The Kinship of Acehnese, Minangkabau and Javanese Language: The Study of Comparative Historical Linguistics

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Abstract

This research belongs to the type of linguistic research in the field of comparative historical linguistics with the aim of: see the kinship between the Acehnese language, Minangkabau language and Javanese language. This study uses quantitative methods with lexicostatistical and glotochronological data analysis. Data collection methods used in the form of interviews and listening and recording techniques. After doing research on Acehnese and Minangkabau language, 12 identical word pairs were found, 31 phonemic correspondence word pairs, 8 phonetically similar word pairs, 26 word pairs with 1 different phoneme so that 77 related word pairs were found and from the results of the percentage of kinship, which is 20% and is categorized in the level of language clumps (stock, Acehneseand the Minangkabau language began to split from a proto language between 1,814-1588 BC (counting from 2021). In Acehnese with Javanesefound 17 identical word pairs, 15 phonemic correspondence word pairs, 3 phonetically similar word pairs, 10 word pairs with 1 different phoneme so that 45 pairs of related words were found and from the results the percentage of kinship was 10% and categorized in the Minangkabau language microphylum level.and Javanese began to split from a proto-language between 3,473-3,242 BC (counting from 2021). Furthermore, the Minangkabau language with Javanese26 identical word pairs were found, 36 phonemic correspondence word pairs, 9 phonetically similar word pairs, 21 word pairs with 1 different phoneme so that 92 pairs of related words were found and the percentage of kinship percentage was 30% and categorized in the stock language level. Minangkabau languageand Javanese began to split from a proto-language between 847-693 BC (counting from 2021).

I. Introduction

Language is a communication tool used by humans to interact socially and relate to one another. Language is able to strengthen the relationship between individuals or groups. If there is no language, there will be no interaction and chaos will occur because they do not understand each other's goals and objectives. Language is passed down from generation to generation from one generation to the next by our ancestors for a long time, so there is a high possibility of kinship and changes in the language itself from time to time. Languages have undergone changes and developments from the Proto language (old language) to the language we use today.

All languages in the world certainly have a level of kinship, including regional languages in Indonesia. The degree of kinship of a language is based on the similarity of

form and lexical meaning due to direct inheritance. This is in line with what was stated by Keraf (1984:37) that Proto language is an old language that derives a number of related languages: for example, Proto-Austronesian is an ancient language of Indonesian languages.

Proto Austronesian language is the name of a language family domiciled in mainland Southeast Asia. Furthermore, the Proto Austronesian language is written with (PAN). The Austronesian language family is divided into two sub-groups, namely the West Austronesian sub-family (Indonesian languages and Malay languages) and the East Austronesian sub-group (Oceanian languages or Polynesian languages). Western Indonesian groupincludes Malagasy, Formosa, Filipino, Minahasa, Acehnese, Gayo, Batak, Malay, Javanese, Madurese, Sundanese, Nias, and Minangkabau languages while the East Indonesian language group includes Timor-Ambon, Sula-Bacan, South Halmahera-West Irian (Keraf , 1996:205).

Comparative Historical Linguistics (LHK) is a branch of linguistics that deals with languagesa in the field of time as well as changes in language elements that occur in the field of time. In LHK, data from one or more languages is studied, at least in two periods. The data are compared in a careful way to obtain the rules for changes that occur in the language (Keraf: 1984:22). Comparative Historical Linguistics is also known as Diachronic Linguistics, which attempts to study language in different periods of time. This is in contrast to Synchronic Linguistics, which seeks to learn languages in the same time frame.

In communicating, the Indonesian people also use regional languages in socializing and carrying out their daily interactions and in geographical circumstances, the existence of the islands of Sumatra and Java are close to each other so that it is possible that the regional languages of the two are related to each other.Like Acehnese, Minangkabau, and Javanese, which are known to be geographically far apart, in this study it will be examined how closely the kinship of the three languages is. This is in accordance with the opinion expressed by Keraf (1984: 37) that the basis for determining the level of kinship is the similarity of form and meaning because direct inheritance and related words derived from a protolanguage are based on the following facts:

1. There is a large number of vocabularies of a particular language which show relatively large similarities when compared to other groups.
2. The phonetic changes in the history of certain languages also exhibit an orderly character.
3. The deeper we trace the history of the kinship languages, the more similarities there are between the points being compared.

Regional languages are one of our cultural heritages that need to be preserved and research is carried out to examine regional languages in terms of kinship. However, it does not mean that the preservation of regional languages will replace the position of Indonesian as a national language that has been inaugurated by the state. In other words, regional languages also participate in the development of Indonesian in addition to absorption elements from foreign languages. Research on linguistic kinship in small groups is still very much needed in order to reach more deeply, thoroughly, and specifically (band. Anceaux, 1975). In this study, the object of the language studied is Acehnese, Minangkabau, and Javanese, hereinafter referred to as BA, BM, and BJ.

The three languages have the same characteristics (sounds) of phonemes in the use of languages as communication, so it can be said that the three languages are assumed to have linguistic kinship relations, as can be seen from the genealogy of kinship below:

Grouping of the Proto-Austronesian Languages By Haudricourt (1965: 312)

Proto-Austronesian

Western group   Northern Group   Eastern Group

Filipino group   Indonesian group
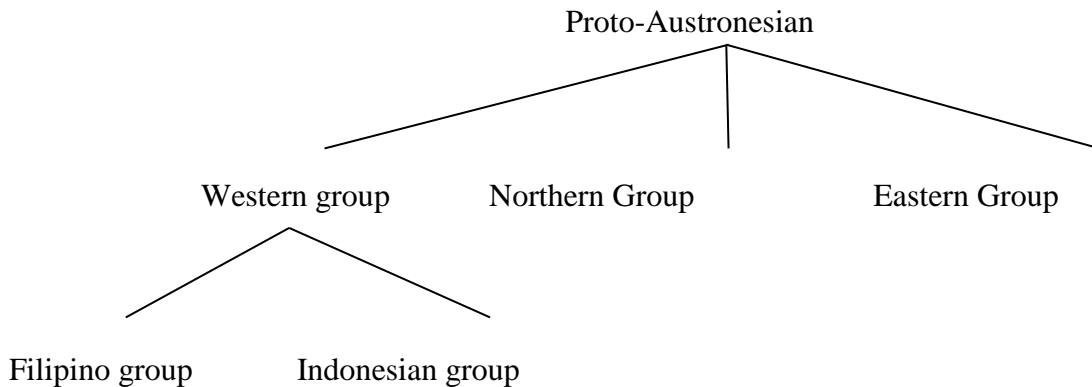
The Proto-Austronesian languages are grouped into three major groups, namely the Western group, the Eastern Group, and the Northern Group Haudricourt (1965: 312) . Those belonging to the western group are languages in the Philippines and languages in Indonesia. The group languages in Indonesia include Proto Aceh, Minangkabau, and Javanese which derive Acehnese, Minangkabau, and Javanese languages.

Based on the description above, regional languages are very important when connected with national development efforts in the preservation of regional languages in Indonesia. Especially research related to knowing the lineage of language kinship, the time of separation and the estimated age of the three languages is importantto find out efforts to develop regional languages in Indonesia and language knowledge in the field of Comparative Historical Linguistics. Because of the things above, the researcher is interested in researching "The kinship of the Acehnese, Minangkabau, and Javanese languages".

The following are some examples of the three languages that will be studied that can be categorized as related words, such as the data below:

Table1. Examples of vocabulary in Acehnese, Minangkabau and Javanese

PAN	BA	BM	BJ	Glos
*'abu	abe	abu	awu	abu
*sai'	so	siapo	sopo	siapa
*kuniŋ	kuneŋ	kuniaŋ	kuneŋ	kuning
*lima	limeŋ	limo	limo	lima

Information: PAN: Proto-Austronesia

From the data compared above, it can be seen that the words are closely related and it is known that the three sets of words have the same or similar shape and meaning.and look for sound changes from the proto language which changes into Acehnese, Minangkabau,

and Javanese languages, then look for the number of kin words. After knowing the number of kin words, the next step is to find the percentage of kinship. The percentage of relative words can be done by determining the gloss that is not taken into account, isolating bound morphemes, determining the word kin by looking for identical word pairs, phonemic correspondence, and determining related pairs with one different phoneme. After the percentage of kinship, the results will be known that the three languages belong to the pre-determined language level the three languages then we can calculate the separation time.

II. Research Method

This research uses the methodquantitative and qualitative descriptive. The quantitative method is to use a calculation called lexicostatistics to calculate the percentage of cognates (kinship) and calculate the year apart for the three languages. The comparison method is also used to compare the similarities and differences in sounds between the three languages. Comparisons were made between the Acehnese language, the Minangkabau language, the Acehnese Coastal language with the Javanese language and the Minangkabau language and the Javanese language in order to see the kinship relations by finding the similarities and differences between these languages. The comparative method is a method that details a study called Comparative Historical Linguistics. The research location is located in the city of Medan by looking for informants who speak native Acehnese, Minangkabau languages.

III. Result and Discussion

3.1 Identical Word Pairs

Determination of the word kin can be done by neglecting one of the provisions and procedures that must be used in analyzing and classifying it, namely determining word pairs as kin words that have an identical resemblance. Identical what is meant by alaha has the exact same sound, shape and meaning. The following data shows identical pairs in Acehnese and Minangkabau languages.

Table 2. Identical Word Pairs BA with BM

No.	Aceh Language	Minangkabau Language	Glos
1.	*Awan*	*awan*	Awan
2.	*Bintaŋ*	*bintaŋ*	Bintang
3.	*Darah*	*darah*	Darah
4.	*Lidah*	*lidah*	Lidah
5.	*Tajam*	*tajam*	Tajam
6.	*Baŋau*	*baŋau*	Bangau
7.	*Barat*	*barat*	Barat
8.	*Panah*	*panah*	Panah
9.	*Pisaŋ*	*pisaŋ*	Pisang
10.	*Salah*	*salah*	Salah
11.	*Tiaŋ*	*tiaŋ*	Tiang
12.	*Tuba*	*tuba*	Tuba

Based on the table, it can be seen that there are 12 pairs of identical words BA and BM that express similarities in form and meaning.

Furthermore, the identical word pairs in the Acehnese language with the Javanese language were obtained in the field, namely:

Table 3. Identical Word Pairs BA with BJ

No.	Aceh Language	Javanese Language	Glos
1.	Balek	balek	Balik
2.	Ijo	ijo	Hijau
3.	Kuneng	kuneng	Kuning
4.	Laen	laen	Lain
5.	Laot	laot	Laut
6.	Tarek	tarek	Tarik
7.	Barat	barat	Barat
8.	Gurita	gurita	Gurita
9.	Jagong	jagong	Jagung
10.	Mabok	Mabok	Mabuk
11.	Pisang	pisang	Pisang
12.	Rusa	rusa	Rusa
13.	Saket	saket	Sakit
14.	Salah	salah	Salah
15.	Tiang	tiang	Tiang
16.	Tuba	tuba	Tuba
17.	Tuna	tuna	Tuna

Based on the table above, it can be seen that the kinship between the Acehnese language and the Javanese language is 17 pairs of vocabularies that have the same form and meaning.

Furthermore, the identical word pairs in the Minangkabau language with the Javanese language were obtained in the field, namely:

Table 4. Identical Word Pairs BM with BJ

No.	Minangkabau Language (BM)	Java Language (BJ)	Glos
1.	Danau	danau	Danau
2.	Kuku	kuku	Kuku
3.	Limo	Limo	Lima
4.	Muntah	muntah	Muntah
5.	Tali	tali	Tali
6.	Susu	susu	Tetek
7.	Tigo	tigo	Tiga
8.	Tungkek	tungkek	Tongkat
9.	Tuo	Tuo	Tua
10.	Barat	barat	Barat
11.	Bambu	bambu	Buluh
12.	Busur	busur	Busur
13.	Hiu	hiu	Hiu
14.	Kasar	kasar	Kasar
15.	Kapak	kapak	Kapak
16.	Ladang	ladang	Ladang
17.	Lontar	lontar	Lontar
18.	Panah	panah	Panah
19.	Pandang	pandang	Pandan

No.			
20.	*Perisai*	*perisai*	Perisai
21.	*Pisang*	*pisang*	Pisang
22.	*Salah*	*salah*	Salah
23.	*Tiang*	*tiang*	Tiang
24.	*Tombak*	*tombak*	Tombak
25.	*Tuba*	*tuba*	Tuba
26.	*Udang*	*udang*	Udang

Based on the table above, the kinship between the Minangkabau language and the Javanese language is 26 pairs of vocabularies that have the same form and meaning.

3.2 Phonemic Correspondence

Word pairs that have phonemic correspondence are word pairs that have a relationship between the two languages based on the position of the phonemes and the same meaning of the two languages being compared. The pair data in the form of phonemic correspondence are as follows.

Table 5. Phonemic Correspondence between Acehnese and Minangkabau languages

No.	Aceh Language	Minangkabau Language	Glos
1.	Abe	Abu	Abu
2.	Aneuk	Anak	Anak
3.	Angen	Angin	Angin
4.	Baro	Baru	Baru
5.	Bate	batu	Batu
6.	Buleun	bulan	Bulan
7.	Bule	bulu	Bulu
8.	Dua	duo	Dua
9.	Gunong	gunuang	Gunung
10.	Kuneng	kuniang	Kuning
11.	Laen	lain	Lain
12.	Mata	mato	Mata
13.	Mate	mati	Mati
14.	Mirah	sirah	Merah
15.	Lako	laki	Suami
16.	Tanoh	tanah	Tanah
17.	Tarek	tarik	Tarik
18.	Tuleng	tulang	Tulang
19.	Ule	ula	Ular
20.	Ateuh	ateh	Atas
21.	Breh	bareh	Beras
22.	Busu	busur	Busur
23.	Gurita	gurito	Gurita
24.	Dalat	lalat	Lalat
25.	Ribe	ribu	Ribu
26.	Rumoh	rumah	Rumah
27.	Rusa	ruso	Rusa
28.	Tanom	tanam	Tanam
29.	tumbak	Tombak	Tombak
30.	Tujoh	Tujuah	Tujuh
31.	udeung	Udang	Udang

Based on the table, it can be seen that there are 31 pairs of vocabularies between BA and BM which have phonemic correspondence with each other. Some of the phonemic correspondences that occur between BA and BM are as follows:

Table 6. Phonemic Corresonance Analysis of BA and BM

No.	Korespondensi Fonemis	Kosakata
1.	e = u	abu: *abe = abu* batu: *bate = batu* bulu: *bule = bulu* ribu: *ribe=ribu*
2.	eu = a	Anak: *aneuk = anak* Bulan: *buleun = bulan* Udang: *udeung = udang*
3.	e = i	Angin: *angen =angin* Mati: *mate = mati* Tarik: *tarek= tarik* Lain: *laen= lain*
4.	e =a	ular: *ule=ula* tulang: *tuleng= tulang*
5.	o = u	Baru: *baro = baru*
6.	a = o	Dua: *dua= duo* Mata: *mata= mato* Gurita: *gurita= gurito* Rusa: *rusa= ruso*
7.	o = ua	Gunung: *gunong= gunuang* Tujuh : *tujuh= tujuah*
8.	e = ia	Kuning: *kuneng= kuniang*
9.	m = s	Merah: *mirah = sirah*
10.	Eu= e	Atas: *ateuh = ateh*
11.	Ø= a	Beras: *breh = bareh*
12.	Ø = r	Busur: *busu = busur*
13.	D=l	Lalat: *dalat = lalat*
14.	O = a	Rumah: *rumoh = rumah* Tanam: *tanom = tanam*
15.	U = o	Tombak: *tumbak= tombak*
16.	O= ua	Tujuh: *tujoh= tujuah*
17.	Eu= a	Udang: *udeung= udang*

Table 7. Phonemic Correspondence between Acehnese and Javanese

No.	Aceh Language	Javanese Language	Glos
1.	*Ase*	*asu*	Anjing
2.	*bintang*	*lintang*	Bintang
3.	*Ate*	*ati*	Hati
4.	*Udep*	*urep*	Hidup
5.	*jantong*	*jantung*	Jantung
6.	*Kilet*	*kulet*	Kulit
7.	*langet*	*langit*	Langit
8.	*mutah*	*muntah*	Muntah
9.	*Talo*	*tali*	Tali
10.	*bangau*	*bango*	Bangau
11.	*Buka*	*bukak*	Buka

12.	*Busu*	*busur*	Busur
13.	*gantong*	*nggantong*	Gantung
14.	*nyamok*	*nyamuk*	Nyamuk
15.	*tumbak*	*tombak*	Tombak

Based on the table, it can be seen that there are 15 pairs of vocabularies between BA and BJ which have phonemic correspondence. Some of the phonemic correspondence that occurs between BA and BJ are as follows:

Table 8. Phonemic Correspondence Analysis of the Acehnese and Javanese Languages

No.	Korespondensi Fonemis	Kosakata
1.	E= u	Anjing: ase =asu
	E= i	Hati: ate= ati
2.	B=l	Bintang: bintang = lintang
3.	D=r	Hidup: udep= urep
4.	O=u	Jantung: jantong= jantung
		Nyamuk: nyamok = nyamuk
5.	I=u	Kulit: kilet= kulet
6.	U= o	Tombak: tumbak= tombak
7.	Ø= n	Muntah: mutah= muntah
8.	O= i	Tali: talo= tali
9.	Au= o	Bangau: bangau= bango
10.	Ø= k	Buka: buka= bukak
11.	Ø= r	Busur: busu = busur
12.	Ø =ŋ	Gantung: gantong = nggantong

Table 9. Phonemic Correspondence between Minangkabau and Javanese

No.	Minangkabau Language	Javanese Language	Glos
1.	*Abu*	*awu*	Abu
2.	*angin*	*angen*	Angin
3.	*Apo*	*opo*	Apa
4.	*baliak*	*balek*	Balik
5.	*bintang*	*lintang*	bintang
6.	*bulan*	*mbulan*	Bulan
7.	*Bulu*	*wulu*	Bulu
8.	*dagiang*	*dageng*	Daging
9.	*gosok*	*nggosok*	Gosok
10.	*Hati*	*ati*	Hati
11.	*amak*	*mamak*	Ibu
12.	*Ikek*	*iket*	Ikat
13.	*Iko*	*iki*	Ini
14.	*Itu*	*iku*	Itu
15.	*jantuang*	*jantung*	Jantung
16.	*kuniang*	*kuneng*	Kuning
17.	*langik*	*langit*	Langit
18.	*Mato*	*moto*	Mata
19.	*tahun*	*taun*	Tahun
20.	*Tarik*	*tarek*	Tarik
21.	*Tipih*	*tipis*	Tipis
22.	*tungkek*	*tungket*	Tongkat

23.	*Ulo*	*ula*	Ular
24.	*bangau*	*bango*	Bangau
25.	*Basi*	*besi*	Besi
26.	*bukik*	*bukit*	Bukit
27.	*Buto*	*buta*	Buta
28.	*gurito*	*gurita*	Gurita
29.	*mabuak*	*mabok*	Mabuk
30.	*naiak*	*naek*	Naik
31.	*kelapo*	*kelopo*	Nyiur
32.	*parih*	*pari*	Pari
33.	*Ruso*	*rusa*	Rusa
34.	*silam*	*selam*	Selam
35.	*tanduak*	*tandok*	Tanduk
36.	*Tabu*	*tebu*	Tebu

Based on the table, it can be seen that there are 36 pairs of vocabularies between BM and BJ which have phonemic correspondence. Some of the phonemic correspondences that occur between BM and BJ are as follows:

Table 10. Phonemic Correspondence Analysis between Minangkabau and Javanese

No.	Korespondensi Fonemis	Kosakata
1.	B= w	Abu: *abu = awu*
		Bulu: *bulu = wulu*
2.	i=e	Angin: *angin = angen*
		Tarik: *tarik = tarek*
		Selam: *silam = selam*
3.	A=o	Apa: *apo = opo*
		Mata: *mato = moto*
		Kelapa: *kelapo =kelopo*
4.	Ia= e	Balik*: baliak= balek*
		Naik: *naiak= naek*
		Danging: *dagiang = dageng*
		Kuning: *kuniang = kuneng*
5.	B = l	Bintang: *bintang= lintang*
6.	Ø = ŋ	Gosok: *gosok = nggosok*
7.	Ø = m	Bulan: *bulan = mbulan*
8.	H=Ø	Hati : *hati = ati*
		Pari: *parih = pari*
9.	Ø = m	Ibu: *amak = mamak*
10.	K =t	Ikat: *ikek = iket*
		Langit: *langik = langit*
		Tongkat: *tungkek = tungket*
		Bukit: *bukik = bukit*
11.	O = i	Ini : *iko = iki*
12.	T = k	Itu : *itu = iku*
13.	Ua = u	Jantung: *jantuang = jantung*
14.	H = Ø	Tahun: *tahun = taun*
15.	H = s	Tipis: *tipih = tipis*
16.	O = a	Ular: *ulo = ula*
		Buta: *buto = buta*
		Gurita: *gurito = gurita*
		Rusa: *ruso = rusa*

17.	Au = o	Bangau: *bangau = bango* Mabuk: *mabuak = mabok* Tanduk: *tanduak = tandok*
18.	A= e	Besi: *basi = besi* Tebu: *tabu= tebu*

3.3 Phonetically Similar Word Pairs

A pair of words that are said to be phonetically similar means that the pair of words have similar phonetic characteristics, which is indicated by the similarity of phonetic symptoms so that they can be considered as allophones or sound units that have variations but do not differentiate in meaning.

Based on the table below, it can be seen that the number of phonetically similar word pairs in Acehnese and Minangkabau languages is 8 pairs of words.

Table 11. Phonetically Similar Word Pairs BA and BM

No.	Aceh Language	Minangkabau Language	Glos
1.	Ie	ayia	Air
2.	balek	baliak	Balik
3.	plah	balah	Belah
4.	Iku	ikua	Ekor
5.	rudah	ludah	Ludah
6.	puteh	putiah	Putih
7.	tuleng	tulang	Tulang
8.	ateuh	ateh	Atas

From the table, it can be seen that there are word pairs between BA and BM which are phonetically similar. The phonetic differences or phonetically similar word pairs of the two languages occur in the gloss below:

1. Gloss 'water' in BA is pronounced *'iey'*, while in BM gloss *'air'* is pronounced *'ayia'*.
2. The 'back' gloss in BA is pronounced *'balek'*, while in BM the *'baliak'* gloss is pronounced *'baliak'*.
3. The gloss 'split' in BA is pronounced *'plah'*, while in BM the gloss *'balah'* is pronounced *'balah'*.
4. The 'tail' gloss in BA is pronounced *'iku'*, while in BM the *'ekor'* gloss is pronounced *'ikua'*.
5. Gloss 'spit' in BA is pronounced *'rudah'*, while in BM gloss *'rudah'* is pronounced *'ludah'*.
6. The 'white' gloss in BA is pronounced *'puteh'*, while in BM the *'white'* gloss is pronounced *'putiah'*.
7. Gloss 'bone' in BA is pronounced *'tuleng'*, while in BM glos *'Tulang'* is pronounced *'tulang'*.
8. The 'top' gloss in BA is pronounced *'ateuh'*, while in BM the *'ateh'* gloss is pronounced *'ateh'*.

Based on this analysis, phonetically similar word pairs can be analyzed through their articulatory characteristics which are considered similar and similar between Acehnese and Minangkabau languages, there are 8 pairs of vocabularies.

Next, analyze phonetically similar word pairs in Acehnese and Javanese, which can be seen in the table below:

Table 12. Phonetically Similar Word Pairs BA and BJ

No.	Aceh Language	Javanese Language	Glos
1.	*Ate*	*ati*	Hati
2.	*Udep*	*urep*	Hidup
3.	*Dalat*	*lalet*	Lalat

From the table, it can be seen that there are word pairs between BA and BJ which are phonetically similar. The phonetic differences or phonetically similar word pairs of the two languages occur in the gloss below:
1. Gloss 'hati' in BA is pronounced *'ate',* while in BM gloss *'hati'* is pronounced *'ati'*.
2. The 'hidup' gloss in BA is pronounced *'udep',* while in BM *'hidup'* gloss is pronounced *'urep'*.
3. Gloss 'fly' in BA is pronounced *'dalat',* while in BM glos *'lalat'* is pronounced *'lalet'*.

Based on this analysis, phonetically similar word pairs can be analyzed through their articulatory characteristics which are considered similar and similar between Acehnese and Minangkabau languages, there are 3 pairs of vocabularies.

Next, analyze phonetically similar word pairs in the Minangkabau language with the Javanese language, which can be seen in the table below:

Table 13. Phonetically Similar Word Pairs BM and BJ

No.	Minangkabau Language	Javanese Language	Glos
1.	*Buah*	*uwoh*	Buah
2.	*bulu*	*Wulu*	Bulu
3.	*dorong*	*nyorong*	Dorong
4.	*dayuang*	*dayong*	Dayung
5.	*tungkek*	*tungket*	Tongkat
6.	*bangau*	*bango*	Bangau
7.	*mabuak*	*mabok*	Mabuk
8.	*naiak*	*naek*	Naik
9.	*pakak*	*pekak*	Tuli

From the table, it can be seen that there are word pairs between BM and BJ which are phonetically similar. The phonetic differences or phonetically similar word pairs of the two languages occur in the gloss below:
1. Gloss 'fruit' in BA is pronounced *'buah',* while in BM gloss *'uwoh'* is pronounced *'uwoh'*.
2. Gloss 'fur' in BA is pronounced *'wulu'*, while in BM gloss *'bulu'* is pronounced *'bulu'*.
3. The gloss 'push' in BA is pronounced 'dorong', while in BM the gloss 'dorong' is pronounced *'nyorong'*.
4. The gloss *'dayung'* in BA is pronounced *'dayuang',* while in BM the gloss *'dayung'* is pronounced 'dayong'.
5. Gloss 'stick' in BA is pronounced *'tungkek'*, while in BM glos *'tongkat'* is pronounced *'tungket'*.
6. Gloss 'stork' in BA is pronounced *'bangau',* while in BM glos *'bangau'* is pronounced 'bango'.
7. The 'drunk' gloss in BA is pronounced *'mabuak',* while in BM the *'mabuk'* gloss is pronounced *'mabok'*.
8. Gloss 'rising' in BA is pronounced *'naiak',* while in BM glos *'naiak'* is pronounced *'naek'*.
9. Gloss 'deaf' in BA is pronounced 'pakak', while in BM glos 'deaf' is pronounced 'pekak'.

Based on this analysis, word pairs that are phonetically similar can be analyzed through their articulatory characteristics which are considered similar and similar between the Minangkabau language and the Minangkabau language, there are 9 pairs of vocabularies.

3.4 Word Pairs with One Different Phoneme

If in a word pair there is a difference in one phoneme, but it can be explained that the difference occurs because the environmental influence does not change the phoneme, then the pair can be designated as a relative word, as long as the segment is long enough (Keraf, 1984: 129). In another sense, word pairs with one different phoneme occur when there is a difference in one phoneme. The differences in the one phoneme in question can be seen in the table below:

Table 14. Word Pairs with One Different Phoneme in Acehnese and Minangkabau Language

No.	Aceh Language	Minangkabau Language	Glos
1.	angen	angin	Angin
2.	baro	baru	Baru
3.	bate	batu	Batu
4.	bule	Bulu	Bulu
5.	dua	duo	Dua
6.	laen	lain	Lain
7.	licen	licin	Licin
8.	rudah	ludah	Ludah
9.	mata	mato	Mata
10.	mate	mati	Mati
11.	mirah	sirah	Merah
12.	panyang	panjang	panjang
13.	lako	laki	Suami
14.	talo	tali	Tali
15.	tanoh	tanah	Tanah
16.	tarek	tarik	Tarik
17.	tuleng	tulang	Tulang
18.	ule	ula	Ular
19.	buta	buto	Buta
20.	gurita	gurito	Gurita
21.	dalat	lalat	Lalat
22.	ribe	ribu	Ribu
23.	rumoh	Rumah	Rumah
24.	rusa	ruso	Rusa
25.	tanom	tanam	Tanam
26.	tumbak	tombak	Tombak

Judging from the table, there are 26 word pairs that are related with a different phoneme classification between BA and BM.

Table 15. Word Pairs with One Different Phoneme in Acehnese and Javanese Language

No.	Aceh Language	Javanese Language	Glos
1.	ase	asu	Anjing
2.	bintang	lintang	Bintang

3.	ate	ati	Hati
4.	udep	urep	Hidup
5.	Jantong	jantung	Jantung
6.	kilet	Kulet	Kulit
7.	Langet	langit	Langit
8.	talo	tali	Tali
9.	nyamok	nyamuk	Nyamuk
10.	tumbak	tombak	Tombak

Judging from the table, there are 10 word pairs that are related with a different phoneme classification between BA and BJ.

Table 16. Word Pairs with One Different Phoneme in Minangkabau Language and Javanese Language

No.	Minangkabau Language	Javanese Language	Glos
1.	abu	awu	Abu
2.	angin	angen	Angin
3.	apo	opo	Apa
4.	bintang	lintang	Bintang
5.	bulu	wulu	Bulu
6.	iko	iki	Ini
7.	itu	iku	Itu
8.	lain	laen	Lain
9.	langik	langit	Langit
10.	tarik	tarek	Tarik
11.	tipih	tipis	Tipis
12.	ula	ulo	Ular
13.	basi	besi	Besi
14.	bukik	bukit	Bukit
15.	Buto	buta	Buta
16.	gurito	gurita	Gurita
17.	kelapo	Kelopo	Nyiur
18.	Ruso	rusa	Rusa
19.	Silam	selam	Selam
20.	Tabu	tebu	Tebu
21.	Pakak	pekak	Tuli

Judging from the table, there are 21 pairs of words that are related to the classification of one phoneme that is different between BM and BJ.

3.5 Acehnese with Minangkabau language

Based on the determination of the word kin, there are 12 identical pairs, 31 phonemic correspondence pairs, 8 phonetically similar pairs, and 26 pairs with one different phoneme. So the total number of related words between BA and BM is 77 vocabularies and there are 220 vocabularies that are not related from 297 basic vocabularies.

In the lexicostatistic calculation technique from 77 calculated data, the kinship between BA and BM can be calculated in percentage levels with the following formula:

Percentage of kinship level $= \dfrac{\text{jumlah kosakata berkerabat}}{\text{jumlah kosakata dasar}} x\ 100\%$

$$\frac{77}{297} \text{x } 100\% = 0.2 \text{ x } 100\% = 20\%$$

Based on the formula for calculating the percentage of linguistic kinship above, the kinship level between BA and BM is 20% of the 279 basic vocabularies. In this case, when viewed from the classification of the percentage of relative words, the kinship relationship between BA and BM is included in the stock category which can be seen in the following table:

Table 17. Classification of BA and BM Groups

Language Level	Split Time (in Century)	Word Percentage Relatives
language	0-5	81-100%
family (family)	5-25	36-81%
Clumps (stock)	25-50	12-36%
Microphylum	**50-75**	**4-12%**
Mesophyllum	75-100	1-4 %
macrophylum	>100	0-1%

Next to calculate the split time:

$$w = \frac{log.c}{2log.r} = \frac{\log 0.2}{2\log 0.81} = \frac{-0.698}{2 \, x - 0.091} = \frac{-0.698}{-0.182} = 3.835 \text{last year.}$$

The result of the calculation of the separation time is 3,835 years, but that number is not the exact year BA and BM separated, but a special calculation needs to be carried out to avoid errors in interpreting the separation time between the two languages. After calculating the separation time, the next step and technique is to calculate the separation time error that has been obtained.

The method used to avoid errors in statistics is to give an estimate that something happens not in a certain time, but in a certain period. To calculate the error range, the standard error is usually used, which is 70% of the estimated truth. The standard error can be calculated using the following formula:

$$S = \frac{\sqrt{c \, (1 - c)}}{n}$$

can be distributed as follows:

$$s = \frac{\sqrt{0.2 \, (1 - 0.2)}}{297} = \frac{\sqrt{0.2 \, x \, 0.8}}{297} = \frac{\sqrt{0.16}}{297} = \sqrt{0.00053} = 0.02$$

The result of that standard error (0.02) is summed by the relative percentage to get a new C: 0.2 + 0.02 = 0.22. After getting the new C, the split time can be recalculated using the split time formula, which is as follows:

$$w = \frac{log.c}{2log.r} = \frac{\log 0.22}{2\log 0.81} = \frac{-0.657}{2 \, x - 0.091} = \frac{-0.657}{-0.182} = 3.609$$

As stated above to obtain the error term, the old time is subtracted by the new time, namely 3.835 – 3.609 = 226. The final result will be added and subtracted by the long time to obtain the age or separation time of the two languages.

So, taking into account the number in the error range of standard error (0.7 of the actual situation), then the age or age of BA and BM can be expressed as follows:

1. Acehnese and Minangkabau languages were related languages 3,835-3,609 years ago before finally separating.
2. Acehnese and Minangkabau are the same language and separated about 3,609 years ago.
3. The Acehnese and Minangkabau languages began to separate from a proto language between 1.814-1588 BC (calculated in 2021).

3.6 Acehnese with Javanese

Based on the determination of the word kin, there are 17 identical pairs, 15 phonemic correspondence pairs, 3 phonetically similar pairs, and 10 pairs with one different phoneme. So the total number of related words between BA and BJ is 45 vocabularies and there are 252 unrelated vocabularies from 297 basic vocabularies.

In the lexicostatistic calculation technique from 45 calculated data, the kinship between BA and BJ can be calculated by the percentage level with the following formula:

Percentage of kinship level $= \dfrac{\text{jumlah kosakata berkerabat}}{\text{jumlah kosakata dasar}} x\ 100\%$

So, $\dfrac{45}{297}$x 100% = 0.1 x 100% = 10%

Based on the formula for calculating the percentage of language kinship above, the level of kinship between BA and BJ is 10% of the 279 basic vocabularies. In this case, when viewed from the classification of the percentage of relative words, the kinship relationship between BA and BJ is included in the microphylum category which can be seen in the following table:

Table 18. Classification of BA and BJ Groups

Language Level	Split Time (in Century)	Word Percentage Relatives
language	0-5	81-100%
family (family)	5-25	36-81%
Clumps (stock)	25-50	12-36%
Microphylum	**50-75**	**4-12%**
Mesophyllum	75-100	1-4 %
macrophylum	>100	0-1%

Next to calculate the split time:

$$w = \frac{log.c}{2log.r} = \frac{\log 0.1}{2\log 0.81} = \frac{-1}{2\ x-0.091} = \frac{-1}{-0.182} = 5.494 \text{last year.}$$

The result of the calculation of the separation time is 5,494 years, but that number is not the exact year BA and BJ separated, but a special calculation needs to be carried out to avoid errors in the interpretation of finding the separation time between the two languages. After calculating the separation time, the next step and technique is to calculate the separation time error that has been obtained.

The method used to avoid errors in statistics is to give an estimate that something happens not in a certain time, but in a certain period. To calculate the error range, the standard error is usually used, which is 70% of the estimated truth. The standard error can be calculated using the following formula:

$$S = \frac{\sqrt{c\,(1-c)}}{n}$$

can be distributed as follows:

$$s = \frac{\sqrt{0.1\,(1-0.1)}}{297} = \frac{\sqrt{0.2 \times 0.9}}{297} = \frac{\sqrt{0.09}}{297} = \sqrt{0.00030} = 0.01$$

The result of that standard error (0.01) is summed by the relative percentage to get a new C: 0.1 + 0.01 = 0.11. After getting the new C, the split time can be recalculated using the split time formula, which is as follows:

$$w = \frac{log.c}{2 log.r} = \frac{\log 0{,}11}{2 \log 0{,}81} = \frac{-0{,}958}{2\,x - 0{,}091} = \frac{-0{,}958}{-0{,}182} = 5.263$$

As stated above to obtain the error term, the old time is subtracted by the new time, namely 5.494 – 5.263 = 231. The final result of 231 will be added and subtracted by the long time to obtain the age or separation time of the two languages.

So, taking into account the number in the error range of the standard error (0.7 of the actual situation), then the age or age of BA and BJ can be expressed as follows:
1. Acehnese and Javanese were related languages between 5,494-5,263 years ago before finally separating.
2. Acehnese and Javanese are the same language and separated about 5,263 years ago.
3. Acehnese and Javanese began to separate from a proto language between 3,473-3,242 BC (calculated in 2021).

3.7 Minangkabau language with Javanese language

Based on the determination of the word kin, there are 26 identical pairs, 36 phonemic correspondence pairs, 9 phonetically similar pairs, and 21 pairs with one different phoneme. So the total of all related words between BM and BJ is 92 vocabularies and there are 205 unrelated vocabularies from 297 basic vocabularies.

In the lexicostatistic calculation technique from the 92 calculated data, the kinship between BM and BJ can be calculated by the percentage level with the following formula:

Percentage of kinship level $= \dfrac{jumlah\ kosakata\ berkerabat}{jumlah\ kosakata\ dasar} x\ 100\%$

So, $\dfrac{92}{297}$ x 100% = 0.3 x 100% = 30%

Based on the formula for calculating the percentage of linguistic kinship above, the BM with BJ's kinship level is 30% of the 279 basic vocabularies. In this case, when viewed from the classification of the percentage of relative words, the kinship relationship between BM and BJ is included in the stock category which can be seen in the following table:

Table 19. Classification of BM and BJ Groups

Language Level	Split Time (in Century)	Word Percentage Relatives
language	0-5	81-100%
family (family)	5-25	36-81%
Clumps (stock)	**25-50**	**12-36%**
Microphylum	50-75	4-12%
Mesophyllum	75-100	1-4 %
macrophylum	>100	0-1%

Next to calculate the split time:

$$w = \frac{log.c}{2log.r} = \frac{\log 0.3}{2\log 0.81} = \frac{-0.522}{2 \, x - 0.091} = \frac{-0.522}{-0.182} = 2.868 \text{ last year.}$$

The result of the calculation of the separation time is 2,868 years, but that number is not the exact year BJ and BM separated, but a special calculation needs to be carried out in order to avoid errors in the interpretation of finding the time of separation between the two languages. After calculating the separation time, the next step and technique is to calculate the separation time error that has been obtained.

The method used to avoid errors in statistics is to give an estimate that something happens not in a certain time, but in a certain period. To calculate the error range, the standard error is usually used, which is 70% of the estimated truth. The standard error can be calculated using the following formula:

$$S = \frac{\sqrt{c \, (1 - c)}}{n}$$

can be distributed as follows:

$$s = \frac{\sqrt{0.3 \, (1 - 0.3)}}{297} = \frac{\sqrt{0.3 \, x \, 0.7}}{297} = \frac{\sqrt{0.21}}{297} = \sqrt{0.00070} = 0.02$$

The result of that standard error (0.02) is summed by the percentage of relatives to get a new C: 0.3 + 0.02 = 0.32. After getting the new C, the split time can be recalculated using the split time formula, which is as follows:

$$w = \frac{log.c}{2log.r} = \frac{\log 0.32}{2\log 0.81} = \frac{-0.494}{2 \, x - 0.091} = \frac{-0.494}{-0.182} = 2.714$$

As stated above to obtain the error term, the old time is subtracted by the new time, which is 2.868 – 2.714 = 154. The final result of 154 will be added and subtracted by the long time to obtain the age or separation time of the two languages.

So, taking into account the number in the error range of standard error (0.7 of the actual situation), then the age or age of BJ and BM can be expressed as follows:
1. Minangkabau language and Javanese language are related languages 2,868-2,714 years ago before finally separating.
2. Minangkabau and Javanese are the same language and separated about 2,714 years ago.
3. Minangkabau language and Javanese language began to separate from a proto language between the years 847-693 BC (calculated in 2021).

Here are the percentages of related words from Acehnese, Minangkabau, and Javanese.
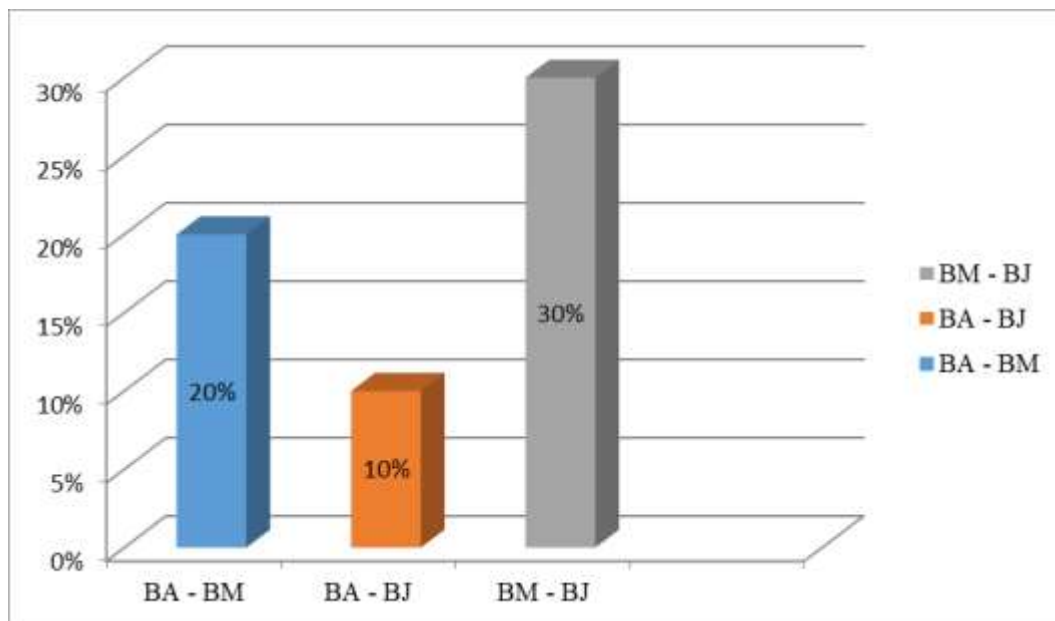
IV. Conclusion

Kinship and separation timeIn the Acehnese language with the Minangkabau language, 12 identical word pairs were found, 31 phonemic correspondence word pairs, 8 phonetically similar word pairs, 26 word pairs with 1 different phoneme so that 77 related word pairs were found.In Acehnese with Javanesefound 17 identical word pairs, 15 phonemic correspondence word pairs, 3 phonetically similar word pairs, 10 word pairs with 1 different phoneme so that 45 pairs of related words were found.. Furthermore, the Minangkabau language with Javanese26 identical word pairs were found, 36 phonemic correspondence word pairs, 9 phonetically similar word pairs, 21 word pairs with 1 different phoneme so that 92 related word pairs were found.

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