The Inherited Proto-Austronesian vowel phonemes in Karo language

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Abstract
Karo as a decent language has a historically genetic similarity to its ancestral Proto-Austronesia (PAN). It inherits a number of PAN's lexicons but, after splitting from its mother tongue, evolutionally it evolves and even deviates in its own way according to its environment. Its inheritance system is linear and even innovative. The innovative inheritance usually occurs in the inheritance of the vowels rather than the consonants. Therefore, this paper aims to analyze the inheritance of PAN's vocals in Karo. The analytical data uses 200 Swadesh's list of vocabulary on the grounds that the basic vocabulary tends to be constant/difficult to change. The theory of historical comparisons was used. From the analysis it is concluded that the vowel phoneme *ə was inherited linearly, while the vowels *a, *i, and *u > are innovatively inherited, i.e. *a > a, ə, and e; *i > i and a; *u > u, o, i, and ə. All this means the vowels *u, a, and ə have merged > ə; *i and *u have also merged > a; *u, *a, and ə have undergone both partial splits and mergers > u, a, and ə in Karo.

Keywords: proto-austronesia, karo language, inheritance, vocal system

1. Introduction
The Karo is a Proto-Austronesian language which has historically genetic resemblance to its parent language, namely Proto-Austronesia (PAN) which inherits a number of lexicons in its derivative language. However, after separating from its mother tongue, evolutionally every language evolves even in its own way according to its environment (Bynon 1979 and Blust 1971), and the Karo undergoes the same. A considerable time span causes quite a lot of PAN lexicons to experience a change in the course of their inheritance. Changes that occur in derivative language is a natural phenomenon because the continuity of a language, which is seen from the historical aspect, is also viewed from the social and geographical aspects. Speakers need a language to communicate a referent. That is, these three aspects also form the death of a language.

In comparative historical linguistics the search of proto forms involves various levels in linguistics, for instance the derived phonemes in the derivative languages. They are all tangible in the lexicons used in this speech. PAN devolution system in Karo language as its derivative language is linear and, even in some parts, is innovative. The innovative inheritance is usually found in the vocal inheritance of consonants (Widayati 2016).

2. Theory and Method
Two concepts in the inheritance system in the PAN language are known namely the concept of innovation and of retention. The first is based on L1amzon (1969) who argued that innovation is the continuity of change of certain features of a language; meanwhile, if the continuity does not change, it is called retention. However, certain features can not be changed up to a certain stage in its development and can therefore be regarded as retention from the stage of innovation.

The concept of innovation differs from retention which focuses on the process of preserving the proto language in the current language; the process is also called linear inheritance. Greenberg (in Fernandez 1996) argued that the historical development of a language can occur independently without going through to the same development. This is the opposite of innovation in which language innovation exclusively goes through the same period of development. Innovation is assumed to occur when a language as a whole experiences language separation into a number of specific subgroups.

In phonology, innovation is concerned with the changing rules that encourage the formation of new vocabularies. Phonological innovations appear in various forms of changes such as the number and distribution of phonemes such as mergers and splits, disappearance, and substitutions. Regular phoneme changes in the closely related languages are an earlier language heritage, while irregular changes occur later. There are generally two innovations: replacement and emerging forms. Substitution refers to a change in the form of cognates in parent language.

The search for the inheritance of PAN's phonemes in Karo language relies merely on the analysis of historical linguistics and comparative methods. Therefore, descriptive data collection is the first step for the provision of appropriate data in this study. The natural data from speakers strives to emerge naturally without engineering. Here, we are forced with our all abilities to capture and simultaneously analyze the data using appropriate theories and methods in order we can realize the expected research results.

3. Discussion
The inherited PAN's vowel phonemes in Karo language
The Protoaustronesian language recognizes four vowel systems, namely * a, * i, * u, and * ↔ (Blust 1981,

Panggabean *et al*. 2014, Dardanila *et al*. 2016). The vowels are inherited in different ways in Karo language; some vowels are linearly inherited and some are innovatively inherited. The presence of different variations of vowel inheritance in Karo language can not be separated from its position in syllables. Here is described various variations of vowels derived from the parent language, namely PAN.

The inherited PAN's vowel phoneme *a
The PAN's vowel phoneme *a in Karo is in general linearly inherited as shown in Table 1.

Table 1: The inherited PAN's vowel phoneme *a in Karo

No	Gloss	Karo language			PAN
		Initial	Medial	Final	
1.	Anak 'child'	anak	--	--	*anak
2.	Angin 'wind'	aŋin	--	--	*aŋin
3.	Akar 'root'	--	urat	--	*uɣat
4.	Bintang 'star'	--	bintaŋ	--	*bintaŋ
5.	Hujan 'rain'	--	udan	--	*hujan
6.	Jantung 'heart'	--	jantuŋ	--	*dantuŋ
7.	Rumah 'house'	--	rumah	--	*ɣumah
8.	Dua 'two'	--	--	dua	*duwa
9.	Garam 'salt'	--	--	sira	*sira /q/
10.	Lima 'five'	--	--	lima	*lima

The inheritance of *a > a occurs regularly at every position; how ever, some data indicate that *a > ə may occur sporadically, especially in the medial position as displayed in Table 2.

Table 2: The inherited PAN's vowel phoneme *a > a in Karo

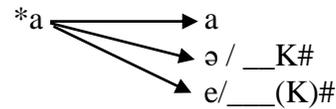| No	Gloss	Karo language			PAN
		Initial	Medial	Final	
	Darah 'blood'	--	darəh	--	*daɣah
	Tanah 'earth'	--	tanəh	--	*tanah
	Tahu 'to know'	--	ətəh	--	*tahu
	Pendek 'short'	--	pendek	--	*pandak
	Malu 'ashamed'	--	mela	--	*malu
	Ular 'snake'	--	--	nipe	*nipa

The changes in PAN's *tanah > tanəh may be referred to as innovative inheritance, but may also be in linear inheritance if the PAN is *tanəh (PAND). Another feature that can be concluded is that some lexicons in the Swadesh data show that if the Karo language does not indicate a feature of inheritance of *a linearly, this language will use another form derived from different etymons to attribute the same meaning (see Table 3).

Table 3: Derived forms from different etymons

No	Gloss	Karo language	PAN
1.	Bunga 'flower'	rudaŋ	*buŋa
2.	Besar 'big'	galaŋ	*besar
3.	Burug 'bird'	pərik	*buluŋ
4.	Hijau 'green'	məratah	*qizaw

The inheritance of *a which is split either linearly or innovatively can be codified as follows:

The inherited PAN's vowel phoneme *i
PAN *i as vowel phoneme is generally bequeathed linearly in Karo language either in the initial, middle, or final position. Notice Table 4.

Table 4: The inherited PAN's vowel phoneme *i

No	Gloss	Karo language			PAN
		Initial	Medial	Final	
1.	Kilat 'lightening'	ilap	--	--	*kilap
2.	Minum 'to drink'	inəm	--	--	*inum
3.	Bintang 'star'	--	bintaŋ	--	*bintaŋ
4.	Angin 'wind'	--	aŋin	--	*aŋin
5.	Api 'fire'	--	--	api	*apuy/*api
6.	Di 'in/at'	--	--	di/i	*di'

Sporadically, the *i can also be inherited to /a/ in Karo and this innovative inheritance appears in Table 5.

Table 5: Innovative inheritance

No	Gloss	Karo language	PAN
1.	Tertawa 'to laugh'	gəlak	*gəlih
2.	Kering 'dry'	kərah	*kəɣaŋ/ kəɣiŋ

The vowel *i in its inheritance pattern is described as follows:

The inherited PAN's vowel phoneme *u
Vowel phoneme *u is inherited regularly and linearly and is sporadically innovated. Linear inheritance can be observed in Table 6.

Table 6: Regular and linear inheritance of vowel phoneme *u

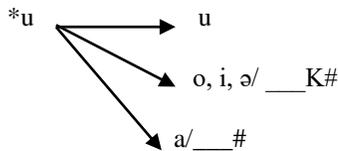| No	Gloss	Karo language			PAN
		initial	medial	final	
1.	Akar 'root'	urat	--	--	*uRat
2.	Ekor 'tail'	--	ikur	--	*ikur
3.	Awan 'cloud'	--	əmbun	--	*əmbun
4.	Jarum 'needle.	--	jarum	--	*zarum
5.	Jauh 'far'	--	ndauh	--	*dauh
6.	Aku '1SG'	--	--	aku	*aku
7.	Abu 'dust'	--	--	abu	*abu'
8.	Bulu 'fur'	--	--	mbulu	*buluh
9.	Baru 'new'	--	--	mbaru	*baru
10.	Garuk 'scratch'			garu	*garuk

The innovative inheritance of *u can be traced through conditional changes, i.e. the *u > o in the final position before consonant. This change in lenition or sound detonation occurs

because vowel /u/ is a closed syllable commonly found in many Austronesian languages. While sporadic changes occur from *u > i and ə in the final position before the consonant and from *u > a at the end of the open syllable (see Table 7).

Table 7: Sporadic changes from *u > i and *u > a

No	Gloss	Karo language	PAN
1.	Memotong 'to cut'	potong	*pu(n)tuŋ
2.	Memukul 'to hit'	pukol	*pu(ŋ)kul
3.	Mencium/ Membau 'to kiss/ to smell'	ciom	*ciyum
4.	Menggali 'to excavate'	kərok	*kə/r/ud
5.	Takut 'frightened'	takot	*(t)akut
6.	Tidur 'to sleep'	tidor	*tidur
7.	Minum 'to drink'	inəm	*inum
8.	Laut 'sea'	lawit	*la'ud
9.	Malu 'ashamed'	mela	*malu

The in heritance of *u is represented by the split / split pattern as the following:

*u   →   u

             →   o, i, ə/ ___K#

             →   a/___#

The inherited PAN's vowel phoneme *ə
PAN *ə is linearly inherited and this inheritance appears regularly in the middle position, for either open/closed ultima or penultima syllables. Consider Table 8.

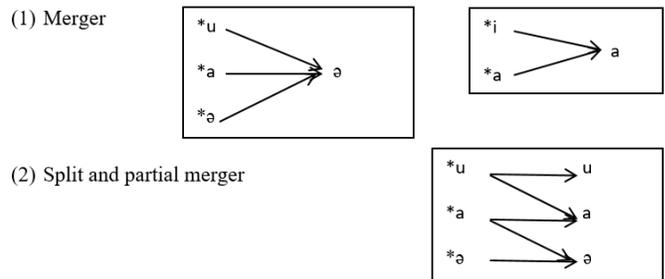**Table 8:** Inheritance of PAN's phoneme *ə

No	Gloss	Karo language			PAN
		initial	medial	final	
1.	Empat 'four'	əmpat	--	--	*əmpat
2.	Berat 'heavy'	--	mbərat	--	*bərat
3.	Dengar 'to listen'	--	dəŋar	--	*dəŋar
4.	Ikat 'band'	--	ikət	--	*ikət
5.	Gigi 'teeth'	--	ipən	--	*gigi/*ipən
6.	Benih 'seed'	--	bənih	--	*bənih
7.	Bernapas 'breathe'	--	(ər)kəsah	--	*kətah
8.	Tertawa 'to laugh'	--	gəlak	--	*gəlih
9.	Kering 'dry'	--	kərah	--	*kəɣiŋ
10.	Telur 'egg'		təlor		*/t/əlur

There is a rather striking difference between the vowel phonemes /ə/ and /e/ in Karo. The vowel /ə/ is essentially the result of linear inheritance from the parent language (PAN), while the /e/ is the result of innovative inheritance of *a, although there is also vowel phoneme /ə/ which is the innovative forms of *a and *u.

4. Conclusions
PAN's vowels *a, *i, and *u do not only inherit linearity and regularity, but also inherit sporadic innovative vowels. Meanwhile, the vowel *ə inherits linearity in Karo. The existence of merger, and split and partial mergers in Karo language cannot be separated from the linguistic factor itself.

Split and partial mergers in PAN's vowel have the following patterns:

(1) Merger

(2) Split and partial merger

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