is absolutely longer than the vowel of the second. But almost any occurrence of the compound as a constituent of a longer phrase calls for automatic syncopation of the first syllable. Thus in เด็กผู้หญิงพูด 'girls spoke' [dèk phû yŋ phû:t], even if the 'long' vowel of [phû] is still perceptibly longer than the short vowels of [dèk] and [yŋ], it is apt to be much closer in quantity to those vowels than to the genuinely long vowel of [phû:t]. It would be extremely arbitrary to say, on the basis of quantity comparison over a longer span or a whole utterance, that the vowel of [phû] is 'long'.<sup>14</sup>

Consonant length has been ignored by most of the phonologists who have worked on Thai. Hiranburana (1971) seems to be the only one who did spectrographic measurements of consonant durations in syllable-final position. From the result of the measurements, together with the evidence from the relative durations of the vowels, she postulates three degrees of length contrasts for the final consonants. Hiranburana gives the following rule:

$$\begin{array}{l}
 C \rightarrow \left\{ \begin{array}{l}
 \begin{array}{l}
 \left[ \begin{array}{l} \text{length 3} \\ \text{length 2} \\ \text{length 1} \end{array} \right] \begin{array}{l} / \\ / \\ / \end{array} \left\{ \begin{array}{l} \begin{array}{l} \text{V} \\ \text{V} \\ \text{V} \end{array} \right\} \\
 \left[ \begin{array}{l} \text{length 1} \end{array} \right] \begin{array}{l} / \\ / \\ / \end{array} \left[ \begin{array}{l} \text{unaccented} \end{array} \right]
 \end{array} \right. \left. \begin{array}{l}
 \left[ \begin{array}{l} \text{accent 1} \\ \text{length 1} \\ \text{length 2} \\ \text{unaccented} \end{array} \right] \begin{array}{l} \\ G_1 \\ \\ \end{array} \end{array} \right\} \begin{array}{l}
 (a) \\ (b) \\ (c) \\ (d)
 \end{array}
 \end{array}
 \right.
 \end{array}$$

<sup>14</sup>Noss, *Ibid.* pp. 275-276.

In running connected speech, the case is not that simple. Briefly, I would like to demonstrate that not only vowel length is affected by rhythm but also the lengths of both initial and final consonants. Let us investigate the durations of the three nasals, i.e. m n ŋ, in different types of rhythmic feet which occur in the passage "Queen Srisawarinthira".

### 1-Syllable Feet

1. The durations of the initial nasals of the salient syllable (in seconds):

<u>m</u> VC	.09 .09 .10
<u>m</u> V:	.09 .09
<u>m</u> V:V	.07
<u>m</u> V:C	.09
<u>n</u> VC	.05 .05 .07 .07 .08 .08 .08 .08 .10 .11
<u>n</u> V:	.09 .09 .14
<u>n</u> V:C	.07 .09 .10
ŋ VVC	.10

Range .05-.14 second, Average duration .086 second.

2. The durations of the final nasals of the salient syllable (in seconds):

CV <u>m</u>	.07 .08 .09 .09 .10 .11 .12 .13 .13 .13 .14 .17
CV: <u>m</u>	.09 .10 .12 .13 .14
CCV: <u>m</u>	.06 .07 .07 .08 .08 .09 .09 .10 .10 .10 .11 .11 .11
CV <u>n</u>	.08 .08 .08 .12 .12 .13 .14 .14 .14 .15 .15 .15 .15
	.15 .16 .16 .16 .17 .18 .18 .20
CV: <u>n</u>	.07 .08 .10 .10 .12 .12 .12 .13

CVV <sub>n</sub>	.09
CV <sub>n</sub>	.07 .08 .09 .10 .10 .10 .10 .12 .12 .12 .14 .14 .14 .16 .17
CV: <sub>n</sub>	.07 .08 .09 .10 .14
CVV <sub>n</sub>	.10
CCV: <sub>n</sub>	.07 .10
CCVV <sub>n</sub>	.08

Range .07-.20 second, Average duration .114 second.

### 2-Syllable Feet

3. The durations of the initial nasals of the salient syllable  
(in seconds):

<u>m</u> VC	W	.04 .08
<u>m</u> V:	W	.08 .08
<u>m</u> V:C	W	.11
<u>n</u> VC	W	.03 .06
<u>n</u> V:	W	.07 .08 .09 .09
<u>n</u> VVV	W	.06
<u>n</u> VC	W	.12

Range .04-.13 second, Average duration .081 second.

4. The durations of the final nasals of the salient syllable  
(in seconds):

CV <u>m</u>	W	.06 .06 .07 .09 .09 .10 .10
CV: <u>m</u>	W	.06 .07 .07 .09 .11
CCV <u>m</u>	W	.11
CCV: <u>m</u>	W	.06 .08 .08
CV <u>n</u>	W	.06 .06 .06 .08 .08 .08 .09 .10 .11 .12 .13
CV: <u>n</u>	W	.04 .06 .08 .08 .09 .10

CVVn      W .05 .05 .09  
 CVn        W .07 .07 .08 .09 .09 .09 .10  
 CV:n        W .04 .09 .10  
 CVVn        W .08

Range .04-.13 second, Average duration .081 second.

5. The durations of the initial nasals of the weak syllable  
 (in seconds):

S mVC        .03  
 S mV:        .07  
 S mVV        .03 .03 .04  
 S mVVC       .04 .05  
 S nVC        .03  
 S nVV        .04

Range .03-.07 second, Average duration .04 second.

6. The durations of the final nasals of the weak syllable  
 (in seconds):

S CVm        .06 .08 .12 .12  
 S CVn        .04 .04 .08 .09 .10 .10 .10 .11 .12  
 S CV:n        .09  
 S CVVn       .04  
 S CVn        .04 .05 .06 .06 .06 .07 .09  
 S CV:n        .05 .05 .06 .06 .07 .10 .11 .13

Range .04-.13 second, Average duration .078 second.

### 3-Syllable Feet

7. The durations of the initial nasals of the salient syllable  
 (in seconds):

mV:C        W W .08  
nV:C        W W .10  
ŋVVC        W W .07

Range .07-.10 second, Average duration .083 second.

8. The durations of the final nasals of the salient syllable

(in seconds):

CVm        W W .09  
 CVn        W W .08  
 CV:n        W W .05 .07 .08  
 CVŋ        W W .08 .08 .09 .09 .12  
 CV:ŋ        W W .05  
 CVVŋ       W W .08  
 CCVŋ       W W .07 .09

Range .05-.12 second, Average duration .08 second.

9. The durations of the initial nasals of the first weak syllable

(in seconds):

S mV:        W .06  
 S mVV        W .03  
 S nV:        W .05  
 S nVV        W .03 .03

Range .03-.06 second, Average duration .04 second.

10. The durations of the final nasals of the first weak syllable

(in seconds):

S CVn        W .03 .04  
 S CVŋ        W .04  
 S CV:ŋ       W .06 .06

Range .03-.06 second, Average duration .046 second.

11. The durations of the initial nasals of the second weak syllable (in seconds):

S W mVC .06  
 S W mV: .03 .05 .06  
 S W mVV .06

Range .03-.06 second, Average duration .052 second.

12. The durations of the final nasals of the second weak syllable (in seconds)

S W CVm .05 .05  
 S W CVn .06 .08

Range .05-.08 second, Average duration .06 second.

#### 4-Syllable Feet

13. The durations of the initial and final nasals of the salience and the three weak syllables (in seconds):

nVV W W W .05  
 CVn W W W .10  
 CCVn W W W .11  
 S CVn W W .03  
 S W mVV W .06  
 S W CVm W .06  
 S W W mVC .03

The range of durations and the average durations cannot be given here because the data in hand is not adequate. There is only one example for each case because 4-syllable feet are not common in Thai speech uttered in a moderate tempo. The result of the measurements of the three nasals, i.e. m, n and ŋ, is summarized in the tables below:

Table 35: The ranges and average durations of the initial nasals m n ŋ in monosyllabic, disyllabic and trisyllabic feet (in seconds)

Type of Feet	Range	Average Duration
monosyllabic		
S	.05-.14	.086
disyllabic		
S	.03-.12	.076
W	.03-.07	.04
trisyllabic		
S	.07-.10	.083
W	.03-.06	.04
W	.03-.06	.052

Table 36: The ranges and average durations of the final nasals m n ŋ in monosyllabic, disyllabic and trisyllabic feet (in seconds)

Type of Feet	Range	Average Duration
monosyllabic		
S	.07-.20	.114
disyllabic		
S	.04-.13	.081
W	.04-.13	.078
trisyllabic		
S	.05-.12	.08
W	.03-.06	.046
W	.05-.08	.06

3. Rhythm in everyday speech is the foundation of rhythm in prose and verse. Phoneticians and linguists have been concerned with the basic interconnection between the structures of the spoken language and the literary language. For instance, Sapir (1921: 225) proclaims:

Every language is itself a collective art of expression. There is concealed in it a particular set of esthetic factors--phonetic, rhythmic, symbolic, morphological--which it does not completely share with any other language.

A poem is defined by de Groot (1957: 391) as a work of "linguistic art".

He says:

The type of verse of a poem is conditioned by the language in which it is written. Within the limits of the features of the language in question, there is, in principle, a possibility of choice.

Following Trager and Smith's system of phonological description, Epstein and Hawkes (1959) have demonstrated a relationship between the system of spoken English and poetry. In the introduction to the article, "Linguistics and English Prosody", Smith points out three basic assumptions upon which the study of English prosody done by Epstein and Hawkes is premised as follows:

1. The spoken language and other systems used in oral communication underlie and are basic to all literary compositions. .... 2. The poet and his audience alike have internalized the systems of communication OUTSIDE OF AWARENESS. .... 3. Both the primacy of the spoken language and the special nature of the literary language in relation to it are obscured by the fact that literature is composed in an inconsistent and incomplete writing system.

According to Lotz (1960: 137), metric phenomena are language phenomena; therefore, metrics is entirely within the competence of linguistics. The linguistic view of English prosody has been illustrated extensively in the contributions to the Kenyon symposium of 1956 by Harold Whitehall and Seymour Chatman (Wimsatt and Beardsley, 1959: 585), and also can be

found in A Theory of Metre by Chatman (1965).

Prosody (the laws of versification) has been regarded as part of phonetics. Abercrombie (1965: 16) states:

I claim prosody as part of my subject, because verse is verse as a result of the way certain aspects of the sound, or rather perhaps the sound-producing movements, of speech have been exploited or organized. The study of the sound of speech, in all its aspects, and of the bodily movements which produce the sound, is the province of phonetics. Phonetic techniques of observation and analysis can be applied to verse structure as successfully as they can to any other aspect of language where the sound is important.

S. W. Allan, (1973) quotes several comments on the close relationship between linguistic prosodies (or suprasegmental features) and the study of prosody in the sense of versification which have been made <sup>b</sup> by T.S. Eliot, Miller, Stankiewicz, Thomson and Watkins. Since it is a good summary of the whole issue, here I would like to quote them again from Allan (1973: 12):

In the words of T.S. Eliot (1942, 7), 'The music of poetry must be a music latent in the common speech of its time'; and the relationship of verse to normal spoken language has been commented upon by numerous writers, particularly in recent years; their views may be typified by the following brief anthology:

Under normal conditions the rhythm of poetry is based upon the rhythm of the spoken language (Miller 1902, 499).

The implementation of the metrical scheme is conditioned by the underlying linguistic system. Thus it is known that no versification system can be based on prosodic elements which are not relevant in the language (Stankiewicz 1960, 72f.)

The metrical pattern initiates the structure of sound of the language. (Thompson 1961, 167).

The formal characteristics of a verse form are dictated by the structural features of the prosody of the language (Watkins 1963, 218).

At this point, let us be more specific. So far as verse rhythm is

concerned, Abercrombie (1965: 19) says:

Speech rhythm, and therefore the rhythm of verse, is in the speaker and it is in the hearer in so far as he identifies himself with the speaker. We might coin the term 'phonetic empathy' for the process by which he does so. In order to be able to 'empathize', of course, the hearer must know the language intimately; probably it is necessary for it to be his mother tongue, in most cases.

Similar views can be found in Sapir (1921), and Taig (1929). According to Sapir nothing illustrates the "formal dependence" of literature on language as well as the prosodic aspect of poetry (p. 228). Regarding verse rhythm, he draws some examples from Greek, Latin, English, French and Japanese. Sapir summarizes his views as follows:

"Latin and Greek verse depends on the principle of contrasting weights; English verse on the principle of contrasting stresses; French verse, on the principles of number and echo, Chinese verse, on the principles of number, echo, and contrasting pitches. Each of these rhythmic systems proceeds from the unconscious dynamic habit of the language, falling from the lips of the folk. Study carefully the phonetic system of a language, above all its dynamic features, and you can tell what kind of a verse it has developed--or, if history has played pranks with its psychology, what kind of verse it should have developed and some day will."<sup>15</sup>

Taig (1929) relates rhythm in verse to the ones in prose, speech and music. He states:

"... verse is but a special type of prose, the rhythms of language itself are linked up with those of music, ..."<sup>16</sup>

Verse is distinguished from prose by prominence of pattern; the speech sounds must be selected and arranged with some care so that the whole process will produce good rhythmic movements and meet the purpose of metrical expression. Taig expresses the above view as follows:

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<sup>15</sup>Sapir, Language, 1921, p. 230.

<sup>16</sup>Taig, Rhythm and Metre, 1929, p. 13.

So far as form alone is concerned verse and prose differ chiefly in the extent to which rhythmical structure is made evident: verse being distinguished by the immediate appearance of an ideal pattern. The speech-sounds are so arranged that the hearer is at once aware of some plan in the poet's mind, some scheme of proportion governing the disposition of the words. Rhythm no longer fulfils a humble ancillary function, subordinate to meaning and constantly adjusting itself to rules of grammar and syntax, but becomes itself, a necessary portion of the complete meaning.<sup>17</sup>

With regard to English, the above statements made by several outstanding scholars have been proved to be true. How about Thai? Since Thai is neither a pure syllable-timed nor stress-timed rhythm as I have illustrated earlier, the rhythm of Thai verse should behave the same way. To prove the hypothesis that speech rhythm is the basic foundation of verse rhythm, a tentative analysis of rhythm in Thai poetry will be given in the next chapter.

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<sup>17</sup>Ibid p. 36.

Chapter 11: A Tentative Analysis of Verse Rhythm

1. A brief sketch of Thai poetry

The crucial difference between prose and verse is that prose is rhythmic but not metrical, but verse is both rhythmic and metrical. The metrical unit of verse is the line (Abercrombie, 1965: 25).

The variety of types of verse may be classified in various ways according to various criteria. A poem is defined by de Groot as a unit of horizontal and vertical correspondence. It is composed of a series of corresponding lines (vertical correspondence) and the corresponding units within the line (horizontal correspondence) are of basic importance and may be used as a principle of classification of types of poetry. Based on these criteria, there are three major types of verse: 1. syllabic verse (e.g. Japanese, Chinese, etc.), 2. periodic verse which is subdivided into quantitative verse (e.g. Sanskrit, Greek and Latin) and accentual verse (e.g. English, German, Russian, etc.), and 3. word verse (e.g. Pre-classical Latin verse).<sup>1</sup> Fraser classifies verse into four different types: 1. stress verse, 2. stress-syllable verse, 3. quantitative verse, 4. pure syllabic verse. French and Japanese have pure syllabic verse because in both languages the lines of verse are defined by syllable count (Fraser, 1970: 48). Since speech rhythm is the foundation of verse rhythm, we may as well say that there are two major types of verse: syllable-timed verse and stress-timed verse. The poetry of a language can have either the former or the latter or both.

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<sup>1</sup>De Groot, "Phonetics in Its Relationship to Aesthetics", 1957, pp. 390-391.

In the literature of Thai versification, there are five major types of Thai poetry: klo:n ,təhan \_ka:p klo:n and `ra:i. Based on the concept of syllable count, all of them can be said to have syllabic metres. In order to compose or appreciate Thai poetry, traditionally, one must be familiar with the following metrical terminology:

1.) Stanzaic structure (ˉkha? ˉna?):

\_bot = the stanza

\_ba:t or kham klo:n = the line

ˉwak = the halflin

kham or ˉpha?ja:n = the syllable (the basic unit)

2.) Heavy and light syllables (ˉkha? ˉru? and ˉla? \_hu?):

ˉkha? ˉru? = C(C)VN, C(C)V:, C(C)V:V, C(C)V:N, C(C)V:S, C(C)VV,  
C(C)VVN, C(C)VVS, C(C)VVV

ˉla? \_hu? = C(C)VS, especially CV?, and some grammatical words having the syllabic structure CV:, e.g. `kɔ:, bɔ:, \_bɔ:, etc.

3.) Rhyme schemes (,sam \_phat)

,sam \_phat `nɔ:k = obligatory external rhyme linking ˉwak and \_ba:t

,sam \_phat nai = optional internal rhyme linking the groups of syllable within lines (or ,sam \_phat \_sa? \_la?), and alliteration (,sam \_phat \_?ak ,sɔ:n).

4.) Tonal restrictions

kham ta:i = 'dead syllable' which is subdivided into 'short dead syllable' or CVS + low tone or high tone and 'long dead syllable' or CV:S, CVVS + low tone or falling tone.

kham pen = 'alive syllable' which is the rest.

\_?e:k and tho: = low tone and falling tone which are indicated by the tone marks -ma:i \_?e:k) and (-ma:i tho:) in the spelling.<sup>2</sup>

- 5.) Different types of the first or the introductory halfline 'kham nam' of a poem, and 'kham `sɔi' or '`sɔi -bot' which may be described as line-supporters and in some cases as stanza-supporters.

In this chapter, only the stanzaic structure will be considered, since our main concern is the description of the metrical and rhythmic units of verse.

## 2. The nature and acoustic measurements of metrical and rhythmic units in Thai verse.

Hypothesis: If Thai speech has the kind of rhythm that is neither a pure syllable-timed nor a pure stress-timed rhythm, but is in transition from a syllable-timed to stress-timed rhythm, a similar phenomenon might also be found in Thai verse if speech rhythm is the foundation of verse rhythm according to many sources.

There are two ways of reciting Thai poems: reciting them with spoken cadence and chanting them with tunes which may be called a 'sing-song' recital. For the purpose of investigating the "natural

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<sup>2</sup>As a result of tone-split in the past, it is not necessary, now, that the words spelt with -ma:i \_?e:k (ิ) will always be pronounced with low tone, and the ones spelt with -ma:i tho: (ุ) will be pronounced with falling tone, for example,

กั is ja: (falling tone) not \_ja: (low tone)

มา is -ma: (high tone) not `ma: (falling tone).

Thus, the \_?e:k and tho: restriction in Thai poetry does not mean anything, inspite of their presence. See also p. 246 under klo:n.

rhythm" of verse, all of the poems used as examples were read like prose from a script prepared beforehand. They are well-known poems of different periods (13th-20th centuries) which can be found in many secondary and high school texts for language and literature. However, most of the poems used as examples here were drawn from the standard text entitled ประวัติวรรณคดี และการประพันธ์ 'A History of (Thai) Literature and the Principle of Versification' by เสนีย์ วิลาวรรณ "Senee Vilavarn" (1968).

The subject was Prof. M.L. Boonlua Debyasuvarn (age 65); she has been regarded as one of the authorities by people in the field of Thai language and literature. M.L. Boonlua always describes her own style of reciting poetry as an "unorthodox" one, i.e. she does not follow strictly the conventions which have been standardized and practised by the majority of school-teachers, but follows her own "intuition, interpretation and artistic talent", which suits very well my interest. To what extent can she be unconventional? In my belief, it must be within the frame allowed by the phonological system of the language, which is Thai in this case.

The recording was made at CIEL, Bangkok on 16th April, 1975, and the duplex oscillograms were made later in the phonetics laboratory of the Linguistics Department, University of Edinburgh. (See the details about the technique of segmentation and measurements in Chapter 4, Part II.)

The presentation of each type of poetry will be in this order: .  
1.) the traditional scansion showing the underlying stanzaic structure which will be symbolized in the traditional way in which Thai poetry is diagrammed, i.e. using a circle (0) to represent a syllable and a

straight line to indicate rhyme schemes, 2.) an objective measurement of the durations of rhythmic and metrical units (in seconds), 3.) my own analysis of the rhythmic structure. No translation will be given, since the content of the poems is not my concern here.

-ka:p

-ka:p ja: ni:

```

      0 0 0 0 0 0      0 0 0 0 0 0
      ┌──────────────────┐
0 0 0 0 0 0      0 0 0 0 0 0

```

Stanzaic structure: A stanza contains two lines, each one of them is divided into two halflines having five and six syllables respectively.

Ex. 1

สมรรถชัยไกรกาบแก้ว

แสงแวววิบจับสาคร

เรียบเรียงเคียงคู่จร

คั้งร้อนฟ้ามาแดนดิน

(ภาพย์เห่เรือ)

sə-mat the tɕhai krai -ka:p `ke:u ...  
.57 .49 .43 .43 .55 .41

se:ŋ we:u ˉwap ˉtɕap sa: khw:n ... (5.33 + .71)  
.51 .29 .38 .38 .38 .51 .71

ˈriəp riəŋ khiəŋ `ku: tɕw:n ...  
.41 .46 .48 .35 .57 .34

-daŋ ˈrɔn ˉfa: ma: de:n din ... (4.64 + .?)  
.40 .30 .43 .31 .30 .29 ?

Ex. 2

เสียงสรวลระรี่

เสียงแก้วที่หรือเสียงใคร

เสียงสรวลเสียงทรมาวัย

สุดสายใจที่ตามมา

(ภาพย์เห่เรือ)

ˈsiəŋ ˈsuən ˉra? `ri: ˉni: ...  
.51 .40 .23 .29 .50 .18

ˈsiəŋ `ke:u `phi: ˈru: ˈsiəŋ khrai ... (4.32 + .60)  
.43 .35 .40 .19 .43 .41

˧sɿəŋ ˧suən ˧sɿəŋ sa:m wai ...  
 .47 .51 .40 .47 .33 .17

\_sət ˧sa:i tɕai ˧'phi: ta:m ma: ... (4.48 + ?)  
 .36 .34 .44 .18 .42 .39 ?

Ex. 3

อุณหสูรย

วงศคสูหนสูง

หนงสูคอุย

รปงทหนมท

(ภาพยห่อโคลงประพาสธารทองแดง)

du: ˧nu: \_su: ru: ɲu: ...  
 .37 .52 .44 .31 .51 .21

ɲu: \_sət ˧'su: ˧nu: ˧'su: ɲu: ... (4.92 + .56)  
 .45 .30 .52 .40 .42 .47 .56

˧nu: ɲu: ˧'su: du: \_ju: ...  
 .39 .43 .41 .39 .36 .50

˧'ru:p ɲu: ˧'thu: nu: mu: thu: ... (4.85 + ?)  
 .42 .41 .42 .34 .41 .37

A stanza of a \_ka:p ja: ni: poem can be said to contain 2 metrical units, and each metrical unit consists of 13 rhythmic units-- 11 audible and 2 silent units--as shown in the following diagram. (The symbol X represents an audible rhythmic unit and Ø represents a silent one.)

Line 1: X X X X X Ø X X X X X X Ø

Line 2: X X X X X Ø X X X X X X Ø

Since most of the rhythmic units contain only one single syllable, it may be possible to conclude that the subject used a syllable-timed rhythm when the poems were read. Nevertheless, it should be noted that the first rhythmic unit in the first example, i.e. sə -mat thə, consists of 3 syllables; and the two grammatical words, ˧ru: 'a question particle' and ˧'phi: meaning 'I' in this context, occurring in the second example, seem to have shorter durations, i.e. .19 and .18 second respectively, in comparison with the rest of the syllables. The third

example is a special kind of  $\_ka:p \ ja: \ ni:$  called  $kon \ \_sa? \ \_la? \ `t\phi hw:$   $\_ba:t \ `lw\en \ `la:$ ; only one vowel is allowed and the poem must be meaningful. In this particular poem that only one vowel is [u:], however, the short [u] is used in [ $\_sut$ ] (the 8th rhythmic unit of the first line) by the poet to make the poem more meaningful.

$\_ka:p \ \_t\phi ha? \ ba\eta$

$$0 \ 0 \ 0 \ 0 \ 0 \ 0 \ \overbrace{0 \ 0 \ 0 \ 0 \ 0} \ 0$$

$$0 \ 0 \ 0 \ 0 \ 0 \ 0$$

Stanzaic structure: A stanza contains three half lines, the first and the third half lines consist of six syllables, whereas the second one contains only four syllables. This kind of poem has been used in the mask play, for example, when two characters are conversing.

Ex. 1                      อินทรชิตปิดเบือนกาอิน                      เหมือนองค์อมรินทร์

ทรงคชเอราวัณ

(บทพากย์เอราวัณ)

<u>?inthere</u> .37	<u>`t\phi hit</u> .37	<u>\_bit</u> .40	bw\en .38	ka: .35	jin .44	...	.38
	,m\w\en .45	?o\eta .43	<u>?am m\o</u> .38	rin .52			
so\eta .46	<u>-khot t\phi\o</u> .46	?e: .35	ra: .32	wan .31	...	(6.37 + ?)	?

Ex. 2                      สามสิบสามเศียรโสภา                      เศียรหนึ่งเจ็ดงา

ตั้งเพชรรัตนบุรี

(บทพากย์เอราวัณ)

,sa:m .50	<u>\_sip</u> .32	,sa:m .48	,sien .43	,so: .35	pha: .49	...	.33
	,sien .42	<u>\_n\eta\eta</u> .36	<u>\_t\phi et</u> .30	\eta a: .46			



"pure syllabic verse". Look at the underlining which indicates polysyllabic rhythmic units. It is interesting to see that there are one trisyllabic and two disyllabic rhythmic units in Ex. 1: [ʔin thə rə], [ʔam mə] [-khot tshə]; the underlined weak elements of the units are the so-called "linker-syllables" (CV?) in which their lengths are likely to be reduced and their tones become neutralized in connected speech:

ʔin -tha? -ra? → ʔin thə rə  
 ʔam -ma? (rin) → ʔam mə (rin)  
 -khot -tsha? → -khot tshə

\_ka:p \_su? ra:ŋ -kha? na:ŋ

0 0 0 0      0 0 0 0      0 0 0 0  
 0 0 0 0      0 0 0 0      0 0 0 0      0 0 0 0

Stanzaic structure: A stanza contains seven halflines and each half-line consists of four syllables.

Ex. 1

งเงือกงหงอน      งเห่าปลาช่อน      รูปร่างอย่างปลา  
 งเห่าตาลาน      เลื้อยผ่านผ่านมา      งทับสมิงคลา      เรียกว่าทับหาง

(มหาชาติคำหลวง พรรณพฤษากับสัตวภิธาน)

ŋu:	ŋwək	ŋu:	ŋwɔ:n	...	ŋu:	_hau	pla:	tshɔ:n	...
.36	.37	.32	.48	.24	.23	.28	.26	.50	.40
ʔru:p	ʔra:ŋ	_ja:ŋ	pla:	...	ŋu:	_hau	ta:	la:n	...
.28	.39	.23	.44	.53	.28	.30	.29	.41	.36
-lwəi	ʔpha:n	_pha:n	ma:	...	ŋu:	-thap	sə,mɨŋ	khla:	...
.27	.37	.33	.37	.42	.24	.30	.41	.43	.32
ʔriək	ʔwa:	-thap	tha:ŋ	...					
.27	.22	.28	.42	?					

A stanza of a \_ka:p \_su? ra:ŋ -kha? na:ŋ poem may be said to consist of seven metrical units, one of them containing five rhythmic

units: four audible units and one silent unit; the latter is the line-end marker. The diagram illustrating the metrical and rhythmic units of a *\_ka:p \_su? ra:ŋ -kha? na:ŋ* poem may be given as follows:

Line 1: X X X X Ø  
 Line 2: X X X X Ø  
 Line 3: X X X X Ø  
 Line 4: X X X X Ø  
 Line 5: X X X X Ø  
 Line 6: X X X X Ø  
 Line 7: X X X X Ø

To give a clear picture of the underlying metrical and rhythmic structure of this type of verse which will be helpful to the reader, Ex. 1 may be rewritten as follows:

Line 1:    ŋu:  `ŋwək  ŋu:  ,ŋɔ:n  ...           (1.53 + .24)  
           .36   .37   .32   .48   .24

Line 2:    ŋu:  \_hau  pla:  `təhɔ:n  ...           (1.27 + .40)  
           .23   .28   .26   .50   .40

Line 3:    `ru:p  `ra:ŋ  \_ɟa:ŋ  pla:  ...           (1.34 + .53)  
           .28   .39   .23   .44   .53

Line 4:    ŋu:  \_hau  ta:  la:n  ...           (1.28 + .36)  
           .28   .30   .29   .41   .36

Line 5:    -lwəi  `pha:n  \_pha:n  ma:  ...           (1.34 + .42)  
           .27   .37   .33   .37   .42

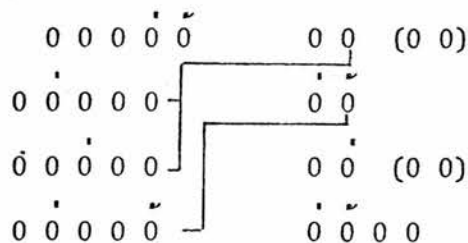
Line 6:    ŋu:  -thap  sa,miŋ  khla:  ...           (1.38 + .32)  
           .24   .30   .41   .43   .32

Line 7:    `riək  `wa:  -thap  tha:ŋ  ...           (1.19 + ?)  
           .27   .22   .28   .42   ?

A syllable-timed rhythm will be suitable for a *\_ka:p su? ra:ŋ -kha? na:ŋ* poem.

khlo:ŋ

Many scholars believe that khlo:ŋ is the oldest type of Thai poetry. Its metre is native to the Tai race--not borrowed from any Sanskrit forms of versification like *\_ka:p* and *,tṣhan*, (*,tṣhan* will be discussed next). From a linguistic point of view, this claim is possible since khlo:ŋ is the only type of poetry that has tonal restrictions: a khlo:ŋ poem must contain seven syllables that have the tone mark *·* (*-ma:i \_?e:k*) and four syllables that have the tone mark *˘* (*-ma:i tho:*), or in other words, seven syllables have low tone and four syllables have falling tone. As a result of the phenomenon called "tone split" in Tai historical linguistics, the words spelt with the tone marks *·* and *˘* do not have a low tone and falling tone any more, e.g. *น้ำ* is pronounced *`na:* instead of *\_na:*, and *น้ำ* is pronounced *-na:* instead of *`na:*, etc. Therefore, so far as tone placement is concerned, the seven *-ma:i \_?e:k* (*·*) and four *-ma:i tho:* (*˘*) in a khlo:ŋ poem do not mean anything to the ears; their existence is only for the eyes of the reader. There are altogether eleven kinds of khlo:ŋ, but I shall discuss only one here--khlo:ŋ *\_si: \_su? `pha:p*--which is the most well-known, (according to a layman's standard). The following is the traditional diagram of <sup>l</sup>khlo:ŋ *\_si:* :



Stanzaic structure: A stanza contains four lines or thirty obligatory syllables and four optional syllables. Each line

consists of two halflines; all of the first halflines have five syllables, whereas the second halflines of lines 1, 2 and 3 have two syllables and line 4 has four syllables. Lines 1 and 3 can have an optional line-supporters composed of two syllables.

Ex. 1

กลางสิงสิงลอดไม้

กลางสิง

แลลูกสิงลงชิง

ลูกไม้

สิงลมใต้ลมตึง

สิงโลด หินนา

แลลูกสิงลงไล่

ลอดเสี้ยวกลางสิง

(ลิลิตพระลอ)

la:ŋ liŋ liŋ ʼlo:t ˉma:i la:ŋ liŋ ... (2.67 + .55)  
 .43 .42 .31 .35 .42 .35 .39 .55

lɛ: ʼlu:k liŋ loŋ tɕhiŋ ʼlu:k ˉma:i ... (2.41 + .64)  
 .35 .39 .30 .29 .37 .28 .43 .64

liŋ lom ˉta:i lom tiŋ liŋ ʼlo:t ˉni: na: ... (3.43 + .44)  
 .36 .35 .36 .40 .37 .44 .46 .30 .39 .44

lɛ: ʼlu:k liŋ loŋ ʼlai ʼlo:t ˉliəu la:ŋ liŋ ... (3.55 + ?)  
 .40 .41 .40 .35 .38 .38 .44 .30 .49 ?

Ex. 2

หะทายกระต่ายเดิน

ชมแข

สูงส่งสุดตาแล

สูงฟ้า

ฤดูฤดูคี่แค

สัตว์สู่ กันนา

อย่าว่าเราเจ้าข้า

อยู่พื้นดินเดียว

(ศรีปราชญ์)

ˉha? ˉha:i ˉkra? ˉta:i ʼten tɕhom ˉkhe: ... (2.53 + .60)  
 .36 .44 .27 .34 .39 .31 .42 .60

ˉsu:ŋ ˉsoŋ ˉsut ta: lɛ: ˉsu: ˉfa: ... (2.70 + .71)  
 .46 .44 .32 .34 .39 .30 .45 .71

\*\*\*ˉrw? du: ˉrw: di: dɛ: ˉsat ˉsu: kan na: ... (2.90 + .54)  
 .13 .46 .14 .34 .51 .32 .41 .18 .41 .54

\*\*\*\_ja: 'wa: rau 'tca:u 'kha: \_ju: -phw:n din diəu ... (3.45 + ?)  
 .40 .50 .39 .33 .48 .40 .44 .14 .38

The subject's performance is rather peculiar; it does not seem to be anything close to what may be called "the underlying metre" of khlo:n \_si: which may be symbolized in the following way:

Line 1: X X X X X Ø X X  $\left\{ \begin{array}{l} X X \\ \emptyset \emptyset \end{array} \right\} \emptyset$

Line 2: X X X X X Ø X X Ø Ø Ø

Line 3: X X X X X Ø X X  $\left\{ \begin{array}{l} X X \\ \emptyset \emptyset \end{array} \right\} \emptyset$

Line 4: X X X X X Ø X X X X Ø

The underlying structure is composed of four metrical units or four lines and each line contains eleven rhythmic units as shown in the diagram above. Compare the underlying metrical structure with the two following surface structures performed by the subject (RU = rhythmic unit):

Ex. 1 Line 1: X X X X X X X Ø (8 RU)

Line 2: X X X X X X X Ø (8 RU)

Line 3: X X X X X X X X X Ø (10 RU)

Line 4: X X X X X X X X X Ø (10 RU)

Ex. 2 Line 1: X X X X X X X Ø (8 RU)

Line 2: X X X X X X X Ø (8 RU)

\*\*\*Line 3: X X X X X X X Ø (8 RU)

\*\*\*Line 4: X X X X X X X X Ø (9 RU)

According to the way the poem (Ex. 2) was read, Lines 3 and 4 may be scanned as follows:

\*\*\*Line 3:  $\overset{\wedge}{\text{rw}}$   $\overset{\wedge}{\text{du: rw}}$  di: dε: \_sat  $\overset{\wedge}{\text{su:kən}}$  na:  $\overset{\wedge}{\emptyset}$   
 X X X X X X Ø

\*\*\*Line 4:    \_ ja:   `wa:   rau   `tɕa:u   `kha:   \_ ju:   - phw:n   dīn   diəu   ^  
                   X       X       X       X       X       X       X       X       X       ∅

It is quite obvious that the surface rhythmic structure of the two poems read by the subject does not correspond very well with the underlying rhythmic structure of khlo:ŋ \_si:, which is based, more or less, on the traditional scansion. Perhaps, many more varieties of patterns could be found if one cared to investigate further. It is interesting to see whether the other Thai dialects and Tai languages (spoken outside Thailand) have this kind of verse or not. If khlo:ŋ \_si: existed in the system of versification of those dialects and languages, its existence might be a good clue for us to make a final conclusion.

#### ๑.๓๕han

๑.๓๕han is the only type of Thai poetry that has the restriction of ˉkha? ˉru? (heavy syllables) and -la?\_hu? (light syllables) in its metric system. The ๑.๓๕han metrics was adapted from an Indic metrics. The original metrics, described in the -ma?-khot or Pali scripture has only the restriction of heavy and light syllables but no rhyme scheme. It has been said that an Indian hermit named วาฬภิกิ [wa:n -mi?-ki?] created this kind of verse which appeared for the first time in the Ramayana epic. There were two important texts on the Indian ๑.๓๕han : คัมภีร์โพสุธาสังการ [kham phi: pho: \_su? tha: laŋ ka:n] and คัมภีร์วุตโตทัย [kham phi: -wut to: thai] which originally had been written in Sanskrit and later translated into Pali, the language which once was spoken in the -ma? -khot State or Bihar; now it is a dead language used only in the Buddhist scripture. According to [kham phi: -wut to: thai], ๑.๓๕han is divided into two types: วรรณพฤติ [wan-na? -phrw] which is based on



consist of 2 metrical units, then, two lines, and each line contains 10 rhythmic units which can be diagrammed as follows:

Line 1: | S | S W | S | S W W | S | ^ W W | S W | S | S | S | ø |

Line 2: | S | S W | S | S W W | S | ^ W W | S W | S | S | S | ø |

It seems to me that *tshan* must be read with a stress-timed rhythm, otherwise the heavy and light syllables cannot be differentiated at all. It is noticeable that all of the light syllables (underlined) have the syllabic structure CV?, except the grammatical word *'kɔ:* which has the structure CV:. To indicate clearly the rhythmic movement, Ex. 1 may be scanned in the following way:

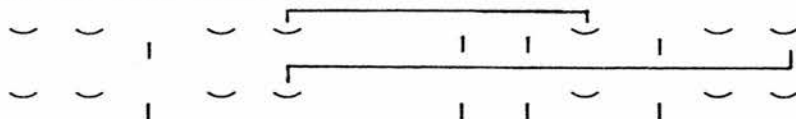
Line 1: | ja:m | -khe:n | 'kɔ | 'khen | ka mələ | -sɔ:ŋ |

| ^ sə rə | 'kɔŋ krə | -hum | phrai | .61 | (4.19 + .61)

Line 1: | 'ʔo: | khuən tɕə | tɕhom | -nu -tɕhə tɕhə | .nai |

| ^ -na tɕə | .nam mə | -nat | pɔ:ŋ | ʔ | (4.03 + ?)

ʔin -tha?-ra? -wi? tɕhien tɕhan



Stanzaic structure: A stanza is composed of two lines or four half-lines; the first and the third half-line contain five syllables--four heavy syllables and one light syllable, whereas the second and the fourth half-line contain six syllables--three heavy and three light syllables, as illustrated in the above diagram.

Ex. 1                      เสียงเจ้าลิเพรกว่า                      ดุริยางคประดิษฐ์  
    พากฟ้าสุราลัย    สุรศัพทะเรียงมัย  
       (มีทนะพาธา)

ˌsiəŋ    ˈtəu    ˌsi?    phrau    ˌkwa:    ...  
 .46       .41       .19       .43       .34       .20

ˌdu?    ˌri?    ja:ŋ    ˌkha?    ˌdi:t    nai    ...                      (3.59 + .43)  
 .22       .18       .37       .12       .32       .35       .43

ˌfa:k    ˌfa:    ˌsu?    la:    lai    ...  
 .41       .44       .20       .46       .32       .17

ˌsu?ˌra?    ˌsap    ˌtha?    rɯ:ŋ    rom    ...                      (3.34 + ?)  
 .20    .12       .37       .13       .25       .27       ?

To make it sound like ˌtəphan, the poem must be read with a stress-timed rhythm. The underlying structure may be represented in the following way:

Line 1:    | S | S W | S | S | ^ W W | S W | S | S | ø̂ |  
                  | X | X    | X | X |    X    | X    | X | X |    |

Line 2:    | S | S W | S | S | ^ W W | S W | S | S | ø̂ |  
                  | X | X    | X | X |    X    | X    | X | X |    |

This kind of poem is composed of two identical metrical units or two lines, and each line contains nine rhythmic units as illustrated in the diagram above. Thus, Ex. 1 may be scanned as follows:

Line 1:    | ˌsiəŋ | ˈtəu si | phrau | ˌkwa: |  
                  | .46 | .60    | .43 | .34 |  
                  | ^ du ri | ja:ŋ khə | ˌdi:t | nai | ^ .43 | (3.59 + .43)  
                  | .60 | .49    | .32 | .35 |    |

Line 2:    | ˌfa:k | ˌfa: su | la: | lai |  
                  | .41 | .64    | .46 | .32 |  
                  | ^ su rə | ˌsap thə | rɯ:ŋ | rom | ^ ? | (3.34 + ?)  
                  | .49 | .50    | .25 | .27 |    |

ˌtəphan has been regarded as the most elegant and sophisticated form of verse. Nowadays, a ˌtəphan poem is composed only for a special occasion, e.g. to wish the members of the Royal family a happy

birthday, etc. To be able to compose a good ,tʰan poem, a phonetic knowledge of stress and syllabic structure is required.

klɔ:n

In opposition to ,tʰan, klɔ:n -pɛ:t is the simplest type of Thai poetry, thus, the most popular among ordinary people. A klɔ:n poem is like a lyric poem, since it can be sung. A stanza of klɔ:n contains four halflines which are called -wak\_sa?\_dap (listening halfline), -wak -rap (receiving halfline), -wak rɔ:ŋ (supporting halfline) and -wak soŋ (sending halfline). A halfline is supposed to have eight "kham(s)" I am not certain whether a "kham" is "syllable" or a "word". The following is the traditional diagram of klɔ:n, (a "kham" is represented by a circle):

(listening)            0 0 0 0 0 0 0 0 0      0 0 0 0 0 0 0 0      (receiving)  
 (supporting)           0 0 0 0 0 0 0 0 0      0 0 0 0 0 0 0 0      (sending)

Let us look at the famous three stanzas of klɔ:n written by the master of klɔ:n poetry named สุนทรภู [ ,sun tho:n `phu: ]:

ถึงม้วยดินสิ้นฟ้าหยาสมุท	ไม่สิ้นสุดความรักสมครสมาน
แม่เกิดในใต้ฟ้าสุธาธาร	ขอพบพานพิศวาสไม่คลาดคลา
แม่เนื้อเย็นเป็นท้วงมหรณพ	พี่ขอพบศรีสวัสดิ์เป็นมัจฉา
แม่เป็นบัวตัวพี่เป็นกุมรา	เขยผกาโกสมบุษยทอง
เจ้าเป็นถ้ำอำไพขอให้พี่	เป็นราชสีห์สมสู่เป็นคู่สอง
ขอติดตามทรามสงวนนวลละออง	เป็นคู่ครองพิศวาสทุกชาติไป

(พระอภัยมณี)

	Syll.	Word
,thwŋ.-muɛi.din.`sin.-fa:.-ma?.,ha:._sa?._mut	9	7
`mai.`sin._sut.khwa:m.-rak._sa?._mak._sa?.,ma:n	9	7
-mɛ:._kɣ:t.nai.`ta:i.-fa:._su?.tha:._tha:n	8	7

khɔ:-phop.pha:n.-phit._sa?._wa:t.`mai.`khla:t.khla:	9	7
-mɛ:.`nwə.jen.pen.`huəŋ.-ma?.`han.-nop	8	6
`phi:.`khɔ:.-phop.`si:._sa?._wat.pen.-mat.`təha:	9	7
_mɛ:.pen.buə.tuə.`phi:.pen.phum.-ma?.ra:	9	7
təxi.-pha?.ka:.ko:.`sum.-pa?.thum.thɔ:ŋ	8	5
`təau.pen.`tham.?am.pai.`khɔ:.`hai.`phi:	8	7
pen.`ra:t.-təha?`si:.`sɔm_su:.pen.`khu:.`sɔ:ŋ	9	6
_təa?._tit.ta:m.sa:m._sa?.`ŋuən.nuən.-la?.?ɔ:ŋ	9	6
pen.`khu:.khɔ:ŋ -pit._sa?_wa:t.-thuk.`təha:t pəi	9	7

From the example above, a "kham" is neither a syllable nor a word, even though it is more likely to be a syllable. The idea of syllable count is not strict anymore; for instance, it has been stated that a halflineline can contain six to ten kham(s) instead of eight (e.g. Vilavarn, 1968: 396). It is something which is allowed but nobody attempts to explain why. In my opinion, rhythmic change is the cause of it. Thus, a stanza of klɔ:n\_pɛ:t may be said to contain four metrical units (or four lines) and each line consists of eight rhythmic units; it is not necessary that one unit must have one syllable or one "kham". To demonstrate the new convention, the first stanza of the example above may be scanned in the following way:

Line 1:	^	X	thwŋ	-muəi	di:n	`sin	-fa:mə	ha:sə	_mut		∅	
Line 2:	^	X	`mɛi	`sin	_sut	kha:m	-rak sə	_mak sə	ma:n		∅	
Line 3:	^	X	-mɛ	-kɔ:t	nɛi	`ta:i	-fa:_su	tha:	tha:n		∅	
Line 4:	^	X	khɔ	-phop	pha:n	-pit sə	_wa:t`mɛi	`khla:t	khla:		∅	



an action; it can be as long as one wishes, but it must end with a two-syllable kham `soi, e.g. -ni: -thɜ:t, -nan lɛ:, etc. In order to enjoy reading a `ra:i ja:u, a stress-timed rhythm is recommended. It is more suitable than a syllable-timed rhythm, because some redundant syllables and words can be made less prominent, and more attention can be drawn to particular points in a passage. As stated by Boomsliter et al. :  
 "... stress is a physical signal to call attention to governing meanings, at the times for which attention is mobilized in advance. It is this concept that accents are timed attention peaks, ..." <sup>4</sup> The scansion and the measurements of syllable and foot durations of the two extracts below may be used as an illustration:

Ex. 1 โส รุณฺณโย โอโອกออเฒ่าชรามิแต่น้ำตาไม่หยุดยั้ง ไหลลละคลอกลังคลุ้มคล่า  
 น้ำใจตน ให้สยดสยของชนตนสิ้นประพรัณกแล้ว ให้ป่วย ๆ ปวดกริ่งเรียนหัวมัวมืดทั้งหน้าตา  
 ทั้งว่าจะดับเค็ดดวงชีวา วรชีวาตม้จะม้วยมรณ

(มหาเวสสันดรชาดก : ชุชก กัณฑ์ ๕)

so: | run-nə mu | kho: | ʔo: | ʔo: | -ʔok |  
 .65 | .06 .17 .18.14 | .53 | .74 | .42 | .39 | .31 | .16 .23

thau tɕhə | ra: | mi: | -tɛ: -nəm | ta: `mɔi | -jut | -jaŋ |  
 .34 .17 | .48 .38 | .21 .20 | .41 .20 | .27 | .32

lai`khle | khlo: | `khlaŋ | -khlum | `klam | -na:m | tɕai  
 .67 | .38 .17 | .34 | .47 | .35 | .31 | .29 | .30

ton | `həi sə | -jot sə | ʔɔ:ŋ | ʔhon | ton | -san prə  
 .37 | .47 | .19 .18 | .25 .22 | .39 | .38 | .30 | .39 .14

phran | klue | `həi | -puəi | -puəi | -puət | wiŋ | wiən  
 .38 | .46 | .50 | .11 | .41 | .45 | .53 | .36 | .41

<sup>4</sup>Boomsliter et al., "Perception of English Poetic Metre," 1973 p. 206.

| <sup>.56</sup> huə | muə | <sup>.55</sup> mu:t -thəŋ | <sup>.55</sup> na: | ta: | <sup>.55</sup> -daŋ wə tɕə | -dap | -det  
 | .32 | .36 | .38 .18 | .27 | .40 | .57 | .29 .12 .14 | .38 | .33

| <sup>.49</sup> duəŋ tɕhi | wa: | <sup>.55</sup> wə rə tɕhi | <sup>.58</sup> wa:t tɕə | -muəi | mɔ:n | <sup>?</sup>  
 | .29 | .20 | .44 | .19 .15 .21 | .45 | .13 | .28 | .26 | <sup>?</sup>

Ex. 2 ว่าโอ้ออกฤในครั้งนี้ ฝันจะเป็นคนหรือเป็นผีไม่รู้เลย โอ้ออเรือณฤอัย อ้ายเรือ  
 ฤที่ฤเคยอยู่ ฝันจะเป็นเรือณฤหรือเรือเนา ยิ่งคิดก็ยิ่งเศร้าโศกรกสลกระทดถอย หันหน้าหันหลัง  
 ละล้าละล้ง ยิ่งยั่นกลับบ้อย ๆ ถอยไปแล้วก็ถอยมา

(มหาเวสสันดรชาดก : ชุชก กัณฑ์ที่ ๕)

| <sup>.42</sup> wə | <sup>.42</sup> ʔo: | <sup>.42</sup> ʔo: | -ʔok | ku: nɛi | -khrəŋ | -ni: | <sup>.42</sup> | <sup>.42</sup> ni | man  
 | .17 | .41 | .48 | .29 | .28 .14 | .37 | .31 | .60 | .10 | .19

| <sup>.53</sup> tɕə pen | <sup>.75</sup> khon -rw pen | <sup>.79</sup> phi: məi -ru | lɜ:i | <sup>.53</sup> | <sup>.53</sup> ʔo: | <sup>.53</sup> ʔo:  
 | .13 .21 | .44 .10 .21 | .40 .19 .20 | .55 | .62 | .38 | .36

| <sup>.54</sup> rwən ku | <sup>.54</sup> ʔɜ:i | <sup>.34</sup> ʔei | rwən | ku: <sup>.75</sup> thi ku | khɜ:i | -ju:  
 | .34 .20 | .54 | .20 .14 | .30 | .38 .15 .22 | .37 | .28

| <sup>.55</sup> ni mən tɕə | pen | rwən | ku: -rw | rwən | <sup>.55</sup> khau  
 | .61 | .12 .17 .10 | .29 | .31 | .41 .14 | .33 | .27

| <sup>.62</sup> jɪŋ | -khit <sup>.62</sup> kə <sup>.62</sup> jɪŋ | <sup>.54</sup> sau | -so:k sə | <sup>.45</sup> lot rə | -thot  
 | .57 | .19 | .24 .20 .18 | .48 | .38 .16 | .34 .11 | .32

| <sup>.48</sup> thɔi | <sup>.48</sup> han | <sup>.48</sup> na: | <sup>.48</sup> han | <sup>.37</sup> laŋ lə | -la: lə | laŋ | <sup>.48</sup>  
 | .36 | .59 | .31 | .43 | .25 | .37 .11 | .25 .12 | .38 | .42

| <sup>.46</sup> -jaŋ | jan | <sup>.46</sup> -klap -bɔi | <sup>.46</sup> -bɔi | <sup>.56</sup> thɔi | pai -lɛu <sup>.56</sup> kə | <sup>.56</sup> thɔi | ma: | <sup>?</sup>  
 | .36 | .43 | .35 .11 | .38 | .36 | .23 .20 .13 | .28 | .36 | <sup>?</sup>

The result of the investigation of rhythmic structures in Thai poetry seems to support very well the hypothesis that Thai is neither a pure syllable-timed nor a pure stress-timed language, since both types of rhythm occur in Thai verse as well as in prose and ordinary speech. The choice of rhythm depends upon the taste of an individual.

However, there is a tendency toward the stress-timed rhythm, especially in a more elegant type of speech, prose and verse.

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## APPENDIX I

## Stress Placement on Polysyllabic Words

2-SYLLABLE WORDS

PATTERN	THAI SCRIPT	PRONUNCIATION			ENGLISH GLOSS
		CASUAL SPEECH	CAREFUL SPEECH	EMPHATIC SPEECH	
A. CV?S	กระดูก	~   ke_du:k	~   kra_du:k	~   _kra?_du:k	bone
	กะทิ	ke-thi?	ka-thi?	_ka?-thi?	coconut cream
	ชะตา	tʰe ta:	tʰa ta:	-tʰa? ta:	fate, destiny
	ตะขอ	te,kho:	ta,kho:	_ta? ,kho:	hook
	ทะเล	the le:	tha le:	-tha? le:	sea, ocean
	ประชด	pe -tʰot	pra -tʰot	_pra?-tʰot	to be sarcastic
	ปะทะ	pe-tha?	pa-tha?	-pa?-tha?	to collide, to clash
	มะลิ	me-li?	ma-li?	-ma?-li?	jasmine
	ระลอก	re `lo:k	ra `lo:k	-ra? `lo:k	ripple, wave
	ละเมอ	le mx:	la mx:	-la? mx:	to talk in one's sleep
	สะอึก	se `ʔw:n	sa `ʔw:n	_sa? `ʔw:n	to sop

PATTERN	THAI SCRIPT	PRONUNCIATION			ENGLISH GLOSS
		CASUAL SPEECH	CAREFUL SPEECH	EMPHATIC SPEECH	
B. CVN.S	ตำนาน	tem na:n	tam na:n	tam na:n	legend
	สำเร็จ	·sam_ret	·sam_ret	·sam_ret	to be successful
	ทำนาย	them na:i	tham na:i	tham na:i	to foretell
	บำนาญ	bem na:n	bam na:n	bam na:n	pension
	กำไล	kem lai	kam lai	kam lai	bangle
	จำนวน	tɕem nuen	tɕam nuen	tɕam nuen	amount
	ชำนาญ	tɕham na:n	tɕham na:n	tɕham na:n	to be skillful
	ดำเนิน	dəm nx:n	dəm nx:n	dəm nx:n	to proceed
	อำนาจ	em `na:t	am `na:t	?am `na:t	power authority
	บันทึก	bən-thuk	bən-thuk	bən-thuk	to search
	บรรยาย	bən ja:i	bən ja:i	bən ja:i	to lecture
	บังเอิญ	bəŋ ?x:n	bəŋ ?x:n	bəŋ ?x:n	by chance

3-SYLLABLE WORDS

PATTERN	THAI SCRIPT	PRONUNCIATION			ENGLISH GLOSS	
		CASUAL SPEECH	CAREFUL SPEECH	EMPHATIC SPEECH		
A. S.CV?S	จากระเมียด	~ ~   tse re~met	~   tsa: ra~met	 tʃa:~raʔ ~met	a kind of sea fish	
	ศรีสระเกษ	si se_ke:t	si: sa_ke:t	si:~saʔ_ke:t	name of a province	
	กำมะหยี่	ka ma_ji:	kam ma_ji:	kam ~maʔ_ji:	velvet	
	มรกต	me re_kot	me: ra_kot	me:~raʔ_kot	emerald	
	บิดรungsk	_bi tu roŋ	_bit tu roŋ	_bit ~tuʔ roŋ	father (literary)	
	เทศนา	'the se ,na:	'the:t sa ,na:	'the:t~saʔ ,na:	to preach	
	ภูมิศาสตร์	phu mi_sa:t	phu:~mi_sa:t	phu:~miʔ~sa:t	geography	
	มาตุภูมิ	me tu phu:m	ma:~tu phu:m	ma:~tuʔ phu:m	home land	
	B1. CV?CV:..S	พหูพจน์	~ ~   phe ,hu~phot	~     pha ,hu:~phot	 ~phaʔ ,hu:~phot	plural
		มโหรี	me ,ho ri:	ma ,ho: ri:	~maʔ ,ho: ri:	Thai orchestra
พยายาม		phe je ja:m	pha ja: ja:m	~phaʔ ja: ja:m	to attempt	
ยโสธร		je ,so tho:n	ja ,so: tho:n	~jaʔ ,so: tho:n	name of a province	

PATTERN	THAIScript	PRONUNCIATION			ENGLISH GLOSS
		CASUAL SPEECH	CAREFUL SPEECH	EMPHATIC SPEECH	
B2. CV:•CV:•S	สุภาสิต	su pha_sit	su pha: _sit	_su? pha: _sit	proverb
	บุรีรัมย์	bu ri ram	bu ri: ram	_bu? ri: ram	name of a province
	อาณาจักร	e ne _tsak	a na: _tsak	?a: na: _tsak	kingdom
	ภาษาศาสตร์	pha ,se_sa:t	pha ,sa:_sa:t	pha ,sa:_sa:t	linguistics
	อาภรณ์	phu ,se phan	phu ,sa: phan	phu ,sa: phan	clothing
	โหราศาสตร์	,ho re _sa:t	,ho ra: _sa:t	,ho: ra: _sa:t	astrology
	ดาราศาสตร์	de re _sa:t	da ra: _sa:t	da: ra: _sa:t	astronomy
	มะละกอ	me le ko:	ma la ko:	_ma? _la? ko:	papaya
	กิริยา	ki ri ja:	ki ri ja:	_ki? _ri? ja:	manners
	สาระแทน	se re _ne:	sa ra _ne:	_sa? _ra? _ne:	mint
C. CV? CV? .S					

4-SYLLABLE WORDS

PATTERN	THAI SCRIPT	PRONUNCIATION			ENGLISH GLOSS
		CASUAL SPEECH	CAREFUL SPEECH	EMPHATIC SPEECH	
A. CV? .S .CV? .S	อเมริกา	e me ri ka:	a me: ri ka:	_?a? me: ˉri? ka:	America
	อันตราย	e ,so re ˉphit	a ,so: ra ˉphit	_?a? ,so: ˉra? ˉphit	poisonous snake
	นันทนาการ	me ,ho re _sop	ma ,ho: ra _sop	ˉma? ,ho: ˉra? _sop	entertainment
	นันทนาการ	ne ˉmat se ka:n	na ˉmat sa ka:n	ˉna? ˉmat _sa? ka:n	to pay respect
B. S .CV? .S .S .	วิทยาลัย	ˉwi the je lai	ˉwit tha ja: lai	ˉwit ˉtha? ja: lai	college
	ศาสตราจารย์	_sat se te tsa:n	_sa:t sa tra: tsa:n	_sa:t _sa? tra: tsa:n	professor
	วิทยาศาสตร์	ˉwit the je _sa:t	ˉwit tha ja: _sa:t	ˉwit ˉtha? ja: _sa:t	science
	อุปการะ	u pe ke ˉra?	?up pa ka: ˉra?	?up _pa? ka: ˉra?	to sponsor
C. S .CV? .CV? .S	อันตรธาน	en te re tha:n	?an ta ra tha:n	?an ta? ˉra? tha:n	to disappear
	ศิลปศาสตร์	,sin le pe _sa:t	,sin la pa _sa:t	,sin ˉla? pa? _sa:t	liberal arts
	ปาฐกถา	pe _tho ke ,tha:	pa: _tha ka ,tha:	pa: _tha? _ka? ,tha:	to give a lecture
	อิสรภาพ	_i se ra ˉpha:p	?it sa ra ˉpha:p	_?it _sa? _ra? ˉpha:p	freedom, liberty

5-SYLLABLE WORDS

PATTERN	THAI SCRIPT	PRONUNCIATION			ENGLISH GLOSS
		CASUAL SPEECH	CAREFUL SPEECH	EMPHATIC SPEECH	
A. S.CV? .S.CV? .S	ไปรษณีย์	prei se ni: je ko:n	prai sa ni: ja ko:n	prai_sa? ni: ja: ko:n	postage stamp
	รัฐธรรมนูญ	re the tham e nu:n	rat tha tham ma nu:n	rat_tha? tham ma? nu:n	constitution
	บุคคลภาพ	bu khe lik e pha:p	buk kha lik ka pha:p	buk_kha? lik_ka? pha:p	individuality
	พุทธศาสนา	phu the sa:t se na:	phut tha sa:t sa na:	phut_tha? sa:t sa? na:	Buddhism
	พจนานุกรม	pho tse na: nu krom	phot tsa na: nu krom	phot_tsa? na: nu? krom	dictionary
	ประชาธิปไตย	pre tsha: thi pe tai	pra tsha: thi pa tai	pra? tsha: thi pa? tai	democracy
	สังหาริมทรัพย์	sa? ha: ri ma sap	sa? ha: rim ma sap	sa? ha: rim ma? sap	movable property
	กรกฎาคม	ke re ke da: khom	ka rak ka da: khom	ka rak ka da: khom	July
	ปวงกิจการ	pe we te na: ka:n	pa wat ta na: ka:n	pa? wat ta? ka:n	action indicating course of events
B. CV? .S.S.CV? .S					
C. CV? .S.CV? .S.S.					

## APPENDIX II

Homonyms and Words Having Two Functions: as a  
Content Word and a Grammatical Word

ABBREVIATIONS

V	=	verb
sV	=	secondary verb
AA	=	adverb-auxiliary
rcP	=	reciprocal pronoun
rP	=	relative pronoun
N	=	noun
Nm	=	numerative
clf.	=	classifier
cj.	=	conjunction

1. វិញ \_klap (V) 'to return'

Ex. 1 tʰə | \_klap -rw | jaŋ

'Would you like to go back.'

\_klap (AA) 'contrary to expectation'

Ex. 2 `jiŋ | `ha:m | kləp `jiŋ | \_ja:k

'The more I try to stop him the more he wants to do it.'

2. កា kan (V) 'to prevent'

Ex. 3 | kan | -wai | di\_kwa | `ke:

'To prevent a problem is better than to solve it.'

kan (rcp) 'mutually'.

Ex. 4 `mæi mi | tha:ŋ `kəu | tʰai kən | lɛ:i

'There is no way to make them understand each other.'

kan (AA) 'simultaneous and identical action by the member  
of a group.'

Ex. 5 | pha: kən | dɛ:n pəi roŋ | riən

'They all walk to school.'

3. 飢 kap (N) 'food'

Ex. 6 wən | -ni: mi | kap ə | rai

'What will we get for our meal, today?'

-kap (cj.) 'with, at'

Ex. 7 | -ju: kap | 'jau | ^ | 'fau kap | rwan

'to stay at home and do house work.'

4. 杼 ki: (N) 'a loom'

Ex. 8 'məi | khɿ:i | ,hen | ki:

'I've never seen a loom.'

-ki: (Nm) 'how many, how much.'

Ex. 9 mi | ,ma: ki | tuə

'How many dogs are there?'

5. 起 khwn (V) 'to rise, grow'

Ex. 10 | -phra? ə | -thit | 'khwn | -hok | mo:ŋ

'The sun rises at 6 o'clock.'

'khwn (sV) 'up'

Ex. 11 | ta:m 'khwn | ma: 'thi | 'ni:

'Follow me up here.'

6. 入 khau (V) 'to enter'

Ex. 12 'məi | -ja:k | 'khau | 'ba:n

'I don't want to enter the house.'

'khau (sV) 'in, into, to'

Ex. 13 krə | tso:n 'khəu | -sai

'to leap up at'

7. 貧 tson (V) 'to be poor'

Ex. 14 | mi: ,rw | tson 'kə | khon ,mwən | kan

'Whether rich or poor, we are human beings.'

- tɕon (cj.) 'so ... that'
- Ex. 15 | ,wa:n tɕon | \_sɛ:p | kho:  
'So sweet that it stings the throat.'
8. ช่าง `tɕha:ŋ (N) 'an artisan'
- Ex. 16 nai | `tɕha:ŋ \_ju | -mai  
'Is the artisan in?'
- `tɕha:ŋ (AA) 'very, so, awfully'
- Ex. 17 pen | khon `tɕhəŋ | -su:  
'to be very good at buying.'
9. ได้ `da:i (V) 'to get, obtain'
- Ex. 18 | \_ja:k | `da:i ə | rai  
'What would you like to get?'
- `da:i (AA) 'did (indicating past tense)'
- Ex. 19 `dəi | \_kla:u mə | -!ɛ:u  
'I did mention it.'
- `da:i (sV) 'able to, can, could'
- Ex. 20 | kin `dəi | `ma:k  
'to be able to eat a lot.'
10. ต่อ \_tɕɔ: (V) 'to continue'
- Ex. 21 khuən | \_tɕɔ: `həi | \_tɕɔp  
'You'd better continue until it is finished.'
- \_tɕɔ: (sV) 'further, on, next.'
- Ex. 22 | -pliən | tɕai nəi we | la: \_tɕɔ | ma:  
'to change one's mind afterwards.'
11. ต้อง `tɕɔŋ (V) 'to be in agreement'
- Ex. 23 rəu | ,hen | `tɕɔŋ | kan  
'Our ideas are in agreement.'
- `tɕɔŋ (AA) 'have to, must'

- Ex. 24 | khrai tɕə `tɔŋ | pai  
'Who has to go?'
12. คอณ tɔ:n (V) 'to castrate'
- Ex. 25 pəi | tɔ:n | ,mu: kən | -thɤ?  
'Let's go to castrate the pigs.'  
tɔ:n (clf.)
- Ex. 26 | tham tɔŋ | jen di | -kwa  
'We'd better do it in the evening.'
13. ต่าง \_ta:ŋ (V) 'to differ'
- Ex. 27 rəu | \_ta:ŋ kən | `mə:k  
'We differ greatly.'  
\_ta:ŋ (AA) 'separately'
- Ex. 28 | -khit `kha | \_sɔŋ \_təŋ | \_ha:k  
'with postage figured separately.'
14. ถึง ,thwŋ (V) 'to reach, to arrive'
- Ex. 27 | tɕuən tɕə | ,thwŋ \_ju | -lɛ:u  
'We almost arrived (at the place).'  
,thwŋ (AA) 'although'
- Ex. 28 ,thwŋ | \_thu:k `kɔ `mæi | -su:  
'Although it's cheap, I won't buy it.'
15. ๓ thi: (N) 'turn'
- Ex. 29 pen | thi: ,khɔŋ | khun  
'It's your turn.'  
thi: (clf.) 'time'
- Ex. 30 | \_dw:m thi lə | -nɔ:i  
'Drink it little by little.'

16. 𑖓𑖄    `thi: (N) 'place, land'
- Ex. 31    `ni pen | `thi: ,khəŋ | dɛ:ŋ  
           'This is Daeng's land.'
- `thi: (rP) 'which, who, that'
- Ex. 32    | \_kɔ:n `thi tɕə | \_klap | `ba:n  
           'before going home.'
17. 𑖓𑖅    pen (V) 'to be alive'
- Ex. 33    | pen ,ru | ta:i  
           'Dead or alive?'
- pen (sV) 'as'
- Ex. 34    | `kle:ŋ | tham pen | `ba:  
           'to pretend as if one was mad'
18. 𑖓𑖆    pai (V) 'to go'
- Ex. 35    | khrai tɕə | pai | `ba:ŋ  
           'Who would like to go?'
- pai (sV) 'on, off, away, to'
- Ex. 36    məŋ | \_pha:n | -phoŋ pəi | ˀle:u  
           'it's over.'
19. 𑖓𑖇    loŋ (V) 'to put (something) down'
- Ex. 37    | loŋ khe | nɛ:n  
           'to vote'
- loŋ (sV) 'down'
- Ex. 38    | -lom | tuə loŋ | nɔ:n  
           'to lie down.'
20. 𑖓𑖈    lɣ:i (V) 'to be beyond'
- Ex. 39    `məi | lɣ:i \_rɔk | khun  
           'You haven't past it yet.'

- lɿ:i (AA) 'so, then, consequently.'
- Ex. 40 'məi | 'tʂhɔ:p | ʌ | lɿi 'məi | -ʔa:n  
'I don't like it, so I didn't read it.'
21. อยู่ -ju: (V) 'to stay'
- Ex. 41 tʂə | -ju: 'thi | 'ba:n  
'I'll be at home.'  
-ju: (sV) 'to be in the state of'
- Ex. 42 | 'phu:t -ju: | 'da:i  
'still go on talking'
22. เหมือน ,mʷən (V) 'to be like'
- Ex. 43 -khəu | ,mʷən | 'phɔ:  
'He looks like his father.'  
,mʷən (sV) 'as'
- Ex. 44 |-rak ,mʷən | 'lu:k  
'to love someone as one's own offspring.'
23. ไม่มี -mɔt (V) 'to no longer exist'
- Ex. 45 | -mɔt pən | ,hɑ: kən | thi:  
'The problem, then, has already been solved.'  
-mɔt (sV) 'all up, completely'
- Ex. 46 | -nɔk | kin | -thuə -mɔt | -lɛ:u  
'The birds ate up all the beans.'
24. ให้ 'hai (V) 'to give'
- Ex. 47 əu pəi | 'hai 'tʂəu | dɛ:ŋ  
'to go and give it to Daeng.'  
'hai (sV) 'in order to, so that'
- Ex. 48 thə | ,lʷŋ | ta 'həi | -jut  
'to give someone a stern look to make him stop.'

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