



Phonological Interference in Bilingual Contexts: Analyzing Singkil's Speech through Optimality Theory

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Abstract. This research aims to identify and describe the forms of phonological interference that cause interference in the speech of the bilingual Singkil community in the Kuala Baru sub-district. The research method is descriptive qualitative. The data collection techniques used in this study include the observation method, with the tapping technique as the basic technique, along with its advanced techniques: the involved conversation observation technique and the uninvolved conversation observation technique. Additionally, recording and note-taking techniques were used. The research data consists of spoken utterances from the Singkil community in one sub-district of Kuala Baru that indicate language interference. According to Weinreich, interference is a deviation in one language that occurs in bilinguals' speech due to familiarity with more than one language, leading to language contact. Even the smallest elements from the first language can cause interference when transferred to the second language. The findings demonstrate that Singkil phonology influences the development of Bahasa Indonesia. This is evident in how Singkil-Bahasa Indonesia speakers modify the final phoneme /d/ becomes /t/ from the word [mau.liɖ] becomes [mau.liɖ], and constrain ranks should be the leftmost constraint, which is the most powerful, and the rightmost, which is the least powerful ; *VOI-CODA >> MAX-IO >> IDENT-IO (VOI). And /b/ becomes /p/ from the word [sə.bab] becomes [sə.bap] with the constraint ranks : *VOI-CODA >> VOP >> IDENT-IO . Hopefully, this research can contribute to the broader field of linguistics by providing empirical data that supports or refines Optimality Theory. It can help linguists understand how OT constraints operate in bilingual contexts and how they interact.

Keywords: Phonological interference, Bilingual context, Optimality theory.

1. Introduction

Bilingualism manifests in a community when its members can fluently speak two languages and employ them during social exchanges. From a sociolinguistic perspective, bilingualism is the practice of switching between two languages in conversations (Mackey 1962:12, Fishman 1975:73). This phenomenon presents a fascinating tapestry of linguistic interactions, where languages coexist, influence, and adapt within speakers' cognitive landscapes.

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Singkil is located on the northern tip of Sumatra, the second-largest island in Indonesia. In the context of Singkil, a region characterized by its rich linguistic diversity, the interplay between local languages and Indonesian showcases intriguing phonological phenomena. The Singkil-speaking community, a group of people who primarily use the Singkil language for communication, is a significant part of this linguistic landscape. In this community, many individuals are bilingual. Besides using Indonesian, they also use Singkil as their daily communication tool to foster a sense of familiarity (Suhery, 2018). Indonesian is used in formal contexts, while Singkil is used in informal settings. For instance, a native Singkil speaker will opt to use Singkil when interacting with fellow Singkil speakers in informal situations. However, when Singkil speakers meet new people or find themselves in formal settings, they will choose to use Indonesian.

Based on the above explanation, bilingualism refers to a state where an individual masters two languages and uses them interchangeably, depending on their situation and conditions. When using more than one language in communication, it is inevitable that these languages will eventually be used together. In such situations, language contact occurs, resulting in mutual influence between the two languages. In bilingual communities, language contact often leads to linguistic phenomena, which are the subject of sociolinguistic studies, one of which is interference. This study delves into one such phenomenon: phonological interference, which refers to the influence of one language's sound system on another during bilingual speech. This related to the research questions: do Singkil speakers produce the L2 words like the words in the mother tongue (L1)? and what constraints occurred from the speech production of the speech of the bilingual Singkil community in the Kuala Baru sub-district? Utilizing the framework of Optimality Theory, the researchers analyze the speech patterns of Singkil's bilingual individuals, shedding light on the systematic deviations and adaptations that occur in their phonological systems. Through this lens, we aim to understand the broader implications of bilingualism on language preservation.

Related to the above phenomena, phonological interference in the Singkil community represents a unique and significant case for linguistic research due to the interaction between the understudied Singkil language and Bahasa Indonesia within a bilingual setting characterized by distinct functional language separation. This community illustrates how localized bilingualism shapes phonological systems, revealing systematic deviations reflecting linguistic adaptation and preservation. The study is particularly valuable as it highlights how a minority language navigates phonological influence from a dominant national language, contributing to broader discussions on language contact, language maintenance, and the dynamics of linguistic diversity in multilingual societies.

Numerous scholars have explored the concept of language transfer in multilingual environments. Additionally, specific research highlights that multilingual children can recognize and maintain distinct boundaries between their languages. Nair (2003) concludes that bilingual children retain the distinct phonological characteristics of both English and Hindi in a multilingual context. The author's research analyses the phonological features exhibited in English and Hindi words created by a bilingual child between 18 and 25 months of age. Conversely, Suhery, D, & Raza (2019) investigated

phonological processes within the framework of Optimality Theory. They explored how speakers of Pilibhit Hindi Urdu modified consonant clusters in English loanwords by adding or inserting specific vowels. The findings revealed that Pilibhit Hindi Urdu speakers did not maintain consonant clusters in English loanwords' starting, middle, or ending positions. Suhery, D., Meutia, C. I., Raza, M. H., & Idami, (2023) find that interlingual interference has a multifaceted impact on multilingual learners in the Arabic Education Department at IAIN Langsa. The findings demonstrate that Acehnese phonology influences the development of Arabic words. This is evident in how Acehnese-Arabic speakers modify the final phoneme /d/ to /t/ in three words: [a.had] becomes [a.hat], [ah.mad] becomes [ah.mat], and [mau.lid] changes to [mo.lit]. Multilingual learners may transfer pronunciation patterns, intonation, and accent elements from their native languages into the target language, resulting in pronunciation difficulties and challenges in acquiring the phonological system of the target language. Besides, Suhery, D., Purba, H. S. R., & Raza (2019) also researched the particular economic conditions of syllable structures in words after adding or elision segments in Urdu. It relates to phonological properties. The research found that markedness and faithfulness constraints are pertinent to the sound system, the syllable structure of words, and their economy in the language.

This research makes a significant contribution by examining phonological interference within the bilingual Singkil-speaking community, particularly in the Kuala Baru sub-district, using Optimality Theory (OT) as its analytical framework. By centering on the relatively understudied Singkil language, the study offers valuable insights into its interaction with Indonesians in bilingual settings. Unlike broader studies on widely spoken languages, it enhances our understanding of linguistic dynamics in less-documented communities, contributing to efforts to preserve and record linguistic diversity.

The application of OT allows for a systematic analysis of phonological processes through a constraint-based framework. This method adds theoretical depth by identifying patterns of deviation in bilingual speech while uncovering the underlying linguistic constraints, such as markedness and faithfulness, that shape these phonological variations.

Further, this study highlights the phonological interference between Singkil (L1) and Indonesian (L2), particularly how L1 influences L2 pronunciation. Such specific interactions have been less explored in the context of Southeast Asian bilingual communities, providing a fresh perspective on the effects of bilingualism on sound systems. And using Optimality Theory (OT) as a framework to analyze phonological interference is a significant methodological contribution. OT enables the study to systematically identify constraints and explain how bilingual speakers navigate conflicts between L1 and L2 phonological systems. This theoretical application helps bridge the gap between abstract linguistic theory and real-world language use.

2. Literature Review

2.1 Bilingualism

The concept of bilingualism assumed by Batia (2022) is explored through various dimensions, including cognitive, social, and linguistic perspectives. Bhatia discusses how bilingual individuals navigate and manage the use of two languages, the cognitive benefits and challenges of bilingualism, and the impact of societal factors on language use. In the other hands, Appel & Muysken (2005, p.2) divided bilingualism into two types, namely, societal and individual. Societal bilingualism occurs when, in a given society, two or more languages are spoken. In this sense, nearly all societies are bilingual, but they can differ in terms of degree.

Thomason (2001) is a comprehensive exploration of the social, political, and linguistic consequences of languages coming into contact with one another. Thomason examines various outcomes of language contact, such as the introduction of new words, sounds, and sentence structures, as well as the potential for entirely new languages to emerge. She also discusses language endangerment and death, multilingualism, pidgins and creoles, and mechanisms of interference

2.2 Language Contact and Interference

Language contact inevitably leads to bilingualism. "Being bilingual" does not imply complete mastery of two languages. Further, speakers are rarely equally fluent in two languages. Bilingualism is practically present in every country of the world, in all classes of society, and among all age groups. Appel & Muysken (2005, p.2) divided bilingualism into two types: societal and individual. Societal bilingualism occurs when, in a given society, two or more languages are spoken. In this sense, nearly all societies are bilingual, but they can differ in terms of degree.

The term "interference" was first used by Weinreich (1953) to describe the contact between the first language system and elements of other languages used by bilingual speakers. Interference is very difficult for communities to avoid, whether intentional or unintentional.

Finally, Thomason (2001) comprehensively explores the social, political, and linguistic consequences of languages coming into contact with one another. She examines various outcomes of language contact, such as introducing new words, sounds, and sentence structures and the potential for entirely new languages to emerge. She also discusses language endangerment and death, multilingualism, pidgins and creoles, and mechanisms of interference

Apart from Indonesian, the first language is the mother tongue mastered by the community, generally learned and inherited naturally. The use of these two languages can result in an overlap between the two language systems, leading to linguistic phenomena such as interference. One factor causing community interference is the habit of using their regional language. This condition can be found in Singkil Regency, particularly in Kuala Baru Village.

2.3 Optimality Theory

Optimality Theory (OT) has proven to be a highly effective tool in phonology and other linguistic disciplines. Many researchers used OT to address challenges involving the internal syllable structure of words. Originally proposed by Prince and Smolensky (2004) as a framework for analyzing syllable structures within a specific language, OT quickly gained traction and expanded its application to various linguistic areas. According to Gussenhoven and Jacobs (2017), OT Phonology is often viewed as a set of universally applicable constraints organized hierarchically, with distinct rankings for each language. This method involves generating all possible outputs for a given input and evaluating them to identify the most optimal one, thereby clarifying the relationship between input and output.

3. Research Method

Utilizing a descriptive qualitative approach, the selected research methodology aligns well with the research topics. This method focuses on developing a thorough and detailed depiction of the subject matter through language, highlighting and presenting the distinct perspectives of those involved, and conducting the research in a naturalistic environment (Creswell, 1994).

For this research, ten native Singkil speakers were chosen, consisting of five males and five females. The researchers consistently recorded their spoken language and identified two specific words: /mau.liɖ/ and /səbab/. The data was collected using a Sony Digital audio recorder and then transcribed into the International Phonetic Alphabet (IPA). Finally, the researchers used Optimality Theory to explore the main linguistic aspects affected by interlingual interference among bilingual speakers.

4. Finding and Discussion

The following section describes how bilingual speakers of Singkil use- voiceless obstruents while speaking.

Btz sentence	Gimana acara maulit kemarin?
	[gimana][acara][molit] [kəmarin]
	‘How was the agenda of maulid yesterday?’
BI sentence	Bagaimana acara maulid kemarin?
Translation:	‘How was the agenda of Maulid yesterday?’

Other findings:

Btz sentence	pengacara marah sebab saksi diam saja
	[pəŋacara] [marah] [səbap][saʔsi][diyam][saja]
	the lawyer got angry because the eyewitness was only silent’
BI sentence	Pengacara marah karena saksi diam saja
Translation	‘The lawyer got angry because the eyewitness was only silent’

Consideration of Optimality Theory Tableau in /maulid/:

Table 1. Classification of the input and output features of the candidates

/maulid/	*VOI-CODA	MAX-IO	IDENT-IO (V)
a. [maulid]	*!		
☞ b. [molit]			*
c. [mulid]	*!	*	

In table 1, it is generalized that the candidate ‘a’ is satisfied with the lower and lowest rank of the constraints MAX -IO and IDENT–IO (V) while fatal violated to the highest *VOI-CODA to represent the factors of the output and input candidate. In addition, the candidate ‘b’ is satisfied with the highest and lowest rank of the constraints *VOI-CODA and MAX -IO while violated to the lower IDENT–IO (V). Apart from that it is determined that the candidate ‘c’ is only satisfied with the higher rank of the constraint IDENT–IO (V) while fatal violated and violated to the highest and lowest rank of the constraints *VOI-CODA and (*) is the notation of ‘violation found in MAX-IO. Based on the analysis of the output candidates to the ranking features of the input candidate, it is found and discussed that the candidate ‘b’ is winner to get the neighboring position through the effect of the constraints and declared as an optimal candidate indicated by ☞. There is a hierarchy of constraints to know the power of OT principles, which are from left to right. The left-most constraint is the most powerful, and the right-most is the least powerful. So, the hierarchy of the constraints;

$$*VOI-CODA \gg MAX \gg IDENT - IO (V)$$

Consideration of Optimality Theory tableau in /səbab/:

Table 2. Classification of the input and output features of the candidates

/sə.bab/	*VOI-CODA	IDENT-IO	*ALT–V
a. [sə.bab]	*!		
☞ b.[sə.bap]		*	*

Table 2 shows that three kinds of constraints are applied to the structures of the two output candidates to consider the input candidate’s ranking features in the account of the Singkils Bilingualism. It is represented that the candidate ‘a’ is satisfied with the lower and lowest rank of the constraints IDENT–IO (V) and *ALT–V while fatal violated to the highest *VOI-CODA to explore the ranking features of the input candidate to become an optimal candidate. In addition, the candidate ‘b’ is only satisfied with the high rank of the constraints and violated to the lower and lowest rank

of the constraints IDENT-IO (V) and *ALT-V. After the analysis of the data, it is found to discuss that the candidate 'b' is more nearby to the ranking features of the input candidate compared to the candidate 'a.' So, based on the ranking features of the candidate 'b,' it is found that it became the winner to explore the significant aspects of the input to declare as an optimal candidate marked by ✱. There is a hierarchy of constraints to know the potentiality of OT principles, which are from left to right. The left-most constraint is the most powerful, and the right-most is the least powerful. So, the hierarchy of the constraints;

*VOI-CODA >> IDENT-IO >> *ALT-V

Optimality Theory (OT) serves as a comprehensive analytical framework for exploring phonological interference in the bilingual Singkil-speaking community, offering a systematic way to examine how competing linguistic constraints are prioritized in bilingual speech. Its application in this study is especially relevant for several key reasons, including its ability to provide insight into constraint interaction in bilingualism. By focusing on constraints such as *VOI-CODA, MAX-IO, and IDENT-IO, OT effectively captures bilingual Singkil speakers' phonological adjustments when alternating between Singkil and Bahasa Indonesia. This approach highlights speakers' deliberate strategies to reconcile the phonological demands of their two languages, emphasizing the adaptive and dynamic nature of bilingual speech.

Additionally, OT facilitates a clear explanation of phonological deviations, offering a principled account of why certain phonological forms are favoured in bilingual contexts. For example, the preference for [molit] over [maulid] in Table 1 and [sə.bap] over [sə.bab] in Table 2 reflects the influence of constraint ranking. OT enables researchers to pinpoint dominant linguistic principles, such as the avoidance of voiced codas, that shape these preferences, providing valuable insights into the impact of a speaker's native language (L1) on their second language (L2) phonology.

5. Conclusion

The results show that out of all of the phonemes produced by the subjects, there is one main type of pronunciation deviation made by the bilingual Singkil speakers: alternation of voiced - voiceless obstruents. From the analysis of words /maulid/ to [mo.lit] and /sə.bab/ to [sə.bap], in the case of the voiced - voiceless obstruent alternation in (1 and 2). Second, bilingual Singkil speakers use these phonetic forms as markers and identities when they interact with others; it can be seen clearly from the use of the phoneme /d/ changes to [t] and [b] to [p] when it was in the final position when they were speaking Bahasa Indonesia.

Third, language is reflexive; it means language is always about itself, no matter what else it is also about. Every utterance is an example of how an utterance can be structured, how it can sound, and what it can accomplish. Finally, the connection between linguistic form and indexical meaning can be highlighted as people interact. (Barbara Johnstone cited in Llarmas, 2010, pp.32).

Finally, by examining the use of Singkil and Indonesian in formal and informal settings, the study underscores how sociocultural contexts influence language choice and phonological patterns, contributing to broader discussions on language use in bilingual communities.

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