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Phonological Processes in Passive Verb Markers of *Bahasa Bakumpai*

Yusuf Al Arief *

Lambung Mangkurat University, Indonesia

A B S T R A C T

This research is about the phonological process which occurs in the forming of passive verbs in *Bahasa Bakumpai*. The theory implemented in this study is generative phonology. The research object is *Bahasa Bakumpai*, the language used by people in South and Central Borneo who live by Barito River. The data collection was conducted by searching active and passive verbs in *Bahasa Bakumpai* dictionary and verified by a native speaker. Result of the research shows that the prefix which becomes the passive marker is -i, and when it is attached to stems beginning with consonants, there are insertions of consonants such as the [n], [m], [ŋ], and [ɳ] which are categorized as allophones since they occur in complementary distribution in the environments

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1. Introduction

Every society in a certain culture has their way to communicate their feeling, emotion, and share information; therefore, they may have interaction in their circle in the form of a language (Evans & Levinson, 2009) As a social being, a human cannot be separated from this great thing, language, for sure. Every language has its own characteristics that differentiate it from other languages, and it makes the users able to interact well with those who are in the same culture and language (Isac & Reiss, 2013). In this research, the writer would like to talk about language related to phonological events and processes that happen in a tribe called Dayak *Bakumpai*.

Dayak *Bakumpai* is one of the tribes in Borneo whose religion is Islam. The people of this tribe live by the Barito River, which lies in South Borneo and Central Borneo, from *Marabahan* (as the center of the tribe), which is located in South Borneo until *Puruk Cahu* which is located in Central Borneo (Baritobasin, 2013). The language used by the people of this tribe is *Bahasa Bakumpai* (DISBUDPAR Barito Selatan, 2013), and like other languages, *Bahasa Bakumpai* also has its special style in use. In *Bahasa Bakumpai*, some words will hold new meanings if they are adjoined with a morpheme or an affix. As stated above, the researcher focuses on the phonological part of this language in the forming of passive verbs in this language since to form passive verbs, and the users will attach a prefix (i-) to the stem of the verbs. When the stems are attached by prefix, there will be some phonological processes that occur as the effect of the segments which get close because of the attachment. This phenomenon is unique that it makes the researcher is interested in finding more about the phonological processes that occur and what may affect the sound of the segment; therefore, the researcher can figure out the basic rules applied in the processes. The goal of the researcher is matched with a theory by Chomsky; Transformational Generative focuses on generative phonology, which tries to find the general rule of a certain language. It makes the researcher decided to write this paper about phonological processes occur in *Bahasa Bakumpai*.

E-mail Address: yusufalarief@gmail.com (Y.A. Arief)
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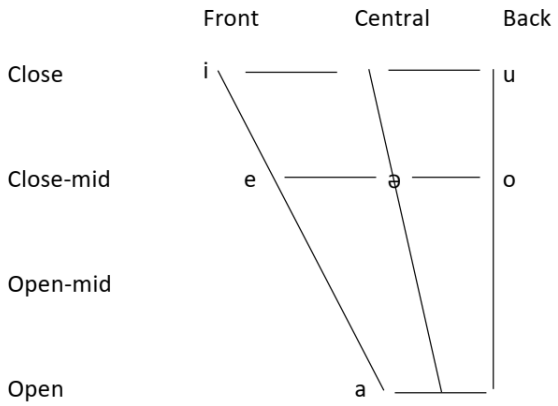
The language analyzed in this paper is *Bakumpai*, which has its own system that differs from other languages. One of the differences is from the phonological view since the phonetic alphabets in this language is not as many as in English or Bahasa Indonesia. The phonetic alphabet of *Bakumpai* is as in table 1 below.

Table 1. Consonants of Bahasa Bakumpai

	Bilabial	**Labiodental**	**Alveolar**	**Retroflex**	**Palatal**	**Velar**	**Uvular**	**Glottal**
Plosive	P b		t d		c	k g	q	?
Nasal	m		n	ɳ		ŋ		
Trill			r					
Fricative		f v	s dʒ					h
Approximant	w				j			
Lateral Approximant			l					

Figure 1. Vowels of Bahasa Bakumpai



To analyze this phonological processes of *Bahasa Bakumpai*, Generative phonology, which is an element of generative grammar which reflects the correct representations of phonetic to utterances in a specific way as for reflecting a native speaker's grammar internalization chosen (Schane, 1973). Generative phonology makes the researcher able to see in the specific phonological alterations and sound features that cause this notion to be one of the most dependable theories in analyzing and describing many languages all over the world (Goldsmith, 1995).

1.1 Distinctive Features

The properties of the phonemes as the fundamental of phonological schemes are broad, and to some extent, abstract, like the voicing or rounding and are widely the categories that we have already been using informally: they are not similar to what we will find out. The distinctive feature theory hypothesis is that there is a small set, about two dozen, of phonetically-based properties that phonological investigation applies (Gussenhoven & Jacobs, 2017). The properties, the distinctive features, do not only state the phonemes of human languages, which are possible, but also describe the phonological rules (Katamba, 1996).

1.2 Phonological Process

In producing a meaningful sound, people are not separated from collaborating sounds or morphemes. When morphemes are attached to the root of the words, the segments which are closely posted in this language then affect other segments and produce what we call the phonological process (Goldsmith, 1995). The process of phonology itself holds some types, namely assimilation, syllable structuration, strengthening and weakening of sounds, and neutralization. All of the phonological processes arise as the result of the morpheme blend that affects the stem or roots of the sounds of (Schane, 1973).

Assimilation is a phonological process that occurs when a segment gets characteristics from the closed segment (Odden, 2005). This process might happen in different segments, which are adjacent to one another. It can be a consonant getting characteristics from other consonants, consonants from vowels, vowels from consonants, or vowels from vowels. Syllable structuration process influences the relative distribution of the vowel and consonant sounds in a word. The vowel and consonant sounds might be inserted or assimilated. Every process in this structuration may result in alternation in the main syllable. This process is connected with how a language tends to form a syllable of words when an affix is attached to the stem of those words. When a sound which is categorized as a strong sound is directly posed to a weak sound, it is common that the strong one will influence the weak, like not to be pronounced noticeably or not to be pronounced. Neutralization is the process in which a segment is neglected in a specific condition or environment. The process itself generally arises when there are two contrastive segments located closely in a word, which leads to the omission of one of the segments (Schane, 1973).

2. Research Methods

The researcher applied the descriptive qualitative method in this study (Shields & Rangarajan, 2013; Babbie, 2014). the researcher gathered the data by searching active as well as passive verbs in *Bahasa Bakumpai* dictionary and verified by a native speaker. From a lot of words in the list, researched chose 100 words representing the environments in which the phonological process occurred as samples. These samples were then grouped in accordance with the prefixes attached in front of the stems until they were in order. After the researcher put the verbs in groups, the researcher conducted an analysis of the variations of the phoneme and allophones (Jakobson, 1961). Then, the transformation of the phoneme to the allophone was analyzed, and the rules according to the environments were found by applying the transformational generative theory focusing on the generative phonology because it is the most suitable to apply in this research (Arief, 2018). After that, to make the data more reliable and in detail, the researcher used distinctive features in the analysis description process of the rules found. Finally, the researcher got a conclusion about why and how the phoneme transformed into the allophones.

3. Results and Discussion

From the data gathered, the samples of verbs are taken and can be seen in the list of active verbs in *Bahasa Bakumpai*, the passive verbs, and the prefixes of the passive marker, below.

Table 2. List of Active Verbs, the Passive Verbs and the Prefixes of the Passive Marker

No	Infinitive	Passive	Prefix	Meaning
1	/andak/	[iandak]	[i-]	*Be put*
2	/ekei/	[iekei]	[i-]	*Be dried*
3	/elai/	[ielai]	[i-]	*Be occupied*
4	/hiniŋ/	[ihiniŋ]	[i-]	*Be listened (to)*
5	/ihir/	[ihir]	[i-]	*Be brought*
6	/lepahan/	[ilepahan]	[i-]	*Be finished*
7	/rium/	[irium]	[i-]	*Be smiled by*
8	/umba/	[iumba]	[i-]	*Be followed*
9	/warah/	[iwarah]	[i-]	*Be mocked*
10	/arak/	[iarak]	[i-]	*Be shown in public*
11	/anter/	[ianter]	[i-]	*Be delivered*
12	/enter/	[ienter]	[i-]	*Be lied on*
13	/lapasan/	[ilapasan]	[i-]	*Be let*
14	/rikih/	[irikih]	[i-]	*Be ripped*

15	/riwas/	[iriwas]	[i-]	*Be scattered*
16	/ulas/	[iulas]	[i-]	*Be covered*
17	/unting/	[iunting]	[i-]	*Be spotted*
18	/ukut/	[iukut]	[i-]	*Be taken*
19	/barak/	[imbarak]	[im-]	*Be Expelled*
20	/pakasak/	[impakasak]	[im-]	*Be cooked*
21	/bane/	[imbane]	[im-]	*Be married (male)*
22	/butak/	[imbutak]	[im-]	*Be resented*
23	/birang/	[imbirang]	[im-]	*Be stretched*
24	/bawah/	[imbawah]	[im-]	*Be broken*
25	/buntus/	[imbuntus]	[im-]	*Be concaved*
26	/patei/	[impatei]	[im-]	*Be killed*
27	/pandui/	[impandui]	[im-]	*Be bathed*
28	/pihupan/	[impihupan]	[im-]	*Be given water*
29	/pikeh/	[impikeh]	[im-]	*Be frightened*
30	/pisik/	[impisik]	[im-]	*Be waken up*
31	/pujur/	[impujur]	[im-]	*Be straightened*
32	/parake/	[imparake]	[im-]	*Be fastened*
33	/catuk/	[incatuk]	[in-]	*Be hit*
34	/duruh/	[induruh]	[in-]	*Be fallen*
35	/ʤakat/	[inʤakat]	[in-]	*Be ridden*
36	/turih/	[inurih]	[in-]	*Be incised*
37	/dinu/	[indinu]	[in-]	*Be picked*
38	/dai/	[indai]	[in-]	*Be climbed*
39	/dabuk/	[indabuk]	[in-]	*Be hit*
40	/dekeŋ/	[indekeŋ]	[in-]	*Be backed up*
41	/dawa/	[indawa]	[in-]	*Be accused*
42	/danum/	[indanum]	[in-]	*Be watered*
43	/darasan/	[indarasan]	[in-]	*Be strengthened*
44	/dimpah/	[indimpah]	[in-]	*Be crossed*
45	/dirik/	[indirik]	[in-]	*Be cut (bushes)*
46	/duhup/	[induhup]	[in-]	*Be helped*
47	/dusur/	[indusur]	[in-]	*Be cornered*
48	/dadah/	[indadah]	[in-]	*Be cleaned (by hitting)*
49	/ʤuʤu/	[inʤuʤu]	[in-]	*Be pushed*
50	/ʤatu/	[inʤatu]	[in-]	*Be pinned down*
51	/ʤelap/	[inʤelap]	[in-]	*Be licked*
52	/ʤiʤit/	[inʤiʤit]	[in-]	*Be scolded*
53	/ʤarat/	[inʤarat]	[in-]	*Be tied*
54	/ʤaga/	[inʤaga]	[in-]	*Be kept*
55	/ʤuʤur/	[inʤuʤur]	[in-]	*Be proposed*
56	/ʤiʒkaŋ/	[inʤiʒkaŋ]	[in-]	*Be kicked*
57	/ʤumput/	[inʤumput]	[in-]	*Be taken*
58	/ʤadian/	[inʤadian]	[in-]	*Be done*
59	/karak/	[iŋarak]	[iŋ-]	*Be taken off*
60	/gajau/	[iŋgajau]	[iŋ-]	*Be scratched*

61	/karik/	[iŋarik]	[iŋ-]	*Be swapped*
62	/kadu/	[iŋadu]	[iŋ-]	*Be reported*
63	/kinan/	[iŋinan]	[iŋ-]	*Be eaten*
64	/kajal/	[iŋajal]	[iŋ-]	*Be forced*
65	/keruh/	[iŋeruh]	[iŋ-]	*Be soiled*
66	/kurah/	[iŋurah]	[iŋ-]	*Be mixed*
67	/kejau/	[iŋejau]	[iŋ-]	*Be avoided*
68	/gagap/	[iŋgagap]	[iŋ-]	*Be touched repeatedly*
69	/gilau/	[iŋgilau]	[iŋ-]	*Be searched*
70	/galung/	[iŋgalung]	[iŋ-]	*Be tied (hair)*
71	/gampir/	[iŋgampir]	[iŋ-]	*Be accompanied*
72	/gepak/	[iŋgepak]	[iŋ-]	*Be expelled*
73	/gasak/	[iŋgasak]	[iŋ-]	*Be forced to hurry*
74	/gatuk/	[iŋgatuk]	[iŋ-]	*Be touched*
75	/gisang/	[iŋgisang]	[iŋ-]	*Be scrubbed*
76	/gite/	[iŋgite]	[iŋ-]	*Be seen*
77	/saŋa/	[iŋaŋa]	[iŋ-]	*Be fried*
78	/sala/	[iŋala]	[iŋ-]	*Be blamed*
79	/saluh/	[iŋaluh]	[iŋ-]	*Be changed*
80	/sama/	[iŋama]	[iŋ-]	*Be compared*
81	/santah/	[iŋantah]	[iŋ-]	*Be lied on*
82	/santuk/	[iŋantuk]	[iŋ-]	*Be touched (sth)*
83	/sapuh/	[iŋapuh]	[iŋ-]	*Be covered*
84	/sarehan/	[iŋarehan]	[iŋ-]	*Be made sure*
85	/sasah/	[iŋasah]	[iŋ-]	*Be chased*
86	/seha/	[iŋeha]	[iŋ-]	*Be burnt*
87	/sepak/	[iŋepak]	[iŋ-]	*Be kicked*
88	/seut/	[iŋeut]	[iŋ-]	*Be said*
89	/siŋkap/	[iŋiŋkap]	[iŋ-]	*Be caught*
90	/siŋgah/	[iŋiŋgah]	[iŋ-]	*Be stopped by*
91	/sika/	[iŋika]	[iŋ-]	*Be wiped*
92	/sipet/	[iŋipet]	[iŋ-]	*Be targeted*
93	/simpun/	[iŋimpun]	[iŋ-]	*Be tidied up*
94	/sintar/	[iŋintar]	[iŋ-]	*Be brightened*
95	/sium/	[iŋium]	[iŋ-]	*Be kissed*
96	/suaŋ/	[iŋuaŋ]	[iŋ-]	*Be filled*
97	/suar/	[iŋuar]	[iŋ-]	*Be brightened*
98	/surah/	[iŋurah]	[iŋ-]	*Be argued*
99	/sulum/	[iŋulum]	[iŋ-]	*Be put (in mouth)*
100	/surup/	[iŋurup]	[iŋ-]	*Be drunk*

Based on the data above, the researcher finds that to form a passive verb, *Bahasa Bakumpai* users use prefix /i/ that is attached to the stems. From the data gathered, there are two phonological processes that occur in the process to change the active into passive: syllable structuration and assimilation.

3.1 Syllable Structuration

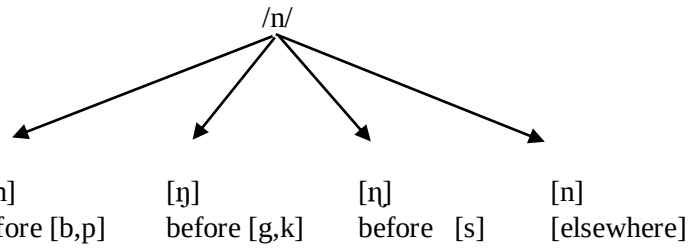
According to the data, when a *Bakumpai* speaker wants to make a passive verb he attaches prefix /-i/ to the stems, there are two forms that occur:

a. When the prefix is attached to stem which begins with vowel, semivowel and liquid sounds like in [iandak] from /i-andak/, [iekei] from /i-ekei/, [ihiniŋ] from / i-hiniŋ/, [ihir] from /i-hir/, [ilepahan] from /i-lepahan/, [irium] from /i-rium/, and [iwarah] from /i-warah/, sound /i/ will be directly adjoined to the stem.
b. When the prefix /i-/ is attached to the stem, which begins with a consonant sound, there will be the insertion of other sounds between the prefix and the first sound of the stem. In this case, the inserted sounds are nasals such as [n], [m], [ŋ], and [ɳ] as can be seen in [imbarak], [incatuk], [iŋarak], and [iɳaŋa]. From those examples, the researcher can conclude that when the prefix /i-/ is attached to a stem begins with consonant sounds; there is a rule that one of the four nasal sounds above must be inserted between the prefix and the first sound of the stem which begins with a consonant. The rule to choose the nasal to be inserted will be explained in the assimilation section below.

3.2 Assimilation

Based on the finding in syllable structuration, it is concluded that there are one phoneme and four different allophones. They are [m], [n], [ŋ], and [ɳ]. After the allophones are grouped in accordance with the environments, that researcher figures out that the allophone with the widest distribution is [n]. Thus, it can be concluded that /n/ is the phonemes of the allophones [m], [n], [ŋ], and [ɳ].

The distribution is as below:



a. [n] shows before [d], [dʒ] and [t],
b. [m] shows before [b] and [p],
c. [ŋ] shows before [k] and [g],
d. [ɳ] shows before [s].

From the environment's classification, there are three rules that can be formulated for the assimilation processes by utilizing the distinctive features that enable the researcher to inscribe a thorough report of the phonological processes that occurred in the language.
The rules are as seen below:

a. Rule 1

In the first rule, there is one assimilation process in which the phoneme /n/ transforms into [m] when the sound meets consonants [b] and [p]. The examples of the assimilation process are as follow:

Table 3 Rule 1

/barak/	[imbarak]	[im-]	*Be Expelled*
/pakasak/	[impakasak]	[im-]	*Be cooked*
/bane/	[imbane]	[im-]	*Be married (male)*
/butak/	[imbutak]	[im-]	*Be resented*
/birang/	[imbirang]	[im-]	*Be stretched*

/bawah/	[imbawah]	[im-]	*Be broken*
/buntus/	[imbuntus]	[im-]	*Be concaved*
/patei/	[impatei]	[im-]	*Be killed*
/pandui/	[impandui]	[im-]	*Be bathed*
/pihupan/	[impihupan]	[im-]	*Be given water*
/pikeh/	[impikeh]	[im-]	*Be frightened*
/pisik/	[impisik]	[im-]	*Be waken up*
/pujur/	[impujur]	[im-]	*Be straightened*
/parake/	[imparake]	[im-]	*Be fastened*

The rule for this assimilation is as below:

$$/n/ \rightarrow [m] \;/\; \#\_\_\; [b, p]$$

$$\begin{bmatrix} +ant \\ +cor \\ +nas \end{bmatrix} \rightarrow \begin{bmatrix} +ant \\ -cor \\ +nas \end{bmatrix} / \#\_\_ \begin{bmatrix} +cons \\ -son \\ +ant \\ -cor \\ -cont \end{bmatrix}$$

b. Rule 2

In the second rule, two assimilation processes are found. The first assimilation process is that the phoneme /n/ transforms into [ŋ] when it is close to consonants [g] and [k]. The second assimilation process is that when [ŋ] appears right before [k], sound [k] will be omitted because of the nasal sound effect as seen below:

Table 4 Rule 2

/karak/	[iŋarak]	[iŋ-]	*Be taken off*
/gajau/	[iŋgajau]	[iŋ-]	*Be scratched*
/karik/	[iŋarik]	[iŋ-]	*Be swapped*
/kadu/	[iŋadu]	[iŋ-]	*Be reported*
/kinan/	[iŋinan]	[iŋ-]	*Be eaten*
/kajal/	[iŋajal]	[iŋ-]	*Be forced*
/keruh/	[iŋeruh]	[iŋ-]	*Be soiled*
/kurah/	[iŋurah]	[iŋ-]	*Be mixed*
/kejau/	[iŋejau]	[iŋ-]	*Be avoided*
/gagap/	[iŋgagap]	[iŋ-]	*Be touched repeatedly*
/gilau/	[iŋgilau]	[iŋ-]	*Be searched*
/galung/	[iŋgalung]	[iŋ-]	*Be tied (hair)*
/gampir/	[iŋgampir]	[iŋ-]	*Be accompanied*
/gepak/	[iŋgepak]	[iŋ-]	*Be expelled*
/gasak/	[iŋgasak]	[iŋ-]	*Be forced to hurry*
/gatuk/	[iŋgatuk]	[iŋ-]	*Be touched*
/gisang/	[iŋgisang]	[iŋ-]	*Be scrubbed*
/gite/	[iŋgite]	[iŋ-]	*Be seen*

The rule of these assimilation processes are as below:

First assimilation process:

/n/ → [ŋ] / #__ [g,k]

$$\begin{bmatrix} +ant \\ +cor \\ +nas \end{bmatrix} \rightarrow \begin{bmatrix} -ant \\ -cor \\ +nas \end{bmatrix} / \#\_\_ \begin{bmatrix} +cons \\ -son \\ -ant \\ -cor \\ -cont \end{bmatrix}$$

Second assimilation process:

/k/ → [ø] / [ŋ] __

$$\begin{bmatrix} +cons \\ +son \\ +ant \rightarrow \\ +cor \\ +nas \\ -voi \end{bmatrix} \begin{bmatrix} ø \end{bmatrix} / \begin{bmatrix} -ant \\ -cor \\ +nas \end{bmatrix} \_\_$$

c. Rule 3

Like the second rule, there are two assimilation processes as well in the third rule. The first assimilation process is the phoneme /n/ transforms into [ŋ] if it encounters consonant [s]. The second assimilation process is that when [ŋ] appears right before [s], sound [s] will be omitted because of the nasal sound effect like in the example below:

Table 5. Rule 3

/saŋa/	[iŋaŋa]	[iŋ-]	Be fried
/sala/	[iŋala]	[iŋ-]	Be blamed
/saluh/	[iŋaluh]	[iŋ-]	Be changed
/sama/	[iŋama]	[iŋ-]	Be compared
/santah/	[iŋantah]	[iŋ-]	Be lied on
/santuk/	[iŋantuk]	[iŋ-]	Be touched (sth)
/sapuh/	[iŋapuh]	[iŋ-]	Be covered
/sarehan/	[iŋarehan]	[iŋ-]	Be made sure
/sasah/	[iŋasah]	[iŋ-]	Be chased
/seha/	[iŋeha]	[iŋ-]	Be burnt
/sepak/	[iŋepak]	[iŋ-]	Be kicked
/seut/	[iŋeut]	[iŋ-]	Be said
/siŋkap/	[iŋiŋkap]	[iŋ-]	Be caught
/siŋgah/	[iŋiŋgah]	[iŋ-]	Be stopped by
/sika/	[iŋika]	[iŋ-]	Be wiped
/sipet/	[iŋipet]	[iŋ-]	Be targeted
/simpun/	[iŋimpun]	[iŋ-]	Be tidied up
/sintar/	[iŋintar]	[iŋ-]	Be brightened
/sium/	[iŋium]	[iŋ-]	Be kissed
/suaŋ/	[iŋuaŋ]	[iŋ-]	Be filled
/suar/	[iŋuar]	[iŋ-]	Be brightened
/surah/	[iŋurah]	[iŋ-]	Be argued
/sulum/	[iŋulum]	[iŋ-]	Be put (in mouth)
/surup/	[iŋurup]	[iŋ-]	Be drunk

The rule of these assimilation processes are as follows:

First assimilation process:

/n/ → [ŋ] / #__ [s]

$$\begin{bmatrix} +\text{ant} \\ +\text{cor} \\ +\text{nas} \\ +\text{cont} \end{bmatrix} \rightarrow \begin{bmatrix} -\text{ant} \\ +\text{cor} \\ +\text{nas} \end{bmatrix} / \#\_\_ \begin{bmatrix} +\text{cons} \\ -\text{son} \\ +\text{ant} \\ -\text{cor} \\ -\text{voi} \end{bmatrix}$$

Second assimilation process:

/s/ → [ø] / [ŋ] __

$$\begin{bmatrix} +\text{cons} \\ -\text{son} \\ +\text{ant} \rightarrow \\ +\text{cor} \\ +\text{cont} \\ -\text{voi} \end{bmatrix} \begin{bmatrix} \text{ø} \end{bmatrix} / \begin{bmatrix} -\text{ant} \\ +\text{cor} \\ +\text{nas} \end{bmatrix} \_\_$$

4. Conclusions

Having done conducting the research, the writer has the following conclusion. First, *Bakumpai* speakers have a prefix marker to form a passive verb. It is the prefix i- that is attached to the beginning of the active verbs. Second, when the passive marker is added as the prefix, there is an insertion of the sound [n]. In addition, when the sound [n] is added, and it meets the sounds that have different places of articulation, the assimilation process occurred. This assimilation occurs due to the dissimilarity of the prefix sound and the beginning of the active verb sound. The allophone of the sound [n] as in the prefix in- has some allophones such as [m], [ŋ], and [ɳ]. The third one is that when the prefix -i is attached to the verbs that begin with a vowel, semivowel, and liquid sounds, it is directly adjoined without any insertion and assimilation process.

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