Phonetic and Phonotactic Analysis of Manggarai Language

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ABSTRACT

Manggarai language is one of sixty-eight languages spoken in East Nusa Tenggara. This language is spoken in West Manggarai Regency which has Labuan Bajo as its capital. This language is unique in that it contains phonemes and phoneme combinations which are not found in Indonesian or its neighbouring languages. Thus, this article will explore the phonetic and phonotactic structures of Manggarai language. The materials were taken from Swadesh-based Wordlist. The method used for collecting data was translating 250 words into Manggarai language and recording the pronunciation of those words by a native speaker of Manggarai language. The results revealed that based on the data, Manggarai language only have five places of articulation: bilabial, alveolar, palatal, velar and glottal and five manners of articulation: plosive, fricative, nasal, semi vowel and approximant. As for the phonotactic structure, some nasals function as pre-phoneme such as [nt] and [mb]. In conclusion, Manggarai language is an interesting language to study, especially because it has specific phonetic characteristics. Researching an ethnic language like Manggarai language is important as one of the ways to preserve endangered languages.

Keywords: Manggarai language, phonetic, phonotactic, Swadesh list

1. INTRODUCTION

Manggarainese is an ethnic language spoken in West Flores, East Nusa Tenggara Province. Its usage covers three regencies of Manggarai culture, which are Manggarai Regency, West Manggarai Regency, and East Manggarai Regency (Kosmass, 2017). Meanwhile, Verheijen (1991) introduced this language as 'Manggarainese Dialect S>H' because its native speakers prefer using [h] sound to [s] sound. Generically, Manggarainese belongs to two language groups: Polynesian Malay and Central Austronesian Language (SIL International 2006, p.103).

Previous studies on Bahasa Manggarai (BM) mostly discuss its morphological typology. Kosmass (2017) claimed that BM is an isolated language since 'it does not experience affixation process'. This language does not have morphological markers, in particular affixes. The morphological processes that occurred in this language are reduplication and composition (Suryadi, 2018). Moreover, Aritonang [1] added that from a morphological aspect, BM has three identifiable characteristics: has no time and gender markers on pronominals, has no suffixes, and has no derivational and inflectional morphemes. Mangga [2] also found that BM has no passive markers.

On the contrary, phonological properties of BM have not been discussed thoroughly in the previous research. Likewise, there has been no consensus on the number of phonemes occur in BM. Verheijen (1991) mentioned eighteen (18) consonants, whose phonetic realization comprises of twenty-two (22) consonant sounds. Eduard [9] also found 18 consonant sounds, but he did not include the pre-nasal consonants, which he classified as consonant clusters. In other studies, Mustika [3] found 6 vowels and 25 consonants.

The inconclusive results regarding the phonological properties of BM might happen because of the difference in data collection methods applied by the researchers and the number of informants employed to gather field data. However, this might as well open a wider opportunity to conduct further research on BM to get a more comprehensive understanding of BM, in particular its phonological aspects.

The present study deals with the descriptive analysis of the phonetic and phonology of BM. The problems of the study are formulated as follows: (1) What are the consonant and vowel phonemes found in BM? (2) What are the phonotactic structures found in BM? The present study is expected to give a better understanding of the

phonetics and phonological aspect of BM and contribute to the study of ethnic languages in general

2. THEORETICAL FRAMEWORK

This section discusses the theoretical framework used in this article consisting of consonants and vowel, pre-nasalized consonants, and syllable structure.

2.1. Consonants and vowel phonemes

Phonemes are the different sounds within a language [4]. Phonemes are divided into consonants and vowels. In general, consonants are defined as sounds which are produced with some obstruction to the flow of air as it passes from the larynx to the lips [5]. Consequently, vowels are defined as the sounds which are produced without any obstruction to the flow of air as it passes from the larynx to the lips. Thus, the main difference between consonants and vowels lies in the occurrence of obstruction to the flow of air within the articulators.

The description of consonants cannot be detached from the place and manner of articulation. Place of articulation refers to the points at which the flow of air can be modified [6]. Thus, the sounds produced at specific places are named according to the position of the places. Carr identified 8 places of articulation. The first, **glottal** sounds are produced in the space between the vocal cords (which is called glottis). Second **bilabial** sounds, which are the sounds produced by forming a constriction between the lower lip and the upper lip. **Palatal** sounds in which there is a constriction between the front of the tongue and the hard palate. **Velar** sounds are produced with the constriction between the back of the tongue and the velum. **Labiodental** sounds form a constriction between the lower lip and the upper teeth. **Alveolar** sounds form a constriction between the tip of the tongue and alveolar ridge. **Palato-alveolar** sounds form a constriction between the tip of the tongue and the back of the alveolar ridge. **Dental** sounds form a constriction between the tip of the tongue the lower teeth and the upper teeth.

On the contrary, the manner of articulation refers to the interaction between the various articulators and the airstream [4]. The manner of articulation is divided based on the degrees of constriction of the articulators, which are complete closure, close approximation, and open approximation. The **complete closure** produces stops or plosives. In this type, the upper and lower lip completely block the flow of air from the lungs and released, then produce a sudden outflow of air. **Close approximation** produces fricatives sounds in which two articulators are brought together to the point where the airflow is not quite fully blocked, instead enough gap remains for air to escape. Lastly, **open approximation** sounds are produced when the articulators come fairly

close together but not sufficiently close together to create friction.

There are two other manner of articulation which are not classified as approximants. They are **nasals**, or the sounds produced with the velum lowered and the air escaping through the nasal cavity. The other one is **Lateral**, in which the air does not escape through the front but along the sides of the tongue as the tongue forms a semi-circle shape toward the alveolar.

Vowels are sounds in which there is no obstruction to the flow of air as it passes from the larynx to the lips [5]. Vowels are classified based on the tongue height and the frontness and backness and lip rounding. Tongue height divide vowels into open, mid, and close vowels. Frontness divide vowel into front, central and back. Lip rounding can be three possibilities: rounded (the corners of the lips are brought towards each other, and the lips pushed forwards, spread (the corners of the lips moved away from each other as for a smile and neutral) the lips are not noticeably rounded or spread.

2.2. Pre-nasalized consonants

Pre-nasalized consonants are phonetic sequences of a nasal and an obstruent. These consonants, even though they consist of two consonants are not considered as consonant cluster as in the words *finger* [finŋgər] or *member* [membər]. Silverman [7] states there may be phonetic correlates which distinguish prenasalised consonants from cluster because of the additional difficulty in both articulation and timing. Some samples of pre-nasalized consonants are [mb], [mp], [nt], [nd], [ŋk] and [ŋg]. Besides pre-nasal consonants, there are other consonant clusters that can only be found at initial position in some words. These specific phoneme combinations form a certain phonotactic rule in a language [5].

2.3. Syllable structure

A syllable is a unit of organization for a sequence of speech sounds or phonemes. A syllable is typically made up of a nucleus (a vowel) with optional initial and final consonants. Based on its components, a syllable can be categorized into four kinds [5]. They are a minimum syllable [V] which only contains a single vowel in isolation; syllable with onset [CV] consisting of initial consonant and a vowel; syllable with coda [VC], that is a vowel followed by final consonant, and full syllable [CVC] which has onset and coda. The initial and final positions of a syllable can be occupied by a single phoneme or more than one phoneme up to four phonemes. However, the possible combinations of phonemes in a language are regulated by certain phonotactic rules, which differ from one language to another. Indonesian, for example, has phonotactic rules which are not found in English Dardjowidjojo [8]

Cluster [ŋg] cannot be found in English at the initial position, but it can appear in Indonesian and some other ethnic languages in Indonesia.

Syllable structuring or syllabification is also determined by the number of syllables a word has. A word that consists of a single syllable (such as 'cat' in English) is called a monosyllable (or termed as monosyllabic). Words with two syllables are called disyllable or bisyllable; three syllable-words are called trisyllable; and polysyllable refer to a word of more than three syllables.

3. METHODS

This study is designed to be qualitative research by analyzing data gathered from field study. To get the data, the researcher interviewed a native speaker of Manggarai language from Sano, West Manggarai, Flores. The informant was a 30-year-old male who was fluent in in BM and Indonesian. To get data, we use Swadesh wordlist consisting of 250 common words. Using this list, we instructed the respondent to translate the words orally in his native language and we recorded his speech. However, when he could not find a BM word, we allowed him to make a phone call to his elder relative to make sure that all the BM words were correct. After all the words were gathered, we transcribed the words and discussed with the informant regarding the accuracy of the sounds and the transcriptions. After being confirmed by the informant, the researcher then analyzed the phonological properties of Manggarai language consisting of the consonants, vowels, diphthongs, and syllable structures.

4. ANALYSIS

The results are presented following the research questions, consisting of phonemes found in Manggarai language and the phonotactic rules.

4.1. Consonant phonemes

Based on the place of articulation, we found five types of consonant sounds: bilabial, alveolar, palatal, velar and glottal. On the contrary, based on the manner of articulation, it can be categorized into six types: stops, fricative, nasal, semi-vowel, approximant, pre-nasal, and pre-affricate sound. In total we found 26 consonant sounds, including the pre-nasalized sounds and other pre-consonant sounds. The list of words can be seen in the following table.

Table 1 Consonant phonemes found

Manner	Symbol	Samples
Stops	/p/	'pucu' /putʃu/ (chest), and 'purang'/puraɑŋ / (mud)
	/b/	
	/t/	'beti' /bəti/ (hurt) and 'basa' /basa/ (wet).
	/d/	
	/k/	'toko' /toko/ (sleep) and 'tuwa' /tuwa/ (old)
	/g/	'dara' /dara/ (blood) and 'dia' /dia/ (good).
		'kawe' /kawɛ/ (look)
		'ganggus' /ganŋgʊs/ (thunder)
Approximant	/l/	'laing' /laiŋ/ (sand)
	/r/	'ruis' /ruis/ (near)
	/ʁ/	'rang' /ʁaŋ/ (eat)
	/w/	'watu' /watu/ (stone)
Nasal	/m/	mendo' /məndo/ (heavy)
	/n/	'nuru' /nuru/ (flesh)
	/ŋ/	'ngalor' /ŋalɔr/ (river)
Affricate	/tʃ/	'cie' /tʃie/ (salt), and 'ces'/tʃəs / (cold)
	/dʒ/	'gaju' /ɣadʒu / (wood)
Fricative	/ß/	'vulang' /ßulaŋ/ moon; 'vutu' /ßutu/ (lice)
	/s/	'sua' /sua/ (two); 'salang' /salaŋ/ (road)
	/ʔ/	
	/h/	'rempa' /rəmpaʔ/ (finger)
	/ɣ/	'hia' /hia/ (he)
		'kaju' /ɣadʒu / (wood)
Pre-nasal	/mb/	'mbaru' /mbaru/ (house)
	/nt/	'ntailala' /ntailala/ (star)
	/nd/	'ndereng' /ndɛrɛŋ / (red)

	/ŋg/	'nggalek' /ŋgalek/ (slippery)
Pre-consonant	/tʃk/ /pk/	'ckowe' /tʃkowɛ/ (a few) 'pke' /pkɛ/ (shoot)

4.2. Vowel phonemes

Vowels are classified based on the position of the tongue and the distance between the tongue and the roof. Thus, we have close vowels, mid vowels, and open vowels. Based on the part of the tongue being raised, vowels can be classified as front, central and back vowels.

Table 2. Vowel sounds

Vowel types	symbols	Sample words
Close Vowels	[i] [I] [u] [ʊ]	'ikang' /ikaŋ/ (fish) 'saki' /sakɪ/ (dirty) 'pucu' /putʃu/ (chest) 'buru' /burʊ/ (wind)
Mid Vowels	[e]	'lime' /lime/ (hand)
	[ɛ]	'bace' /batʃɛ/ (fat)
	[ɘ] [ə]	'genggus' /gɘŋgʊs/ (thunder) 'miteng' /mɪtəŋ/ (black)
Open Vowel	[a]	'tapa' /tapa/ (yam)

In BM, 9 types of vowels were found. There are four close vowels: /i/ as in 'ikang' /ikaŋ/ (fish); /ɪ/ as in 'saki' /sakɪ/ (dirty); /u/ as in 'pucu' /putʃu/ (chest), and /ʊ/ as in 'buru' /burʊ/ (wind). Mid vowels consist of four types: /e/ as in 'lime' /lime/ (hand), /ɛ/ as in 'bace' /batʃɛ/ (fat), /ɘ/ as in 'genggus' /gɘŋgʊs/ (thunder), and /ə/ as in 'miteng' /mɪtəŋ/ (black). Finally, there is only one open vowel /a/ as in 'tapa' /tapa/ (yam).

4.3. Phonotactic rules

The phonotactic rules of a language can be seen from the types of syllables found in that language. In BM, four types of syllables found, i.e., minimum syllable, syllable with onset, syllable with coda and full syllable. Besides, the words in BM can also be categorized based

on the number of syllables, which can be seen in table 3 below.

Table 3. Phonotactic structure of BM words

Word types	Sample words	Syllable structure
One syllable	Sa (one)	CV
	Vai (water)	CVV
	Nde (mother)	CCV
	Pur (blow)	CVC
Two syllables	i-ko (ekor)	V-CV
	Ba-kok (putih)	CV-CVC
	To-ko (tidur)	CV-CV
	Ta-ak (green)	CV-VC
	ci-e (salt)	CV-V
	Nggo-sok	CCV-CVC
Three syllables	Ntai – la – la (star)	CCVV-CV-CV
	Sem-pu-lu (ten)	CVC-CV-CV
Four syllable words	A-ta-ro-na	V-CV-CV-CV

In BM, we found words consisting of one up to four syllables. In these words, all types of syllables are found. Minimum syllable [V] can be seen in the word 'cie' (salt) that can be considered as having two syllables /tʃi-e/. Syllable with onset [CV] can be seen in the word 'sa' (one). Syllable with coda [VC] can be seen in the second syllable of the word 'ta-ak' (green), and full syllable [CVC] are found in most of the wordlist, such as 'wuk' (hair). The consonant clusters that appear at the initial position only consist of two consonant combinations. Those are pre-nasal + obstruent such as in the words 'nde' (mother), 'nggalek' (slippery), 'ntailala' (star), and 'mbaru' (house). Other combinations such as 'ckowe' and 'pke' are also found. Besides those combinations, there are no other consonant cluster combinations in initial position. Similarly, no consonant clusters are found in final position.

5. CONCLUSION

BM is an interesting language to learn and to analyze. From the data, we found 26 consonants and 9 vowels. Among the consonant phonemes, there are several phonemes that are not available in Indonesian

such as [ß] and [ɣ] which are only used by the native speaker of Manggarai language. Another interesting finding is the occurrence of pre-nasal consonants and other pre-consonant such as [ck] and [pk] which are not found in other ethnic languages in Indonesia.

The results of this study, however, cannot be considered as conclusive as the number of respondents is limited. Therefore, for future study, a bigger number of respondents is needed, and a more thorough analysis can be carried out. Until then, the present study will serve as the additional literature for the existing studies on Manggarai language.

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