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Reflex PAN to Buli in North Maluku

Burhanuddin
Postgraduate Doctoral of Linguistics and Departement Language and Art
Universitas Sebelas Maret (UNS) and Universitas Mataram (Unram)
Surakarta and Mataram, Indonesia
burhanuddin.fkip@unram.ac.id

Nur Ahmadi
Lecturer Departement of Education Language and Art
Universitas Mataram (Unram)
Mataram, Indonesia
nurahmadi@unram.ac.id

Ratna Yulida
Lecturer Departement of Education Language and Art
Universitas Mataram (Unram)
Mataram, Indonesia
whlombok @gmail.com

Abstract – Buli language belongs to one of Austronesian languages, South Halmahera-West New Guinea, the Subgroup of South Halmahera. As a member of Austronesian languages, this article intends to present linguistic evidence, phonological aspects which may clarify and highlight the issues. The explanation to the issues applies a top-down approach by considering the realization of Proto-Austronesian phoneme into Buli language. The results of identification process indicate that there are PAN's phonemes which are still retained and those having undergone innovation. Both those reflexes belonging to retention and innovation can each be regular and non-regular.

Keywords: ***reflex, Proto-Austronesia, top-down approach, retention, innovation***

I. INTRODUCTION

Historically lingustically, Buli is included in the Southern Halmahera Group, South Halmahera-West New Guinea, along with the Maba / Patani, Sawai, Gane, Taba, and Gebe languages. Regarding this group, Blust (1978) did not include Gebe in this subgroup, but Kamholz (2014) and Burhanuddin (2017) included it. According to Blust (1978) and Kamholz (2014), the languages of South Halmahera are comprised of two subgroups, the Central-Eastern South Halmahera and Southern-South Halmahera. The Central-Eastern South Halmahera subgroup consists of Buli, Maba/Patani, Sawai, and Gebe. Now Southern-South Halmahera is made up of Gane and Taba. Blust (1978) there is no linguistic evidence of grouping with keywords of phonological and lexical similarities, except Kamholz (2014). Kamholz (2014), supports the grouping, by proposing morphological evidence of the multiple plural subject plots for afik {f-} for the Southern Halmahera Subgroup, for the Central-Eastern South Halmahera languages having the first inalienable marker belonging to the plural inclusive {-r / - d}. In addition, bookmark storage is inalienable for Southern-South Halmahera languages, whereas in the Central-Eastern South Halmahera languages. As the evidence of phonology and lexicons explaining this historical relation is not specific.

The language of Buli is used in East Halmahera District, Buli Sub-district, Buli Village and Buli Origin of North Maluku Province, with a total number of speakers of approximately 2,520 (Lewis et al., 2017). In North Maluku there are two language families, namely Austronesia (AN) and Non-Austronesian (NAN). Austronesian languages are commonly used in South Halmahera, whereas Non-Austronesian languages are used in North Halmahera. The languages included in the Austronesian clan are Buli, Maba, Sawai, Gebe, Gane, Taba, while the Non-Austronesians are Tobelo, Galela, Ternate, Morotai, and Western Makian. Therefore, the Proto-Austronesian (PAN) reflex study into Buli is one of the attempts to prove Buli as a member of the Austronesian or Non-Austronesian family.

This paper does not intend to present the evidence of phonology and lexicon about the classification of geneology, because it must involve five other languages. This paper only presents a picture of the Proto-Austronesian phonemes reflex to Buli as a member of the South Halmahera Group as a first step to test the hypothesis. That is, looking at the Proto-Austronesian (PAN) reflex into the Buli language. Of course with the record of this study followed the study of PAN reflex in five other South Halmahera languages. In other words, this study is the first step to test the hypothesis about the historical relation of the languages of South Halmahera. In addition, this study is also important to see the pattern or type of sound changes in Buli language itself.

II. METHOD

To answer the problem to be explained, data collection has been collected using library method by collecting PAN etimon that has been reconstructed by Trussell and Blust (2015) in *Austronesian Comparative Dictionary*. In addition, an interview method was used to collect 200 revised basic vocabularies of Blust (1980) and 800 cultural vocabularies contained in Buli. The collected data is then analyzed using a top-down approach, a method of shared innovation (Adelaar, 2005; Blust, 2008 and 2013; and Holton and Robinson, 2014)). A top-down approach is used to view the realization of PAN changes into Buli, both in the form of retention and innovation.

III. Finding and Discussion

Before the PAN reflex is proposed in Buli, it is worth mentioning the kind of PAN phonemes reconstructed by Blust (2013). According to Blust (2013), PAN phonem consists of 24 consonants (/p, t, C, c, k, q, b, d, z, j, g, N, m, n, ɲ, ŋ, s, S, h, l, r, R, y, and w/), four vowels (/ i, u, ə, and a/), and four diphthongs (-aw, -ay, -uy, dan -iy). These phonemes are the basis for seeing their realization in Buli. As for the results of Burhanuddin's (2017) identification, in Buli language consists of 20 consonants (/p, t, c, k, q, n, ɲ, ŋ, s, h, l , r, y, and w/) and eight vowels (/ i, u, ə, e, ɛ, a, o, and ɔ /). Here is presented how the reflection of PAN into the language of Buli.

*A. PAN *p*

PAN *p changes to /f/ regulary in Buli language at the initial and intervocal position, whereas at the end position is irregular (and it is possible that the properties are regular if the data is expanded). In addition to being /f/, PAN *p changes to /ø/ in the final position, as well as in the initial position of retention, each of which is irregular.

Gloss	**PAN**	**Buli**	**Rule**
when	*pica	offhis	*p > f/#-
stingray	*paRi	fa	
turtle	*pəɲuʔ	fɛn, etc	
pare	*pariaʔ	pəpare	*p > p/#-
thin	*tipis	mlifis	*p > f/#-#
four	*Səpat	pifaat	
taste	*təpəŋ	tɔfaŋ, etc	
centipede	*Sipan	lilitaŋ	*p > t/#-#
roof	*ʔatəp	yataf	*p > f/#-#
blow	*tiyup	ufaq	
smoke	*ʔasəp	memeyas	*p > ø/-#

*B. PAN *t*

PAN *t is still maintained in Buli language at all positions. Only, in the initial position and the inter-vocalic is regular, while the final position is irregular.

Gloss	**PAN**	**Buli**	**Rule**
three	*təlu	pitɔl	*t > t/#-
taste	*təpəŋ	tɔfaŋɔ	
thin	*tipis	mlifis	
blow	*tiyup	ufaq, etc	
roof	*ʔatəp	yataf	*t > t/#-#
lice	*kutu	ut	
moss	*lumut	lulumit, etc	
coconut fiber	*bunut	punit	*t > t/-#
sea	*lahut	ɔlat	

*C. PAN *C*

PAN * C in all positions changed to / t / in Buli language, ie at the initial and final position is irregular, while the final position is regular.

Gloss	**PAN**	**Buli**	**Rule**
cry	*Caŋis	(n)taŋis	*C > t/#-
year	*CawiN	taun	
die	*maCay	mat	*C > t/#-#

eye	*maCa	mta	
egg	*ʔiCəluR	təlɔ	
sky	*laŋiC	laŋit	*C > t/-#

*D. PAN *k*

PAN * k in Buli language is still preserved in the initial position and is regular. In addition, PAN *k at the initial position changes to /m/, /b/, and /g/, while in the final position disappears, which of which is irregular. Only in the inte-vocalic position is regularly changed to /ø/.

Gloss	**PAN**	**Buli**	**Rule**
lice	*kutu	kut	*k > k/#-
gargle	*kumuR	famumi	*k > m/#-
clean	*kərsik	beresi	*k > b/#-
dig	*kalih	gali	*k > g/#-
worm	*kulay	gugula	
wood	*kaSiw	ay	*k > ø/#-
you	*kaSu	au	
nephew	*kam-anak	fanɔk, etc	
I	*aku	yaq, ai	*k > ø/#-#
raft	*dakit	ɛt	
	root	*wakaR	waq
bird	*manuk	mani	*k > ø/-#
horn	*tanduk	tadu	*k > ø/-#

*E. PAN *ʔ*

PAN * ʔ nothing is preserved in Buli, but innovated in all positions. Innovation PAN * ʔ in initial position to /g/, /ø/, /y/ /f/, /m/, /ɲ/, /t/, /w/; be /ø/ in the inter-vocalic position; and be /f/ and /s/ at the final position of which is irregular. The change to /ø/ at the final position occurs regularly.

Gloss	**PAN**	**Buli**	**Rule**
salt	*ʔasiRa	gasiʔ	*ʔ > g/#-
egg	*ʔiCəluR	təlɔ	*ʔ > ø/#-
salty	*ʔasin	payasiŋ	*q > y/#-
roof	*ʔatəp	yataf	
married	*ʔasawa	fasaw	*ʔ > f/#-
gargle	*ʔumuR	famumi	*ʔ > m/#-
sand	*ʔənay	ɲiŋɛn	*ʔ > ɲ/#-
cucumber	*ʔatimun	titimin	*ʔ > t//#-
shark	*ʔiSu	wɔi	*ʔ > w/#-
thigh	*paʔa	fiar	*ʔ > ø/#-#
pee	*miʔmiʔ	panama	
blood	*daRaʔ	laflaf	*ʔ > f/-#
swollen	*baRəʔ	bɔs	*ʔ > s/-#
water pee	*kəmiʔ	fanami	*ʔ > ø/-#
pare	*pariaʔ	pəpare	
turtle	*pəŋuʔ	fɛn	

*F. PAN *b*

PAN * b changes to / p / occurs on a regular basis, whereas /b/ and /m/ occurs irregularly. The inter-vocal position becomes /p/, /f/, and /ø/ each is irregular.

Gloss	**PAN**	**Buli**	**Rule**
coconut fiber	*bunut	punit	*b > p/#-
waking (from sleep)	*baŋun	paliŋ	
ridge	*bubuŋan	pupuŋan	
pig	*babuy	bɔu	*b > b/#-
star fruit	*baliŋbiŋ	malibi	*b > m/#-
ridge	*bubuŋan	pupuŋan	*b > p/#-#
mouse	*labaw	luf	*b > f/#-#
grandchild	*bubu	bu	*b > ø/#-#
pig	*babuy	bɔu	

*G. PAN *d*

PAN * d at initial position innovates to /l/ regularly and becomes /t/ irregularly. In addition, PAN *d becomes /ø/ at the initial and inter-vocalic positions are irregular respectively.

Gloss	**PAN**	**Buli**	**Rule**
flat	*dataR	lata	*d > l/#-
hear	*dəŋəR	tlɔŋa	
blood	*daRaʔ	laflaf	
this	*dini	tanɛ	*d > t/#-
raft	*dakit	ɛt	*d > ø/#-
that	*adi	i	*d > ø/#-#

*H. PAN *z. *j, *g*

PAN *z changes to /f/ is irregular in initial position. PAN *j in the inter-vocal position to /h/, in the final position to /t/, wich is irregular. As for, PAN *g being /g/ in the initial position occurs irregularly.

Gloss	**PAN**	**Buli**	**Rule**
Walk	*zalan	fan	*z > f/#-
name	*ŋajan	ŋahŋo	*j > h/#-#
worm	*ʔuləj	gugulat	*j > t/-#
scratch	*garut	gag	*g > g/#-

*I. PAN *m*

PAN *m in inter-vocal retention regularly, whereas at the initial and final positions are irregular. In addition, PAN *m in the inter-vocal position changes to /ø/ irregularly.

Gloss	**PAN**	**Buli**	**Rule**
bird	*manuk	mani	*m > m/#-
eye	*maCa	mta	
hand	*kamay	kakamɔq	*m > m/#-#
cucumber	*ʔatimun	titimin	
five	*lima	pilim	
you	*Simu	au	*m > ø/#-#
nephew	*kam-anak	fanɔk	
six	*ənəm	wɔnam	*m > m/-#

drink	*inum	dɔm

*J. PAN *n*

PAN * n in the initial position changes to /d/ and /n/ which are irregular in nature, whereas in the final position it becomes /n, ŋ, l, and ɲ/ which are irregular in nature. Changes to /n/ and /ŋ/ are possible to occur regularly if the data is expanded. PAN *ɲ in the middle position changes to /n/ and at the end position to /n/, each irregularly.

Gloss	**PAN**	**Buli**	**Rule**
drink	*inum	dɔm	*n > d/#-
bird	*manuk	mani	*n > n/#-
ridge	*bubuŋan	pupuŋan	*n > n/-#
cucumber	*ʔatimun	titimin	
centipede	*Sipan	lilitaŋ	*n > ŋ/-#
salty	*ʔasin	payasiŋ	
name	*ŋajan	ŋahɲo	*n > ɲ/-#
waking (from sleep)	*baŋun	paliŋ	*n > l/-#

*K. PAN *N, *ɲ,* and *ŋ*

PAN * N at the initial position turns into PHS *m, *l, and *S each occurring irregularly. Likewise in the end position experiencing irregular retention.

Gloss	**PAN**	**Buli**	**Rule**
see	*Nəŋ	mɛm	*N > m/#-
sap	*Nitəʔ	litlit	*N > l/#-
breath	*NiSawa	tawaq	*N > ø/#-
year	*CawiN	taun	*N > n/-#

PAN *ɲ in the initial position of retention and /n/ in the inter-vocal position, each of which occurs irregularly. As for, PAN *ŋ at all position have retention irregulary. In addition to retention, PAN *ŋ changes to /ø/ in the inter-vocal and final positions that occur irregularly. At the final position, PAN *ŋ also changes to /m/ irregularly.

Gloss	**PAN**	**Buli**	**Rule**
dew	*ɲamuR	ɲiŋemi	*ɲ > ɲ/#-
turtel	*pəɲuʔ	fɛn	*ɲ > n/#-#
name	*ŋanan	ŋahɲo	*ŋ > ŋ/#-
sky	*laŋiC	laŋit	*ŋ > ŋ/#-#
star fruit	*baliŋbiŋ	malibi	*ŋ > ø/#-#
taste	*təpəŋ	tɔfaŋ	*ŋ > ŋ/-#
see	*Nəŋ	mɛm	*ŋ > m/-#
star fruit	*baliŋbiŋ	malibi	*ŋ > ø/-#

*L. PAN *s*

PAN *s retains at all positions, only in the inter-vocal position that occurs regularly, whereas in the initial and final positions occur irregularly. In addition, PAN *s has innovated to /c/ in the initial position, being /w/ and /ø/ in the inter-vocal position, each irregular.

Gloss	**PAN**	**Buli**	**Rule**
nine	*siwa	siwe	*s > s/#-
milk	*susu	cuway	*s > c/#-
salt	*ʔasiRa	gasiq	*s > s/#-#
one	*isa	p(i,u)sa	
clean	*kərsik	beresi, etc	
milk	*susu	cuway	*s > w/#-#

gum	*gusi	igo	*s > ø/#-#
cry	*Caŋis	(n)taŋis	*s > s/-#

*M. PAN *S*

PAN *s at initial position changes to /p, l, ø/ in Buli, each is irregular. In the inter-vocal position changes to /ø/ regularly and /y/ irregularly. The final position changes to /s/ irregularly.

Gloss	**PAN**	**Buli**	**Rule**
four	*Səpat	pifaat	*S > p/#-
centipede	*Sipan	lilitaŋ	*S > l/#-
wash (hand)	*SuraS	uwas	*S > ø/#-
you	*kaSu	au	*S > ø/#-#
wood	*kaSiw	ay	
shark	*ʔiSu	wɔi	
breath	*NiSawa	tawaq	
water	*waSiR	waya	*S > y/#-#
tuma (lice egg)	*lisəʔəS	lɔwas	*S > s/-#
wash (hand)	*SuraS	uwas	

*O. PAN *h* and **l*

PAN * h in the inter-vocal position and the end turns to PHS * ø irregularly, so also the change to / s / at the end position occurs irregularly.

Gloss	**PAN**	**Buli**	**Rule**
sea	*lahut	ɔlat	*h > ø/#-#
keep	*jagah	jaga	*h > ø/-#
dig	*kalih	gali	
thin	*pipih	malifis	*h > s/-#

PAN *l undergoes irregular retention in all positions, while in the inter-vocal position also innovates to /ø/ irregularly.

Gloss	**PAN**	**Buli**	**Rule**
sky	*laŋiC	laŋit	*l > l/#-
lalat	*laŋaw	laŋ	
dig	*kalih	gali	*l > l/#-#
walk	*Zalan	fan	*l > ø/#-#
deaf	*bəŋəl	lɔŋapaq	*l > l/-#

*P. PAN *r* and **R*

PAN *r retains regular inter-vocal position in Buli. In addition, PAN *r has been innovated to /w/ and /ø/ irregularly in inter-vocal positions.

Gloss	**PAN**	**Buli**	**Rule**
pare	*pariaʔ	pəpare	*r > r/#-#
clean	*kərsik	beresi	
wash (hand)	*SuraS	uwas	*r > w/#-#
scratch	*garut	gag	*r > ø/#-#

PAN *R in the inter-vocal and final position changes to *ø irregularly. The final position changes to /ʔ/ irregularly.

Gloss	**PAN**	**Buli**	**Rule**
salt	*ʔasiRa	gasiʔ	*R > ø/#-#
stingray	*paRi	fa	
blood	*daRaʔ	laflaf	
swollen	*baRəʔ	bɔs	

gargle	*kumuR	famumi	*R > ø/-#
hear	*dəŋəR	tlɔŋa	
egg	*ʔiCəluR	tɔlɔ	
water	*waSiR	wayaʔ	*R > ʔ/-#

*Q. PAN *w* and *y*

PAN *w retains regularly in the inter-vocal position, while in the initial position has irregular retention. In addition, in the inter-vocal position, PAN * w undergoes irregular changes to /ø/ in the inter-vocal position. The PAN *y in the inter-vocal position experienced deletion in the inter-vocal position irregularly.

Gloss	**PAN**	**Buli**	**Rule**
eight	*walu	piway	*w > w/#-
water	*waSiR	wayaq	
	root	*wakaR	waq
married	*ʔasawa	fasaw	*w > w/#-#
nine	*siwa	siwe	
year	*CawiN	taun	*w > ø/#-#
blow	tiyup	ufaq	*y > ø/#-#

*R. PAN *a*

PAN *a experiences irregular retention and experiences irregular erosion of each in all positions. In the penultimate syllabe, PAN * a changes to /ə/ irregularly. In the ultima silabe turns into /o/ and /e/ each occurs irregularly. As for the final position, PAN *a changes to /e/, /o/, and /aw/ each occurs irregularly.

Gloss	**PAN**	**Buli**	**Rule**
I	*aku	yaʔ	*a > a/#-
that	*adi	i	*a > ø/#-
cry	*Caŋis	(n)taŋis	*a > a/#K-
paria	*pariaʔ	pəpare	*a > ə/#K-
swollen	*baRəʔ	bɔs	*a > ø/#K-
mouse	*labaw	luf	*a > ø/#K-
ridge	*bubuŋan	pupuŋan	*a > a/-K#
horn	*tanduk	tadu	
root	*wakaR	waʔ	*a > ø/-K#
walk	*zalan	fan	
name	*ŋajan	ŋahŋo	*a > o/-K#
nephew	*kamanak	fanɔk	
pare	*pariaʔ	pəpare	*a > e/-K#
one	*isa	p(i,u)sa	*a > a/-#
nine	*siwa	siwe	*a > e/-#
when	*pica	offhis	*a > o/-#
fine	*lima	pilim	*a > ø/-#
married	*ʔasawa	fasaw	*a > aw/-#

*S. PAN *ə*

PAN *ə becomes /ɔ/ at the initial position, into /ɛ/ at the penultimate and ultima silabes, into /i/ on the penultimate silabe, and into /e/ and /ø/ on the ultima silabe each occurring irregularly. The change to /ɔ/ on the penultimate silabe and /a/ on the ultima silabe each occurs on a regular basis.

Gloss	**PAN**	**Buli**	**Rule**

six	*ənəm	wɔnam	*ə > ɔ/#-
egg	*ʔiCəluR	tɔlɔ	*ə > ɔ/#K-
hear	*dəŋəR	tlɔŋa	
taste	*təpəŋ	tɔfaŋ	
three	*təlu	pitɔl, etc	
four	*Səpat	pifaat	*ə > i/#K-
sand	*ʔənay	ɲiŋɛn	
turtle	*pəŋuʔ	fɛn	*ə > ɛ/#K-
taste	*təpəŋ	tɔfaŋ	*ə > a/-K#
hear	*dəŋəR	tlɔŋa	
six	*ənəm	wɔnam, etc	
swollen	*baRəʔ	bɔs	*ə > ø/-K#
smoke	*ʔasəp	memeyas	
clean	*kərsik	beresi	*ə > e/-K#
see	*Nəŋ	mɛm	*ə > ɛ/-K#

*T. PAN *i*

PAN *i in Buli, on the penultimate and ultima silabes having their respective retention regularly. PAN *i also experienced retention at both start and end positions but each was irregular. In addition to being /i/, PAN *i is in the initial position and becomes /ø/, becomes /u/ and /ɛ/ on the ultima sylabe, each occurring regularly.

Gloss	**PAN**	**Buli**	**Rule**
drink	*inum	dɔm	*i > ø/#-
one	*isa	p(u,i)sa	*i > i/#-
cucumber	*ʔatimun	titimin	*i > i/#-K
five	*lima	pilim	
when	*pica	offhis, etc	
blow	*tiyup	ufaq	*i > ø/#K-
egg	*ʔiCəluR	tɔlɔ	
sky	*laŋiC	laŋit	*i > i/-K#
water pee	*miʔmiʔ	fanami	
star fruit	*baliŋbiŋ	malibi, etc	
year	*CawiN	taun	*i > u/-K#
raft	*dakit	ɛt	*i > ɛ/-K#
stingray	*paRi	fa	*i > ø/-#
gum	*gusi	igo	*i > i/-#

*U. PAN *u*

PAN *u in the ultima silabe becomes /i/ and the final position becomes /ø/ each occurs regularly, whereas it becomes *i and *a irregular. In the initial position to be /u/ and /o/, be /ɔ/ and /ø/ in the ultima silabe, and /u/ and /o/ in the final position, each occurring irregularly.

Gloss	**PAN**	**Buli**	**Rule**
moss	*lumut	lulumit	*u > u/#K-
ridge	*bubuŋan	pupuŋan	
gum	*gusi	igo	*u > o/#K-

cucumber	*ʔatimun	titimin	*u > ɨ/-K#
moss	*lumut	lulumit	
bird	*manuk	mani, etc	
egg	*ʔiCəluR	tɔlɔ	*u > ɔ/-K#
sea	*lahut	ɔlat	
drink	*inum	dɔm	*u > ø/-K#
milk	*susu	sus	*u > ø/-#
lice	*kutu	kut	
I	*aku	yaʔ	
three	*təlu	pitɔl, etc	
you	*kaSu	au	*u > u/-#
shark	*ʔiSu	wɔi	*u > o/-#

*V. PAN *ay* and**aw*

PAN *-ay becomes /a/, /ɛ/, /ɔ/, and /ø/ at the final position which each is irregular. The PAN * aw disappeared regularly at the final position in Buli.

Gloss	**PAN**	**Buli**	**Rule**
worm	*kulay	gugulat	*ay > a/-#
sand	*ʔənay	ɲiŋɛn	*ay > ɛ/-#
hand	*kamay	kakamɔq	*ay > ɔ/-#
die	*aCay	mat	*ay > ø/-#
mouse	*labaw	luf	*aw > ø/-#
flies	*laŋaw	laŋ	

IV. CONCLUSION

The above description implies that, PAN sounds are retention and innovation. Both retention and innovation, each of which occurs regularly and irregularly. The description of the PAN reflex into Buli is expected to be the first step in proving the Blust hypothesis (1978), in relation to the historical relation of the languages of South Halmahera. The South Halmahera languages are divided into two main sub-groups, namely the Central-Eastern South Halmahera (consisting of Buli, Maba/Patani, and Sawai) and Southern-South Halmahera (consisting of Gane and Taba). Of course, to prove the hypothesis, it takes a study that is similar to this study by taking four other languages of the study object. By knowing the tendency to change the reflex PaN into Buli language and the four other languages, it can be determined the form of innovation with the five languages so that it can be determined level or genealogy kinship in general.

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