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SYLLABLE STRUCTURE AND NASALIZATION CHANGE IN MAKASSAR LANGUAGE

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ABSTRACT

The research discussed two points of phonological process related to changes in the syllable structure and nasalization in Makassar language. The data were analyzed by distributional and identity methods using a direct sorting technique. The affixes that form the verb of Makassar language were sorted by the type of prefix. Researchers also used the direct sorting form of phonetic articulation. The steps of analyzing data used Sudaryanto's theory. The affixes that discussed in the research were /ak-/ and /an-/. The phonological process was described by using the theory of generative phonology of Schane. The result shows the types of sound and syllabic changing. They are; (a) sound changing of [ak-] becomes [?] named glottalization; (b) sounds changing of [ak-] becomes nasalization; (c) gemination of [ak-] and [an-]; (d) sound changing of an-/ becomes [aŋ-]; (e) sound release and insertion of prefix /an-/; (f) sound change and nasalization. The distinctive feature is used to explain the rules of the phonological process.

Keywords: syllabic structure change, nasalization change, Makassar language

INTRODUCTION

Makassar language is the language spoken by the people of South Sulawesi. Makassar language itself has two language families, Oceania and Austronesian, but the more dominant one is the Austronesian family Anceaux (Basang & Arief, 1981). It is considered one of the unique archipelago languages because of its phonological, morphological, and syntactic structure. So, it can be said that Makassar language has complete script data and is still being developed by language institutions.

In Makassar language, there are six dialects that are commonly used by local people; *lakiung, turatea, bantaeng, konjo, selayar*, and *pangkajene*. Although it has different dialect variations, Makassar language is generally used in various activities; social, educational, economic, etc. The existing spoken language generates several variations of sound changes. In phonology, it is defined as a phonological process that discusses sound release and addition, syllable structure change, strengthening, weakening, and so forth. It is caused by several things such as affixation, suffixes, inflicts, and conflicts. In Makassar language, there are various

affixations, which can change its form of sound. Based on the Amir (2012), there are sixteen prefixes in Makassar language. The importance of affixes is also discussed by Haslinda (2018), where she finds out that affixes determine the word classes in Makassar language.

The generative phonology proposed by Schane (1973) becomes the theoretical basis used in this research to identify sound changes in the Makassar language. He assumes that expressions come from a collection of different segments seen as the smallest units in a phonological process, so they are called phonemes. Schane (1973) has explained that the distinctive feature is a differentiator of one phoneme with another. For example, vowel sound [i] has distinctive features + high, + front, + unrounded, + tense vowel. Distinctive features also explain consonants' sound in detail, for example, in the sound [p] that is + cons, -son, -cont, + ant, -cor, -voiced. So, in phonological processes, there are characteristics of sounds that emerge, and it can be identified.

Schane (1973) has determined the distinctive features into three; (1) the major class, (2) manner of articulation, and (3) place of articulation. First is

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the major class feature in generative phonology used to differentiate consonants, vowels, and semivowels. They are three distinctive features; consonantal (+/- kons), syllabic (+/-sil), and sonoran (+/-son). Consonantal is a sound when it is pronounced occurs in the process of narrowing and closing the vocal cords. Sounds included in the [+ cons] classification are fricative, nasal, liquids, and affricate sounds. While the sound [-ons] are all vocal, semivocal, and glottal sounds. Syllabic is a sound called the core syllable. All vowels are included in the [+ sil] category. In addition, there are nasal and flow sounds, which function as the nucleus of the syllable [n]. [-Sil] sounds are all consonant, nasal, and flow sounds that are not the core of a syllable. Sonoran is a pairing sound identified by the opening of the vocal cords so that certain rhythms appear. [+ Son] is a vocal, semivocal, nasal, and flow sound. [-Son] sounds produced by vibration or obstruent.

The second is the manner of articulation. Schane (1973) has divided the sound based on the pronunciation into five; continuous, delayed-release, strident, nasal, and lateral. Continuance is the sound that is uttered by flowing air into the oral cavity with obstructions. The sound included [+ Kont] is fricative, and [-Cont] is a plosive sound. Delayed-release is a way to pronounce the sound that is in the oral cavity by popping it slowly. The sounds included in the [+delrel] category are affricative sounds, and [-delrel] obstruent or inhibitory sounds. Strident sound is a sound that is pronounced by release (Arifiani & Subiyanto, 2019) sing sounds in high intensity, such as fricative and affricative sounds. [+ strid] is sibilant sound and [f], [v]. The [-strid] is the sound of [th], [ch], etc. Nasal is a sound that is pronounced by pulling the velum down and touching the back of the tongue and flowing through the nose. The [+ Nasal] that is nasal sounds are [n], [n], [n], [m], [n], [n], while the [-nasal] are all vowels. Lateral sound is a sound that distinguishes them from trill sounds. The [+ lat] is [1], and the [-lat] which is [r]. From the five ways of pronunciation described, distinctive features that often appear or familiar are continuance and nasal.

The third is the place of articulation. There are two features of the place of articulation; anterior and coronal. The anterior sound with the sound source's position is in front of the base of the gums, the position of [+ ant] is the alveolar fore, alveolar, dental, labiodental, and bilabial. The sound [-ant] starts from the back post-alveolar (post-alveolar, retroflex palatal, velar, uvular, pharyngeal, and glottal). Coronal sounds are marked by the position of the tongue raised until it automatically vibrates. It is included in [+ kor] are dental, alveolar, retroflex, post-alveolar, and palatal. While the sound [-cor] is bilabial, labiodental, velar, uvular, pharyngeal, and glottal.

The phonological process caused by affixations in Makassar Language is discussed in this research. It is focused on the generative phonology studies about syllable structure change and nasalization caused by the affixations in the verbs of Makassar language. It is

expected that this research can contribute to the terms of language preservation, especially local languages in the archipelago.

Several previous studies on the phonological process of local languages have been carried out by other researchers. In Sasak language, Arifiani and Subiyanto (2019) have researched syllable structure change and nasalization dialect *bayan* in Sasak language. They examine the verb forming began with affix /bə/, and figure out that the syllable structure change of dialect *bayan* is caused by the insertion of [r] and [l] sound, and semivowel sound [w] and [y] when encounter suffix /-aŋ/. The neutralization occurred is when the vocal [ə] becomes [a] at the end of the word.

In Makassar language dialect Cikoang, Charmilasari (2016) has figured out the phonological process that the vowels in Makassar language are dominant at the end of the word. Only $[\eta]$ and [?]sounds of the consonant are at the end of the word. However, the use of the structural theory of phonology, and the illustration of changes are not clear. While, in East Nusa Tenggara Language of Helong, Tauk, Pastika, and Putra (2016) have carried out research using generative phonological theory related to lexical post conceived. They have found five phonological processes in Helong language; vowel's insertion, consonant's release, dissimilation, metathesis, and gemination. However, this research only describes the change of words without illustrating all processes with distinctive features.

Also, Banik (2017) has researched the phonological process of Kolana Kaumana language. The result shows that Kaumana has six vowels and thirteen consonants. The phonological processes that happen in Kolana language are the deletion process syllable structure and deletion process accompanied by changes in the structure of the syllable form that phonemes sound changes. Again, this research uses the structural theory of phonology, and it is old. Furthermore, in the Bali language dialect Jembrana, the phonological process's change can be obstruent release, assimilation, raising vowel, and deleting and adding consonant and vowel. It is discussed by Swadana (2018). He explains the changing using the structural theory of phonology, but he does not illustrate its changing pattern.

Research related to prefix discussed by Gane, Abdullah, and Purnanto (2019) related to the ins and out of reciprocal prefix ki in the Loloda language. The result shows that prefix /ki-/ is attached verb with first syllable vocal /i/. Besides verb, another part of speech that can be attached is noun, pronoun, adjective, and interjection. In the Loloda language itself, there is an exception for some words of noun 'satan', 'bamboo', and adjective of 'afraid' that not started by /i/ vocal, and it can be attached by prefix /ki-/ too. Meanwhile, the research does not describe its change by generative phonology.

Furthermore, there are some researches in phonology using generative phonology. Nafisah (2017) has explained the phonological process, and

its principle in generative study becomes a relevant approach for analyzing and explaining phonological processes in any language. The phonological processes include the addition of sound, deletion of sound, coalition, and assimilation. Muslihah (2018) has conducted research about the analysis of English language loan words transformed into Japanese using generative transformational phonological. She has found eight phonological process; (1) the process of adding segment /u/ at the end of the words; (2) segment addition /o/ at the end of the words; (3) segment addition /u/ in the middle of the words; (4) segment addition /o/ in the middle of the words; (5) substitution of phoneme /l/ to /r/; (6) substitution phoneme /v/ to /b/; (7) segment addition /i/; and (8) substitution of phoneme /t/ to /c/.

Anasti, Ridanta, and Ramadhan (2020) have researched the generative phonological process of the Prokem language in Indonesia. They have found that slang language has characteristics which used vowel /e/ and /o/, blasting sound, and presence of sound relaxation on vocal strengthening. Sartini (2019) has researched the adolescents' social language, which analyzed by using generative phonological theory. It is found that adolescent language tends to be shorter where there is a form of sound impairment. Vowels that are often used are [e], [o], and [ə].

All research mentioned have discussed the phonological process and generative phonology. However, none of the researchers discuss syllable structure and nasalization of prefix /ak-/ and /an-/ in Makassar language. The interesting point is sixteen prefix in sentence formation of Makassar language can change word class form from noun to verb or verb to verb. Furthermore, the research only discusses two kinds of prefixes that experienced the most change. For instance, the word [jə?nə] means 'bath' when adding prefix /ak-/; it becomes [aʔjəʔnə] means 'bathing'. The change is, namely, glottalization, which prefix / ak-/ changes into [?]. Besides nasalization, gemination also appears when adding this prefix. The research describes any changing of syllable and nasalization in Makassar language using generative phonology and distinctive features. The researchers hope it can be a novelty in generative phonology of local languages in the archipelago.

METHODS

The research applies a descriptive qualitative method. The researchers describe the phonological process; syllable structure change and nasalization in the Makassar language. The discussion points are in the form of verbs /ak-/ and /aŋ-/ myang, which are the basic verbs in the Makassar language. The type of data examined is secondary data. The data reviewed are obtained from a book published by the language training and development center of education and culture department with the title Struktur Bahasa Makassar in 1981. Then the data are strengthened

by an informant who is a native speaker of Makassar language.

Analyzing data on the research use 'agih' and 'padan' method by Sudaryanto (2015). The 'padan' method used here is by using "daya pilah fonetik artikulatoris". The selection found by the researcher is an affixed element in the form of Makassar /ak-/ and / $a\eta$ -/ prefixes that form verbs. The first step in analyzing the data is by differentiating two things, prefix and verb root. The second is by identifying the data that have been differentiated by determining, which sounds experiencing the phonological process caused by affixes and prefixes. The researchers then continue it by using "hubung banding" technique to strengthen the data and identify the phonological process occurs. The data are emphasized with the informant, who is a native speaker of Makassar language. Furthermore, the data are categorized and equated with sound changes. The final process of analyzing Makassar language data is describing it descriptively and using the theory of distinctive features (Sudaryanto, 2015).

RESULTS AND DISCUSSIONS

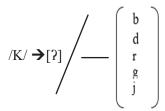
Here, the researchers describe the phonological process; syllable structure change and nasalization in the Makassar Language. The verbs forming in Makassar language begins with the prefix that can change the sound and release several segments, either consonants or vowels. There are several prefixes like / ak-/ and an-/, and its changes analyzed in the research.

Prefix /ak-/ changes [k] sound into [?] or called by glottalization. The first verbs affixation with prefix /ak-/ in Makassar language is the intransitive verb. It is the verb that needs an additional object or argument, and transitive verb. In this process, there is a change of consonant sound [k] into glottal sound [?]. The data explanation about prefix /ak-/ can be seen in Table 1.

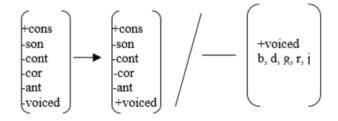
Table 1 Verb Root with Prefix [ak-]

No	Verb Root	Verb Affixation	Glosa
1.	[baluk]	[a?baluk]	Selling
2.	[daŋkak]	[aʔdaŋkak]	Perching
3.	[gəak]	[aʔgəak]	Fighting
4.	[rua]	[aʔrua]	Both
5.	[jəʔnə]	[aʔ jəʔnə]	Bathing

The data on the Table 1 show that the basic verbs are initiated by consonants [b], [d], [g], [r], and [j]. The change occurred is the word initiated by prefix [ak-] into [a?-] when that sounds are bilabial plosive, alveolar plosive, velar plosive, palatal fricative, and trill sound. The [k] sound on prefix /ak-/ that is velar plosive voiceless sound changes into glottal when encountered. It can be stated with this following phonological rules below.



Based on Table 1, the verb root [baluk] means sell or 'jual' and add /ak-/ into the verb, it changes into [a?-] + [baluk] or [a?baluk] means selling or 'menjual'. The next verb root is [daŋkak] means 'perch', and becomes [a?daŋkak] means 'perching', verb root [gəak] becomes [a?gəak] when adding prefix /ak-/. All words in Table 1 show the change of sound [k] into [?], namely glottalization. It explains that the modified verb+ing shows action in progress. It can be seen that the change of /k/ sound into [?] is because of the influence of phoneme that has a voiced sound. The distinctive feature of the sound can be stated in the following rule.



Based on the distinctive feature, [k] is changed into glottal when lined with voiced or voiceless consonants of bilabial, alveolar, velar, or trill. The most important thing is this only happens in Makassar language. There is no guarantee that it happens in other languages.

The next discussion is the change of [ak-] sound into [ak-] (nasalization). In Makassar language, there is a nasal sound. It does not change the prefix that constructs the verbs. Table 2 is about the phonological process where the prefix is on the nasal sound.

Table 2 Verb Root with Prefix [ak-]

No	Verb Root	Verb Affixation	Glosa
1.	[maik]	[akmaik]	Breathing
2.	[naong]	[aknaong]	Sounding
3.	[nana]	[aknana]	Festering
4.	[ŋaŋa]	[akŋaŋa]	Gaping
5.	[selol]	[allolə?]	Being Friend

Based on Table 2, the word [maik] means 'breath' changes into [akmaik] 'breathing', [naong] means 'sound' becomes [aknaong] 'sounding', the verb root [nana] means 'fester' change into [aknana] means 'festering', and [lolə?] means 'friend' becomes [alolə?] means 'being a friend'. Nasal sound is a sound that is produced through the nasal cavity or slightly nasally. The sound change occurs from [k] sound on

the prefix [ak-], which is a velar plosive voiceless sound that changes into voiced nasal sound. As in the verb that initiated by nasal [m] sound on the word [maik], experiences morphophonemic process and becomes [akmaik]. The way to pronounce [akmaik] tends to present nasal sound. So that, the sound [k] faintly disappears. Its change aims to show the add +ing of an action in progress.

The [k] sound release and sound insertion based on the initial phoneme is called by gemination. It can be seen in Table 3.

Table 3 Verb Root with Prefix [ak-]

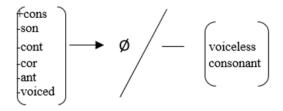
No	Verb Root	Verb Affixation	Glosa
1.	[Selol]	[allolə?]	Being friend
2.	[tannuŋ]	[attannuŋ]	Weaving
3.	[kantorok]	[akkantorok]	Doing
4.	[soloŋ]	[assoloŋ]	Flowing
5.	[tayaŋ]	[attaŋ]	Waiting
6.	[piwali]	[appiwali]	Answering

Based on Table 3, the word [tannun] means 'weave' changes after adding the prefix /ak-/. However, the change that occurs is [k] sound in the prefix /ak-/ following the first consonant sound and becomes [attannun] means 'weaving'. Likewise, the word [kantorok] means 'do', the [k] sound in prefix /ak-/ does not change because the word begins with /k/ consonant and becomes [akkantorok] means 'doing'. The change happens to all words in Table 3.

In generative phonological theory, prefix [ak-] changes into [a-] that experiences sound [k] release and insertion of the same consonant sound on the initial phoneme of every word. Based on the change happens, the change of /a/+/first consonant/ happens in verbs initiated by voiceless or voiced sound. Based on Table 3, the consonants experience an insertion are [t], [s], [l], [p], [k]. The sounds rule appeared is assumed that there are two rules, the first is the rule of [k] sound can be seen here.

$/K/ \rightarrow \emptyset / -[voiceless consonant]$

The rule explains that the [k] sound experiences sound release when it is before voiceless consonant sound where the prefix [ak-] will be changed into [a-] sound. The distinctive features are;



After getting releasement of [k] sound, there is a sound insertion process based on the initial phoneme

on the verbs in Makassar language. For instance, the verb [tayan] becomes [attan]. The initial phoneme rule is as follows.

$$\emptyset \rightarrow [first consonant]/-\#$$

The rule explains that [k] sound in Makassar language experiences Ø when initiated by voiceless sounds and initial consonant insertion based on the phoneme that comes first. As in the word initiated by alveolar plosive voiceless sound /t/ [tannun], it changes into [attanun] 'weaving'. Another example is in the word initiated by alveolar fricative voiceless sound /s/ that will experience the insertion of [s] sound, also the word that is initiated by bilabial plosive voiceless /p/ sound that gets the insertion of [p] sound. In Makassar language, the sound with consonants gemination is pronounced with a bit long and stressed tone. That process is defined as the gemination process.

Based on the Table 1, 2, and 3, prefix /ak-/ has three allomorph categories; [ak-], [a-], and [a?]. Those generate different sounds when in morphophonemic verbs of Makassar language. There is a sound change and remain consistent, so that can be inferred that the underlying form of prefix verbs above is [a-]. The underlying form is consistent and never experience a change when getting an insertion. The [a-] sound has a spread of all kinds of voiceless consonants. It is more numerous than [ak-], which only exists in nasal sounds, also [a?] in bilabial sounds, voiced velar, and trill like sounds [b], [d], [k], [j] and [r]. It can be inferred that in Makassar language, prefix / ak-/ does not experience a change when getting initial nasal phoneme. Prefix /ak-/ changes into [a?], when encounter voiced consonant and becomes /a-/ when encountering all voiceless consonants and experiences gemination or initial phoneme doubling.

The next prefix is /an-/, the researchers explain the morphophonemic process of verbs in Makassar language that experiences a change when pronounced. As explained in advanced that prefix in Makassar language is varied, some of them are able to change the verb itself. In the process of sound release, sound insertion, and nasalization, the researchers explain how the prefix /an/ in a verb can attach to the transitive or intransitive verbs. The prefix also causes the change of syllable structure on the word. Table 4 is the data about verbs in Makassar language that begin with prefix /an-/.

Table 4 Verb Root with Prefix [an-]

No	Verb Root	Verb Affixation	Glosa
1.	[alle]	[aŋalle]	Taking
2.	[eraŋ]	[aŋeraŋ]	Bringing
3.	[inun]	[aŋinuŋ]	Drinking
4.	[ulu]	[aŋulu]	Heading

Table 4 explains that all sounds initiated by vowels experience a morphophonemic process that begins with /an-/ sound will change into /aŋ-/. For instance, the word [alle] changes into [aŋalle] 'taking'. The [ŋ] sound appears to change [n] sound. It indicates that there is nasalization; the alveolar nasal-voiced sound that changes into velar nasal-voiced sound as the strengthening of the vowel [a]. Schane (1973) has explained alveolar nasal is pronounced by the tongue's tip touching the teeth or gums. At the same time, Makassar speakers say it by touching the back of the tongue to the gum's top so that the nasal sound becomes voiced velar. The rule and distinctive features appeared are as follows.

$$/n/ \rightarrow [\eta] / \# [Vokal]$$

The distinctive features are as follows;

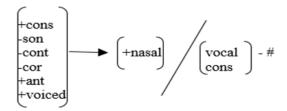
Based on the rule, it is assumed that alveolar nasal becomes velar nasal when started by the initial phoneme, which is in the form of the vowel. The [n] nasal sound is used as vowel reinforcement.

Table 5 Verb Root with Prefix [an-]

No	Verb Root	Verb Affixation	Glosa
1.	[biŋkuŋ]	[ammiŋkuŋ]	Hoeing
2.	[paŋkulu?]	[ammaŋkulu?]	Axing
3.	[bu?bu]	[ammu?bu]	Revoking
4.	[pəla?]	[amməla?]	Throwing

Based on Table 5, affix /an-/ will become [m] when encounters voiced or voiceless bilabial plosive sound [p], and [b]. It releases the sound and changes it into nasal sound, and then experiences gemination. For instance, as in the data, the word [biŋkuŋ] becomes [ammiŋkuŋ] 'hoeing'. It indicates that the word must be pronounced a bit long and stressed. The rule is as follows.

Based on the rule, the gemination process is on bilabial plosive sound voiced and voiceless. It happens because the sound appears after [b] and [p] is a vowel. The vowel sound itself causes gemination and nasalization. Those verbs are pronounced by Makassar people by stressing the tone a bit with nasal and long intonation. The distinctive features are:



The rule is also used for bilabial plosive voiceless sound [p], since the rule in Makassar basically uses prefix /an-/ that is the pairing of voiced and voiceless sound.

Table 6 is about the sound change caused by a pair of sounds in the Makassar language. Here is the data about verbs in BM experiencing nasalization.

Table 6 Verb Root with Prefix [an-]

No	Verb Root	Verb Affixation	Glosa
1.	[deddek]	[andeddek]	Shivering
2.	[tabbaŋ]	[annabaŋ]	Cutting down
3.	[jama]	[anjama]	Working
4.	[tunruŋ]	[annuruŋ]	Hitting

Table 6 shows the sound of the alveolar plosive voice and voiceless, and also palatal fricative voice and voiceless. Based on Table 6, prefix /an-/ does not change when it encounters the sound of alveolar plosive voiced. Palatal fricative voiced while voiceless sounds of them are [t] and [c] sound change into nasal sound. The rule of sound change and insertion appears as follows:

The distinctive feature appears on the rule above is as follows:

The rule also applies to the sound of palatal fricative voiceless [j], since the rule in Makassar basically use a prefix /an-/ is voiced and voiceless sound.

CONCLUSIONS

Based on the data analysis results, the syllable structure change and nasalization are the underlying form of prefix /ak-/ is /a-/. In Makassar language, the [k] sound will change into [?] sound when preceded by bilabial plosive, alveolar plosive, velar plosive, palatal fricative, and trill sound. The [k] sound will change

into [a-] sound when the consonant is voiceless, and there is a gemination process based on the initial phoneme of it. Sound [k] remains as [k] sound when it is followed by nasal sound.

The gemination in Makassar language indicates the length of the sound. Prefix /an-/ changes into [m] when it encounters bilabial plosive voiced or voiceless. The morphophonemic process of prefix / an-/ experiences gemination when encounters nasal sound [m] generates double nasal sound. It indicates the sound should be read long. This also influences the syllable structure of the word. When prefix /an-/, alveolar nasal [n-] encounter, all vowels will change into velar nasal [n] as vowels' reinforcement. The phonological process occurs on prefix /an-/ when encounters fricative, and plosive sound will experience gemination that changes syllable structure, and the pronunciation will be a bit longer. Nasal sound in the last word before vowel changes into glottal sound.

The research only describes the phonological process of prefix /ak-/ and /an-/ and its changing based on generative phonology. The research finding suggests that the implementation of syllable structure and nasalization change in Makassar language can encourage new knowledge to the young generation related to phonological process and generative phonology. In addition, the research can be an important contribution to Makassar's local language as a way to maintain the language. It is highly recommended to the next research to discuss other kinds of the local language so that it cannot shift and extinct.

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