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The Vowel Structure of Proto-Makassar: A Phonological Reconstruction of Five Dialects

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***Abstract*—The main objective of this study is to show the reconstruction of vowels in five dialects of the Makassar language (BMP) to determine its proto-vowels. The five Makassar dialects studied are Lakiung (LK), Turatea (TRT), Bantaeng (BTG), Konjo (KJ), and Selayar (SLY). The reconstruction of the proto-phonemes of the Makassar language (BMP) was carried out using qualitative comparative methods. To facilitate the discussion, the reconstruction criteria were carried out systematically and in an orderly manner, which involved compiling corresponding words that potentially exist among the related dialects, identifying cognate words, establishing sound correspondence sets, and determining proto-phonemes. Based on the comparison and reconstruction conducted on the five Makassar dialects, it was found that BMP has five vowel phonemes. These five vowel phonemes are /*a, *o, *e, *i, and *u/. As for diphthong phonemes, none were found in any of the five Makassar dialects. Only sequential vowels were present. The phonetic data show that the intonation structure in the five Makassar dialects does not indicate the presence of two consecutive vowels (paired vowels) pronounced simultaneously or with a single breath. All double vowels in the five Makassar dialects are clearly pronounced, followed by a pause or a glide sound /w/ or /j/. This indicates that diphthong vowels do not exist in BMP.**

***Index Terms*—reconstruction, qualitative comparison, Makassar language, BMP vowels**

I. Introduction

Long before the existence of written language, it was believed that a language already existed, even if only in spoken form. The languages found in written tradition did not simply emerge from nothing, but had already been well-established in spoken form before evolving into written language. Spoken language transitioned into written form due to human civilization's progress and the desire to preserve information and events from the past, so they wouldn't be forgotten. The emergence of written traditions became possible with advancements in knowledge and technology, particularly the invention of the writing machine. Through written language, we can recall past history and it serves as a source of information for the present and future.

The written language we know today is an embodiment of the spoken language that has existed for a long time. Spoken language is the ancestor or progenitor of several related languages. In Comparative Historical Linguistics, the progenitor of related descendant languages is commonly referred to as a proto-language or reconstructed language. It is called a "reconstructed language" because its form is hypothesized or assumed based on the reconstruction of its related descendant languages (Rohendi, 2007; Karubaba et al., 2024; Kaharuddin et al., 2024). Regarding the definition of a proto-language, Blust (1988) explains that “a proto-language is a hypothetical ancestor of a group of attested languages, inferred or reconstructed on the basis of systematic similarities among its attested descendants or daughter languages (p. 270)”.

Blust's statement implies that a proto-language can be reconstructed or derived. Reconstruction can be achieved by examining the systematic differences of the currently existing languages assumed to be related. In other words, a proto-language is an assumed language, derived based on the assumption of relatedness. By studying related languages today, a proto-language can be concluded as the mother language of the languages within that related group.

The main objective discussed in this study is the reconstruction of five related dialects. The goal is to determine the proto-phonemes of the Makassar language (PMB) based on the sound correspondences found. The five related dialects

reconstructed are Lakiung (LK), Turatea (TRT), Bantaeng (BTG), Konjo (KJ), and Selayar (SLY). The discussion of BMP phoneme reconstruction is divided into three sections: vowel phoneme reconstruction, semi-vowel phoneme reconstruction, and finally, an explanation of the vowel phonemes of Proto-Makassar Language (BMP).

In this study, no reconstruction of diphthongs was conducted because no diphthongs were found in the Makassar language. Only two consecutive vowels were observed. Two consecutive vowels in the Makassar language are not considered diphthongs because each vowel is pronounced clearly. Therefore, the reconstruction was only conducted on vowels and semi-vowels.

II. Literature Review

The Lakiung (LK), Turatea (TRT), Bantaeng (BTG), Konjo (KJ), and Selayar (SLY) dialects are all varieties of the Makassar language, sharing a common linguistic root. Despite this shared origin, these dialects exhibit notable differences in several linguistic aspects, including phonology, morphology, and lexicon. All five dialects use the same writing system, the Lontarak script, which helps maintain their cultural and linguistic connection. However, the variations in sound patterns, word forms, and vocabulary across these dialects highlight the dynamic nature of the Makassar language as it adapts to different geographical regions and cultural influences.

These variations present a central issue that must be addressed. The core problem necessitates a focused investigation to identify the form of the proto-phonemes. Since the 14th century, extensive research on the Makassar language has been conducted, encompassing both descriptive and comparative studies. An example of a descriptive study is Matthes' Makassaarsche Spraakkunst (1858), the first comprehensive examination of the Makassar language, which was limited to its phonological and morphological structures. Subsequently, Dolla's research, titled Fonologi Generatif Bahasa Makassar (1992), explored the phonological rules of the Makassar language, classifying it as a semi-vowel language due to the restricted number of consonants permitted in final positions of words, namely /ng/ and /k/. This research complemented Matthes' earlier findings, which indicated that vowels predominantly occupy word-final phonemes. Additional phonological studies include Mulya's Struktur Fonem Bahasa Makassar (1997) which concentrated on the phonemic structure related to word formation. His results indicated that all vowels can appear in any position within words, further supporting Dolla's classification of Makassar as a semi-vowel language. However, Dolla's investigation did not thoroughly examine the consonant structure, indicating a need for further research in this area.

Regarding comparative studies, researchers have undertaken various approaches. Some have compared the Makassar language to other languages spoken within the same geographic region, while others have focused on contrasting two dialects of the same language. For example, Murmahyati's (2007) study, entitled Rekonstruksi Proto Bahasa Makassar, Bugis, Mandar, Toraja, dan Massengrempulu, concentrated solely on phoneme reconstruction, neglecting other linguistic features. Her research was broad and lacked specificity, offering only a general reconstruction of phonemes from the local languages of South Sulawesi without focusing on a single dialect. Each local language typically encompasses several dialects, which naturally exhibit differences in phonemic and morphological aspects. Another comparative analysis by Kartini (2007), titled Kekerabatan Bahasa Makassar Dialek Lakiung dengan Dialek Selayar, specifically examined the linguistic relationships between the Lakiung and Selayar dialects of the Makassar language, addressing the Selayar dialect's status as part of the Makassar dialect group.

To date, there has been insufficient exploration of comparative studies on the Makassar dialects, particularly concerning the reconstruction of proto-phonemes. No dedicated studies have been conducted on this subject, and while some general research exists, it remains overly broad and calls for further investigation. The reviews of prior studies reveal significant gaps that require attention, with numerous aspects still unexamined. Thus far, no specific research has traced the relationships and common origins of the Makassar dialects through phoneme reconstruction. There has been no reconstruction of the Proto-Makassar language to ascertain its proto-vowels, and without such reconstruction, the linguistic evidence revealing connections and common ancestry remains undiscovered. Since the Middle Ages, no targeted research has focused on reconstructing Proto-Makassar phonemes. Therefore, the limitations of previous research highlight the opportunity to address these gaps. The primary aim of this study is to reconstruct the Lakiung, Turatea, Bantaeng, Konjo, and Selayar dialects to derive the proto-vowels of the Makassar language, focusing exclusively on the phonological aspect.

The study of language development and the relationships among languages worldwide, particularly those that have historically interacted, constitutes a significant area of research in comparative linguistics. Campbell (2004) emphasizes that "historical linguistics is dedicated to the study of 'how' and 'why' languages change," focusing on both the methodologies for investigating linguistic change and the theories that aim to explain these transformations (p. 226). This underscores the importance of understanding the dynamics of language contact and evolution throughout history.

To conduct a reconstruction study of a specific language, it is essential to adopt a particular approach, which refers to the strategies employed by researchers in shaping their attitudes toward the study's focus. Wolfram (2011) defines this approach as the method by which researchers handle and interpret their data. In this study, a qualitative approach is utilized, allowing for the descriptive analysis of proto-phonemes in the Makassar language and the determination of phonetic rules applicable to the five studied Makassar dialects (p. 13).

This research is classified as diachronic linguistics, also known as comparative linguistics. Campbell (2004) explains that historical linguistics, often referred to as diachronic linguistics, concerns itself with changes in languages over time,

contrasting with synchronic linguistics, which examines a language at a specific moment. This distinction is crucial for understanding how languages develop and diverge.

Like other linguistic fields, the reconstruction of the ancient Makassar language is grounded in a theoretical framework commonly used in comparative linguistics. The comparison among the five Makassar dialects is conducted using qualitative comparative theory, which is vital for revealing the connections between related languages derived from a common ancestral language (Rahim, 2008; Abbas et al., 2024; Kaharuddin et al., 2024).

For the purposes of this study, classical methods such as sound change laws are employed (Lehmann, 1992). These methods are instrumental in examining how proto-phonemes evolved into the contemporary variants of Makassar through reconstruction. Phonetic rules, also known as sound correspondences, are critical tools for uncovering relationships between languages in terms of their sound systems (Fox, 2010; Wilian et al., 2023; Kaharuddin & Abbas, 2022).

Given that this study falls within the realm of historical comparative linguistics, the methodology relies on the similarities and correspondences in the form and meaning of words. These comparisons are drawn from languages that share a common ancestral background. Mees (1967) identifies five indicators of language similarity, which include: a) Phonetic similarity: Correspondence in sound systems, b) Phonological similarity: Similar arrangements of sounds within words, c) Semantic similarity: Shared meanings of root words, d) Morphological similarity: Similarities in word formation and grammatical structures, e) Syntactic similarity: Comparable word orders and sentence structures.

Research on Austronesian languages and Proto-Austronesian is predicated on the notion that relationships among related languages can be likened to familial connections (Blust, 1986). This familial principle posits that all languages within a given family have descended from a common source language. Consequently, when examining a language and identifying cognates with another language, those languages are regarded as having a common ancestry.

To achieve a successful reconstruction of proto-phonemes, specific methods known as comparative methods are required. This process entails comparing various word forms across dialectal variants, including those that have undergone morphological changes and those that have remained unchanged (Crowley, 1997). By utilizing these comparative techniques, researchers can shed light on the phonetic and historical relationships among the dialects of the Makassar language, contributing to a deeper understanding of its evolution and connections to other Austronesian languages.

III. Research Objective

By examining the issues raised in the study above, it is clear that this research focuses on the reconstruction of three fundamental aspects of language: the reconstruction of vowels and semi-vowels. This reconstruction is carried out to obtain the proto-phonemes for the three types of phonemes being reconstructed. To facilitate the discussion, the reconstruction is conducted using a systematic and orderly approach, starting with compiling corresponding words in the five Makassar variants, then identifying their cognate words. Next, sets of sound correspondences between the compared languages are established. Finally, the proto-phonemes are determined.

IV. Research Methodology

The descriptive qualitative method is well-suited for research that seeks to provide a thorough and structured explanation of a phenomenon. It emphasizes capturing detailed information through non-numeric data, such as words, observations, or narratives, allowing researchers to understand the subject deeply and contextually. This method focuses on describing the "what" and "how" of a phenomenon, offering insights into its characteristics and variations rather than relying on statistical generalization. This method helps uncover differences between regional dialects, such as Selayar or Lakiung, and how these dialects are employed across different social settings.

V. Findings and Discussion

This research was conducted in various geographic locations, namely: Pangkep, Maros, Makassar, Gowa, and Takalar (Lakiung variant); Jeneponto (Turatea variant); Bantaeng (Bantaeng variant); Bulukumba (Konjo variant); and Selayar (Selayar variant). The distribution of BMP phonemes shows the existence of vowel, consonant, and semi-vowel phonemes based on their positions within a word. The positions referred to include initial, medial, intervocalic, and final positions in a word. The study of the reconstructed vowels and semi-vowels conducted on the five Makassar Dialects (DM) demonstrates that the details and distribution of BMP vowel and semi-vowel phonemes can be observed in the following description.

A. Teacher's Descriptions of Teaching and Learning Experiences

Based on the reconstruction results of 550 corresponding vocabulary items in the five Makassar dialects, it was found that BMP has five vowel phonemes: /*a, *i, *u, *e, and *o/. These vowels consist of two front vowels, namely /*i/ and /*e/, one central vowel, /*a/, and two back vowels, /*u/ and /*o/. The list of BMP vowel phonemes can be seen in table below:

TABLE 1
BMP VOWELS

Part / Position	Front	Middle	Behind
			*u
High	*i		*o
Middle	*e		
Low		*a	

Table 1 presents an overview of the vowel phonemes in Proto-Makassarese (BMP), categorized by their articulatory positions: front, middle, and behind, along with their relative heights: high, middle, and low. In the high vowel category, the front vowel is represented by *i*, while *u* serves as the high back vowel. There are no middle high vowels in BMP. For middle vowels, *e* is the only vowel found, occupying the middle position without a specified front or back orientation. In the low vowel category, *a* represents the middle low vowel, with no front or back counterparts. Notably, the table indicates that there are no low front or low back vowels in BMP, providing a clear structural framework for understanding the distribution and characteristics of vowels within the language. Overall, this classification highlights the specific arrangements of vowels in Proto-Makassarese, reflecting the phonological structure of the language.

*B. Low Vocal BMP /*a/ Reconstruction*

The only low central vowel present in BMP is /*a/. This low central vowel is a voiceless vowel that can occur in all positions within a word, including initial position, open penultimate syllable position, closed penultimate syllable position, closed final syllable position, and open final syllable position. Based on the data in VM, it shows that the BMP vowel /*a/ can occupy all word positions and is directly inherited by all VM. However, some data in certain positions indicate sporadic innovations. In several variants, innovations have occurred in the closed final syllable position, where BMP /*a/ changes to /i/ in SLY and TRT, and /*a/ changes to /o/ in SLY; in the initial position of the word, BMP /*a/ changes to /u/ in LK, and in the closed penultimate syllable position, BMP /*a/ changes to /i/ in LK and BTG. Other data, however, do not show any changes in all Makassar variants. Table 2 provides examples of the reflex of BMLP /*a/ in the five Makassar dialects.

TABLE 2
REFLEX BMP /*a/ IN MAKASSAR VARIANTS

BMP Vocal	**Distribution at the Position**	**Examples of Reflex BMP /*a/ in Five Variants**	
/*a/	Initial Word Position	BMP	[*aʔburaʔne] ‘married’ > LK, TRT, and BTG [aʔburaʔne]; KJ dan SLY [aʔburuʔne]
		BMP	[*calx] ‘abu’ > LK, TRT, and BTG [a:wu]; KJ [a:hu]; SLY [a:hu]
	Open Middle word Position	BMP	[*ka:palaʔ] ‘thick’ > LK, TRT, and BTG [ka:palaʔ]; KJ and SLY [ka:pala]
		BMP	[*sabi:la] ‘bamboo knife’ > LK [sabi:le]; TRT, BTG, and SLY; [sabi:la]; LK [cahi:le]
	Closed Middle Word Position	BMP	[*taʔbakkaraʔ] ‘blossom’ > LK, TRT, and BTG [taʔbakkaraʔ [; KJ [taʔbakkara]; SLY [aʔkakkara]
		BMP	[*bambaŋ] ‘hot’ > LK, TRT, BTG, dan SLY [bambaʔ]; KJ [hambaŋ]
	Open Final Syllable Position	BMP	[*co:ŋa] ‘upturned’ > LK, TRT, and BTG [co:ŋa]; KJ [mo:ŋa]; SLY [mo:wa]
		BMP	[*kaluwa:ra] ‘ant’ >LK, TRT, and BTG [kaluwa:ra]; KJ and SLY [kaliha:ra]
	Closed Final Syllable Position	BMP	[*borassi:ŋaŋ] ‘sneezing’ > LK [porassi:ŋaŋ]; TRT and SLY [borassi:ŋaŋ]; BTG[borossi:ŋaŋ]; LK [burassi:ŋaŋ]
		BMP	[*ŋoʔŋo:raŋ] ‘nosebleed’ > LK siŋo:raŋ; TRT and BTG [moʔmo:raŋ]; LK and SLY [ŋoʔŋo:raŋ]

Table 2 presents the reflex of the BMP vowel /*a/ in the Makassar dialect variations, which include five dialects: LK, TRT, BTG, KJ, and SLY. This table is structured based on word positions, namely initial, open middle, closed middle, and final positions. In the initial position, an example such as the word "married" (*/aʔburaʔne/) shows variations where LK, TRT, and BTG yield [aʔburaʔne], while KJ and SLY produce [aʔburuʔne]. For the open middle position, the word "thick" (*/ka:palaʔ/) is reflected as [ka:palaʔ] in LK, TRT, and BTG, while KJ and SLY remain as [ka:pala]. In the closed middle position, the word "blossom" (*/taʔbakkaraʔ/) varies to [taʔbakkaraʔ] in LK, TRT, and BTG, and [aʔkakkara] in SLY. In the open final syllable position, the reflex of the word "upturned" (*/co:ŋa/) is [co:ŋa] in LK, while KJ and SLY become [mo:ŋa] and [mo:wa]. Finally, in the closed final syllable position, the word "sneezing" (*/borassi:ŋaŋ/) appears as [porassi:ŋaŋ] in LK, while TRT and SLY maintain [borassi:ŋaŋ]. Overall, this table illustrates how the BMP vowel /*a/ is variably reflected in different word positions across the five Makassar dialects, reflecting the phonological differences that exist among these dialects.

*C. Reconstruction of the Central Vowel BMP /*o/*

BMP has two central vowels. One of them is the vowel /*o/. The BMP vowel /*o/ is a voiced vowel. This vowel can occur in all positions of a word, whether at the initial position, in the open penultimate syllable, in the closed penultimate syllable, or at the end of an open syllable and in the final position of a closed word. However, some data indicate slight changes. These changes are observed in the closed syllable final position, where BMP /*o/ becomes /u/ in LK, TRT, and SLY, as well as in the open final position where BMP /*o/ becomes /a/ in SLY. Examples of the reflex of BMLP /*o/ in the five Makassar Dialects (DM) are explained in Table 3.

TABLE 3
REFLEX OF BMP /*o/ IN FIVE MAKASSAR DIALECTS

BMP Vocal	**Distribution at the Position**	**Example Reflex of BMP /*o/ in Five VM (Makassar Variants)**	
/*o/	Initial Word Position	BMP	[*o:noʔ] 'retreat' > LK, TRT BTG, and KJ [o:noʔ] SLY[so:hoʔ]
	Open Middle word Position	BMP	[*bo:ŋolo?] 'deap' > LK and TRT [to:ŋolo?]; BTG, LK [bo:ŋolo?]; SLY bo:ŋolo]
		BMP	[*bo:naŋ] 'tide' > LK, BTG, and KJ; [bo:naŋ]; TRT [bo:niŋ]; SLY [bo:soʔ]
	Closed Middle Word Position	BMP	[*moɲcoŋbu:lo] 'green' > LK, TRT, and BTG; [monɲcoŋbu:lo]; KJ dan SLY [moncoŋ].
		BMP	[*kokkoʔ] 'bite' > LK, TRT, BTG, and KJ [kokkoʔ]; SLY [kokko]
	Open Final Syllable Position	BMP	[*bala:wo]'mous' > LK, TRT, and BTG [bala:wo]; KJ dan SLY [bala:ho]
		BMP	[*lo:ro] 'waste'> LK, TRT, BTG and SLY [lo:ro]; KJ [garo:ro]
	Closed Final Syllable Position	BMP	[*taʔdoʔdoʔ] 'sleepy' > LK, BTG, and SLY [taʔdoʔdoʔ] TRT; [tiʔdoʔdoʔ]; KJ [tiʔduʔduʔ]
		BMP	[*coʔmoʔ] 'fat'> LK, TRT and BTG [coʔmoʔ]; SLY [soʔmoʔ]

Table 3 illustrates the reflex of the BMP vowel /*o/ in five Makassar dialects, which include LK, TRT, BTG, KJ, and SLY. The table is organized based on various word positions: initial, open middle, closed middle, and final. In the initial word position, the example word "retreat" (*/o:noʔ/) shows consistent reflection across LK, TRT, and BTG as [o:noʔ], while SLY presents a variation as [so:hoʔ]. In the open middle position, the word "deep" (*/bo:ŋoloʔ/) has different reflexes, with LK and TRT as [to:ŋoloʔ], while BTG and SLY reflect it as [bo:ŋoloʔ]. The word "tide" (*/bo:naŋ/) displays reflex variations across the dialects, showing [bo:naŋ] in LK, BTG, and KJ, while TRT reflects it as [bo:niŋ] and SLY as [bo:soʔ]. In the closed middle position, the word "green" (*/moɲcoŋbu:lo/) is consistently reflected as [moɲcoŋbu:lo] in LK, TRT, and BTG, while KJ and SLY present it as [moncoŋ]. The word "bite" (*/kokkoʔ/) shows consistency as well, with LK, TRT, BTG, and KJ reflecting it as [kokkoʔ], while SLY presents it as [kokko]. In the open final syllable position, the reflex of "mouse" (*/bala:wo/) is reflected as [bala:wo] in LK, TRT, and BTG, while KJ and SLY present it as [bala:ho]. The word "waste" (*/lo:ro/) remains consistent across LK, TRT, BTG, and SLY as [lo:ro], but KJ reflects it as [garo:ro]. Finally, in the closed final syllable position, the word "sleepy" (*/taʔdoʔdoʔ/) shows [taʔdoʔdoʔ] in LK, BTG, and SLY, while TRT and KJ reflect it as [tiʔdoʔdoʔ]. The reflex of "fat" (*/coʔmoʔ/) is consistent across LK, TRT, and BTG as [coʔmoʔ], while SLY reflects it as [soʔmoʔ]. Overall, this table highlights the various reflexes of the BMP vowel /*o/ across different positions in five Makassar dialects, showcasing the phonological diversity present within these dialects.

*D. Reconstruction of the Central Vowel BMP /*e/*

BMP has two central vowels, one of which is the central vowel /*e/. This central vowel can occur not only in certain positions but in all word positions. Based on the regular distribution in all positions within the Makassar dialects, the phoneme /e/ can be reconstructed as the ancient phoneme BMP /*e/. This ancient phoneme directly descends to all Makassar Dialects (DM) in all syllable positions. According to the reconstructed data, the phoneme BMP /*e/ shows no sporadic innovations in its descendant languages. Table 4 below illustrates examples of the reflex of BMP /*e/ in five DM.

TABLE 4
REFLEX OF BMP /*e/ IN FIVE MAKASSAR DIALECTS

BMP Vocal	Distribution at the Position	Example Reflex of BMP /*e/ in Five Dialects	
/*e/	Initial Word Position	BMP	BMP [*e:pereʔ] 'empty' > LK, TRT and BTG [e:pereʔ]; KJ and SLY [e:pere]
		BMP	[*encereʔ] 'aqueous' > LK, TRT and BTG [encereʔ]; KJ [encere] SLY ---
	Open Middle word Position	BMP	[*a:peleʔ] 'memorize' > LK, TRT, and BTG [a:peleʔ]; KJ dan SLY [a:pele]
		BMP	[*laŋŋereʔ] 'hear' > LK, TRT, BTG, and SLY [laŋŋereʔ]; KJ [laŋŋere]
	Closed Middle Word Position	BMP	BMP [*aʔletteʔ] 'move' > LK, TRT dan BTG, and SLY [aʔletteʔ]; KJ [aʔlenta]
		BMP	BMP [seppaʔ] 'narrow' > LK, TRT, and SLY [seppaʔ] BTG and KJ [seppaŋ]
	Open Final Syllable Position	BMP	[*gitte] 'we' > LK [katte]; TRT, BTG, and KJ [gitte] SLY [ditte]
		BMP	[*paʔbatte'cockfight' > LK and BTG [paʔbitte]; TRT, KJ, and SLY [paʔbatte]
	Closed Final Syllable Position	BMP	[*polopeŋ] 'pen' > LK and BTG [polopeŋ]; TRT [palapeŋ]; KJ [pulupeŋ]; SLY [polopeeŋ]
		BMP	[*roro:keŋ]'rotten eggs' > LK, BTG and KJ [roro:keŋ]; TRT [ro:keŋ] SLY [boro:keŋ]

Table 4 presents the reflexes of the BMP /*e/ vowel in five Makassar dialects, namely LK, TRT, BTG, KJ, and SLY. This table is organized according to word position: initial, open middle, closed middle, and final. In the initial position, the example of the word "empty" (BMP [*e:pereʔ]) shows consistent reflexes in LK, TRT, and BTG as [e:pereʔ], while KJ and SLY reflect it as [e:pere]. The word "aqueous" (BMP [*encereʔ]) also displays reflex variation, with LK, TRT, and BTG pronounced as [encereʔ], while KJ reflects it as [encere]. In the open middle position, the word "memorize" (BMP [*a:peleʔ]) shows the same reflex across LK, TRT, BTG, KJ, and SLY as [a:peleʔ]. Similarly, the word "hear" (BMP [*laŋŋereʔ]) is pronounced the same way across all dialects. In the closed middle position, the word "move" (BMP [*aʔletteʔ]) also has consistent reflexes in LK, TRT, BTG, and SLY as [aʔletteʔ], while KJ reflects it as [aʔlenta]. The word "narrow" (BMP [seppaʔ]) shows consistent reflexes in LK, TRT, and SLY as [seppaʔ], whereas BTG and KJ have [seppaŋ]. In the open final syllable position, the word "we" (BMP [*gitte]) is pronounced as [katte] in LK, while TRT, BTG, and KJ maintain [gitte], and SLY presents it as [ditte]. The word "cockfight" (BMP [*paʔbatte]) is reflected as [paʔbitte] in LK and BTG, while TRT, KJ, and SLY show [paʔbatte]. In the closed final syllable position, the word "pen" (BMP [*polopeŋ]) reflects as [polopeŋ] in LK and BTG, while TRT reflects it as [palapeŋ], KJ as [pulupeŋ], and SLY as [polopeeŋ]. The word "rotten eggs" (BMP [*roro:keŋ]) shows variation with LK, BTG, and KJ as [roro:keŋ], while TRT presents it as [ro:keŋ] and SLY as [boro:keŋ]. Overall, this table provides a clear picture of how the BMP /*e/ vowel is reflected in various word positions across the five Makassar dialects, highlighting the rich phonological variations present within these dialects.

*E. Reconstruction of High Vowel BMP /*i/*

The front high vowel /*i/ is a voiced high vowel that can occupy all positions. However, some data in the open final syllable position show sporadic innovations in two dialects, namely BMP /*i/ > /e/ in BTG and SLY. Likewise, in the open penultimate syllable position, sporadic innovations are also observed in the TRT dialect, which is BMP /*i/ > /e/ in TRT. Other data, however, continue to show the persistence of /i/ in all Makassar Dialects (DM). Examples of the reflex of BMLP /*i/ in the five DM are explained in Table 5 below:

TABLE 5
REFLEX OF BMP /*i/ IN FIVE MAKASSAR VARIANTS

BMP Vocal	Distribution at the Position	Examples of Reflexes of BMP /*e/ in Five Variants	
/*e/	Initial Word Position	BMP	/*i:soʔ/ 'suction' > LK, KJ and SLY [i:soʔ]; TRT dan BTG [i:suʔ]
	Open Middle word Position	BMP	[*borassi:ŋaŋ]'sneezing' > KJ [porassi:ŋaŋ]; TRT, BTG and SLY [borassi:ŋaŋ]; KJ [burassi:ŋaŋ]
		BMP	[*sabi:le] 'bamboo knife' > LK [sabi:le]; TRT, BTG, and SLY [sabi:la]; KJ [cahi:le]
	Closed Middle Word Position	BMP	[*limbuʔbuʔ] 'dust' > LK, TRT, and BTG [limbuʔbuʔ]; KJ [liŋuʔgu]; SLY [limpuraŋ]
		BMP	[*siŋkuluʔ] 'elbo' > LK, TRT and BTG [siŋkuluʔ]; KJ and SLY [siŋkulu]
	Open Final Syllable Position	BMP	[*siŋkuluʔ] 'elbo' > LK, TRT and BTG [siŋkuluʔ]; KJ and SLY [siŋkulu]
		BMP	[*caʔdi] 'small' > LK, TRT, BTG and KJ [caʔdi]; SLY [kiʔdi]
	Closed Final Syllable Position	BMP	[*cu:miʔ] 'charcoal' > LK, TRT, and BTG [cu:miʔ]; KJ [su:miʔ]; SLY ---

Table 5 illustrates the reflexes of the BMP /*i/ vowel in five variants of Makassar dialects: LK, KJ, TRT, BTG, and

SLY. The table is organized by word position, including initial, open middle, closed middle, and final syllable positions. In the initial word position, the word "suction" (BMP [*i:soʔ]) shows that LK, KJ, and SLY reflect it as [i:soʔ], while TRT and BTG pronounce it as [i:suʔ]. In the open middle word position, the example "sneezing" (BMP [*borassi:ŋaŋ]) is rendered as [porassi:ŋaŋ] in KJ, while LK, TRT, BTG, and SLY pronounce it as [borassi:ŋaŋ]. Another example, "bamboo knife" (BMP [*sabi:le]), has LK reflecting it as [sabi:le], while TRT, BTG, and SLY show [sabi:la], and KJ pronounces it as [cahi:le]. In the closed middle word position, "dust" (BMP [*limbuʔbuʔ]) is consistently reflected as [limbuʔbuʔ] in LK, TRT, and BTG, while KJ has [liŋuʔgu] and SLY reflects it as [limpuraŋ]. The word "elbow" (BMP [*siŋkuluʔ]) shows similar reflexes in LK, TRT, and BTG as [siŋkuluʔ], while KJ and SLY present it as [siŋkulu]. In the open final syllable position, "elbow" (BMP [*siŋkuluʔ]) remains consistent across LK, TRT, and BTG as [siŋkuluʔ], while KJ has [siŋkulu]. The word "small" (BMP [*caʔdi]) is uniformly reflected as [caʔdi] in LK, TRT, BTG, and KJ, whereas SLY shows [kiʔdi]. Lastly, in the closed final syllable position, "charcoal" (BMP [*cu:miʔ]) is represented as [cu:miʔ] in LK, TRT, and BTG, while KJ reflects it as [su:miʔ]. Overall, this table highlights the phonological variations of the BMP /*i/ vowel across different word positions and dialects, showcasing the linguistic diversity within the Makassar language.

*F. Reconstruction of the Back Vowel BMP /*u/*

In addition to the vowel /*i/, the vowel /*u/ is also classified as a high voiced vowel in BMP. The back high vowel BMP /*u/ can occupy all positions in a word. Based on its distribution in all positions, the phoneme /*u/ can be reconstructed as the ancient BMP phoneme. Therefore, the phoneme /u/ in all DM is inherited from the ancient phoneme BMP /*u/. Although BMP /*u/ is an inheritance passed down directly, there are still some data showing sporadic innovations in the open penultimate syllable position and at the initial word position. For instance, BMP /*u/ > /a/ occurs in three dialects: LK, KJ, and SLY, while BMP /*u/ > /o/ is found in two variants, namely TRT and BTG. Other data remains unchanged as the vowel /u/ in these two positions. In the open penultimate syllable position, the closed final syllable position, and the closed final syllable position, all DM manifest as /u/. The reflex of BMLP /*u/ in the five DM is explained in Table 6.

TABLE 6
REFLEX OF BMP /*u/ IN FIVE MAKASSAR VARIANTS

BMP Vocal	Distribution at the Position	Examples of Reflexes BMP /*u/ in Five Variants	
/*e/	Initial Word Position	BMP	[*u:rusuʔ] 'snot' > LK, TRT, and BTG [u:rusuʔ] KJ dan SLY [u:rusu]
		BMP	[*u:huʔ] 'hair' > LK and TRT [uʔ]; BTG, KJ, and SLY [u:huʔ]
	Open Middle word Position	BMP	[*buruʔne] 'man'> LK and SLY [buraʔne]; TRT, BTG, and KJ [buruʔne]
		BMP	[*bu:ŋuŋ] 'wel' > LK and BTG [bu:ŋuŋ]; TRT [bu:ŋiŋ]; KJ and SLY [bu: huŋ]
	Closed Middle Word Position	BMP	[*limbuʔbuʔ] 'dust' > LK, TRT, and BTG [limbuʔbuʔ]; KJ; [limpuraŋ]; SLY [liŋuʔgu]
		BMP	[*cukkuruʔ] 'hair cut' > LK, TRT, BTG, and SLY [cukkuruʔ]; KJ [cukkuru]
	Open Final Syllable Position	BMP	[*ambu] 'smoke' > LK [umbu]; TRT, BTG, KJ and SLY [ambu]
		BMP	[*a:wu] 'calx' > LK, TRT, and BTG [a:wu]; KJ and SLY [a:hu]
	Closed Final Syllable Position	BMP	[*ci:duʔ] 'gabled' > LK, TRT, BTG, and KJ [ci:duʔ]; SLY [ti:duʔ]
		BMP	[*ba:ŋuŋ] 'wake' > LK [ba:ŋuŋ]; TRT, BTG,KJ, And SLY [ba:wuŋ]

Table 6 presents the reflexes of the BMP /*u/ vowel across five variants of the Makassar language: LK, TRT, BTG, KJ, and SLY. The table categorizes examples based on their word position, including initial, open middle, closed middle, and open and closed final syllable positions. In the initial word position, the example *uʔ ('snot') is represented as [uʔ] in LK, TRT, and BTG, while KJ and SLY show it as [u]. Similarly, the word *uʔ ('hair') appears as [uʔ] in LK and TRT but is pronounced [uʔ] in BTG, KJ, and SLY. For the open middle position, the term *buruʔne ('man') is reflected as [buraʔne] in LK and SLY, whereas TRT, BTG, and KJ represent it as [buruʔne]. Another example, *bu:ŋuŋ ('wel'), is noted as [bu:ŋuŋ] in LK and BTG, while TRT shows it as [bu:ŋiŋ] and KJ and SLY as [buŋ]. The closed middle position displays the word *limbuʔbuʔ ('dust') as [limbuʔbuʔ] in LK, TRT, and BTG, with KJ showing [limpuraŋ] and SLY as [liŋuʔgu]. In terms of the open final syllable position, *ambu ('smoke') is reflected as [umbu] in LK and as [ambu] across TRT, BTG, KJ, and SLY. The word *a('calx') appears as [a] in LK, TRT, and BTG, while KJ and SLY present it as [a]. For the closed final syllable position, *ciʔ ('gabled') is consistent across LK, TRT, BTG, and KJ as [ciʔ], whereas SLY reflects it as [tiʔ]. Lastly, *ba:ŋuŋ ('wake') is noted as [ba:ŋuŋ] in LK and is represented as [baŋ] across TRT, BTG, KJ, and SLY. This table highlights the phonological variations and reflexes of the BMP /*u/ vowel across different dialects

in Makassar.

VI. Conclusion

In conclusion, the evolution of language over time inevitably leads to changes that facilitate the emergence of new dialects. These dialects, shaped by contemporary developments, provide a pathway to explore and identify the ancestral phonemes of a language. Employing a comprehensive qualitative methodology, this study focused on five Makassarese dialects—LK, TRT, BTG, KJ, and SLY—believed to be derived from the Bahasa Makassar Purba (BMP: Proto-Makassarese Language). The comparative analysis across these five dialects revealed that BMP contains five vowel phonemes: /*a, *o, *e, *i, and *u/. Notably, no diphthongs were identified; rather, only sequential vowels were present. The phonetic data indicated that the intonation structures within the five Makassarese dialects do not exhibit any diphthongs. All sequential vowels in the dialects are pronounced distinctly, often followed by a pause or glide sounds /w/ or /j/. This finding reinforces the conclusion that diphthongs do not exist in BMP, thereby enhancing our understanding of the phonological characteristics of Makassarese dialects and their historical lineage.

Appendix

Notes:
BMP: Bahasa Makassar Purba (Proto-Makassarese language)
DM: Dialek Makassar (Makassar Dialect)
TRT: Turatea
KJ: Konjo
SLY: Selayar
BTG: Bantaeng
LK: Lakiung

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