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Glottal Stop /ʔ/ Strategy in Adaptation of Malay Loanwords in Bugis Language based on Output-Output Correspondent Analysis

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Abstract
Bugis are one of Malaysia's minority communities. Bugis communities use loanwords as a way of ensuring smooth communication. While the Bugis community tries to absorb all Malay loanwords into the Bugis language, a phonological process prevents the Malay lexicon from being fully absorbed. This process is called the glottal stop /ʔ/. The fieldwork was conducted at two places in Johore state: Pontian and Pasir Gudang. The fieldwork was also conducted in the Selangor state at Pandamaran, Klang. A questionnaire containing a section on the informant's background and a word list was prepared for the interview session with 200 Bugis respondents. By using the Output-Output correspondent in Optimality theory, this study will address some of the emerging issues; Firstly, what is the intent of using glottal stop /ʔ/ strategy in the Bugis language loanwords adaptation? Secondly, what constraints are used in the glottal stop /ʔ/ strategy in the Bugis-language loanwords adaptation using Optimality theory (OT) and OO-Correspondence (OO-Cor). The study shows that there are two main reasons why a glottal stop occurs, firstly, as a syllable closure and secondly, as a consonant substitution. Based on TO and OO-Cor analysis, Malay loanwords must comply with *IDENTICAL LEXICAL constraint of production output in Bugis language. The results of this study have contributed to the development of the Bugis language study from a linguistic point of view using Optimality and Correspondence-OO theory.
Keywords: Loanwords, Bugis Language, Malay Loanword, Minority, Optimality Theory.

Introduction

This research will discuss the strategy of glottal stop /ʔ/ in the adaptation of Malay loanwords in Bugis Language. The Bugis community is a minority community in Malaysia that migrated

from Sulawesi, Indonesia. According to Thomason (2001), anything can be borrowed if any contact is intense enough and lasts long enough. Conflict between a dominant language with a minority language may cause the minority to steal vocabulary from the majority language. Consequently, the words are borrowed in such a linguistic transition. Hartman and Strok (1972) state that language contact occurs due to the frequency of different language speakers. Also, language contact has caused bilingual symptoms, lending, and linguistic changes.

Language contact is considered to be one of the most common linguistic phenomena due to the flexible nature of languages. According to Brown and Miller (2013), language communication applies to circumstances in which speakers of different languages come together daily. It culminates in borrowing words, phonetic features, and grammatical constructs of each other and dominant for survival, and conversely for non-dominant languages. For starters, several terms from other languages are inserted in English. Mango, curry, and guanxi (McCrum et al., 1986; 2002; Baugh and Cable, 1993) are the most recent.

At the same time, the phenomenon of language contact is more probable to appear in minority groups. When a minority community lives in an area with a more dominant society and speaks a more dominant language, it will lose the power to speak its mother tongue. Also, as the minority community intends to assimilate with the dominant community, the best strategy for ensuring minority community communication is to borrow the dominant language. For example, in the United Kingdom, an English-speaking nation, there is also a minority usage of languages that can be traced back to Somers (1997) discussion. Among these minorities are Gujarati, Punjabi, Urdu, Hindi for Indian, Punjabi, and Urdu for Pakistani, and Bangla, Sylheti for Bangladeshi.

The same thing happened to the minority Bugis community who speak the Bugis language. The Bugis community is a group of people who moved from South Sulawesi, Indonesia, to Malaya, particularly Johor. Rusdiansyah and Isnendes (2018) state that Bugis was the most prominent language used in South Sulawesi in daily communication and is still used in South Sulawesi to this day. As the Bugis people continued to relocate and became a minority, they needed to adjust to the Johor-Riau culture that became the dominant group there. As a result, the usage of Bugis started to decline because of the need to learn and use the Malay language, which is more prevalent in Johor.

Regarding the contact language phenomena, this study will address some of the emerging issues (1) what is the intent of the Glottal Stop /ʔ/ strategy used in the Bugis-language loanwords adaptation and (2) the set of constraints used in the Glottal Stop /ʔ/ strategy in the Bugis-language loanwords adaptation using Optimality Theory (OT) (Prince and Smolensky, 1993) and OO-Correspondence (OO-Cor)

Bugis Community perspective and phoneme inventory

More than four million Bugis are estimated to live throughout South Sulawesi, and the majority are Muslim. In addition to the Toraja, Mandar, and Makassar peoples, the Bugis population is also found in South Sulawesi, Indonesia (Harun et al., 2013). According to Omar et al (2009), the Bugis have been migrating to the Malay Peninsula for centuries, mainly to Johor.

Sailing, travelling, trading, and sightseeing are the living traditions within the Bugis community. Bugis sailors have developed a maritime culture over the past several centuries as a nation known for its sailing activities. The influx of the large Bugis community to the Malay peninsula happened in the colonial period, lasted through the last quarter of the 19th

century, and has continued to the present day. The majority of Bugis chose Johor as their migration destination. Various villages were established in different parts of Johor due **to** their explorations. The most valuable aspects of the Johor's past are their forest and rural settlements.

According to Macknight (2012), orthography has yet to be agreed upon to present Bugis using Latin. However, this study has used transcription to translate every consonant and vowel available in Bugis. As a result of translation and transcription, this study has successfully listed Bugis consonants and vowels. Some vowels in Bugis are / u /, / o /, / a /, / é /, / i /, and / e /.

Table 1
Consonant in Bugis languag

	Occulasive		**Nasal**	**Fricative**	**Lateral**	**Trill**
	voiceless	**voiced**				
Labial	p	b	m	w		
Dental	t	d	n	s	l	r
Palatal	c	j	ny	y		
Velar	k	g	ng			
Glottal				h		

Some of the topics in this analysis are that the vowel or lexical does not occur at the end of a word in the Bugis language, but if the last segment of a word is a vowel, it ends with /ng/. Even the Bugis language has morphological features, including an emphasis on lexical. Nevertheless, if the word is a loanwords, the emphasis on verbal does not apply. Most loanwords found in Bugis come from Makassar.

In addition to the research by Macknight (2012), which centred on language issues, many studies have concentrated on the historical and cultural dimensions of the Bugis culture. Narifumi Maeda Tachimoto's (1994) work is among the listed studies. This study focuses on the changes in the Bugis who migrated and settled in southern Malaysia's peninsular. Based on interviews, research findings, and observations, the study discusses the macro changes happening in Johor Malaysia's Bugis community and surrounding areas and the changes observed by citizens in the group. The selected studies covered areas including Pontian, Kukup, Sg. Karang, and more.

The research conducted by Afkari et al (2011) has also discussed the arrival of Bugis into Malay society. According to the study, the Bugis community comprises people who tend to move or migrate to new places. The migration of the Bugis to the area is still ongoing. Though the Bugis population is not so well known due to the scarcity of written and oral resources, their presence can be seen mainly in Indragiri Riau, especially in coastal settlements, rivers, and ditches.

Omar et al (2009) also studied the Bugis culture and explored the history of the Bugis community from the point of their arrival in Malaya. According to the study, this practice is called roaming since the Bugis people moved out of their hometowns in search of new lives and settlements. At the same time, the study also stated that the date of the Bugis' arrival in Johor still needs to be determined. Usually, the early appearance of the Bugis community is traced back to the early 18th century due to the presence of the descendants of the five Bugis nobles- Daen Pareng, Daeng Manambun, Daeng Marewa, Daeng Cella and Daeng Kumasi.

Methodology

The qualitative approach has been used for the study. Heigham & Croker (2009) suggest that qualitative research is an overarching word used to refer to diverse and changing study methodologies. This study uses various data collection methods, such as observations, interviews, questionnaires, verbal reports, diaries, discourse analysis, etc. The questionnaire was designed in this analysis to collect details on the respondents' background and the loanwords data in Bugis. Therefore, to manage the respective data, the questionnaire was split into two parts, Part A and Part B. Section A focused on the background details of the respondents. At the same time, Section B comprised a list of words to obtain loanwords-related data in Bugis. The word list strategy was performed by requesting the respondent to translate each specified word list into the Bugis language. Both translations were reported in the transcript using the phonetic symbol.

Omar et al (2009) states that the Bugis community can be traced to several settlements that exist to this day. They are distributed in several villages in Johor, such as Benut, Sungai Karang, Serkat, Ayer Masin, Ayer Baloi, Sungai Pinggan, Jeram Batu, Kluang River, Frozen Oil, Sungai Punggur, Pengerang, Muar, Bracelet and around Pekan Nenas. There are even some villages where the majority of the population is Bugis. Therefore, to obtain primary data, several villages were visited during the field study, namely Batu Hampar village, Belokok Village, Sungai Kuali Village, Jelutong Laut, Parit Archong, and Pekan Nenas located in Pontian, Johor as well as in Pasir Putih village in Pasir Gudang, Johor. Apart from these areas, field studies were also conducted at the Bugis settlement in Pandamaran, Klang, Selangor.

A field study interview with the Bugis community was also performed. The discussion aimed to collect details other than those in the word list, which could be a loanword in Bugis. At the beginning of the field study session, the respondents were informed of the analysis being done, and then the interview was continued with the respondents. Various informal interview topics were chosen, and the respondents were asked to discuss that in Bugis. At the same time, recordings were made to record data from respondents for use in the study. The recording was saved, and, at the same time, the data was reproducible to identify any lexical terms of the loanwords.

Optimality Theory and Correspondence Theory

Before analysing the data using OO-correspondents, it is essential to explain what OT is and how correspondents adapt these Bugis language loanwords. OT starts with generative phonology, aimed at establishing a sound system theory that can deeply clarify their linguistics and potential connections (Prince & Smolensky). For this specific goal, OT was created based on basic concepts for arranging phonological systems. There are three essential points: (1) the role of the target output, (2) the intrinsic relationship between change and change conditions, and (3) the universality and differences.

OT was first introduced by (Prince and Smolensky, 1993; McCharty and Prince, 1993). OT does not use a derivative of the rewrite formula in its analysis but operates on the constraint level. Considering that all constraints are universal, that constraint is important for users of this theory because the argument regarding the constraint position must be valid and thorough to ensure that it is versatile as emphasized in this theory (McCarthy, 2002). Candidates are compared by applying a reversible hierarchy of constraints (McCarthy, 2002). The constraints on the lower levels can be minimised to comply with those on the higher levels. Candidate that violates the higher constraint in the ranking will be eliminated, while candidate that is not, will be considered for further evaluation as an optimal output.

Kager (1999) insists that the optimal output is the output of a few constraints at a low level. The five principles of TO are as follows (McCarthy and Prince, 1994): universality, violability, ranking, inclusiveness, and parallelism. TO analysis involves input (internal representation), output (external representation), and the relationship between the two. The GENERATOR (GEN) and EVALUATOR (EVAL) communicate the relationship between input and output. The GEN generates a set of outputs corresponding to different syllable structures from one input to another. GEN is universal, which implies that GEN from the same input in each language creates each candidate. Although GEN is universal, it should generate the least possible candidates. Still, it can meet a hierarchical and language-specific constraint system and can play a role in examining and evaluating the quality of the model of each candidate. EVAL often wants to organise each candidate in a harmonious arrangement, with the actual output at the highest level (McCarthy, 2002).

OT is selected for data analysis as OT can expect multiple outputs from the same input. GEN and EVAL play a significant function based on the OT. The generator will generate different outputs, and the EVAL will evaluate each output. OT solves the problem of producing the same output as a part of various formulas or so-called conspiracies. OT addresses this conspiratorial issue by having the further option of output. The EVAL will examine each of these depending on the constraint stage until the optimal output emerges. The use of OT to address the issue of loanwords in Bugis is indeed appropriate. It should be used to generate the desired output, because requirements and structural adjustments are continually being evaluated, with specific potential options dependent on constraints. Thus, OT predicts that barriers to access will stimulate various structural changes, depending on the interaction with the constraints of faithfulness. Therefore, the use of OT allows for a broader and more comprehensive range of solutions based on various languages, as stated by Kager (1999), "Different languages should, therefore, pursue different 'repair strategies' in admitting identical outputs goals."

Throughout time, such a theory keeps continually changing and developing. Many new methods have been established in OT to address phonological phenomena relevant to the surface representation. Correspondence theory was created by (McCarthy & Prince, 1995). This theory provides a framework to explain the constraints of faithfulness. The framework proposes that each candidate the generator gives will signify output representation and the relationship between input and output. According to McCarthy & Prince (1995), the fundamental issue in OT is the fidelity of representation relations. In addition, the theory of Correspondence can understand the fidelity between input and output forms. The definitions of Correspondence theory are as follows:

> *Given two strings S_1 and S_2, correspondence is the relation R between the elements of S_1 to those of S_2. Elements $\alpha \in S_1$ and $\beta \in S_2$, are referred to as correspondents of one another when $\alpha R \beta$*
>
> *(McCarthy & Prince, 1995, p. 262)*

S_1 is input while S_2 is output. The relationship between S_1 and S_2 is referred to as the correspondent-IO relationship. IO correspondents are often used in OT analysis to show the relationship between input and output in language data. Besides, several correspondent relationships are based on the Correspondence theory as found in the Full Model. The following figure corresponds to the correspondence found in the Full Model:

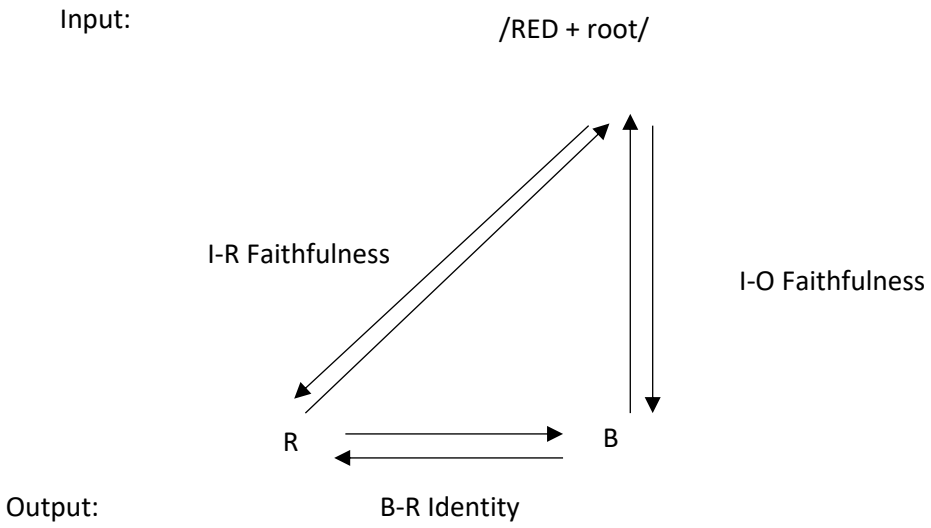

Figure 1 Full Model

Figure 1 above shows the Full Model of correspondence theory. However, the model is based on the reduplicative phenomenon that occurs in a language. Based on diagrams other than correspondence-IO, there are also input and base (IB), base and reduplicant (BR), and input and reduplicant (IR) correspondents. Benua (1997) has developed the Output-Output Corresponding approach. Such OO-Cor takes maximum advantage of the function of the markedness constraint (McCarthy & Prince 1995) and can overcome the loan adaptation (Smith, 2006). The entire idea of this approach is that words related to input and output in a single language should be transderivational or output-output (OO) correspondents through their input-output relationships. The related words are generated simultaneously across a hierarchy of constraints. The OO-Cor Scheme proposed by Benua (1997) is as follows

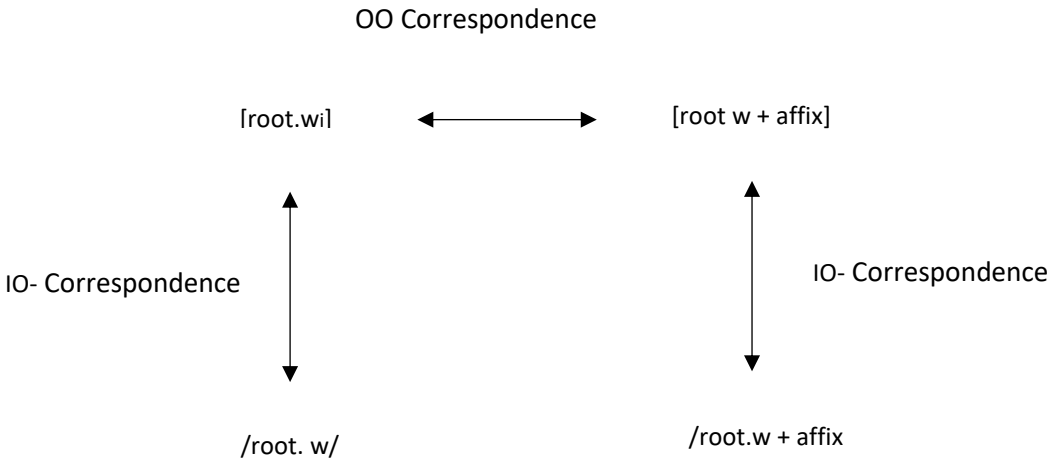

Figure 2 The OO-Cor Scheme

According to Benua (1997), the core point of this correspondence is that words must have the same phonological identity and that an identity connection occurs between the two

surfaces. This approach goes beyond individual input-output mapping and is analysed based on the form of the object. This OO-Cor constraint produces a cyclic effect without deriving the cycle to adhere to the similar OT principle that does not allow derivation in stages. Related words need to have the same phonological identity based on OO-Cor constraints while at the same time adhering to internal forms based on the IO-constraint.

The interaction between this correspondent and the loanwords adaptation is addressed in the context of the loanwords. The modification of the loanwords includes phonological similarities between the surface forms (in this instance, the source language of the borrower's language) and the various degrees of faithfulness included in the input-output correspondence. Loanwords adaptation differs from morphological derivation, in which the surface form shows the effect of phonological similarities involving introducing a foreign surface into a native language. If the words are derived from the source language into the borrower's language, phonological features may not be included in the loan language. Such types can be configured in a variety of ways. Occasionally non-native components undergo a complete nativisation phase through which the borrower's phonetic language is eliminated, and changes are rendered to suit the borrower's internal language. Based on this adjustment, the markedness constraint is higher than the faithfulness constraint (Yip, 1993; Jacobs & Gussenhoven, 2000).

This loan adaptation scenario involves a system outside the borrower's phonological language. The cycle of nativisation and preservation of non-native elements has been examined as an outcome of similarity constraints that connect the loanwords to its source language structure. Therefore, using OO-Cor is based on the idea that some of the words formed are evaluated not only by their inputs but also by other words or outputs (Ferreira, 2004).

Furthermore, OO-Cor was chosen in this study because, based on the statement made by McCharty & Prince (1994), it suggests that correspondent relations occur not only at the input-output and base-reduplicant level but also include the lexical relationship. This confirms that using OO-Cor is appropriate as an OT approach in analysing the relationship between two verbal texts from two different languages. This is because McCharty & Prince (1994) propose to look at the phonological phenomena between these two languages using the Tranderivation Correspondent Theory (TCT) approach. The basis of this proposal is that the derivation of a lexical object requires a phonological constraint which is at the level of the identity relation between the two lingual surfaces, and the relation is TCT or OO-Cor.

Discussion

In Bugis loanwords adaptation, the glottal stop strategies occur. The glottis stop process occurs in the last syllable in the coda position. Glottis stop is a consonant sound produced and released at the glottis. Furthermore, glottis stops generally refer to stops made in the glottal part and remain within the closure of the vocal folds (Garellek, 2013). Based on the adaptation of loanwords, the glottis stop process is a strategy in the absorption of loanwords (Chang, 2003). Here are the data:

Table 2
Bugis language loanwords data for glottal stop process

Source language	Phonetic representation	Bugis language	Phonetic representation	Ethimology	Meaning
dapur	dapu**r**	dafok	dafo**ʔ**	Melayu	Kitchen
angkat	aŋka**t**	akak	aka**ʔ**	Melayu	lift
joget	d͡ʒoget	majogek	mad͡ʒogeʔ	Melayu	dance
manggis	maŋgis	manggisik	maŋgisiʔ	Melayu	mango
siku	siku	sikkuk	siʔkuʔ	Melayu	elbow
sudu	sudu	suruk	suruʔ	Melayu	spoon
senduk	sənduʔ	sanderuk	sandəruʔ	Melayu	spoonful

As stated in Table 2, the existence of glottal stops has two roles. Based on the above data, the existence of a glottal stop in the language is to replace a consonant and when the final syllable of the word ends with a vowel. Only a few consonants are allowed to be present at the position of the coda, and one of them is the glottal stop consonant. Table 2, shows that the consonants / r / and / t / in the position of the coda have been replaced with the glottis stop. Both consonants are alveolar. At the same time, this glottis stop is also inserted in the position of the coda to change the syllable from an open syllable to a closed syllable. As mentioned in Table 2, the strategy used in the adaptation of this loanwords is when the lexical loanwords has a consonant that is not permitted to be present at the position of the coda, it will not be deleted but, will have a vowel of the same height or higher existing at that previous position of the consonant. For example, /dapur/ changes to [dafoʔ], the /r/ consonant is not permitted to be present at the position of the coda, so one vowel will be present, which is the vowel / e /, the middle vowel. The vowel/a / is the middle vowel, which is higher than the previous vowel. So, at this stage, the role of the glottis stop as a closure syllable is present.

The glottis stop process strategy has been clarified, and it is found that the occurrence of the glottal stop is used as syllable closure and consonant substitution. The glottal stop process occurs when a glottal stop consonant replaces a segment. The following is the loanwords absorption scheme for the glottis stop replacement process:

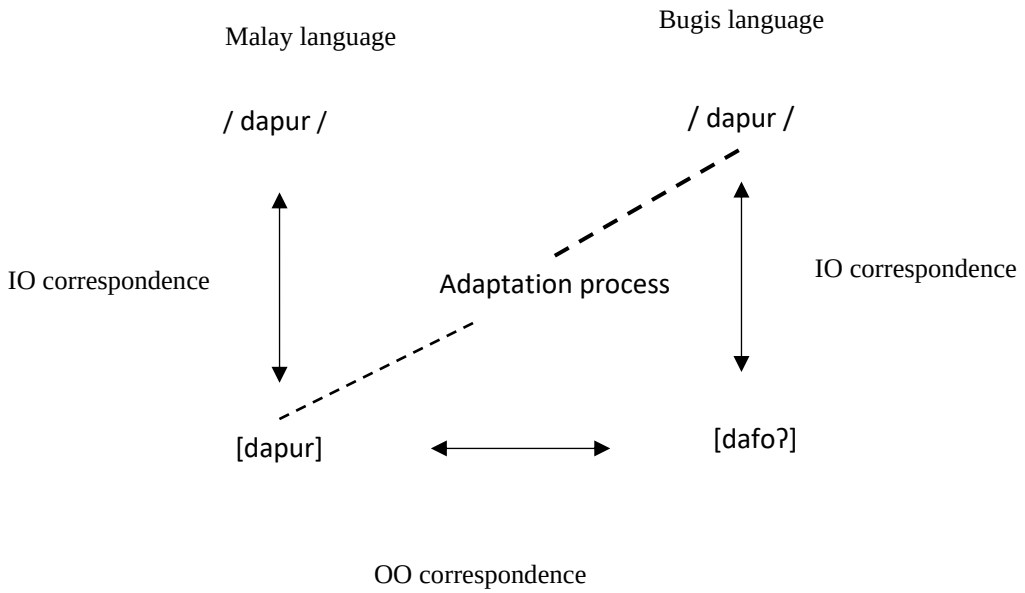

Figure 3 Loanwords adaptation scheme in Bugis language for glottal stop substitution process.

Figure 4 Structural changes as a result of glottal stop substitution

As shown in Figure 4, the first candidate generated in this evaluation is [dafoʔ]. Based on the candidate's response, the constraints violated in this evaluation are IDENT[F] -OO and NOCODA. IDENT [F] or IDENTICAL (features) constraints do not allow feature changes. Because the constraints are faithfulness and the correspondence between Malay and Bugis output, the correspondent involved are OO-Correspondence. The effect of IDENT[F] will be IDENT [F] -OO. Furthermore, NOCODA constraint belongs to the family of markedness constraints. NOCODA are the constraints that do not permit presence of coda in syllable. As the idea of the OO-Correspondent fully utilized the constraints of markedness, there was no change in the constraints.

The next candidate generated the output of the source language, that is [dapur]. Based on the evaluation of the candidate, the constraints that have been violated are *IDENTICAL LEXICAL and NOCODA. The *IDENTICAL LEXICAL constraints do not allow the same two lexical forms to exist in the lexicon. Because of the candidate, [dapur] is input in Bugis and, simultaneously, is the output generated in the Malay language under the same lexicon. The candidate [dapur] has violated *IDENTICAL LEXICAL constraints. Just like the NOCODA constraints, the *IDENTICAL LEXICAL constraint is also under the markedness family, so there is no change in the control.

The last candidate generated in this assessment is [dapu:]. The constraints violated are * LV, MAX-OO, and DEP-OO. *LV constraints do not allow the existence of long vowels. These constraints belong to the markedness family. Therefore, the constraints have remained the same. In contrast to the MAX or MAXIMALITY constraints, these constraints are under the

same family of faithfulness as IDENT [F] -OO constraints. These constraints do not allow any deletion to occur. DEP or DEPENDENT constraints do not allow any epenthesis or insertion to occur. Since both constraints are under the family of faithfulness, the correspondent involved is OO-Cor. Here's an analysis of the tableau:

***LV**
No long vowel

IDENT[F]-OO
No feature change
***IDENTICAL LEXICAL**
Two identical lexical items in the lexicon are not allowed
DEP-OO
Every segment must have correspondent.
NOCODA
Syllables are open
/ dapur/ ⟶ [dafoʔ]
*IDENTICAL LEXICAL>>*LV>>IDENT[F]-OO>>NOCODA>>DEP-OO

/ dapur/	*IDENTICAL LEXICAL	*LV	IDENT[F]-OO	NOCODA	DEP-OO
☞a. dafoʔ			*!	*	
b. dapur:	*!			*	
c. dapo:		*!			*

The tableau above shows that candidate (a) has succeeded as an optimal candidate for evaluating this nasal substitution process. Candidate (b) has lost in this evaluation due to the *IDENTICAL LEXICAL constraints at the heaviest hierarchy in the tableau. The main reason candidate (b) fails to be optimal is because candidate (b) is a full-term adaptation loanwords. Therefore, the *IDENTICAL LEXICAL constraint does not allow the two lexical forms to exist in the lexicon, so candidate (b) has lost. At the same time, candidate (c) has lost by violating the *LV constraints, which are in the second position of the tableau constraint hierarchy. Therefore, only candidate (a) can be the optimal candidate. Therefore, the set of constraints used in the nasal replacement strategy is *IDENTICAL LEXICAL>>*LV>> IDENT[F]-OO>>NOCODA>>DEP-OO.

Conclusion

Overall, this study discussed the glottal stop process in loanwords adaptation in the Bugis language. Based on the analysis, it is clear that glottal stop is one of the strategies used in loanwords adaptation in Bugis. This phonological adaptation strategy used in the language is to ensure that the Malay lexical that has been absorbed into Bugis language is acceptable in the sense that the words meet the grammatical system of the Bugis language. This happens due to the phonology rules that are to be obeyed. The main findings show that there are a couple of reasons of the presence of glottal stop in Bugis language namely, syllable closure and consonant substitution. Based on OO-Cor analysis, the absorption of Malay loanwords must comply with a set of constraints, namely *IDENTICAL LEXICAL>>*LV>>IDENT[F]-OO>>NOCODA>>DEP-OO. According to the correspondence approach, the relationship

between the source language and the borrower's language is Bugis language which can be discussed simultaneously without violating the concept of parallelism in OT.

This research has also led to the interpretation of language communication with various grammatical systems. Bugis has a distinct grammatical form from most of the source languages. Since the Bugis language is a minority language, most sources, such as Malay, can impact Bugis through linguistic loanwords. Words derived from the language borrowed by the speakers have undergone a cycle of modification to follow the grammatical restrictions of the Bugis language while attempting to retain as much source language information as possible. At the same time, this work has led to the creation of the Bugis language review from a linguistic point of view, focusing on OT and OO-Cor research. The study of the Bugis community from a linguistic point of view should be emphasised more by the researchers who conducted the Bugis community study. It is therefore hoped that this study will provide additional information to researchers interested in studying the Bugis community, particularly from a linguistic point of view.

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