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Adaptation of Vowel and Consonant Sequences in Bawean Language: An Optimality Theory Analysis

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ABSTRACT

Using Optimality Theory, this study investigates the phonological adaptation of consonant and vowel sequences in the Baweanese language. Baweanese, spoken on Bawean Island, contains lexical items of Malay, English, and Javanese origin and exhibits distinct phonological characteristics shaped by language contact. The primary aim of this study is to document Malay loanwords in Baweanese, examine the phonological processes involved in their adaptation, and analyse these processes within an Optimality Theory framework. The study adopts a qualitative approach based on fieldwork and interviews with native Baweanese speakers from Kampung Telok Sengat, Johor. The findings reveal systematic phonological processes, including changes in vowel quality and the substitution of the voiced affricate /ʤ/ with the voiceless affricate /ʧ/. These adaptations reflect the influence of phonotactic constraints such as MAX-IO, CODA, and IDENT-IO, which are shown to interact in a specific hierarchical ranking. A total of 38 loanword samples provided by native speakers formed the empirical basis of the analysis. Overall, the study contributes to the understanding of phonological adaptation in Baweanese and demonstrates the applicability of Optimality Theory in the analysis of loanword phonology.

Keywords: Baweanese language; lexical borrowing; phonological adaptation; vowel sequences; Optimality Theory

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1.0 Introduction

According to Nik Safiah Karim (2003), a language develops either through internal word-formation processes or by borrowing from other languages. One of the fundamental roles of language in society is to facilitate communication and establish social relationships. Bawean, also known as Boyan, is a small island located in East Java. The language spoken on the island, Baweanese (or Boyanese), is often classified as a branch of the Madurese language. However, Baweanese speakers generally resist being identified as Madurese, as the Bawean community originates from a mixed ethnic heritage (Eva Dwi Wijayanti, 2016).

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Historically, Javanese and Sumenep (Madurese) communities have constituted the two major ethnic groups on Bawean Island. Following the spread of Islam, the Madurese ethnic group played a central role in establishing religious institutions within Bawean society (Kartono, 2003). Islam has since remained the sole religion practised on the island. One explanation for this cultural configuration is that a significant portion of the Bawean population traces its ancestry to Madurese ethnic origins.

From a linguistic perspective, the close structural similarity between Baweanese and Madurese has led to Baweanese being frequently misidentified as a variety of Madurese. Utami (2018) notes that Madurese belongs to the Malayo-Sumbawan language group, with Malay functioning as a regional lingua franca. This classification reflects prolonged contact among Madurese, Sumbawan, and Malay-speaking communities, resulting in sustained linguistic interaction and, in some contexts, creolisation. Migration has further intensified this contact, particularly as Baweanese speakers relocated to Malaysia. Consequently, Baweanese has incorporated a substantial number of lexical items from Malay, English, and Javanese.

In situations of lexical borrowing, phoneme substitution and phonological accommodation commonly occur as loanwords are adapted to the phonological system of the recipient language. Given Baweanese's extensive contact with Malay, English, and Javanese, the absorption of foreign lexical items is inevitable. This adaptation process frequently involves modifications to vowel and consonant phonemes in order to conform to the structural constraints of Baweanese phonology (Asisda, 2016). As Nik Safiah Karim (2003) observes, language evolution through word formation and lexical borrowing often entails phonological restructuring to meet the phonotactic requirements of the borrowing language.

As a result of sustained language contact, Baweanese phonology differs from that of Malay dialects in several respects, particularly in processes such as consonant and vowel substitution, insertion, and other forms of segmental adaptation (Zaharani, Nor Hashimah & Shariffulizan, 2011; Sakinah & Sharifah Raihan, 2018). Although Baweanese speakers assert a distinct linguistic identity, the language continues to be compared to Madurese due to shared grammatical features (Eva Dwi Wijayanti, 2016). Previous studies on Baweanese have primarily focused on cultural identity, loanword variation, and morphological structure (Tri Joko, 2016; Ridhwan et al., 2018; Andayani et al., 2020). However, the phonological mechanisms involved in loanword adaptation, particularly the adjustment of vowel and consonant sequences to satisfy Baweanese phonotactic constraints remain relatively underexplored.

To address this gap, the present study applies Optimality Theory (Prince & Smolensky, 2004; McCarthy, 2008) to analyse the phonological adaptation of loanwords in Baweanese. Optimality Theory provides a formal framework for explaining how surface forms emerge from the interaction between markedness and faithfulness constraints, offering a principled account of phonological restructuring in borrowed lexicons.

The remainder of this paper is organised as follows. Section 2 reviews relevant literature on phonological adaptation and loanword integration. Section 3 outlines the methodology and data collection procedures. Section 4 presents the findings and Optimality Theory analyses, and Section 5 concludes the study with a summary of findings and directions for future research.

1.1 Phonological Adaptation Processes of Loanwords

It is evident that loanword adaptation in the Baweanese (Boyanese) language involves distinctive phonological processes that differentiate it from other Malay dialects. Previous studies have examined a range of phonological phenomena in Malay dialects, including the behaviour of vowel sequences in Johor, Kedah, Perak, and Kelantan Malay (Zaharani, Nor Hashimah & Shariffulnizan, 2011). Additional research has focused on consonant adaptation strategies in the Kelantan Malay dialect when borrowing from English (Sakinah & Sharifah Raihan, 2018), as well as on vowel harmony and degemination in Arabic loanwords adapted into Malay (Zaharani, Nor Hashimah & Maizura, 2013).

Insights from these studies provide a useful comparative foundation for understanding phonological adaptation in Baweanese. However, to account for the systematic patterns observed in Baweanese loanwords, a formal theoretical framework is required. Optimality Theory (Prince & Smolensky, 1993)

offers an appropriate model for analysing such phenomena, as it explains surface-level phonological outcomes as the result of interactions between hierarchically ranked, violable constraints. Within this framework, the phonological processes affecting loanwords in Baweanese can be analysed as adaptive strategies that resolve conflicts between markedness and faithfulness constraints. Moreover, the use of Optimality Theory enables the analysis to address key aspects of linguistic inquiry, including description, explanation, and empirical observation.

1.2 Objectives of the Study

This study is guided by a set of interrelated objectives. First, it aims to identify Malay loanwords that have been incorporated into the Baweanese language, with particular attention to the range and characteristics of these borrowings. Second, the study seeks to describe and explain the phonological changes that occur during the adaptation of Malay loanwords into Baweanese, focusing on modifications to vowel and consonant sequences. Finally, the study applies Optimality Theory, as developed by Prince and Smolensky (1993), to account for these phonological processes. By modelling loanword adaptation through ranked constraints, the research provides a systematic explanation of the mechanisms governing sound change in Baweanese and contributes to broader discussions of phonological theory, language contact, and linguistic change.

1.3 Problem Statement

Previous research on the Baweanese language has largely focused on sociocultural identity, lexical variation, and morphological structure. For instance, Tri Joko (2016) examined the historical and cultural foundations of Baweanese identity, while Eva Dwi Wijayanti (2016) documented dialectal variation within Baweanese-speaking communities. Similarly, Ridhwan et al. (2018) investigated intergenerational patterns of language use, and Andayani et al. (2020) analysed morphological features, characterising Baweanese as a creolised variety related to Madurese.

These findings are important, but there is still little systematic research on phonological adaptation, especially at the segmental level. More significantly, no previous research has used Optimality Theory to take into consideration the adaptation of vowel and consonant sequences in Baweanese loanwords. Given Baweanese's close contact with Malay and other languages, this is a glaring omission in the literature.

The current study examines the phonological adaptation of Malay loanwords in Baweanese by concentrating on vowel and consonant sequences and analyzing these processes using an Optimality Theory framework to close this gap. In doing so, the study advances Austronesian linguistics and loanword phonology research by providing empirical information and theoretical understanding.

2.0 Literature Review

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Optimality Theory (OT) provides the principal theoretical framework for this study, particularly for analysing the adaptation of vowel and consonant sequences in Baweanese. Central to OT is the premise that surface forms emerge from the interaction of universal yet violable constraints that are ranked differently across languages (Zaharani Ahmad, 2004). Within this framework, the Generator produces a set of potential output candidates, while the Evaluator selects the optimal form based on a language-specific hierarchy of markedness and faithfulness constraints (Al-Hindawi and Abdulkareem, 2021; Asungu and Ondondo, 2024). Markedness constraints favour unmarked and phonologically simple structures, such as requiring syllables to begin with onsets or avoiding codas, while faithfulness constraints promote similarity between input and output by discouraging deletion, insertion, or excessive feature changes. When constraints conflict, higher-ranked constraints override lower-ranked ones, allowing systematic predictions of phonological repair strategies in loanword adaptation.

Research on loanword phonology constitutes a second major foundation for this study, as it provides insight into how recipient languages modify borrowed forms to conform to native phonotactic patterns. Loanword adaptation typically involves processes such as deletion of illicit segments (Zaharani, 2005), epenthesis to resolve disallowed consonant clusters or hiatuses (Ekarina, 2022), substitution of non-

native phonemes with the closest available segments, and, in some cases, metathesis. Within Optimality Theory analyses, these processes are interpreted as outcomes of competition between faithfulness constraints that preserve aspects of the source language and markedness constraints that enforce phonological well-formedness in the borrowing language (Kenstowicz, 2010). Studies focusing on the adaptation of specific vowel and consonant sequences further demonstrate how languages systematically restructure clusters, diphthongs, and complex syllables, offering comparative insights that are directly relevant to understanding how Baweanese adapts Malay input forms.

The phonological outcomes observed in the assimilation of Malay loanwords into Baweanese should also be considered within the broader context of language contact and phonological interference. In bilingual or multilingual settings, sustained contact often leads to modifications in the phonotactic and phonological systems of the languages involved. For Baweanese, an adequate account of these processes requires a clear description of its phonological system, including its vowel and consonant inventories, preferred syllable structures, and phonotactic constraints that determine which sound sequences are impermissible and therefore require repair. Equally important is the phonological profile of Malay, which serves as the primary source of loanwords and supplies the input structures that Baweanese speakers adapt. Where available, previous studies on Malay–Bawean contact and related loanword processes provide important background for interpreting how specific sound sequences are reanalysed, thereby informing the present analysis of vowel and consonant sequence adaptation within an Optimality Theory framework.

3.0 Methods

This study adopted a qualitative research approach, with data collected through fieldwork in the designated study area. To ensure reliability and analytical depth, the research utilised primary data obtained directly from native speakers, supported where relevant by secondary sources from existing literature.

3.1 Field Study

Fieldwork was conducted in Kampung Telok Sengat, Kota Tinggi, Johor. The researcher engaged directly with native Baweanese speakers to collect authentic linguistic data through in-person interaction. This location was selected because it represents an established Baweanese-speaking community with relatively limited external language influence, thereby ensuring the naturalness and reliability of the speech data collected.

3.2 Interviews

Three native Baweanese speakers from Kampung Telok Sengat were selected as informants based on the following criteria: (1) they are lifelong speakers of Baweanese, (2) they come from different family lineages within the same community in order to capture intracommunity variation, and (3) they demonstrate strong metalinguistic awareness.

Because the study focuses on segmental phonological processes rather than sociolinguistic diversity, the small number of informants is methodologically justified. In phonological fieldwork, systematic phonological patterns can be revealed with a limited number of properly chosen speakers, especially when studying minority and under-documented languages.

3.3 Recording Procedure

Interviews were conducted using audio recording to ensure accurate capture of speech data. Prior to recording, participants were informed about the research procedures, and their consent was obtained to ensure ethical compliance and participant comfort.

3.4 Sampling

Purposive sampling was employed to select three native Baweanese speakers as informants for this study. This sampling strategy was chosen to maintain a manageable scope while ensuring accuracy and consistency through data triangulation. The informants met the same selection criteria outlined above and

were able to provide reliable and representative data on vowel and consonant sequence adaptation. Their contributions were essential for ensuring the authenticity and consistency of the phonological data analysed within the Optimality Theory framework.

3.5 Data Collection

Data were collected through structured interviews in which each informant was asked to pronounce 38 selected Malay loanwords in natural speech. All sessions were conducted face-to-face and recorded using a Zoom H1n Handy Recorder to ensure high-quality audio. Each recording session began with verbal consent and a brief warm-up period to help participants speak comfortably and naturally. In total, 38 loanword data items were collected and subsequently analysed, as presented in the following section.

Table 1

The Loanword Data from Malay that has been Absorbed into Baweanese

Malay Language	Bawean Language
jemur	cemur
jambang	cambeng
menjahit	enceik
tajam	tacem
gerubuk	gerobok
bakul	bekul
kunci	konce
malu	malo
ngaku	ngako
nasi	nasek
adik	alik
apa	arapa
stoking	satakin
tidur	tidong
pelam	pellem
beri	b^herik
kebun	kep^{h}un
tunggu	tongg^{h}u
dulu	d^{h}ulu

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After data collection was completed, the audio recordings were analysed using systematic transcription procedures. All informants were asked to pronounce 38 selected words from the Swadesh word list to elicit authentic pronunciations. These pronunciations were transcribed phonetically using the International Phonetic Alphabet (IPA) to ensure phonetic and morphological consistency. The transcribed data were then compiled using the word list method. Finally, the data were analysed and interpreted within the framework of Optimality Theory (Prince and Smolensky, 2004).

3.6 Transcription and Analysis

After transcription, the adapted forms were analysed using the Optimality Theory framework (Prince & Smolensky, 2004). The analysis involved identifying phonological constraints motivated by the Baweanese data and supported by relevant OT literature, including markedness constraints related to syllable structure and aspiration, as well as faithfulness constraints that account for deletion, insertion, and featural changes. For each input form, several competing output candidates were generated and evaluated within a ranked constraint hierarchy to determine the optimal surface form.

In this study, Optimality Theory tableaux are employed to illustrate how phonological adaptation arises through the interaction of constraints. Each tableau includes the Malay input form, a set of possible output candidates, and the violations they incur under a ranked constraint system. The optimal candidate reflects the attested Baweanese form, representing the most balanced outcome between competing markedness and faithfulness requirements. To maintain analytical consistency, MAX-IO violations are limited to cases of segment deletion, DEP-IO violations to insertion, and IDENT-IO violations to featural modification.

To ensure analytical consistency, a single unified constraint hierarchy is assumed throughout the analysis. Only constraints relevant to each specific phonological process are evaluated in individual tableaux. This approach avoids unnecessary repetition, maintains theoretical coherence, and allows generalisation across gliding, aspiration, and insertion processes.

4.0 Findings and Discussions

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The findings demonstrate that all observed phonological adaptations of gliding, aspiration, and segment insertion are governed by the interaction of a unified hierarchy of markedness and faithfulness constraints. Rather than proposing separate hierarchies for each process, the analysis shows that a consistent constraint ranking accounts for multiple adaptation strategies in Baweanese loanword phonology.

Each Optimality Theory tableau in this section demonstrates how a particular surface form emerges as optimal through constraint interaction. The tableaux clearly present the input form, competing output candidates, and their respective constraint violations, enabling transparent evaluation of the phonological outcomes. In each case, the winning candidate corresponds to the attested Baweanese form and represents the most optimal resolution of competing constraints.

4.1 Analysis of Vowel and Consonant Glide Processes

In the Baweanese language, there is a palatal consonant /ʧ/. Unlike Baweanese, the Malay language has the sound segment /ʤ/, which shares similar regional phonetic features with /ʧ/. When Malay loanwords containing the consonant /ʤ/ are absorbed into Baweanese, the consonant changes into /ʧ/ in Baweanese.

Further changes can also be observed in the vowel sounds /o/, /u/, and /i/ in Malay, which transform into the vowel sounds /ə/ and /ɔ/ in Baweanese. This process is known as gliding, which is interpreted as the result of Baweanese speakers adapting to consonants that are considered foreign within the grammatical system of their language. Therefore, this transformation process is necessary to facilitate the adaptation of word formation. Examples of Malay loanwords that undergo gliding in Baweanese are as follows:

Table 2

Sample of Vowel and Consonant Glide Data

Malay Language	Gloss	Bawean Language
/gərobo?/	closet	/gərubu?/
/bakol/	basket	/bəkul/
/kunʧi/	key	/konʧe/
/malu/	shy	/malɔ/
/ŋaku/	admit	/ŋakɔ/
/nasi?/	rice	/nase?/
/ade?/	younger brother	/ale?/
/ ʤəmo/	drying	/ ʧəmo/
/ ʤambaŋ/	beard	/ ʧambəŋ/
/məndʒait/	sewing	/ənʧəi?/
/tadʒam/	sharp	/taʧəm/

In Table 2, we observe the replacement of the voiced affricate /ʤ/ with the voiceless /ʧ/, reflecting the absence of /ʤ/ in Baweanese phonology. The vowel /i/ or /u/ often lowers to /ɛ/ or /ɔ/, such as due to vowel harmony or markedness constraints in Baweanese. This gliding process is seen to occur in different segment environments.

Universally, the constraint involved in these segment changes is the Markedness constraint. For the gliding process, the constraint that drives this change is the MAX-IO constraint, which is defined as follows:

1. MAX-IO

Every input segment must have an output counterpart (any deletion of segments is not allowed).

The MAX-IO constraint requires that every segment in the input must correspond to a segment in the output, meaning that any deletion of segments is not allowed under this constraint. To ensure that this constraint is followed, the output candidate should not experience any deletion of its segments. The MAX-IO and CODA constraints are found to conflict with each other, meaning that adhering to one constraint will result in the violation of the other. Based on the hierarchical analysis of constraints, the CODA constraint is defined as follows:

2. CODA

A syllable cannot have a coda.

This means that both of these constraints must be ranked in the constraint hierarchy. Furthermore, the IDENT-IO faithfulness constraint is included in the constraint hierarchy to require that each segment in the output remains the same as the corresponding segment in the input, as outlined in the definition below:

3. IDENT-IO

The output segment corresponding to the input must have the same feature value (any change in feature values is not allowed). Therefore, these three constraints are ranked at different levels in the constraint hierarchy. Consequently, the appropriate constraint hierarchy is MAX-IO >> CODA >> IDENT-IO.

Table 3

Tableau of Glide Process /tʃambəŋ/

/dʒambaŋ/	MAX-IO	CODA	IDENT-IO	Explaination
a. dʒa.bəŋ	*!	**	***	Deletes no segment, but violates highest-ranked constraint (MAX-IO) by retaining /dʒ/
b. dʒam.be	*!		**	Deletes nasal /ŋ/
c. ʧam.bə	*!		**	Deletes /ŋ/
d. ☞ ʧam.bəŋ		*!	**	Optimal: changes /dʒ/ → /ʧ/, retains segmental structure

The glide process found in Baweanese loanwords involves featural modification rather than segment deletion. When adapting Malay loanwords that contain the voiced affricate /dʒ/, Baweanese consistently replaces this segment with the voiceless affricate /ʧ/, which is phonemically permitted in the language. In the Optimality Theory analysis, candidates that delete segments are ruled out because they violate the highly ranked faithfulness constraint MAX-IO. Candidates that retain the non-native voiced affricate, on the other hand, violate IDENT-IO by preserving an illicit feature specification. As a result, the optimal candidate is the one that maintains the input's segmental structure while allowing minimal featural modification, thereby satisfying higher-ranked constraints and violating only the lower-ranked IDENT-IO constraint.

4.2 Analysis of the Aspiration Process of Vowels and Consonants

The Baweanese language is observed to have aspirated obstruent consonants, which are phonemically distinct, unlike the Malay language, which does not possess them. Therefore, when Malay loanwords are absorbed into Baweanese, the non-aspirated consonants change into aspirated consonants. Below are examples of Malay loanwords that have been incorporated into the Baweanese language.

Table 4

Sample of Vowel and Consonant Aspiration Data

Malay Language	Gloss	Bawean Language
/bəri/	give	/b^{h}əriʔ/
/kəbun/	garden	/kəp^{h}un/
/tuŋgu/	wait	/toŋg^{h}u/
/dulu/	before	/d^{h}ulu/

Table 4 shows the correspondence of Malay loanwords that have been absorbed into the Baweanese language. The data examples above show that the non-aspirated consonants /b/, /p/, /g/, and /d/ in Malay have changed into aspirated consonants /b^{h}/, /p^{h}/, /g^{h}/ dan /d^{h}/ in Baweanese. This aspiration process occurred because the Baweanese language has aspirated consonants in its phonological system. Aspirated consonants like /bh/ and /dh/ in Baweanese are phonemic, and their emergence in loanwords suggests active phonological reanalysis. For the constraint hierarchy analysis, aspiration is driven by the markedness constraint */-asp/, which can be defined as follows:

4. */-asp/

Non-aspirated consonant sounds in the output are not allowed.

In the Baweanese language's grammatical system, the constraint */-asp/ must be ranked higher than the faithfulness constraint IDENT-IO to ensure that candidates containing non-aspirated consonants are rejected in favor of candidates that undergo aspiration, as shown in the tableau below:

Table 5

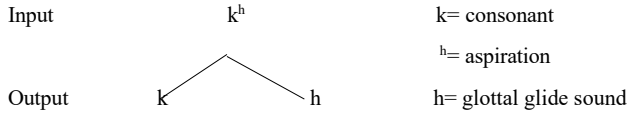
Tableau of Aspiration in Baweanese loanwords

/dulu/	***/-asp/**	**IDENT-IO**
a. du.lu		*
b. dhu.lu	*!	

Instead of segment insertion or separation, aspiration in Baweanese loanword adaptation reflects a phonological requirement of the receiving language. Aspiration functions as a featural alteration when non-aspirated obstruents in Malay are consistently realised as aspirated consonants in Baweanese. Candidates who maintain non-aspirated consonants are removed from the Optimality Theory analysis because they breach the high-ranked markedness constraint that requires aspiration. By incorporating ambition, the ideal candidate meets this markedness condition and only commits a lower-ranked IDENT-IO violation as a result of featural change. Aspiration is captured in this study as a consistent and methodical adaption technique without the need for extra restrictions or segmental reorganisation.

Figure 1

Two Output Segments Corresponding To One Input Segment

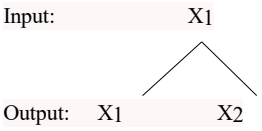


Therefore, the candidate /dhulu/ is a better candidate than the two above because this candidate does not violate the constraints */-asp/ and IDENT-IO. However, this candidate has violated the INTEGRITY constraint, which means:

5. INTEGRITY

It prevents the occurrence of segment separation, meaning that one segment at the input level corresponds to a single segment at the output level.

6. Segment Separation



The candidate /dhulu/ also violates the markedness constraint related to syllable structure, namely *ONSKOMP, which is defined as follows:

7. *ONSKOMP

No more than one consonant is linked to the syllable onset.

In the Boweanese language's grammatical system, the constraint *ONSKOMP is an optimal constraint and cannot be violated. Typically, most languages apply two different strategies to avoid violating *ONSKOMP, namely either *CODA, as in /dolo?/, or vowel insertion, as in /dahulu/. The constraint that governs insertion is DEP-IO, and both constraints are defined as in (8) and (9) below:

8. *CODA

A syllable cannot have a coda.

9. DEP-IO

Every segment in the input must have a correspondent in the output (insertion is not allowed).

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Unlike *ONSKOMP, both the constraints *CODA and DEP-IO can be violated in Malay (Zaharani, 2005). Although both can be violated, *CODA and DEP-IO must be ranked higher than INTEGRITY and IDENT-IO in the constraint hierarchy to ensure the correct candidate is chosen as the winner. Therefore, the appropriate constraint hierarchy for explaining Malay loanwords absorbed into Baweanese that undergo aspiration is DEP-IO >> *CODA >> IDENT-IO >> *ONSKOMP >> */-asp/ >> INTEGRITY. The following table shows how Optimality Theory can be used to formally explain the aspiration pattern seen in these loanwords.

Table 6

Tableau of Aspiration of /dhulu/

/dulu/	DEP-IO	*CODA	IDENT-IO	*ONSKOMP	*/-asp/	INTEGRITY
a. dɔ.lu			*!			
b. ☞ d^{h}u.lu					*!	
c. dhu.lu	*!			**		***
d. da.hu.lu	*!					**
e. do.loʔ		*!	**			

Table 6 shows that candidates (c), (d), and (e) were rejected early because each violated the highest-ranking constraints, namely DEP-IO and *CODA. Candidate (e) also lost because it violated the INTEGRITY constraint due to segment separation, where one segment at the input level corresponds to two segments at the output level. Candidate (a) lost because it violated the dominant constraint, IDENT-IO. Therefore, candidate (b) was selected as the winner because it is the most optimal candidate and only violated the lowest constraint in the hierarchy, which is the */-asp/ constraint.

4.3 Analysis of Vowel and Consonant Insertion Process

In Baweanese loanword adaptation, segment insertion—both vowels and consonants—serves to repair syllable structures that are illicit under Baweanese phonotactics. The most common triggers for insertion in the data are complex onsets in the Malay input (e.g., /st-/) that are not permitted in Baweanese, and feature-driven adjustments of vowel quality in Baweanese (e.g., avoidance of the low vowel [a] in certain positions), which can sometimes coincide with consonant gemination.

In Optimality Theory (OT), insertion arises when markedness constraints outrank faithfulness constraints: markedness motivates repair (e.g., epenthesis), while faithfulness penalizes deviations from the input (e.g., insertion or featural modification). To maintain consistency across all tableaux, only the constraints relevant to the specific pattern are evaluated, and a single unified ranking is applied within this subsection. There are Baweanese loanwords that exhibit vowel and consonant insertion, as can be seen in Table 7 below:

Table 7

Sample Of Vowel And Consonant Insertion Data

Malay Language	Bawean Language
/apə/	/arapa/
/stokiŋ/	/satakin/
/pəlam/	/pəlləm/
/təpat/	/təppak/

The pair /pəlam/ → /pəlləm/ demonstrates both consonant gemination (/l/ → /ll/) and vowel centralization (/a/ → /ə/), reflecting a typical Baweanese repair strategy that avoids disfavored low vowels and regularizes syllable structure. Meanwhile, the pair /stokiŋ/ → /satakin/ (discussed in Section 4.3, though not shown in a tableau here) illustrates vowel epenthesis used to resolve a complex onset.

In this subsection, we define the constraints used and their specific roles:

10. *COMPLEX
No branching margins; complex onsets or codas are prohibited.

11. MAX(Voc)
No vowel deletion; every input vowel must have a corresponding output vowel.

12. *[+LOW]
Avoid low vowels in the output; vowels with the feature [+LOW] (e.g., [a]) are disfavored in the relevant positions of these loanwords.

13. IDENT-IO
Preserve input features; output segments should retain the features of the input (featural changes incur violations).

14. DEP-K

No consonant insertion; every output consonant must correspond to an input consonant, so consonant epenthesis or gemination incurs a violation.

The ranking assumed for insertion phenomena is

*COMPLEX >> MAX(Voc) >> *[+LOW] >> IDENT-IO>> DEP-K

This hierarchy reflects Baweanese preference for syllable simplicity and avoidance of low vowels over strict faithfulness.

Table 8

Tableau for Insertion of Vowels and Consonants in Loanwords in Baweanese

/pəlam/	*COMPLEX	MAX (Voc)	*[+LOW]	IDENT-IO	DEP-K
a. plam	*!	**	***		
b. pləm	*!	**		*	
c. pəl.ləm				*!	**
d. pə.laŋ			***	**	
e. po.lam			***	**	

High-ranked violations of *COMPLEX and MAX(Voc) cause candidates (a) and (b) to fail. By keeping [a], candidates (d) and (e) violate *[+LOW]. Only lower-ranked fidelity restrictions are broken by candidate (c), who avoids all high-ranked markedness constraints.

Table 9

Tableau Insertion

/pəlam/	*COMPLEX	MAX(Voc)	*[+LOW]	IDENT-IO	DEP-K
a. plam	*!	**!	*		
b. pləm	*!	**!		*	
c. ☞pəl.ləm				**	**
d. pə.laŋ			*!	**	
e. po.lam			*!	**	

Candidates (a) and (b) are eliminated first for violating *COMPLEX and MAX(Voc). Candidates (d) and (e) fail due to *[+LOW]. Candidate (c) satisfies all higher-ranked constraints and only violates lower-ranked IDENT-IO and DEP-K, making it optimal.

High-ranked markedness requirements that forbid complicated syllable patterns and low vowels are what drive insertion in Baweanese loanwords. When well-formedness is required, faithfulness constraints like IDENT-IO and DEP-K are broken. The cohesive hierarchy:

*COMPLEX≫ MAX(Voc)≫ *[+LOW]≫ IDENT-IO≫ DEP-K

This hierarchy accounts for the selection of /pəlləm/ as the optimal output and generalizes to other

insertion patterns.

5.0 Conclusion

This study has examined how Malay loanwords are phonologically adapted in the Baweanese language, focusing on vowel and consonant modifications analyzed through Optimality Theory. This conclusion highlights the study's wider theoretical significance rather than restating previous findings. The findings reinforce the explanatory power of Optimality Theory in modeling loanword adaptation by demonstrating that Baweanese uses systematic phonological methods to adapt foreign input.

The study offers a thorough and rational explanation of segmental adaptation despite its limitations due to the small number of speakers. Future studies can compare adaption patterns among Baweanese populations in Malaysia and Indonesia, add audio analysis, or enlarge the dataset.

Future studies could broaden the sample by including a larger and more diverse group of speakers from Baweanese communities in both Indonesia and Malaysia to capture dialectal variation. Comparative research involving other source languages, such as English or Javanese, would further refine our understanding of adaptation hierarchies. Incorporating acoustic phonetic analysis and perception-based studies could also provide deeper insights into how these adaptations are produced and interpreted by native listeners. Overall, this study contributes to ongoing research on Austronesian phonology, language contact, and demonstrates the relevance of Optimality Theory in documenting lesser-studied languages.

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Conflict of Interest

The author (s) have declared that no competing interests exist.

Author Contribution Statement

NF: Conceptualization, Data Curation, Methodology, Validation, Writing – Original Draft Preparation. WAA: Project Administration, Writing – Review & Editing.

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This research involved original fieldwork with human participants. Informed consent was obtained from all participants prior to audio recording. The data were anonymised during transcription and analysis to protect participant confidentiality.

Data Access Statement

Research data supporting this publication are available upon request to the corresponding author.

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References

Al-Hindawi, F. H., & Abdulkareem, M. S. (2021). Optimality theory: A framework for analyzing phonological constraints. *Journal of Language and Linguistic Studies, 17*(1), 345–360.

Ahmad, Z. (2004). Alignment and the syllable coda condition in Malay: An optimality account. *Online Journal of Language Studies, 4*(2), 1–32.

Ahmad, Z. (2005). *The phonology-morphology interface in Malay: An optimality theoretic account*. Pacific Linguistics. https://doi.org/10.15144/PL-568

Ahmad, Z., Jalaluddin, N. H., & Malek, S. (2011). Fonologi rangkap vokal dan kepelbagaian dialek Melayu: Analisis teori optimaliti. *GEMA Online Journal of Language Studies, 11*(3), 5–30. https://doi.org/10.17576/gema-2011-1103-

Ahmad, Z., Jalaluddin, N. H., & Osman, M. (2013). Harmoni vokal dan degeminasi dalam kata pinjaman Arab: Analisis tatatingkat kekangan. *GEMA Online Journal of Language Studies, 13*(3), 193–209. https://doi.org/10.17576/gema-2013-1303-11

Andayani, S., Strisno, A., & Tjahjadi, I. (2020). *Pengantar morfologi bahasa Bawean*. Pagan Press.

Asungu, D., & Ondondo, E. (2024). Constraint interaction and phonological optimisation in Bantu languages: An optimality theory approach. *Studies in African Linguistics, 53*(3), 210–232.

Ekarina, D. (2022). Epenthesis and syllable repair in Indonesian loanwords. *Jurnal Linguistik Indonesia, 40*(1), 55–72.

Haryono, T. J. S. (2016). Konstruksi identitas budaya Bawean. *BioKultur, 5*(2), 166–184.

Kartono, D. T. (2003). *Orang Bawean dan Boyan: Perubahan dan pembentukan identitas masyarakat Bawean*. Boyan Publishing.

Kenstowicz, M. (2010). Loanword adaptation from a phonological perspective. In A. Calabrese & W. van Oostendorp (Eds.), *The handbook of phonological theory* (pp. 373–389). Wiley-Blackwell.

Nik Muhamad Naziman, S., & Syed Jaafar, S. R. (2018). Adaptasi konsonan dalam kata pinjaman bahasa Inggeris dalam dialek Kelantan. *Jurnal Melayu, 17*(1), 31–48.

Putradi, A. W. A. (2016). Pola-pola perubahan fonem vokal dan konsonan dalam penyerapan kata-kata bahasa asing ke dalam bahasa Indonesia: Kajian fonologi. *Jurnal Arbitrer, 3*(2), 95–112. https://doi.org/10.25077/ar.3.2.95-112.2016

Sari, N. A., & Subiyanto, A. (2023). Serial verb construction in Baweanese: A typological linguistic study. *Celtic: A Journal of Culture, English Language Teaching, Literature and Linguistics, 10*(2), 242–259.

Sarifin, M. R., Sukimi, M. F., & Abdullah, A. (2018). Integrasi orang Bawean dalam penggunaan bahasa ke arah membina bangsa Malaysia. *e-Bangi: Journal of Social Sciences and Humanities, 15*(3), 133–144. https://doi.org/10.17576/ebangi-2018-15.3-11

Utami, S. W. B. (2018). The Bawean ethnic language: Attitude and diglossic community culture. In *Urban studies: Border and mobility* (pp. 27–32). Routledge. https://doi.org/10.1201/9780429507410-5

Wijayanti, E. D. (2016). *Variasi dialek bahasa Bawean di wilayah Pulau Bawean Kabupaten Gresik: Kajian dialektologi* (Bachelor's thesis, Universitas Airlangga). http://repository.unair.ac.id/56373/