Uncovering the Culture of Osing People in Palatalizing the Consonant Clusters

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Abstract

Osing dialect is one of the Javanese dialects used in Banyuwangi, East Java. This dialect has a unique phenomenon called as palatalization that does not exist in other Javanese dialects called as palatalization. Palatalization is an assimilation process that involves the interaction of sounds triggering the palatal articulation. Commonly, palatalization involves two sounds that consist of a single consonant (target) and a single vowel (trigger) as the environment in its appearance. Different from the common palatalization phenomena, the Osing dialect has palatalization in consonant clusters form. In the Osing dialect, there are 21 consonant clusters but only few of the consonant clusters undergo the palatalization. This study aimed to identify the consonant clusters which undergo the palatalization and find the palatalization pattern. The analysis method that we used in this study is descriptive-qualitative method. In the analysis, we also provided a discussion by using generative phonology. The data used in this article were taken from the Osing speaker in Kemiren, Banyuwangi. The result of this analysis showed that the palatalization of consonant clusters happens when the cluster are constructed by two consonants which have voiced features and they are followed by the trigger sounds.

Keywords : osing dialect; palatalization; target; trigger; consonant clusters

1. Introduction

Palatalization phenomena are rarely found in local languages in Indonesia. Luckily, the researchers found one dialect of Javanese that possesses the palatalization. Banyuwangi is a city with famous culture for example the tradition, art and the language. Commonly, people recognize the Banyuwangi inhabitants through their accent and the dialect that they use in communication. We can call the Banyuwangi inhabitants as Osing people. In daily communication Osing people uses Javanese language with a unique dialect that differs from other Javanese. The cultural characteristic that differs the *Osing* dialect with the other Javanese dialects is the palatalization. Palatalization in the *Osing* dialect has a uniqueness different from other palatalization phenomena because some of the palatalization happens in consonant clusters as the target of palatalization. Generally, the target sound in palatalization is a single consonant sound. The target is the object that undergoes the palatalization. Whereas, the trigger is the cause of palatalization. Here the researchers provided some previous research of palatalization from across languages and the previous research of *Osing* dialect to give some examples and explanation of palatalization.

The palatalization research across languages usually explained that the target palatalization as a single sound for example, the palatalization research conducted by Bateman (2007) in Romanian and

Tsawana languages, Dyk (2011) in Frisian language, Zaleska and Naranjo (2016) in Polish language and palatalization in Kirundi (Bantu) language by Kochetov (2016). Their research showed similar overview on the environment of palatalization. They focused on the characteristic element of consonant-vowel interaction. Based on the previous research, we found that the palatalization commonly happens in a single consonant followed by a vowel sound.

According to Bateman (2007), palatalization has two types: full palatalization and secondary palatalization. Full palatalization is a case of gestural blending resulting from high degrees of temporal overlap of tongue gestures, while secondary palatalization is a case of minimal temporal overlap of lips or tongue gestures. For example, /s/ changing into [ʃ], /z/ changing into [ʒ], *or /ts/* changing into [tʃ] or [dʒ] in full palatalization while /p, b, d, and g/ changing into [pʲ, bʲ, dʲ, and gʲ] in secondary palatalization. No research across languages discussed the palatalization in consonant clusters as the target in palatalization.

Some researchers also conducted the research of the *Osing* dialect but most of them just provided the general information of phonological aspects in the *Osing* dialect as in Budiono (2015) and Ashar (2018). Ashar (2018) conducted a preliminary study of *Osing* dialect and elucidated short discussion of palatalization. Budiono (2015) did not discuss the palatalization but some data in his research showed that the palatalization exists in the *Osing* dialect. Unlike, Budiono (2016) and Ashar (2018), Fajaryanto (2019) conducted a phonological study focused on palatalization. He observed the palatalization of liquid sounds in the *Osing* dialect. He discussed the inconsistency of palatalization in the *Osing* dialect especially the palatalization of liquid sounds [l] and [r]. Fajaryanto (2019) also provided valuable information of the target and trigger in the *Osing* dialect palatalization.

In this study, the researchers found that the consonant clusters in the *Osing* dialect have different rules of palatalization. As mentioned above, palatalization is commonly established by a target and a trigger sound. Here, we found that the form of consonant clusters affects the consistency of palatalization in the *Osing* dialect. This study also added the finding of inconsistency in palatalization proposed by Fajaryanto (2019). He found some inconsistencies of the target sounds (liquid consonants) of palatalization in the *Osing* dialect. Different from the previous research, this study aimed to find out the pattern of palatalization in the *Osing* dialect and show the distinctive feature of the target in the consonant clusters form. In addition, the use of generative phonology in this study with *Osing* dialect as the object is expected to give new insight for those interested in phonological research especially palatalization phenomena.

2. Method

The type of this study is qualitative-descriptive research. This study took place in Kemiren village in Banyuwangi Regency. The data were obtained from informants of Kemiren village in the form of the *Osing* dialect. The data were collected by using face-to-face interview and note taking techniques. The instruments used are tape recorder, pens and papers to record the data obtained from the participants. The technique used in this study is articulatory phonetics method. Sudaryanto (2015: 28) defined that this method

deciphers the capability to differentiate the linguistics feature of a linguistic unit such as sounds, syllables, words, sentences and discourses. He also provided several values on why this method should be conducted. This method is beneficial to find the change of vocal cord. In addition, the researchers employed referential technique to explain the process of palatalization in the *Osing* dialect.

3. Findings

In this section, the researchers presented the finding of palatalization analysis. However, before elucidating the main point of the study, the researchers provide some information of the *Osing* phonology consist of the consonants, vowels, consonant clusters, trigger and target of palatalization.

3.1 The Consonants and Vowels in The *Osing* Dialect

To give some information toward *Osing* phonology, based on the previous researchers, the *Osing* dialect has 7 vowels and 20 consonants cited from (Ali, 2002: vi; Ashar, 2018). The consonants are /p, b, t, ʈ, ɖ, d, c, ɟ, g, k, l, r, m, n, ŋ, ɲ, h, s, w* and *j/ while the vowels consist of /a, e, ə, ɛ, i, o*, and *u/. In addition, there are also some diphthongs and consonant clusters. There are 4 dipthongs such as /a*i*, a*e,* a*o* and au/ while the consonant clusters are 21 in several consonant combinations. The consonant cluster Ali (2002: ix) classified the consonant clusters of the *Osing* dialect based on their appearance that the consonant clusters commonly appear in the front position and few of them are in middle position. The first type of consonant clusters is the combination of [m] or [n] with other consonants. We found that the common clusters established by [m] or [n] are combined with [b], [ɖ], [d] and [ɟ] become [mb, mɖ, nd, and nj]. The second type of consonant clusters is the combination of [l] or [r] with 9 consonants. According to Ashar (2018), the consonant clusters of the *Osing* dialect made by the combination of [l] and [r] sounds are divided into 17 consonant clusters. The sounds [l] and [r] are always placed after or follow the other consonants [p, b, t, ɖ, c, ɟ, k, g, s]. The consonant clusters with [l] are [pl, bl, tl, cl, ɟl, kl, gl, sl] while the consonant clusters with [r] are [pr, br, tr, ɖr, cr, ɟr, kr, gr, sr]

Of those consonants and vowels, there are only some of them that considered as the target and the trigger of the *Osing* dialect palatalization. The target and the triger of palatalization are explained in the next part. In this research, the researchers had transformed the phonetic symbols from Ali (2002) by using IPA symbols. The use of IPA symbols aimed to simplify the description of the analysis. Besides the familiarity of IPA symbols, the other reasons why the researchers employed IPA are 1) the IPA is a convention symbols used by many researchers to provide the phone transcription, 2) IPA has complete symbols and it is also completed by several diacritic symbols to modify the consonant and vowel presentations. To give clear understanding of consonants and vowels in *Osing* dialect, we adopted the vowels and consonants features from Hayes (2009: 14) and Odden (2005:141-148) and the model presentation from Arman et al. (2013). The table of vowels and consonants in the *Osing* dialect as follows.

Table 1. The *Osing* Vowels

		Front	Central	Back
Close (High)	Upper	i		u
	Lower	ɪ		ʊ
Middle	Upper	e	ə	
	Lower	ɛ		o
Open (Low)	Upper			ɔ
	Lower	a		

Table 2
The *Osing* Consonants

Manner	Place of Articulation								
	Bilabial	labiovelar	Dental Alveolar		Alveolar	Retroflex	Palatal	velar	Glottal
Plosive	p b		t	d̪	d	ʈ	c ɟ	k g	ʔ
Nasal	m				n		ɲ	ŋ	
Fricative				s					h
Thrill					r				
Glide		w					j		
Lateral					l				

3.2   Trigger Sounds of The *Osing* Dialect Palatalization

Chen (1973) and Bhat (1978) explicitly mentioned that *trigger* is a term for the sounds that initiate the palatalization. In addition, they also mentioned some vowel sounds as the trigger in palatalization such as [i] or [e]. They bravely explained that the triggers in palatalization usually high front vowel sounds. In this research, we found different trigger sounds from (Chen, 1973) and Bhat (1978).

We can consider in table 1 that there are 5 front vowels, 1 central vowel, and 4 back vowels. The detail features of the vowel sounds are [i] close front unrounded high vowel, [ɪ] near-close near-front unrounded high vowel, [u] close back rounded high vowel, [ʊ] near-close near-back rounded high vowel, [e] close-mid front unrounded middle vowel, [ə] open-mid central unrounded middle vowel, [ɛ] open-mid front unrounded middle vowel, [o] close-mid back rounded middle vowel, [ɔ] open-mid back rounded middle vowel, [a] open- front unrounded low vowel.

There are 2 out of 10 vowels in the *Osing* phonetics considered as the trigger in palatalization. The trigger sounds in the *Osing* dialect palatalization are [a] and [ɛ]. Both of them are included as front vowel sounds but they do not have high features (see table 1). The researchers found that the front vowels [a] and [ɛ] have strong relation toward the palatalization in the *Osing* dialect. These two vowels establish the environment in the syllable that initiates the emergence of palatalization. Here, the example of [a] and [ɛ] as the trigger of palatalization.

(1) Badheg   [bʲadəg]
      Wédang   [weḏʲaŋ]
      Sewidak   [səwiḏʲak]
      Janur   [ɟʲanʊr]

(2) Bèji   [bʲɛɟi]
      Gudèl   [guḏʲɛl]
      Gènjèr   [gʲɛnɟʲɛr]
      Godhèg   [gɔdʲɛg]

Based on the example above, the palatalization appears when some consonants are followed by the vowels [a] and [ɛ]. There are some other vowels such as [e], [ə], [i] and [ɔ] but they do not trigger the palatalization. As mentioned above, the palatalization is established by the target and the trigger. The words in (1) *badheg* [bʲadəg] and (2) *godhèg* [gɔdʲɛg] as the example, the palatalization happens in [b] sound changing into [bʲ] followed by [a] and [d] changing into [dʲ] followed by [ɛ]. The [d] sound in (1) *badheg* [bʲadəg] followed by [ə] is unpalatalized, and the [g] sound in [gɔdʲɛg] followed by [ɔ] is unpalatalized. Of the data above, we can consider that the palatalization happens before [a] and [ɛ] sounds only. The next part, we explained the target sounds in the *Osing* dialect palatalization.

3.3   Target Sounds of The *Osing* Dialect Palatalization

Target is a term in palatalization to call the sounds that undergo the changing feature or palatalized. The changing can be the changing feature (full palatalization) or added by co articulation sound (secondary palatalization) (Bateman, 2007). Chen (1973) and Bhat (1978) explained that the target palatalization can be various and it should be different from one to another language or dialect. According to Chen (1973) and Bhat (1978), the targets in palatalization are consonants. The consonants from back to front or all places of articulation are possible to be palatalized.

There are 21 consonants in the *Osing* phonetic symbols (see table 2). There are three consonants that different from the grapheme and the phonetic symbols, for instance 'th', 'd', 'dh' and 'k'. In the written form, the *Osing* users usually differentiate them by using 't' and 'th'. The 't' is symbolized as [t] and 'th' is symbolized as [ʈ]. The case of [t] is similar with [ḏ]. The *Osing* users also differentiate the use of 'd' and 'dh'. The written forms 'd' and 'dh' in the *Osing* mean [ḏ] and [d] in IPA. Different from those two consonants, the consonant 'k' is symbolized as [k] and [ʔ]. The [k] is usually pronounced when it appears in the initial position or middle position in a word. Whereas, the 'k' is pronounced as [ʔ] usually when it is at the end position of a word or on the final position. To give the complete explanation toward the phonetics symbols of the *Osing* consonants, the researchers provided the consonant descriptions in table 2. The

phonetics description of the consonants above are [p] voiceless bilabial plosive, [b] voiced bilabial plosive, [t] voiceless alveolar plosive, [d̪] voiced dental alveolar plosive. [d] voiced alveolar plosive, [ʈ] voiceless retroflex plosive, [c] voiceless palatal plosive, [k] voiceless velar plosive, [ɟ] voiced palatal plosive, [g] voiced velar plosive, [ʔ] glottal plosive, [m] voiced bilabial nasal, [n] voiced alveolar nasal, [ɲ] voiced palatal nasal, [ŋ] voiced velar nasal, [s] voiceless alveolar fricative, [h] voiceless glottal fricative, [w] voiced labiovelar approximant, [j] voiced palatal approximant, [l] voiced alveolar lateral approximant and [r] voiced alveolar trill.

The indication of some consonants as target in palatalization in the *Osing* dialect was found in (Ali, 2002). He mentioned several consonants as a single target palatalization without explaining the trigger sounds. Ashar (2018) also mentioned several consonants similar with Ali (2002). However, Ashar (2018) added that the palatalization usually happened when the targets are followed by [a] sound. Both of the researchers did not explain the characteristic of the target and the trigger sounds clearly. Fajaryanto (2019) explained the characteristics of the target and the trigger in the *Osing* dialect palatalization. He mentioned that the target of palatalization in the *Osing* dialect are the consonants which have [+voice] feature. The consonants (see table 2) on the left side are voiceless and the consonants on the right sides are voiced or [+voice]. Therefore, the target of palatalization in the *Osing* dialect are [b, d̪, d, ɟ, g, m, n, ŋ, r, w, and l]. Actually, [ɲ] and [j] are also voiced but they are not the target of palatalization. The examples in (1) to (4) show the palatalization form. The thing that we need to consider in the example is the vowels as the trigger sounds. Here, the researchers provided several data of the palatalization.

(1) bapak   [bʲapak]
    delebèr   [d̪ələbʲɛr]
    bibar   [bibʲar]
(2) dangu   [d̪ʲaŋu]
    dèbrès   [d̪ʲɛbrʲɛs]
(3) dilat   [dilʲat]
    gelèdhèg   [gəlʲɛd̪ʲɛg]
(4) dadrah   [d̪ʲad̪rʲah]
    berèntèk   [bərʲɛntɛʔ]

The examples above show that the palatalization happens in [b], [d̪], [d], [l] and [r] sounds followed by the trigger [a] or [ɛ] for example [b] changes into [bʲ] followed by [a] in (1) *bapak* [bʲapak]*,* [d̪] changes into [d̪ʲ] followed by [ɛ] in (2) *dèbrès* [d̪ʲɛbrʲɛs], [l] changes into [lʲ] followed by [a] in (3) *dilat* [dilʲat], and [r] changes into [rʲ] in (4) *berèntèk* [bərʲɛntɛʔ].

Some target consonants are unpalatalized because they are not followed by the trigger such as [ŋ] followed by [u] in (2) dangu [d̪ʲaŋʊ], [g] followed by [ə] in (3) gelèdhèg [gəlʲɛd̪ʲɛg], and [b] followed by [ə] in (4) berèntèk [bərʲɛntɛʔ]. In the example above, we can compare that the palatalization happens when the consonants are followed by [a] or [ɛ] and they are unpalatalized when it is followed by [i] or [ə]. The [b] and [d] are unpalatalized when they are followed by [i] as in (1) bibar [bibʲar] and (3) dilat [dilʲat]. The [b]

and [d] are also unpalatalized when they are followed by [ə] as in (4) berèntèk [bərʲɛntɛʔ] and (1) delebèr [ḓələbʲɛr].

The examples above attested that the palatalization established by single target followed by the trigger sound. Here, we found that the targets of palatalization are not only in a single target but also consonant cluster. The further discussion is in the following part.

4. Result and Discussions

4.1 The Consonant Clusters as Target of Palatalization

The Osing dialect has 21 consonant clusters. The [m], [n], [l] and [r] are the consistent consonants to combine with the other consonants as consonant clusters. However, they have different position in the cluster formation. The sounds [m] and [n] always appear in initial position of the consonant clusters while the sounds [l] and [r] always follow the other consonants or the final position of the consonant clusters. To simplify the presentation, the researchers presented the consonant clusters in the table as follows.

Table 3. The first type of consonant clusters in the Osing dialect

final sounds	cluster form	
	initial *m*	initial *n*
b	mb	-
ḓ	-	nḓ
d	-	nd
ɟ	-	nɟ

Table 4. The second type of consonant clusters in Osing dialect

initial sounds	cluster form	
	final *l*	final *r*
p	pl	pr
b	bl	br
t	tl	tr
ḓ	-	ḓr
c	cl	cr
ɟ	ɟl	ɟr
k	kl	kr
g	gl	gr
s	sl	sr

The palatalization in the *Osing* dialect does not happen between the consonants in the cluster but the palatalization happens in the consonant clusters followed by the trigger sounds. The palatalization appears in the closest consonant adjacent with the trigger. Here, the palatalization only happens in some of the consonant clusters. Therefore, we assumed that the palatalization in the cluster form is affected by the consonant sounds in the consonant cluster itself.

The researchers found the same case with the previous research concerning to the inconsistency of [l] and [r] sounds in palatalization. Different from Fajaryanto (2019) who observed the inconsistency of [l]

and [r] as a single target in palatalization, this research observed and focused on the target palatalization in consonant clusters form. The first group of consonant clusters is [mb, nd̪, nd, and ŋɟ] and the second group is [pl, bl, tl, dl, cl, ɟl, kl, gl, sl] and [pr, br, tr, dr, cr, ɟr, kr, gr, sr].

The consonant [m], [n], [l] and [r] are included as target consonants in the *Osing* dialect palatalization. They have the same specific feature with the other target consonants. As mentioned before, all the target consonants have the same feature [+voiced] that make them categorized as the target palatalization in the *Osing* dialect. However, the [l] and [r] sounds show inconsistency in palatalization especially when they are in cluster form. From the consonant clusters above, the researchers separated the cluster based on the sound feature. We got the consonant clusters constructed by sound [l] and [r] with the non-target and the target sounds. The non-target sounds are [p, t, c, k, s] while the target sounds are [b, d̪, d, ɟ, g]. All of the initial sounds have the same features based on the major features, the place of articulation and the manner of articulation for example; [p] is similar to [b], [t] is similar to [d̪] and [d], [c] is similar to [ɟ] and [k] is similar to [g]. The difference of all these sounds is on the subsidiary feature. Actually, there is one sound left that is [s] sound but it does not have similar sounds to compare as the consonant clusters in the *Osing*.

The features of those sounds are similar in major feature, place of articulation and the manner of articulation. To give the detail information, the researcher provided some comparisons of the distinctive features of each consonant.

Table 5. The comparation features of [p] and [b] sounds

	Description	Sonority	Feature
p	voiceless bilabial plosive	stop	+ consonantal + labial + anterior
b	voiced bilabial plosive	stop	+ consonantal + voice + labial + anterior

Table 6. The comparation features of [t] and [d] sounds

	Description	Sonority	Features
t	voiceless alveolar plosive	stop	+ consonantal + coronal + anterior
d̪	voiced dental alveolar plosive	stop	+ consonantal + voice + coronal + anterior + distributed
d	voiced alveolar plosive	stop	+ consonantal + voice + coronal + anterior

Table 7. The comparation features of [c] and [ɟ] sounds

	Description	Sonority	Features
c	voiceless palatal plosive	stop	+ consonantal + coronal + distributed + dorsal + high
ɟ	voiced palatal plosive	stop	+ consonantal + voice + coronal + distributed + dorsal + high

Table 8. The comparation features of [k] and [g] sounds

	Description	Sonority	Feature
k	voiceless velar plosive	stop	+ consonantal + coronal + anterior
g	voiced velar plosive	stop	+ consonantal + voice + dorsal + high + back

Table 9. The comparation features of [l] and [r] sounds

	Description	Sonority	Features
l	voiced alveolar lateral approximant	liquid	+ consonantal + voice + continuant + sonorant + approx + lateral + coronal + anterior
r	voiced alveolar trill approximant	liquid	+ consonantal + voice + continuant + sonorant + approx + trill + coronal

Table 10. The comparation features of [m] and [n] sounds

	Description	Sonority	Features
m	voiced bilabial nasal	nasal	+ consonantal + voice + labial + sonorant + nasal + anterior
n	voiced alveolar nasal	nasal	+ consonantal + voice + sonorant + nasal + coronal + anterior

4.2 The Palatalization of Consonant Clusters in the Osing Dialect

The palatalization in the *Osing* dialect is similar with the secondary palatalization shown by Bateman (2007). The palatalization is symbolized by using superscript [ʲ]. Here, we need to remember that the basic pattern of palatalization is when the target sounds followed by the trigger sounds (Chen, 1973; Bhat, 1978; Bateman, 2007). Therefore, the researchers only provided several words containing the palatalization with the transcription especially the consonant clusters as the target of palatalization followed by the trigger sounds. On the explanation above, the researchers had mentioned that the trigger in the *Osing* palatalization are [a] or [ɛ]. The targets palatalization are the consonant clusters with the combination of [m] or [n] and the consonant clusters with the combination of [l] and [r]. The words like in (5) show the palatalization of consonant cluster [mb] while the examples (6) to (8) show the consonant clusters [nḏ], [nd], and [nɟ].

(5) mbalong   [mbʲalɔŋ]
     ambèr   [ambʲɛr]
     mbarep   [mbʲarəp]
     gembèng   [gəmbʲɛŋ]
(6) mandar   [manḏʲar]
     delèndèng   [ḏəlʲɛnḏʲɛŋ]
     ndaru   [nḏʲaru]
     ndegèk   [nḏəgʲɛk]
(7) andhan   [andʲan]
     andhang   [andʲaŋ]
     andhuk   [andʊʔ]
     pendhèk   [pəndʲɛʔ]
(8) ginjal   [ginɟʲal]
     gènjer   [gʲɛnɟʲɛr]
     njaba   [nɟɔbə]
     gerènjèng   [gərʲɛnɟʲɛŋ]

The words transcription in (5) to (8) shows that the consonant clusters of [mb], [nḏ], [nd] and [nɟ], [nd] undergo the palatalization changing into [mbʲ], [nḏʲ], [ndʲ] and [nɟʲ], [ndʲ] followed by the trigger sounds. The consonants in these cluster include as the target sounds because these consonant clusters have voiced or [+voice] feature for each sound.

The examples above also show the unpalatalized form of the consonant clusters. The unpalatalized consonant clusters happen when they are followed by non-trigger sounds such as [nḏ] followed by [ə] in

(6) *ndegèk* [nd̪əgⁱɛk], [nd] followed by [ʊ] in (7) *andhuk* [andʊʔ], and [ŋɟ] followed by [ɔ] in (8) *njaba* [ŋɟɔbɔ]. The inconsistency of palatalization is only caused by the non-trigger following the consonant clusters. The position of the consonant clusters in initial position or in the middle position does not affect the palatalization as shown in (5) *mbalong* [mbʲalɔŋ] and *mbarep* [mbʲarəp].

The next palatalization is the consonant clusters of [l] combined with [p, b, t, c, ɟ, k, g, s]. In this consonant cluster, the [l] sound adjacent with the trigger sounds [a] or [ɛ] is unpalatalized sometimes.

(9)	kemplang	[kəmplaŋ]
	ceplès	[cəplɛs]
	dhaplang	[daplaŋ]
(10)	blak	[blʲaʔ]
	geblèk	[gⁱɛblʲɛk]
	emblang	[əmblʲaŋ]
(11)	mutlak	[mutlak]
(12)	kuclak	[kunclak]
	aclak	[aclak]
(13)	jlag	[ɟlʲag]
	gejlèk	[gəɟlⁱɛk]
(14)	sèngklak	[seŋklak]
	coklèk	[coklɛʔ]
	angklang	[aŋklaŋ]
	cangklèk	[caŋklɛʔ]
(15)	caglak	[caglʲak]
	cèglèng	[cɛglⁱɛŋ]
	juglang	[ɟʊglʲaŋ]
	dhèglèg	[dⁱɛglⁱɛg]
(16)	angslé	[aŋsle]
	asli	[asli]
	mèngslèk	[mɛŋslɛk]

Of the example above, the consonant clusters which undergo the palatalization are only [bl], [ɟl], and [gl]. These consonant clusters undergo palatalization and they are pronounced as [blʲ] followed by [a] in (10) *blak* [blʲaʔ], *geblèk* [gⁱɛblʲɛk], *emblang* [əmblʲaŋ], [ɟlʲ] followed by [ɛ] in (13) *jlag* [ɟlʲag], *gejlèk* [gəɟlⁱɛk], [glʲ] followed by [ɛ] in (15) *caglak* [caglʲak], *cèglèng* [cɛglⁱɛŋ], *juglang* [ɟʊglʲaŋ. Whereas, the consonant clusters [pl], [tl], [cl], [kl] and [sl] are unpalatalized although they are followed by the trigger sounds for instance [pl] in (9) *kemplang* [kəmplaŋ], *ceplès* [cəplɛs], [tl] in (11) *mutlak* [mutlak], [cl] in (12) *kuclak* [kunclak], [kl] in (15) *coklèk* [coklɛʔ] and [sl] in (16) [mɛŋslɛk]. If we consider the rules of palatalization and compared with the example (10), (13) and (15), the [l] sound followed by [a] or [ɛ] should be palatalized.

The last palatalization is the consonant clusters with [r] sound. There are 9 consonant clusters combined with [r]. The position of [r] sound in the cluster is the closest consonant before the trigger sounds [a] or [ɛ].

(17) kepras   [kəpras]
      amprah   [amprah]
      jeprèt [ɟəprɛt]
      kamprèt   [kamprɛt]

(18) gebrak   [gəbrʲak]
      abrag [abrʲag]
      jèmbrèt   [ɟʲɛmbrʲɛt]
      embrèt   [əmbrʲɛt]

(19) trap   [trap]
      pelantrang   [pəlantraŋ]
      jèntrèk   [ɟʲɛntrɛʔ]
      atrèt   [atrɛt]

(20) geladrah   [gəlʲad̪rʲah]
      drèg drègan   [d̪rʲɛg d̪rʲɛgʲan]
      gelèdrèk   [gəlʲɛdrʲɛk]
      bandrèk   [bʲand̪rɛʔ]

(21) crawak   [crawaʔ]
      kècrèt   [kɛcrɛt]

(22) gujrah   [guɟrʲah]
      anjrah   [anɟrʲah]
      gujrèh   [guɟrʲɛh]

(23) ongkrak   [ongkrak]
      angkrang   [aŋkraŋ]
      èngkrès   [ɛŋkrɛs]
      kèkrèk   [kɛkrɛʔ]

(24) jongrang   [ɟoŋgrʲaŋ]
      jagrang   [ɟʲagrʲaŋ]
      logrèk   [logrʲɛk]
      gègrèk   [gʲɛgrʲɛʔ]

(25) kèsrèk   [kɛsrɛk]
      kèngsrèh   [kɛsrɛk]

The palatalization happens in the consonant clusters [br], [d̪r], [ɟr] and [gr] for example [brʲ] followed by the triggers sounds in (17) *gebrak* [gəbrʲak], *jembrèt* [ɟʲɛmbrʲɛt], [d̪rʲ] followed by the triggers sounds as in (20) *geladrah* [gəlʲad̪rʲah] *gelèdrèk* [gəlʲɛd̪rʲɛk], [ɟrʲ] followed by the trigger sounds as in (22) *gujrah* [guɟrʲah], *gujrèh* [guɟrʲɛh], and [grʲ] followed by the triggers sounds as in (24) *jonggrang* [ɟoŋgrʲaŋ], *logrèk* [logrʲɛk. The rest consonant clusters [pr], [tr], [cr], [kr], [sr] are unpalatalized although they are followed by the trigger sound for example in (17), (19), (21), (23) and (25).

As shown in the example above, the palatalization of the targets [l] and [r] in the consonant clusters shows inconsistent pattern. The clusters of [pl], [tl], [cl], [kl], [sl] and [pr], [tr], [cr], [kr], [sr] are unpalatalized. Meanwhile, the consonant clusters of [bl], [ɟl], [gl] and [br], [dr], [ɟr], [gr] undergo the palatalization. From this condition and considering the sound features, the researchers concluded when one of the consonant clusters are non-target sounds or voiceless consonants, the palatalization does not happen. On the contrary, when the initial sounds of the consonant clusters are the target sounds or voiced consonants, the palatalization always occurs.

The researchers assumed that the placement of the consonant clusters based on the syllable perhaps affect the palatalization. However, based on the data, the position of the consonant clusters does not affect the palatalization for example the words in (10) *blak* [blʲak], *geblèk* [gʲɛblʲɛk], (13) *jlag* [ɟlʲag], *gejlèk* [gəɟlʲɛk]and in (20) *drèg drègan* [ḓrʲɛg ḓrʲɛgʲan]. Therefore, the thing that needs to concern is the sound combinations of the consonant clusters.

4.3   The Phonological Rules of Consonant Cluster Palatalization

Based on the Batemans' category (2007), the palatalization in the *Osing* dialect matches with the tongue fronting category because the palatalization in the *Osing* dialect is initiated by front vowel as the trigger. In this case, the consonant clusters of [m] and [n] undergo palatalization consistently as in (5) to (8). Meanwhile, the [l] and [r] are inconsistent to be palatalized. According to (Fajaryanto, 2019) the [l] and [r] cannot be palatalized when they are in the initial position of a word and sometime unpalatalized in the middle position of a word. In the examples above, we can see that the consonant clusters of [l] and [r] also show the inconsistent palatalization. If we consider them as a single target (not in consonant clusters form), they must be palatalized. However, the [l] and [r] are still unpalatalized, for example in words (9), (11), (12), (14), (16) and in words (17), (19), (21), (23), (25).

In this research, we found the pattern of [l] and [r] palatalization in the consonant cluster forms. These two sounds in the consonant clusters show a pattern that can be used to predict the appearance of palatalization. The palatalization of consonant clusters needs to consider the feature of each consonant in the cluster. We had grouped the consonant cluster in the *Osing* dialect established by combining the target and non-target sounds with [l] or [r].

The targets palatalization in the *Osing* dialect are the consonants with voice or [+voice] feature. On the explanation above, some consonants considered as the target sound in palatalization are [b, ḓ, ɟ and g] because they have [+voice] feature. Whereas, the non-target sounds are [p, t, c, k and s]. We concluded that the palatalization of consonant clusters of the *Osing* should combine two target consonants as a consonant cluster. Here, [m], [n], [l] and [r] sounds are included as the target sounds of palatalization.

The consonant clusters [mb], [nḓ], [nd], [nɟ] are always palatalized when they are followed by the trigger sounds [a] and [ɛ] (see the example 5 to 8). Whereas, the [l] and [r] sounds are palatalized when they follow the target consonants in a cluster such as in [bl], [ɟl], [gl] and [br], [dr], [ɟr], [gr]. The [l] and [r] sounds are unpalatalized when they follow the non-target consonant in a cluster for example in [pl], [tl], [cl], [kl], [sl] and [pr], [tr], [cr], [kr], [sr]. We formulated the palatalization of the consonant clusters as follows.
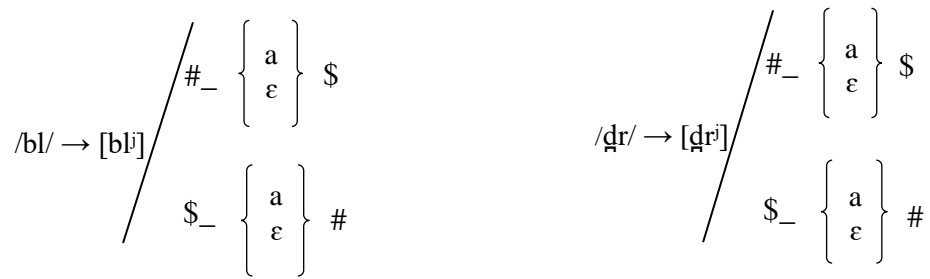
$$/bl/ \rightarrow [bl^j] \Big/ \begin{cases} \#\_\ \left\{ \begin{matrix} a \\ \varepsilon \end{matrix} \right\} \$ \\ \\ \$\_\ \left\{ \begin{matrix} a \\ \varepsilon \end{matrix} \right\} \# \end{cases} \qquad /\d{d}r/ \rightarrow [\d{d}r^j] \Big/ \begin{cases} \#\_\ \left\{ \begin{matrix} a \\ \varepsilon \end{matrix} \right\} \$ \\ \\ \$\_\ \left\{ \begin{matrix} a \\ \varepsilon \end{matrix} \right\} \# \end{cases}$$

Figure 1. The palatalization pattern of consonant clusters [bl] and [d̪r]

The figure 1 means that the consonant cluster /bl/ is pronounced as [bl^j] or palatalized when it is in the first syllable (initial position) or second syllable (middle position) and followed by [a] or [ɛ] for example the words in (10). The pattern on the figure 2 is also applicable to the consonant clusters with [r]. The consonant cluster /d̪r/ is pronounced as [d̪r^j] or palatalized when it is in the first syllable (initial position) or second syllable (middle position) and followed by [a] or [ɛ] for example the words in (20). This pattern can be used for all the consonant clusters to identify the pattern of palatalization in the *Osing* dialect. The patterns above are also applicable for the consonant clusters [mb], [n̪d̪], [nd], [ŋɟ].

The researchers also provide an analysis the feature changing on the pattern of palatalization in the figure 2. The following figure shows the feature of each consonant in the cluster, the changing feature to show the palatalization and the trigger features.
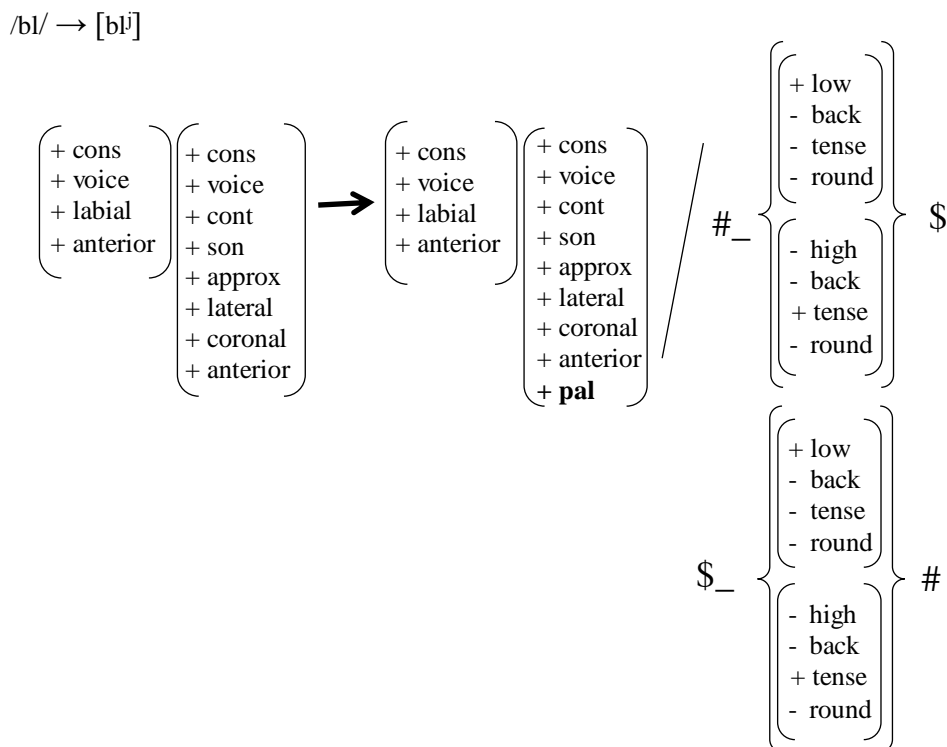
$/bl/ \rightarrow [bl^j]$

Figure 2. The phonological process of consonant clusters palatalization /bl/

$$/\underset{\sim}{d}r/ \rightarrow [\underset{\sim}{d}r^j]$$

$$\begin{bmatrix} + \text{cons} \\ + \text{voice} \\ + \text{coronal} \\ + \text{anterior} \\ + \text{distr} \end{bmatrix} \begin{bmatrix} + \text{cons} \\ + \text{voice} \\ + \text{cont} \\ + \text{son} \\ + \text{approx} \\ + \text{thrill} \\ + \text{coronal} \end{bmatrix} \rightarrow \begin{bmatrix} + \text{cons} \\ + \text{voice} \\ + \text{coronal} \\ + \text{anterior} \\ + \text{distr} \end{bmatrix} \begin{bmatrix} + \text{cons} \\ + \text{voice} \\ + \text{cont} \\ + \text{son} \\ + \text{approx} \\ + \text{thrill} \\ + \text{coronal} \\ + \textbf{pal} \end{bmatrix} \Bigg/ \#\_ \left\{ \begin{bmatrix} + \text{low} \\ - \text{back} \\ - \text{tense} \\ - \text{round} \end{bmatrix} \\ \begin{bmatrix} - \text{high} \\ - \text{back} \\ + \text{tense} \\ - \text{round} \end{bmatrix} \right\} \$$$

$$\$\_ \left\{ \begin{bmatrix} + \text{low} \\ - \text{back} \\ - \text{tense} \\ - \text{round} \end{bmatrix} \\ \begin{bmatrix} - \text{high} \\ - \text{back} \\ + \text{tense} \\ - \text{round} \end{bmatrix} \right\} \#$$
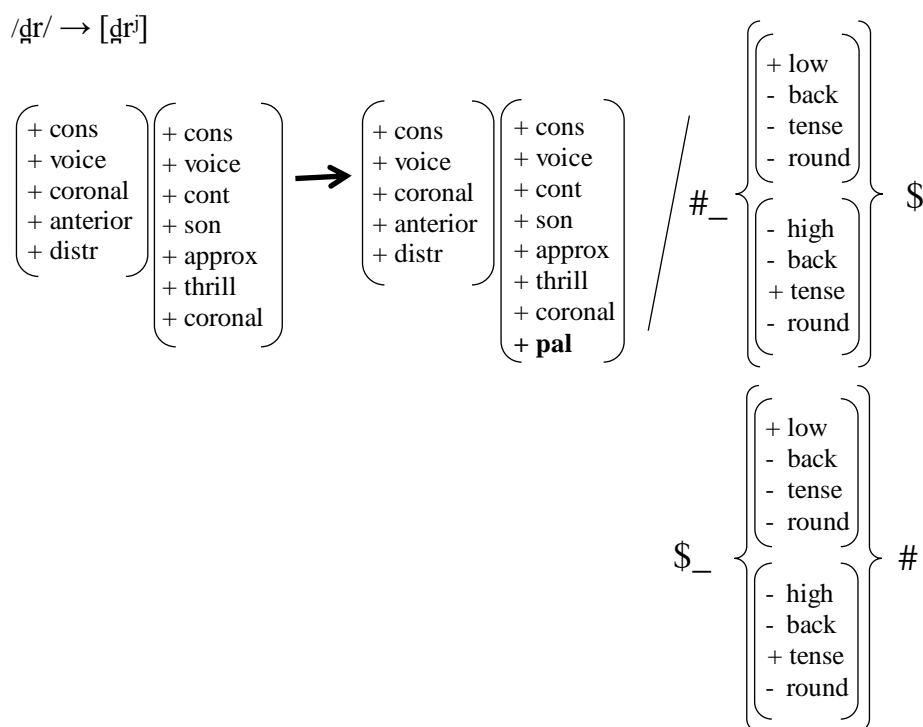
Figure 3. The process of consonant clusters palatalization /$\underset{\sim}{d}$r/

On the figure 2 and 3, we can consider the features of the consonant cluster /bl/ and /$\underset{\sim}{d}$r/. Both of the consonants in the cluster have voiced or [+voice] feature. Then, they are pronounced into the palatalized form as [bl^j] and [$\underset{\sim}{d}$r^j] when they are followed by the vowel [a] and [ɛ] which have [+front] and [-high] features. The feature changing is on the matrix after the arrow sign. Here, the feature [+pal] means the additional feature to show the existence of palatal sound symbolized by the superscript [^{j}]. This [+pal] symbol differentiates the feature of the consonant and simplifies the palatalization marker.

Based on the feature analysis above, the features of the initial consonant in the consonant cluster /bl/ do not change, for example /b/ has [+consonantal] [+voice] [+labial] and [+anterior] features and it is pronounced as [b]. Whereas, the /l/ as the final consonant in the cluster is changed by adding the [+pal] feature. The general features of /l/ are [+consonant], [+voice], [+continuant], [+sonorant], [+approximant], [+lateral], [+coronal] and [+anterior]. However, the /l/ is pronounced as [l^j] which it has an additional [+pal].

Similar with the figure 2, the features of the initial consonant in the consonant cluster /$\underset{\sim}{d}$r/ do not change, for example /$\underset{\sim}{d}$/ has [+consonantal] [+voice] [+coronal] [+anterior] [+distributed] features and it is pronounced as [$\underset{\sim}{d}$]. Whereas, the /r/ as the final consonant in the cluster is changed by adding the [+pal] feature. The general features of /r/ are [+consonant] [+voice] [+sonorant] [+approximant] [+thrill] [+coronal]. However, the /r/ is pronounced as [r^j] which it has an additional [+pal] feature to show the palatalization feature.

5. Conclusions

The requirements of palatalization are different from one language to another. The palatalization is also caused by different aspect to classify the target and the trigger. In this case, the palatalization in the *Osing* dialect has a pattern that the target sounds followed by the trigger sounds. The trigger sounds are front vowel sounds [ɛ] and [a] as shown in the example. Although, [l] and [r] are the targets in the *Osing* palatalization but they are not always palatalized especially in the consonant cluster forms.

Of 21 consonant clusters of the *Osing* dialect, some of them cannot undergo the palatalization. There are two classification toward the feature analysis of the consonant clusters. The first group is the consonant clusters [bl], [d̪l], [gl], [ɟl], [br], [d̪r], [gr], [ɟr] and the consonant clusters [mb], [nd̪], [nd], [nɟ]. All of the consonants in this group have [+voice] feature. Whereas, the second group is [pl], [tl], [cl], [kl], [sl], [pr], [tr], [cr], [kr], [sr]. In this second group, the consonants with [+voice] feature are [l] and [r] only.

Based on the analysis, the target sounds (the consonant cluster) undergo the palatalization are the consonant clusters [mb], [nd̪], [nd], [nɟ], [bl], [d̪l], [gl], [ɟl] [br], [d̪r], [gr], [ɟr]. Here, each consonant in the clusters has [+voice] feature as the characteristic of the target sounds. Meanwhile, the consonants clusters which only have one consonant with [+voice] feature are unpalatalized although they are followed by the trigger sounds.

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