

Comparative Phonology of Malay Languages in West Kalimantan Province: A Dialectological Study

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Abstract:

This research aims to describe and map the phonological correspondence, including any differences, and to create an isogloss file. The conversation method was used for data collection. The technique involved pointing at objects, pictures, photos, and activities. Instruments were used to facilitate data gathering. Data was obtained through in-depth conversations with informants using the prepared instruments. The analysis method used is both descriptive and comparative, employing both quantitative and qualitative descriptive methods as well as the synchronic comparative method. The comparative method is used to compare phonological correspondence differences between observation points. The dialectometric formula was used to calculate the number of phonological differences. The isogloss file is created as the boundary of the Malay language phonological correspondence between observation points. The study results describe the correspondence of Malay language phonology in 13 observation points. Secondly, the phonological correspondence between observation points varies from 6.54% at observation points 1-2 to 14.33% at observation points 9-11. Furthermore, the mapping of the phonological variation and correspondence of the Malay language in West Kalimantan Province revealed the existence of three dialects: Sambas, Mempawah, and Sintang. Figure 2 displays the impact of correspondence and phonological variation on the location of each dialect. Additionally, the isogloss line that distinguishes the phonological correspondence of Malay language variations is represented in the form of isophonic files. This study is significant since it has identified three unique Malay dialects in West Kalimantan and revealed intriguing phonological correspondences among them. The Malay dialects of West Kalimantan exhibit systematic correspondences among the vowels [-e], [-ə], [-a], and [-o]. The [o] sound closely resembles the [o] sound in the Malay language of Jambi Province. The Malay dialect of Jambi possesses a variant that concludes with the vowel [o]. This association in West Kalimantan is predominantly observed in the coastal areas of Sambas Regency. This finding suggests that the Malay dialects spoken in West Kalimantan and Jambi are interconnected. The [e] correspondence closely resembles the Malay dialect utilized in Jakarta, particularly in the regions of Sambas, Singkawang, and Bengkayang.

Keywords: Comparative, dialect map, phonological correspondence, isogloss

1. INTRODUCTION

The research titled ‘Comparative Phonology of Malay Language in West Kalimantan Province: A Dialectological Study’ examines phonological differences between various locations. These differences are referred to as phoneme correspondence. Conducting language mapping research using phonological correspondence is a noteworthy endeavor. The authors note that they did not come across any language mapping research that employed phonological dialectometry. The researcher discovered numerous language mapping studies that employed lexical dialectometry. Therefore, the use of phonological dialectometry to calculate the phonological correspondence between observation sites represents a significant breakthrough and innovation in language mapping research.

There are several previous studies related to language mapping that will be presented here. First, Hasrah (2018) examined Malay language mapping in Hulu and Hilir in Eastern Peninsular Malaysia. This study used lexical data for data collection. Malay dialect mapping uses the calculation of lexical differences between observation points. As a result, to determine the linguistic distance in percentage using the lexical difference between observation points. Thus, language mapping using lexical comparatives to determine Malay language variation in the Upstream and Downstream areas of Eastern Peninsular Malaysia.

Second, Jubaidah (2020) examined Betawi language variation in the Jakarta area by utilizing Swadesh and non-Swadesh lexical data. Differences between observation points with one another are used to calculate lexical differences or word differences. To find out the number of different language variations using lexical or word comparisons. As a result, to find out the linguistic distance in percentage using lexical difference between observation points. Hence, to find out the Betawi language variation using lexical synchronic comparatives was applied.

Third, Saddhono & Hartanto (2021) examined Javanese language variation in Yogyakarta and Surakarta. Data was collected using Swadesh and non-Swadesh data. The research was conducted descriptively and quantitatively. This mapping of Javanese language variation uses lexical mapping of Javanese language. Data used for analysis, data that have lexical differences. Data that had no difference or the same data were not analyzed. Data with phonological differences were not analyzed. The data were analyzed using comparative synchronicity. The theory of dialectometry was used to determine the number of linguistic differences in percentage between lexical observation points. The dialectometric calculation results in the mapping of Javanese language variations in Yogyakarta and Surakarta lexically. Javanese language variations in Yogyakarta and Surakarta found no differences, speech differences and subdialect differences.

The current research differs from the language variation mapping or dialect geography research above. The five language variation mapping studies above were conducted using lexical comparisons between observation points. Calculation of lexical differences using the lexical dialectometry formula to calculate the linguistic distance in percentage between observation points to determine the existing language variations.

This study conducted a mapping of Malay language variation using comparative synchronic phonology between observation points. Comparative synchronic phonology produces correspondence and variation of language sounds. The difference counter between observation points uses the difference in correspondence and phonological variation. In calculating the linguistic distance in percentage between observation points using the phonological dialectometry

formula. Calculation of linguistic distance between observation points in phonology has similarities with the way linguistic distance is calculated lexically. Only the analysis of mapping language variation phonologically takes longer, compared to mapping language variation lexically.

Several previous studies on dialect geography have exhibited similarities in determining language variation. All of them identified linguistic differences based on lexical variation among observation points by using a triangular connection between villages. The dialectometric formula applied measures linguistic distance in percentage form by comparing lexical items, and the classification of language variation is determined through these lexical differences.

Differently, this study, “A Comparative Phonological Study of Malay in West Kalimantan Province: A Dialectological Analysis,” utilized phonological data rather than the lexical ones. The data are grouped according to patterns of sound correspondence, with each correspondence counted as one data item. Even when a correspondence pattern occurs twice, it is still considered a single data unit. The dialectometric formula also measures linguistic distance in percentage form, but this research focuses on phonological variation instead of lexical variation. The methodological difference between the previous studies and the present one lies in several aspects: the type of data used, the calculation method, and the classification of linguistic distance. In lexical-based research, distances of 81–100% indicate different languages, 51–80% different dialects, 31–50% different sub-dialects, 21–30% different speech varieties, and 0–20% no difference. In contrast, in phonological-based research such as this study, distances of 17–100% indicate different languages, 12–16% different dialects, 8–11% different sub-dialects, 4–7% different speech varieties, and 0–3% no difference.

2. LITERATURE REVIEW

2.1 Language Atlas of The Pacific Area

Language conditions on the island of Borneo, especially language mapping in West Kalimantan. The distribution of languages in West Kalimantan includes: (1) Malayan Group which consists of (Malay Subgroup, Malayic Dayak Subgroup, Iban-Isolate); (2) Land Dayak; (3) Mbaloh Group. Geographically Malay speakers in West Kalimantan spread along the coast in Sambas, Bengkayang, Pontianak, Kubu Raya, Ketapang, and North Kayong regencies (Patriantoro, 2021a). Other speakers are downstream of the Kapuas River, entering the city of Pontianak a little upstream of the Kapuas River. The Malay speaking region is called the Malay Subgroup. The Malayic Dayak Subgroup, this language spreads in land areas that are still close to the coast, the distribution of the Malayic Dayak Subgroup language is in Sambas Regency, the distribution of Bengkayang Regency, Pontianak Regency, in Landak Regency, Ketapang Regency and North Kayong Regency (Wurm & Hattori, 1983).

2.2 Dialect Geography

Dialect geography studies language variation based on differences in location within a language area (Nadra & Reniwati, 2020). Language variants can arise due to differences in geography. Dialect geography is an attempt at dialect mapping. Dialectology is a branch of linguistic studies that arose, among others, due to the impact of advances in comparative linguistics or diachronic linguistics (Zulaeha, 2021). Language variations that are not yet known with certainty including as languages, dialects, subdialects, and speech differences are called isolects (Mahsun, 2019).

In general, dialectology can be referred to as the study of a particular dialect or dialects of a language (Laksono & Savitri, 2020). Dialect geography studies can be synchronic only and can also be diachronic. Synchronistically, dialect geography studies are conducted by comparing variations between one observation point and another observation point during the same period. Diachronically, the study of dialect geography is done to see the development of the dialect from different periods. Historical events can cause changes in language variation, due to migration factors, communication between speakers of languages from different dialects. Each dialect has a different development according to the development experienced by each dialect (Nadra & Reniwati, 2020).

The sound innovation in a lexical is interesting, there are regular sound changes and sporadic sound changes. Sound changes that occur regularly are called correspondences, while sound changes that appear sporadically are called variations (Mahsun, 2021). There are several types of sound changes, namely: (1) assimilation the process of sound change that causes a sound to be similar or the same as the sound near it *sikil* > *sekil*; (2) dissimilation the process of sound change that causes the same or similar sound to become a different sound *səpuluh* > *səpuloh*; (3) metathesis a change in the location of letters, sounds, or syllables in a lexeme *rontal* > *lontar*; (4) contraction a shortening process that summarizes a lexeme or a combination of lexemes *tidak* > *tak*; (5) deletion of sounds at the beginning of a word *afferesis*, in the middle of a word *syncope*, at the end of a word *apokope*, deletion of two sounds simultaneously and sequentially *haplology*; (6) addition of sounds at the beginning of the word *prothesis*, in the middle of the word *epenthesis*, at the end of the word *paragoge*; (7) lenition changes the sound from a stronger to a softer sound *ləmud* > *ləmut*; (8) sandhi means melting, in a series of basic forms and affixes or in a series of two words there are two consecutive vowels and the sound melts *a + umah* > *omah*; (9) dissonance changes the same sound into unequal *rwa-rwa* > *roro* > *loro*; (10) palatalization changes the quality of the sound produced due to the rise of the tongue towards the palate *abaŋ* > *abyaŋ* (Laksono & Savitri, 2020).

2.3 Language Mapping

Nadra & Reniwati (2020) state that there are three types of maps in dialect geography research, namely: (1) base map, (2) observation point map, and (3) data map. First, the base map is a geographical map relating to the research area, to determine the observation point the administrative boundaries must be displayed. The results of the research may show that the administrative boundaries are the same as the isogloss boundaries, but the administrative boundaries may not be the same as the isogloss boundaries. Second, the observation point map contains the observation point area from which the data was taken. Third, the data map contains the research data at each observation point. Some research data is directly placed at each observation point and some use symbols.

2.4 Isogloss

Isogloss is an imaginary line that connects each observation area that displays similar linguistic symptoms, then the concept develops into an imaginary line that unites observation areas that display similar linguistic symptoms. Heterogloss is an imaginary line inscribed on a language map to separate the appearance of each language symptom based on a different form or system (Laksono & Savitri, 2020). Isogloss functions to unite the observation point areas that display similar linguistic symptoms, while heterogloss functions to separate the observation point areas

that display the same linguistic symptoms. Isogloss is needed on each data description map to determine the area of coverage. The data description map is a variety of different phonological correspondences connected by isogloss lines. Data description maps for different phonological correspondences and variations connected by isogloss lines call the lines connecting data descriptions of different phonological variations by the term isophones (Nadra & Reniwati, 2020). The usefulness of phonological isophone file maps can be used to determine the boundaries of language variation.

2.5 Phonemes

Native speakers of every language categorize the various speech sounds they utter into several smallest functional sound units called phonemes. Phonemes are speech sounds that are distinctive. The utterances [mata] and [mati], the sound [a] of the open second syllable in [mata] and the sound [i] of the open second syllable in [mati] are two sounds that are distinctive. Sounds [a] and [i] have different meanings, namely: [mata] means 'eye' and [mati] means 'passing away, death'. The sounds [a] and [i] are called different phonemes, because they are distinctive and are written /a/ and /i/ (Kentjono, 2020).

To prove that two speech sounds are phoneme variants 'allophones' of the same phoneme or that the two speech sounds are different phonemes, the minimal pair technique is used (Kentjono, 2020). The basis of proof of phoneme identity is what we call the "distinguishing function" as a distinctive property of the phoneme. The "Minimal Pair" technique is used to determine whether the speech sounds are different or the same phoneme (Verhaar, 2019).

3. RESEARCH METHODOLOGY

This research uses two types of research that are used sequentially, namely quantitative research and qualitative research. Quantitative research involves numerical counts using specific measurements. Measurement is an activity that involves giving numbers to attributes, characteristics of a person, object, or event according to rules or formulas. Measurement is the process of assigning numbers to certain categories to describe the quality of certain results. Measurement in comparative phonology uses the "Dialectometry" formula.

Qualitative research describes the actual situation to support data presentation. The researcher analyzed the data in accordance with the data that have been obtained in the field from informants without reducing or adding anything, all written in accordance with the original data. Both quantitative and qualitative research are employed in comparative phonology research. Quantitative research is used to determine the language variations that exist in the research location. Qualitative research is employed to explain the correspondences and phonological language variations found in the research location.

This study employed both quantitative and qualitative methods to make the analysis of language mapping systematic and coherent. First, the quantitative method was used to calculate the phonological linguistic distance in percentage among observation points by applying the dialectometric formula. This process continued until all data had been analyzed and the phonological variation across West Kalimantan Province was completely mapped. The qualitative method was utilized to elucidate particular correspondences deemed noteworthy and, from a sociolinguistic standpoint, acknowledged by Malay speakers as the Malay dialects [-e], [-ə], [-a], [-o], and maybe [R-] and [r-]. The combination of quantitative calculation and qualitative

description strengthened the linguistic mapping by providing more detailed explanations. The naming of dialects in this study was scientifically based on the calculation of language mapping using the dialectometric method. From a social dialect point of view, phonological correspondences with a large amount of data could be described as models of Malay dialects acknowledged by their speakers.

3.1 Data and Data Sources

The data sources of this study were (1) native speakers and (2) dialogues. Native speakers referred to individuals who were born, lived, and grew up in the research area and spoke Malay as their first language. The research covered thirteen regencies in West Kalimantan Province: Sambas, Singkawang, Mempawah, Pontianak, Sukadana, Ketapang, Bengkayang, Landak, Sanggau, Sekadau, Sintang, Melawi, and Kapuas Hulu. From each regency, three informants, male and female, were selected. The informants were drawn from the same sub-district and village, according to predetermined criteria. Laksono and Savitri (2020) mentioned several criteria as follows: (1) male or female, (2) aged 25–60 years and not senile, (3) parents born and raised in the research area, (4) education ranging from elementary to junior high school, (5) lower-middle social status, (6) infrequent mobility outside the area, (7) preferably farmers, fishermen, or laborers, (8) proficiency in Indonesian, (9) pride in their own isolect, (10) absence of speech organ disorders, and (11) good physical and mental health. The total number of informants was thirty-nine, drawn from thirteen observation points, with each point consisting of three informants of both genders. The reason for selecting three informants at each observation point was to facilitate decision-making. If the first and second informants provided different responses, the third informant served as the deciding reference. Having an odd number of informants—at least three—ensured that the collected data were more accurate and avoided conflicting judgments.

This research data is in the form of phonological data in the form of words and phrases that have been determined glosses. The phonological analysis of the data compared is the data of words and phrases that have sound opposition. The example of the gloss 'darah' (blood) in observation points 1, 5, 6, 7 [darah] in TP 2, 3, 4 [darah] [-r-] \approx [-r-] is a correspondence. The gloss in question is in the form of Swadesh words and phrases and non-Swadesh words and phrases, glosses totaling 321 words and phrases. The instruments used were those of Laksono & Savitri (2020).

The discourse method was used as the data collection method, employing elicitation techniques through direct conversation. To assist in data collection, instruments in the form of Swadesh words, words and phrases totaling 321 glosses, were used. Glosses are known and understood linguistic units that are used to obtain the desired data. The data collection was assisted by informants (Laksono & Savitri, 2020).

3.2 Data Analysis Method

The method used for analysis, especially language mapping, is the Synchronic Comparative Method. The Synchronic Comparative Method is used to analyze phonological differences between observation points. The result of this method is to find out the total number of different phonological correspondences between observation points. After finding the overall correspondence difference. Furthermore, the correspondence difference and phonological variation between observation points are calculated using the dialectometric formula, to calculate

the linguistic distance in percentage of phonological correspondence between observation points. Calculation of the difference in Phonological correspondence is done if the correspondence is at least two data, while the variation is a correspondence in the form of one data only, Guiter's Dialectometry formula (Mahsun, 2019).

$$\frac{(S \times 100)}{n} = d\%$$

S : Number of lexical differences between observation points.

n : Number of lexical maps being compared.

d% : Percentage distance of linguistic elements between observation points.

Guiter in Mahsun (2019) categorizes isolects based on dialectometric calculations in phonology as below.

17 % - 100 %	= language differences
12 % - 16 %	= dialect differences
8 % - 11 %	= subdialect differences
4 % - 7 %	= speech differences
0 % - 3 %	= no differences

4. RESULTS

4.1 Exposure of Phonological Correspondence

The data used for phonological correspondence analysis amounted to 321. The phonological correspondence data were analyzed using synchronic comparative techniques. The results of the phonological correspondence data analysis consisted of 36 sound correspondences and 26 sound variations. The following is a table of 36 sound correspondences and 26 sound variations.

Table 1: Sound Correspondence and Sound Variation

No	Correspondence / Variation	Example	Number
1	[a-] ≈ [ə-]	[ampat] ≈ [əmpat]	2
2	[-a-] ≈ [-ə-]	[təŋah ari] ≈ [taŋah ari]	30
3	[-a] ≈ [-ə]	[lusa] ≈ [lusə]	8
4	[-a] ≈ [-e]	[pəria] ≈ [pərie]	2
5	[-a-] ≈ [-e-] ≈ [-ə-]	[jaŋgət] ≈ [jeŋgət] ≈ [jəŋgət]	2
6	[-a] ≈ [-e] ≈ [-ə]	[kəbaya] ≈ [kəbaye] ≈ [kəbayə]	6
7	[-e] ≈ [-i]	[kame] ≈ [kami]	3
8	[-e-] ≈ [-ə-]	[bəŋkəʔ] ≈ [bəŋkəʔ]	2
9	[-e] ≈ [-ə] ≈ [-a] ≈ [-o]	[tɪge] ≈ [tɪgə] ≈ [tiga] ≈ [tigo]	15
10	[ə-] ~ [i-]		1
11	[-ə-] ≈ [-i-]	[əmpədu] ~ [impədu]	9
12	[-u-] ≈ [-o-]	[səpuloh] ≈ [sipuloh]	7
13	[b-] ~ [g-]	[təŋkəʔ] ≈ [təŋkəʔ]	1
14	[b-] ~ [m-]	[buyoŋ] ~ [gayoŋ]	1
15	[-d-] ~ [-j-]	[beləʔ] ~ [meləʔ]	1
16	[-g-] ~ [-j-]	[dagu] ~ [jagu]	1
17	[-g-] ~ [-R-]	[bigi asam] ~ [biji asam]	1
18	[-ø-] ≈ [-a-]	[pagi] ~ [pərgi]	4
19	[ø-] ≈ [b-]		3

20	[-d-] ≈ [-ḏ-]	[kəɾbau] ≈ [kərabau]	2
21	[-ø-] ≈ [-ə-]	[isoʔ] ≈ [besoʔ]	39
22	[ø-] ≈ [h-]	[padas] ≈ [paḏas]	19
23	[-ø-] ≈ [-h-]	[mlɛmpar] ≈ [mələmpar]	4
24	[-j-] ~ [-ḵ-]	[aŋat] ≈ [haŋat]	1
25	[ø-] ~ [k-]	[səari] ≈ [səhari]	1
26	[ø-] ~ [l-]	[səjuʔ] ~ [səḵjuʔ]	1
27	[-l-] ≈ [-ḏ-]	[utare] ~ [kusara]	2
28	[-m-] ≈ [-ṁ-]	[əŋkuas] ≈ [ləŋkuas]	7
29	[ø-] ≈ [m-]	[galap] ≈ [gallap]	2
30	[-ø-] ≈ [-n-]	[lima] ≈ [limə]	2
31	[-n-] ≈ [-ṇ-]	[asam] ≈ [masam]	4
32	[-p-] ~ [-ḑ-]	[bisul] ≈ [bmsul]	1
33	[-p-] ~ [-ḑ-]	[anam] ≈ [aṇam]	1
34	[-r-] ≈ [-ṛ-]	[kəpəŋ] ~ [kəpəŋ]	2
35	[-ø-] ≈ [-R-]	[kapaʔ] ~ [kaḑaʔ]	14
36	[-ø-] ~ [-t]	[barat] ≈ [baṛat]	1
37	[k-] ~ [g-]	[bətaŋa] ≈ [bəṛtaŋa]	1
38	[k-] ~ [t]	[ləsəŋ pipi] ~ [ləsəŋ pipit]	1
39	[-ʔ] ≈ [-h]	[kutut] ~ [gutut]	2
40	[-ʔ] ~ [-l]	[kətumbar] ~ [tətumbar]	1
41	[-ʔ] ≈ [-R]		4
42	[-ʔ] ≈ [-R] ≈ [-r]	[basaʔ] ≈ [basah]	5
43	[-ʔ] ≈ [-t]	[kəciʔ] ~ [kəcil]	2
44	[-n] ≈ [-ŋ]	[ekəʔ] ≈ [ekəɾ]	3
45	[R-] ≈ [r-]	[təluʔ] ≈ [təluɾ] ≈ [təluɾ]	7
46	[-R-] ≈ [-r-]	[kunjɪʔ] ≈ [kunjɪt]	37
47	[-R-] ~ [-r-]	[cicɪn] ≈ [cmɪcɪn]	15
48	[-t-] ~ [-l-]	[rambət] ≈ [rambət]	1
49	[-t-] ~ [-R-]	[darah] ≈ [darah]	1
50	[-t] ~ [-R] ~ [-r]	[ipar] ≈ [ipar]	1
51	2 sil ~ 1 sil	[taŋan] ~ [laŋan]	1
52	3 sil ~ 2 sil	[kəmmɪnɪŋ] ~ [kəmmɪɾɪ]	1
53	4 sil ~ 2 sil	[pusat] ~ [pusar] ~ [pusar]	15
54	4 sil ≈ 3 sil	[tɪdaʔ] ~ [ndaʔ]	9
55	5 sil ~ 2 sil	[dələpan] ≈ [ləpan]	4
56	6 sil ~ 4 sil	[bakul kəciʔ] ≈ [bakkul]	2
57	6 sil ~ 5 sil	[kələlawar] ≈ [kələwar]	1
58	BMDs ~ sandi	[mabəʔ-mabokan] ≈ [mabəʔ]	1
59	PAN (Dyen) ~ epentesis	[oraŋ pəɾəmpuan] ~ [pəɾəmpuan]	1
60	PAN (Dyen) ~ paragog	[məməjamkan mate] ~ [məjamkan mate]	1
61	PAN (Dyen) ~ aferesis	[ramai] ~ [rame]	1
62	PAN (Dyen) ~ dissimilasi	[tapaʔ] ~ [tələpaʔ]	1
		[parut] ~ [parutan]	
		[hituŋ] ~ [itəŋ]	
		[rumpot] ~ [rumpot]	
Total			321

The phonological dialectometry count is done as a whole and data that has any number of sound correspondences is counted as only 1 difference. For example, [-R-] ≈ [-r-] sound correspondences totaling 37 are counted as only 1 difference.

4.2 Exposure of Differences in Phonological Correspondence and Linguistic Distance

The results of calculation of phonological difference between observation points and Calculation of phonological distance in percentage between observation points using dialectometric triangle can be seen in the following table.

Table 2: Phonological Differences and Percentages of Phonology between Observation Points

No	Observation Point	Number of Differences	Percentage %
1	1 - 2	21	6,54 %
2	1 - 7	42	13,08 %
3	2 - 3	43	13,39 %
4	2 - 7	44	13,70 %
5	3 - 4	28	8,72 %
6	3 - 7	30	9,34 %
7	3 - 8	32	9,96 %
8	4 - 5	29	9,03 %
9	4 - 8	34	10,59 %
10	5 - 6	30	9,34 %
11	5 - 8	28	8,72 %
12	5 - 9	35	10,90 %
13	6 - 9	32	9,96 %
14	7 - 8	33	10,28 %
15	7 - 11	45	14,01 %
16	8 - 9	28	8,72 %
17	8 - 11	43	13,39 %
18	9 - 10	42	13,08 %
19	9 - 11	46	14,33 %
20	10 - 11	35	10,90 %
21	10 - 12	32	9,96 %
22	11 - 12	29	9,03 %
23	11 - 13	30	9,34 %
24	12 - 13	27	8,41 %

The calculation of the phonological difference resulted in 62 correspondences and variations, including 36 correspondences and 26 variations. Based on the calculation of the phonological difference, the speech difference of TP 1 - 2 = 6.54%. Subdialect difference of TP 3 - 4 = 8,72 %, 3 - 7 = 9,34 %, 3 - 8 = 9,96 %, 4 - 5 = 9,03 %, 4 - 8 = 10,59 %, 5 - 6 = 9,34 %, 5 - 8 = 8,72 %, 5 - 9 = 10,90 %, 6 - 9 = 9,96 %, 7 - 8 = 10,28 %, 8 - 9 = 8,72 %, 10 - 11 = 10,90 %, 10 - 12 = 9,96 %, 11 - 12 = 9,03 %, 11 - 13 = 9,34 %, dan 12 - 13 = 8,41. Dialect differences of TP 1 - 7 = 13,08 %, 2 - 3 = 13,39 %, 2 - 7 = 13,70 %, 7 - 11 = 14,01 %, 8 - 11 = 13,39 %, 9 - 10 = 13,08 %, 9 - 11 = 14,33 %

4.3 Phonological Mapping

The mapping of Malay language in West Kalimantan Province phonologically, based on the calculation of linguistic distance in percentage between observation points phonologically can be described as follows. The first dialect of Malay language in West Kalimantan province is Sambas and Singkawang group dialect which is called Sambas Dialect Malay language. The second group of Malay dialects includes Mempawah, Bengkayang, Pontianak, Ketapang, Sukadana, Landak, and Sanggau. This group of Malay dialects is called Mempawah dialect Malay. The Malay dialect spoken in Sintang, Sekadau, Melawi, and Kapuas Hulu is commonly referred to as the Sintang dialect Malay. Therefore, in West Kalimantan Province, there are three Malay dialects, namely Sambas dialect Malay, Mempawah dialect, and Sintang dialect. The mapping of dialectometric facets in phonology can be seen in the map below. Figure 1 mapping of Malay language variations in West Kalimantan by calculating the dialectometric formula phonologically.

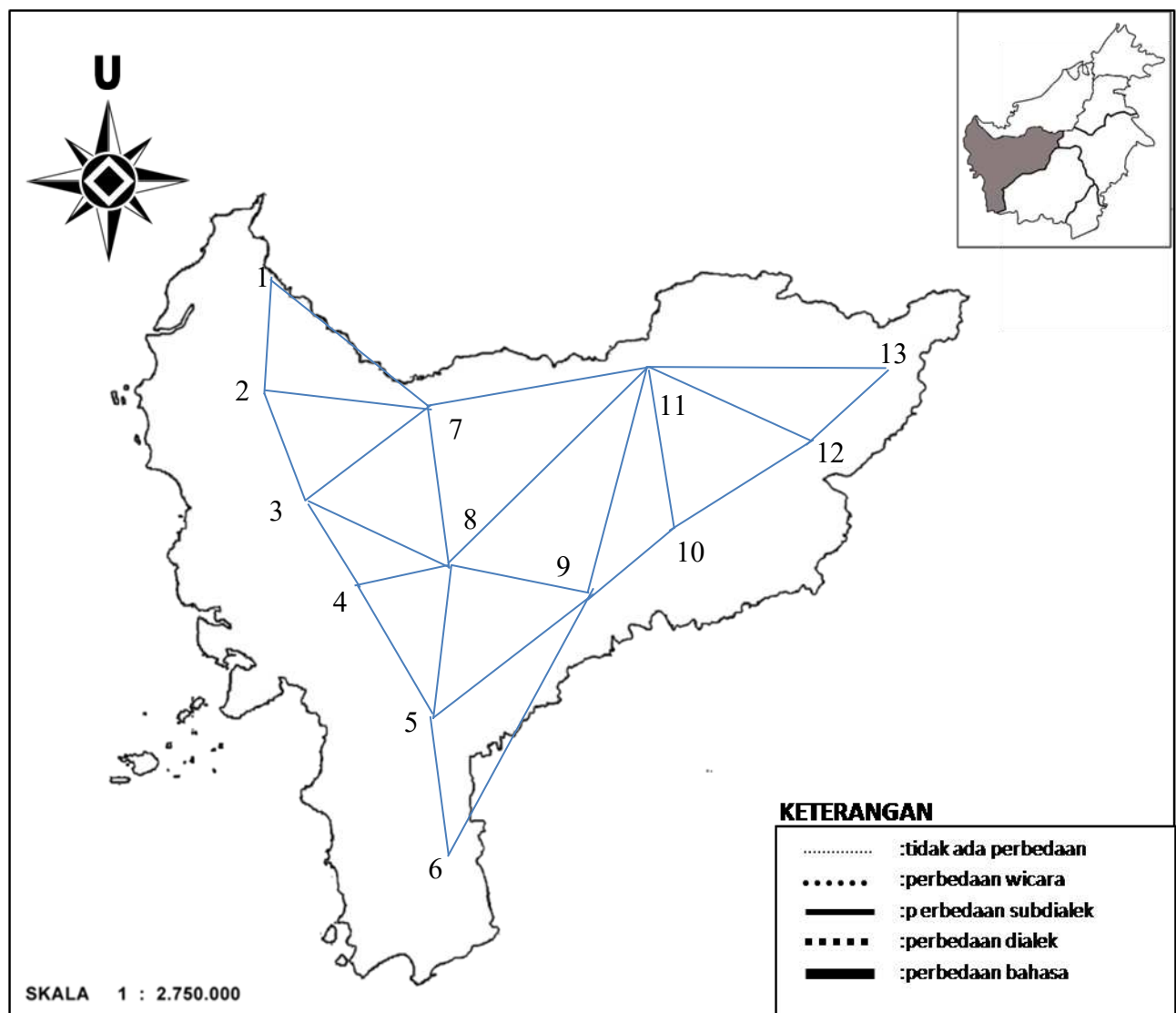


Figure 1: Mapping of Malay Language Variations in West Kalimantan Province

The observation points on the map are connected by straight lines forming a triangle. These lines are not intersecting, making it easy to calculate the difference in language correspondence and variation between each observation point. The linguistic variation between observation points in the research area is determined by calculating the difference in correspondence and language variation. The phonological difference between observation points is used to calculate the linguistic distance in percentage, employing the phonological dialectometry formula.

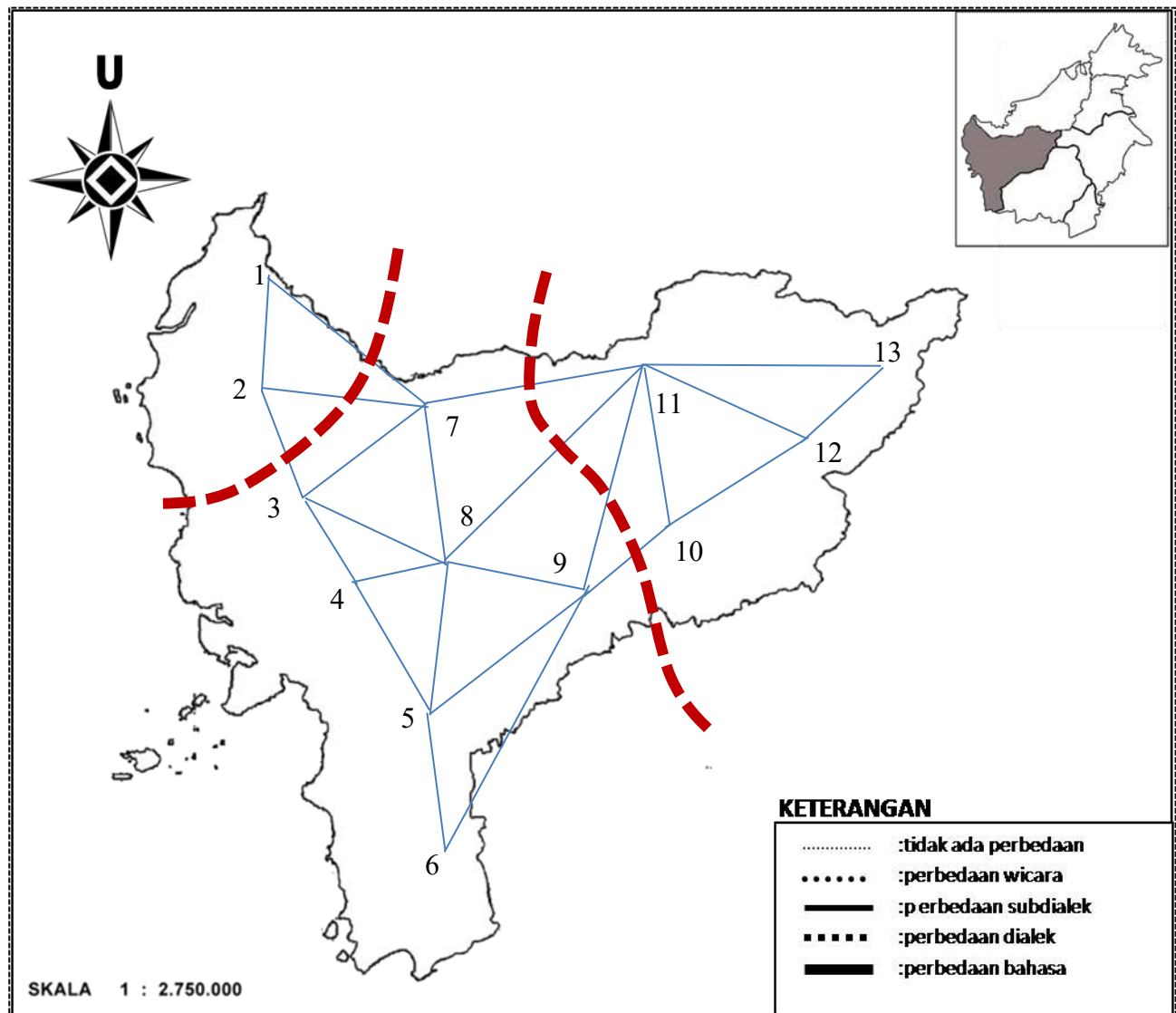


Figure 2: Phonologically Isophonic File Mapping

The study area's language variation is determined by calculating the correspondence difference and linguistic variation between observation points. Phonological differences between observation points are calculated to determine the percentage of linguistic distance in phonology. The language variation in West Kalimantan province is evident through the mapping of isophonic files to determine the boundaries of each Malay dialect. The province has three Malay dialects: Sambas, Mempawah, and Sintang.

5. DISCUSSION


Phonological comparative research is equivalent to phonological language mapping. The initial step before conducting analysis is to determine the number of sound correspondences and variations from the data obtained. The description of phonological correspondence and variation is then used to calculate the difference in phonological correspondence and phonological variation between observation points. The subsequent step is to calculate the linguistic distance as a percentage using the dialectometry formula. This result enables phonological mapping and the creation of phonological isogloss files.

In contrast to lexical language mapping, all lexically different data can be directly described as distinct data and compared between observation points. The next step is to count all lexical data that has been compared between observation points and calculate the linguistic distance as a percentage. This calculation results in lexical language mapping. The formula for determining lexical and phonological language variation differs. Determining language variation involves two main approaches: phonological and lexical. The phonological approach focuses on sound correspondence and variation, while the lexical approach looks at differences in vocabulary. It is important to maintain objectivity and avoid biased language when discussing language variation.

This research, “A Comparative Phonological Study of Malay in West Kalimantan Province: A Dialectological Analysis”, notably concluded the identification of social dialects via phonological correspondence data. A social dialect refers to a linguistic variety acknowledged and supported by its speakers, signifying that its categorization relies not only on linguistic analysis but also on the shared awareness of its speech community, which recognizes particular phonological features as distinguishing characteristics of that dialect. Malay speakers have long recognized systematic phonological correspondences in their language, particularly in the Malay spoken in West Kalimantan Province, such as the correspondences $[-e] \approx [-\text{ə}] \approx [-a] \approx [-o]$ and $[R-] \approx [r-]$. The phonetic correspondences $[-e]$, $[-\text{ə}]$, $[-a]$, and $[-o]$ signify the presence of four social dialects in West Kalimantan: the $[-e]$ dialect encompasses Sambas, Bengkayang, and Singkawang; the $[-\text{ə}]$ dialect includes Mempawah and Pontianak; the $[-a]$ dialect comprises Landak, Sanggau, Ketapang, Sukadana, Sekadau, Melawi, Sintang, and Kapuas Hulu; and the $[-o]$ dialect is found along the northern coast of Sambas. This correspondence was supported by thirty data items, while the correspondence $[R-] \approx [r-]$ consisted of thirty-seven items and reflected two social dialects, the $[R-]$ dialect spoken in Mempawah and Pontianak and the $[r-]$ dialect found in Sambas, Bengkayang, Landak, Ketapang, Sukadana, Sekadau, Melawi, Sintang, and Kapuas Hulu. In the last five years, dialect-geographical studies in determining language mapping had generally relied on lexical comparisons among villages using triangular configurations to identify variation in a particular region, an approach that now seemed less appealing and offered limited new insights. In contrast, mapping the Malay language using phonological triangular comparison in this study provided a more stimulating perspective. Through synchronic phonological comparison, interesting correspondences were identified, showing that four social dialects— $[-e]$, $[-\text{ə}]$, $[-a]$, and $[-o]$ —existed in West Kalimantan Province, while the correspondence $[R-] \approx [r-]$ revealed two dialects, $[R-]$ and $[r-]$. A significant observation from the correspondence $[-e] \approx [-\text{ə}] \approx [-a] \approx [-o]$ was its association with the Malay language used in Jambi and Jakarta: the social dialect in Jambi employed $[-o]$, whereas the Malay dialect in Jakarta utilized $[-e]$. Historically, the provinces of West Kalimantan, Jambi, and Jakarta exhibited a significant linguistic affinity through the Malay language, characterized by the phonological correspondence $[-e] \approx [-\text{ə}] \approx [-a] \approx$

[o], indicating that these regions sustained robust trading relations in the past, leading to substantial linguistic interdependence.

6. CONCLUSION

The conclusion of the data analysis with phonological comparison revealed 63 patterns of sound correspondence and variation. The calculation of linguistic distance in percentage phonologically identified three dialects of the Malay language in West Kalimantan Province: Sambas dialect, Mempawah dialect, and Sintang dialect. Dialect boundaries can be seen in the mapping of isophonic files phonologically on Figure 2. The following dialect boundaries indicate the regional area of each dialect using the isophonic file boundary . This is a marker of dialect boundaries between Malay dialect usage areas in West Kalimantan Province. Another implication of the phonological mapping conducted in this study was that the phonological correspondence [-e] \approx [-ə] \approx [-a] \approx [-o] could be interpreted as evidence that the Malay language in West Kalimantan comprised four social dialects. The [-e] dialect covered the regions of Sambas, Bengkayang, and Singkawang; the [-ə] dialect encompassed Mempawah and Pontianak; the [-a] dialect included Landak, Sanggau, Sekadau, Melawi, Sintang, Kapuas Hulu, Ketapang, and Sukadana; and the [-o] dialect was found in the northern coastal areas of Sambas, particularly in Teluk Keramat and Paloh. When the correspondence [R-] \approx [r-] was applied, the results suggested the existence of two dialects in West Kalimantan: the [R-] dialect, which was used in Mempawah and Pontianak, and the [r-] dialect, which was used in Sambas, Bengkayang, Landak, Sanggau, Sekadau, Melawi, Sintang, Kapuas Hulu, Ketapang, and Sukadana. Another important finding was that the phonological correspondence [-e] \approx [-ə] \approx [-a] \approx [-o] showed a relationship with other Malay varieties: the correspondence [o] aligned with that of the Malay language in Jambi, while the correspondence [e] matched the Malay spoken in Jakarta. Historically, this indicated that the development of Malay in West Kalimantan was closely related to the Malay languages of Jambi and Jakarta, as evidenced by the shared phonological correspondence [-e] \approx [-ə] \approx [-a] \approx [-o], which suggested that these regions had long-standing linguistic ties rooted in the same Malay ancestry.

7. REFERENCES

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