

Morphophonemic Allomorphs Of The Prefix *Sa-* In Toba Batak Verbs: A Generative And Pedagogical Perspective

Esron Ambarita¹, Charles David Marudut Silalahi²,
Elita Modesta Br. Sembiring³, Veraci Silalahi⁴

^{1,2,3,4}Fakultas Sastra Universitas Methodist Indonesia, Indonesia

esronambarita@gmail.com¹

charliesilalahi32381@gmail.com²

elitamodesta@gmail.com³

veraci.sil76@gmail.com⁴

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Abstract

The research fills an essential void in morphological studies by examining the overlooked morphophonemic allomorphs of the prefix *sa-* [sa-] in Toba Batak, an at-risk Austronesian language. This research addresses this gap by utilizing a customized version of Halle's (1973) generative morphology framework, specifically adapted to the distinct linguistic characteristics of Toba Batak, to examine data gathered from 12 native speakers in Samosir Regency and Toba Samosir Regency. As the technical novelty, the research uncovers four unique morphophonemic allomorphs of the prefix *sa-* [sa-] in Toba Batak based on a generative and pedagogical perspective, namely, (i) *sam-* [sam-], (ii) *san-* [san-], (iii) *sang-* [saŋ], and (iv) *sangng-* [saŋŋ-]. The study highlights that the prefix *sa-* [sa-] in Toba Batak is productive, generating a wealth of grammatical and lexical meanings that stem exclusively from alternating forms. The modified Hallean model, which includes orthographic and phonological rules, effectively captures these subtleties, providing a novel framework. The consequences reach applied areas such as pedagogical perspective, revitalization, language instruction, and cultural renewal, highlighting the necessity of protecting regional languages like Toba Batak in the face of globalization. The implications extend to connect theoretical linguistics with practical conservation activities, promoting additional research on lesser-known languages

Keywords: Morphophonemic Allomorphs, Prefix *sa-*, Toba Batak Verbs, Generative and Pedagogical Perspective

INTRODUCTION

Language plays a significant role in the life of a community. Verbs are a component of the language utilized by individuals in their communications. Numerous languages globally exhibit variations and distinct verb conjugations based on their specific regions. However, the notion of a word is equally ambiguous and challenging to define, just like the ideas of analysis and synthesis (Tauli, 2011). Morphology as a branch of linguistics that examines morphemes, investigates word structure, form, and classification (Nida, 1949 and Katamba, 1993, Malmikjer, 1995). Toba Batak constitutes a significant void in morphophonemic allomorphs research within the Austronesian family. According to

Rutgers (1993), potential reasons may exist for the variations between the morphemes involved in the Chepang verb and those suggested for the Proto-Kiranti verb.

Although sometimes referenced in general studies (Blust, 2023, Luthfiani et al 2020), this language from Sumatra has not previously been the subject of specialized morphophonemic studies. The cultural importance of Toba Batak as the language of Lake Toba communities (Sinaga, 2002) stands in stark contrast to its vulnerable status, with a growing number of speakers transitioning to Indonesian (Lubis & Bowo, 2022 Purba et al, 2002). One of the earliest mentions of the recurrence in Toba Batak is documented in Tuuk (1864). The majority of current Toba Batak studies focus on cultural artifacts such as folktales (Simaremare et al., 2023) instead of its morphological systems.

This research pioneers by utilizing a construction-oriented method for the morphophonemic allomorphs of the prefix *sa-* [sa-] in Toba Batak. We modify Halle's (1973) generative morphology framework, originally designed for Indo-European languages, to fit the distinctive Austronesian characteristics of Toba Batak. Our revised framework includes orthographic and phonological principles. It particularly recognizes unique morphological structures, such as irregular verb affixations and prefixed forms that markedly diverge from Indonesian (Cristy et al., 2023; Damanik & Mulyadi, 2020). The sole characteristic that Russian reflexive verbs are claimed to share is their intransitivity (Gerritsen, 2011). In Himachali, the verbs are positioned at the end of a subordinate clause (Hendriksen, 2011). In Finnish and Estonian, deictic verbs are specifically employed to indicate boundaries in descriptions of non-actual motion (Tuuri and Belliard, 2024). It is challenging to explain the morphosyntactic relationships that exist between the auxiliaries and the main verb they depend on (Wedekind and Ørsnes, 2011).

These results enhance the wider theoretical discussion on language structure and enrich our insight into how these morphophonemic allomorphs influence verbal communication among Toba Batak speakers. The verbal agreement systems in western and eastern dialects differ (King, 2002). The research supports Indonesia's constitutional obligation to protect regional languages, highlighting the essential importance of linguistic diversity in sustaining cultural heritage (Rajagukguk et al., 2022). This study underscores the significance of pedagogical perspective which act as mediums for conveying cultural wisdom through generations (Sitanggang et al., 2024). Additionally, language maintains cultural identity via traditional songs and stories that embody fundamental societal values (Saragih, 2021). Therefore, the objectives of this study are to explore the morphophonemic allomorphs of the prefix *sa-* [sa-] in Toba Batak verbs based on the view point of a pedagogical approach.

REVIEW OF RELATED LITERATURE

This research employs Halle's (1973) generative morphology model as the basis for the theoretical framework. Generative morphology emphasizes the processes of word formation that create both actual and possible forms using rules and filters (Nida, 1949; Chomsky and Halle, 1968; Haspelmath et al., 2010). To generate refers to creating or producing, highlighting the process of transforming words. For example, mastering the term *courage* results in gaining associated words such as *courageous*, *encourage*, *discourage*, *discouragingly*, *discourageable*, *undiscouraged*, *encouragement*, and *encouragingly*, amounting to nine words.

Grasping a language facilitates instinctive word alteration. The generative grammarian has sought to address natural language (Diver, 1969). In the context of Toba Batak, several generative linguistic studies have been conducted, including those by Ambarita et al (2025a), Ambarita et al (2025b), Ambarita et al (2025c), Ambarita et al (2025d), Ambarita et al (2025e), Ambarita (2024), Ambarita (2023a), Ambarita (2023b), Ambarita (2022a), Ambarita (2022b), Ambarita (2021a), Ambarita (2021b), Ambarita (2020), Ambarita et al (2018a), Ambarita (2018b), Ambarita (2018c), Ambarita (2018d), Ambarita (2018e), Ambarita et al (2017a), Ambarita (2017b), etc.

Certain rules within a generative grammar of a language mirror transformations that have taken place in that language (Sigurd, 1966). Halle's 1973 framework has been extensively employed in generative linguistics for examining combinations of morphemes (Aronoff, 1976 and Scalise, 1984). Manzini (2021) states that generative morphology was established by Halle as a computational model where morphemes serve as the basic units and the primary operation is morphological merge.

1. List of Morphemes (LM)

Morphemes are essential in the creation of words, including both free and bound types. They are classified into fundamental lexemes and affixes. In West Greenlandic, for example, aspectual affixes can carry multiple meanings (Trondhjem, 2013). All selectional restrictions that exist between lexical items arise not from the unique characteristics of those items, but instead can be anticipated based on their semantic attributes (Hochster, 2011).

In this research, the primary lexical units being examined are verbs (V). In Kiranti languages, verbs cannot be easily divided as they can in agglutinating languages (Driem, 2011). Support-verb constructions consist of a verb paired with a noun that occupies the predicate position in a sentence (Fendel, 2025). In a primary sentence, the verb does not appear at the end as it does in other Indo-Aryan languages (Hendriksen, 1990). Affixes, the second category, can be classified into derivational and inflectional types (Anderson, 1982 and Stump, 2001).

2. Morphophonemic allomorphs in Word Formation Rules (WFR)

After the LM is finished, the subsequent step is to create the WFR, which specify how nouns, verbs, adjectives, adverbs, and other types are constructed (Crystal, 2008). The complete six-way arrangement of subject, object, and verb (SOV > SVO > VSO > VOS > OVS > OSV) is created on this foundation (Austin, 2025). These guidelines direct the proper arrangement of morphemes, guaranteeing the creation of valid words in a language. A word that comes after WFR and is paired with various affix morphemes transforms into a productive word.

Word formation takes place entirely within the lexicon, with WFR acting as the specific mechanism that regulates this process (Aronoff, 1976; Scalise, 1984). Morphologically, it produces grammatical meaning and lexical meaning, defining a language's possible words. Lexical homonymy has received considerable attention in numerous papers, while morphological homonymy has received less focus, despite being a phenomenon present in most languages (Krámský, 2011). Nonetheless, although WFR is capable of producing phonologically, syntactically, and semantically correct words, certain words may never occur in the language or be utilized by its speakers.

Based on meaning, morphemes are classified into two types: lexical morphemes and grammatical morphemes (Brinton, 2000). The Lahu language, for instance, stands out for the seemingly effortless manner in which two or more verbs can be linked or combined through straightforward juxtaposition to create complex verb phrases (Matisoff, 2011). Temporal markers, in Ashéninka Perené, can function within the same clause to indicate independent nominal and propositional verbal forms (Arawak) (Mihas, 2014). The identification of base words and derived words must take into account phonological changes (Ino, 2009).

Thus, changes that occur due to affixation in word formation include nasal and vowel alternations, as well as the addition or deletion of phonemes caused by phonemic differences (Chomsky & Halle, 1968). The first table of combinations of consonants preceding and following the stressed vowel treats the immediately preceding and immediately following consonant ([Twaddell, 1940](#)). This is consistent with Schane's (1973) statement that when morphemes are combined to form a word, the different segmental morphemes are arranged and may sometimes change and cause morphophonemic allomorphs.

According to Crowley (1992), sound changes in the world's languages include assimilation, diffusion, tolerance, fortition, apocope, syncope, haplology, epenthesis, imitation, permutation, and phoneme addition, among others. When morphemes occur adjacent to each other, they may influence one another's forms - sometimes predictably, sometimes unpredictably (Bauer, 1983). For example, the negative morpheme *in-* changes to *im-* in *impossible*, while retaining *in-* in words such as *incongruous*, *insufficient*, *indecent*, and *inaudible*.

The morpheme *in-* thus has the morphophonemic allomorphs *im-* and *in-* that occur in different environments. From these examples, it is clear that there is a phoneme change [n] becomes [m] before [p] in *impossible* and remains [n] before [c] in *incongruous*. The phoneme [m] is similar to [p] in that both are bilabial sounds, while [n] is similar to [c] in that both are velar. Based on these examples, the process by which one phoneme changes to another [n] becoming [m] due to the influence of an adjacent morpheme is called assimilation (Ramelan, 1988).

Specifically, the change from *in-* to *im-* in *impossible* and the retention of *in-* in *inappropriate* is referred to as progressive assimilation. In other words, assimilation is the process whereby one phoneme is replaced by another after the combination of one morpheme with another. It refers to the process in which a phoneme becomes similar to another (Nida, 1949). In fact, changes in phonemes and morphology due to environmental influence are very common.

The phonological requirements of a language may alter the form of individual morphemes in different contexts, producing allomorphy (Inkelas, 2011). The study of changes in morphemes and phonemes in different environments is called morphophonemics. In other words, affixation is the process of attaching an affix to a base word to form a new word, whether the base is simple or complex words.

3. Filter

Words can be acceptable or unacceptable in terms of phonology, syntax, or semantics, and their acceptability is defined by the filter. Akan verb-verb nominal compounds display unique formal and semantic characteristics (Appah, 2017). Created words experience a

morphophonological process that includes phoneme assimilation, deletion, addition, and various alterations. When a word's structure is considered unsuitable, it is caught and improved to guarantee it adheres to the language's conventions. Nevertheless, not every word can be produced by WFR because of exceptions unique to the language.

The filter detects these anomalies and attributes unique features that can be classified as semantic, phonological, or lexical idiosyncrasies. The integration of phonological conditional formulas is considered as morphologicalization. Functioning as a repository of distinctive information, the filter records the unique traits of each lexeme, encompassing possible words.

4. Dictionary

Terms produced via WFR are subject to filtering, allowing only permissible structures to advance to the concluding phase, which is the dictionary. This functions as the definitive source for all acceptable words, encompassing those from the LM and derivative terms created via WFR that have effectively cleared the filter. Every entry includes its definition and unique traits. The dictionary contains both standard words that the filter does not alter and unique creations that have been adjusted when required.

METHODS

This research utilized a qualitative phenomenological case study approach, which is scientifically beneficial for achieving a deeper understanding of the different variations of the prefix *sa-* [sa-] in Toba Batak. Understanding a language's condition and uniqueness can be studied through the reality of its study environment, this approach is fitting as it examines Toba Batak within its natural context allowing the language pattern to be analyzed without experimental interference. Phenomenological case study centers on examining a linguistic phenomenon by looking at a collective of individuals who are experiencing the phenomenon in its entirety.

This study was carried out in two regencies and six subdistricts. Initially, this study took place in Samosir Regency, which includes Pangururan Subdistrict, Ronggur Nihuta Subdistrict, and Harian Boho Subdistrict. Secondly, this study took place in Toba Samosir Regency, which includes Ajibata Subdistrict, Balige Subdistrict, and Borbor Subdistrict. These sites were chosen as they belong to *Tano Batak* "the Batak's Homeland". These areas are inhabited by native speakers of Toba Batak, and the use of the Toba Batak language has largely stayed unchanged by outside linguistic impacts.

The study recruited a total of twelve speakers of Toba Batak who are native. The team was made up of five men and seven women, ensuring representation from all six subdistricts in the two districts. To ensure ethical standards were met, all participants stayed anonymous to safeguard their identities. Their spoken words were captured and analyzed, but any personal information contained in their statements was excluded.

The researchers verified that the gathered data is neither artificial nor manipulated. Individual semi-structured interviews lasting 25 to 30 minutes were conducted with the 12 participants. The primary data, which consisted of verbal or oral information, was captured directly from native Toba Batak speakers in authentic contexts. This research additionally gathered secondary data from a visual compact disc that includes video recordings of traditional Toba Batak wedding parties featuring a couple from the same speech

community, used solely as a supplementary reference for quality assurance in the primary data analysis.

Consequently, the researchers find it essential to adjust Halle’s generative morphology theory, developing a new model that retains Halle’s model as the primary theory appropriate for examining the rules governing the morphological processes of the Toba Batak consisting of six elements, i.e., LM ↔ WFR ↔ FILTER ↔ ORTHOGRAPHIC RULE ↔ PHONOLOGICAL RULES ↔ DICTIONARY.

FINDINGS

The following discussion concerns the prefix (hereafter abbreviated as PREF) *sa-* [sa-] as it occurs with verb (hereafter abbreviated as V) in Toba Batak. When the prefix *sa-* [sa-] as a noun (hereafter abbreviated as N) is attached to a verbal base lexeme in Toba Batak, it undergoes the addition of the phonemes [m], [n], [ŋ], and [ŋŋ]. Accordingly, the prefix *sa-* [sa-] exhibits the following morphophonemic allomorphs, i.e., (i) *sam-* [sam-], (ii) *san-* [san-], (iii) *sang-* [saŋ-], and (iv) *sangng-* [saŋŋ-]. The realization of these allomorphs is highly restricted and occurs only with verbal base lexemes that lexically denote the meaning ‘to perform an action once’.

The rule governing the use of the prefix *sa-* [sa-] in Toba Batak can be formulated as follows:

- (a) [sa-] → [sam-] when the initial phoneme of the base lexeme (hereafter abbreviated as BL), is [b] or [p], as illustrated below:

[sa-] + *bola* [bola] ‘to split’ → *sambola* [sabbola] ‘to split once’
 [sa-] + *pudun* [pudun] ‘to tie’ → *sampudun* [sappudun] ‘to tie once’

Example:

- (1) *sambola* [sabbola] ‘to split once’

The affixation process involved in the formation of the word *sambola* [sabbola] is presented in the following diagram.

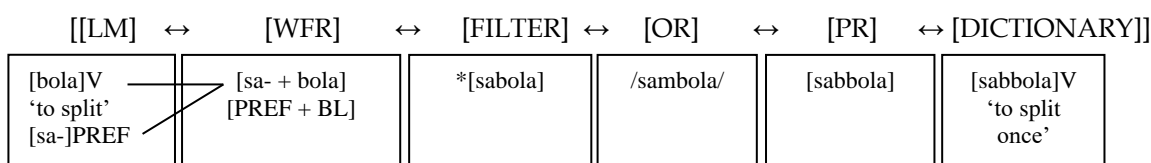


Diagram 1. *sambola* [sabbola] ‘to split once’

The form **sabola* [sabola] is not acceptable in Toba Batak and, therefore, must undergo a filtering process. This process can be described as follows:

Deep Structure (DS):

- [# [sa-] (PREF) + BL [bola] V #] V
- [sa-] + [bola]
- **sabola* (unacceptable in Toba Batak)

Insertion of the phoneme [m]:

- [sa-] + [m] + [bola]
- [sa- + m + bola]
- *sambola* (acceptable in Toba Batak)

Surface Structure (SS):

- *sambola* [sabbola] ‘to split once’

Thus, the output generated by the filter is the form *sambola* [sabbola]. Subsequently, this form is sent to the Orthographic Rules (hereafter abbreviated as OR), the Phonological Rules (hereafter abbreviated as PR), and finally to the lexicon, where it is stored as a lexical entry. The stages involved in the formation of the complex word (hereafter abbreviated as CW) *sambola* [sabbola] from the BL *bola* [bola] ‘to split’ are presented as follows:

$$[[BL]V + PREF[sa-] \rightarrow [CW]V]$$

The process of forming the CW *sambola* [sabbola] from the BL *bola* [bola] in Toba Batak can be analyzed as follows:

$$[BL[bola]V \rightarrow [BL[bola] + PREF[sa-]N] + \text{insertion of phoneme } [m]N \rightarrow CW \text{ } sambola \text{ [sabbola]V}$$

The verb *sambola* [sabbola] is derived from the BL *bola* [bola] through the addition of the prefix *sa-* [sa-] and the phoneme [m]. The formation of *sambola* [sabbola] is inflectional in nature, as the resulting CW consists of the BL *bola* [bola] combined with the bound morpheme *sa-* [sa-] and the insertion of the phoneme [m]. This rule yields the grammatical form *sambola* [sabbola], which carries the lexical meaning ‘to split once’.

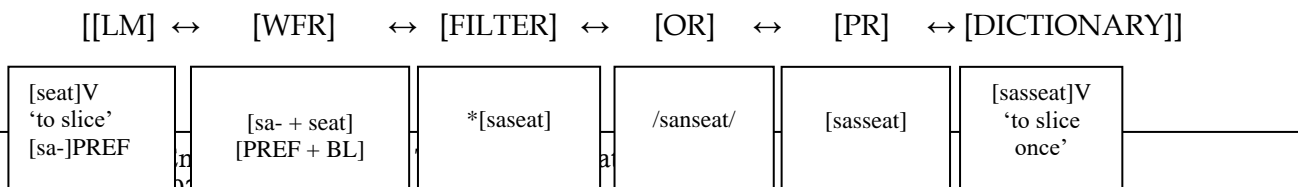
(b) [sa-] → [san-] when the initial phoneme of the BL is [d], [t], [j], [l], [r], or [s], as illustrated below:

[sa-] + <i>doltuk</i>	[doltuk]	‘to hit’	→ <i>sandoltuk</i>	[saddoltuk]	‘to hit once’
[sa-] + <i>jaljal</i>	[jaljal]	‘to hop’	→ <i>sanjaljal</i>	[sajjaljal]	‘to chop once’
[sa-] + <i>jomput</i>	[joppot]	‘to grasp’	→ <i>sanjomput</i>	[sajjoppot]	‘to grasp once’
[sa-] + <i>libas</i>	[libas]	‘to strike’	→ <i>sanlibas</i>	[sallibas]	‘to strike once’
[sa-] + <i>lotup</i>	[lotup]	‘to break’	→ <i>sanlotup</i>	[sallotup]	‘to break once’
[sa-] + <i>rondam</i>	[roddam]	‘to soak’	→ <i>sanrondam</i>	[sarroddam]	‘to soak once’
[sa-] + <i>seat</i>	[seat]	‘to slice’	→ <i>sanseat</i>	[sasseat]	‘to slice once’
[sa-] + <i>ririt</i>	[ririt]	‘to pinch’	→ <i>sanririt</i>	[sarririt]	‘to pinch once’
[sa-] + <i>tiop</i>	[tiop]	‘to hold’	→ <i>santiop</i>	[sattiop]	‘to hold once’
[sa-] + <i>tutung</i>	[tutun]	‘to burn’	→ <i>santutung</i>	[sattutun]	‘to burn once’

Example:

(2) *sanseat* [sasseat] ‘to slice once’

The affixation processes involved in the formation of *sanseat* [sasseat] are illustrated in the following diagram:



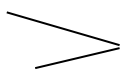


Diagram 2. *sanseat* [sasseat] ‘to slice once’

The form **saseat* [saseat] is not acceptable in Toba Batak and therefore must undergo a filtering process, which can be described as follows:

Deep Structure (DS):

- [#(sa-)(PREF) + BL(seat)V#]V
- [sa-] + [seat]
- **saseat* (unacceptable in Toba Batak)

Insertion of the phoneme [n]:

- [sa-] + [n] + [seat]
- [sa- + n + seat]
- *sanseat* (acceptable in Toba Batak)

Surface Structure (SS):

- *sanseat* [sasseat] ‘to slice once’

After passing through the filtering process, the CW *sanseat* [sasseat] is transferred to the OR, PR, and finally to the lexicon, where it is stored as a lexical entry. The stages involved in the formation of the CW *sanseat* [sasseat] from the BL *seat* [seat] ‘to slice’ can be formalized as follows:

$$[[BL]V + PREF[sa-] \rightarrow [CW]V]$$

The formation of the CW *sanseat* [sasseat] from the BL *seat* [seat] in Toba Batak can be analyzed as follows:

$$[BL[seat]V \rightarrow [BL[seat] + PREF[sa-]N] + \text{insertion of the phoneme } [n]N \rightarrow CW \textit{ sanseat} [sasseat]V]$$

The verb *sanseat* [sasseat] is derived from the BL *seat* [seat] through the attachment of the prefix *sa-* [sa-] and the insertion of the phoneme [n]. This word-formation process is inflectional in nature. The grammatical meaning of the resulting CW *sanseat* [sasseat] is ‘to perform the action denoted by the BL once’. Accordingly, the lexical meaning of *sanseat* [sasseat] is ‘to slice once’.

(c) [sa-] → [san-] when the initial phoneme of the BL is [g], [ŋ], or [h]; in this context, [h] undergoes alternation to [k], as illustrated below:

[sa-] + <i>gotap</i>	[gotap] ‘to cut’	→ <i>sanggotap</i>	[sanggotap]	‘to cut once’
[sa-] + <i>ngatngat</i>	[ŋaŋat] ‘to bite’	→ <i>sangngatngat</i>	[saŋŋaŋat]	‘to bite once’
[sa-] + <i>hanting</i>	[hattin] ‘to lift’	→ <i>sangkanting</i>	[sakkattin]	‘to lift once’

Example:

(3) *sanggotap* [sanɟotap] ‘to cut once’

The affixation stages involved in the formation of *sanggotap* [sanɟotap] are presented in the following diagram.

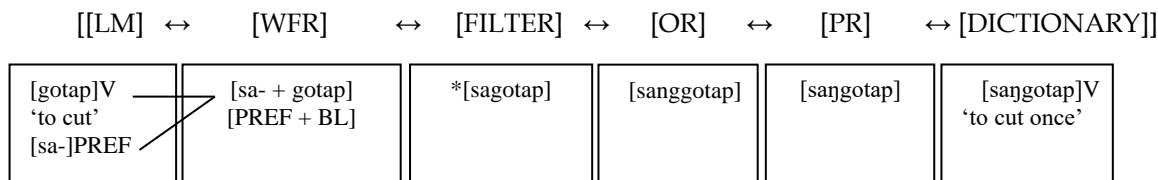


Diagram 3. *sanggotap* [sanɟotap] ‘to cut once’

The form **sagotap* [sagotap] is not acceptable in Toba Batak and, therefore, must undergo a filtering process, which can be described as follows:

Deep Structure (DS):

- [# [sa-] (PREF) + BL [gotap] V #] V
- [sa-] + [gotap]
- **sagotap* (unacceptable in Toba Batak)

Insertion of the phoneme [ŋ]:

- [sa-] + [ŋ] + [gotap]
- [sa- + ŋ + gotap]
- *sanggotap* (acceptable in Toba Batak)

Surface Structure (SS):

- *sanggotap* [sanɟotap] ‘to cut once’

After passing through the filtering process, the CW *sanggotap* [sanɟotap] is transferred to the OR, the PR, and ultimately to the lexicon, where it is stored as a lexical entry. The stages involved in the formation of the CW *sanggotap* [sanɟotap] from the BL *gotap* [gotap] ‘to cut’ can be formalized as follows:

$$[[BL]V + PREF[sa-] \rightarrow [CW]V]$$

The formation of the CW *sanggotap* [sanɟotap] from the BL *gotap* [gotap] ‘to cut’ in Toba Batak can be analyzed as follows:

$$[BL[gotap]V \rightarrow [BL[gotap] + PREF[sa-]N] + \text{insertion of the phoneme } [ŋ]N \rightarrow [CWsanggotap [sanɟotap]V]$$

The verb *sanggotap* [sanɟotap] is derived from the BL *gotap* [gotap] through the attachment of the prefix *sa-* [sa-] and the insertion of the phoneme [ŋ]. This word-formation process is inflectional in nature. The grammatical meaning of the resulting CW *sanggotap*

[sangotap] is ‘to perform the action denoted by the BL once’. Accordingly, the lexical meaning of *sanggotap* [sanɟotap] is ‘to cut once’.

(d) [sa-] → [saŋŋ-] when the initial phoneme of the BL is a vowel, namely [a], [e], [i], [o], or [u], as illustrated below:

[sa-] + <i>arsik</i>	[arsik] ‘to pour’	→ <i>sangngarsik</i>	[saŋŋarsik]	‘to pour once’
[sa-] + <i>etong</i>	[etong] ‘to count’	→ <i>sangnetong</i>	[saŋŋetong]	‘to count once’
[sa-] + <i>iris</i>	[iris] ‘to slice’	→ <i>sangngiris</i>	[saŋŋiris]	‘to slice once’
[sa-] + <i>ongkal</i>	[okkal] ‘to dig’	→ <i>sangngongkal</i>	[saŋŋokkal]	‘to dig once’
[sa-] + <i>umma</i>	[umma] ‘to kiss’	→ <i>sangngumma</i>	[saŋŋumma]	‘to kiss once’

Example:

(4) *sangngiris* [saŋŋiris] ‘to slice once’

The affixation processes involved in the formation of *sangngiris* [saŋŋiris] are illustrated in the following diagram.

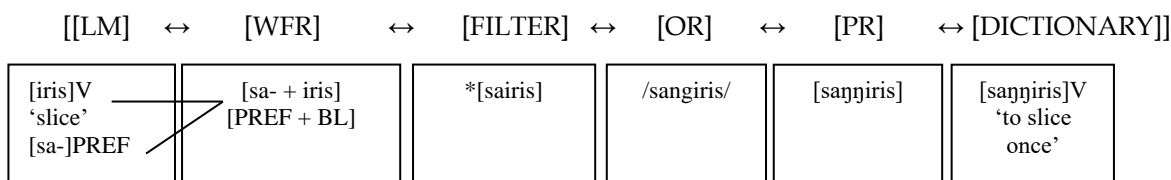


Diagram 4. *sangngiris* [saŋŋiris] ‘to slice once’

The form **sairis* [sairis] is not acceptable in Toba Batak and, therefore, must undergo a filtering process. This process can be outlined as follows:

Deep Structure (DS):

- [# [sa-] (PREF) + BL [iris] V #] V
- [sa-] + [iris]
- **sairis* (unacceptable in Toba Batak)

Insertion of the phoneme [ŋ]:

- [sa-] + [ŋ] + [iris]
- [sa- + ŋ + iris]
- *sangiris* (acceptable in Toba Batak)

Surface Structure (SS):

- *sangiris* [saŋŋiris] ‘to slice once’

Accordingly, the output yielded by the filter is the form *sangiris* [saŋŋiris]. Subsequently, this form is transferred to the OR, the PR, and finally to the lexicon, where it is stored as a lexical entry. The stages involved in the formation of the CW *sangiris* [saŋŋiris] from the BL *iris* [iris] ‘to slice’ can be formalized as follows:

$$[[BL]V + PREF[sa-] \rightarrow [CW]V$$

The formation of the CW *sangiris* [saŋɨris] from the BL *iris* [iris] in Toba Batak can be analyzed as follows:

[BL[iris]V → [BL[iris] + PREF[sa-]N] + insertion of the phoneme[ŋ]N → CW *sangiris* [saŋɨris]V]

The verb *sangiris* [saŋɨris] is derived from the BL *iris* [iris] through the attachment of the prefix *sa-* [sa-] and the insertion of the phoneme [ŋ]. The word-formation process that produces *sangiris* [saŋɨris] is inflectional in nature, since the resulting CW consists of the BL *iris* [iris] combined with the bound morpheme *sa-* [sa-] and the insertion of the phoneme [ŋ]. This rule yields the grammatical form *sangiris* [saŋɨris] with the lexical meaning ‘to slice once’.

Example:

(5) *sangngumma* [saŋŋumma] ‘to kiss once’

The affixation stages involved in the formation of *sangngumma* [saŋŋumma] are illustrated in the following diagram.

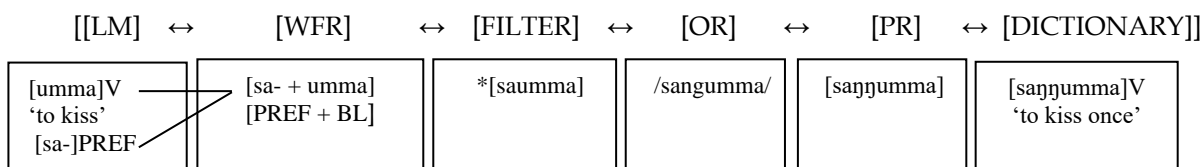


Diagram 5. *sangngumma* [saŋŋumma] ‘to kiss once’

The form **saumma* [saumma] is not acceptable in Toba Batak and, therefore, must undergo a filtering process. This process can be described as follows:

Deep Structure (DS):

- [#(sa-)(PREF) + BL[umma]V#]V
- [sa-] + [umma]
- **saumma* (unacceptable in Toba Batak)

Insertion of the phoneme [ŋ]:

- [sa-] + [ŋ] + [umma]
- [sa- + ŋ + umma]
- *sangumma* (acceptable in Toba Batak)

Surface Structure (SS):

- *sangumma* [saŋŋumma] ‘to kiss once’

Accordingly, the output yielded by the filter is the form *sangumma* [saŋŋumma]. This form is subsequently transferred to the OR, the PR, and finally to the lexicon, where it is stored as a lexical entry. The stages involved in the formation of the CW *sangumma* [saŋŋumma] from the BL *umma* [umma] ‘to kiss’ can be formalized as follows:

[[BL]V + PREF[sa-] → [CW]V]

The formation of the CW *sangumma* [saŋumma] from the BL *umma* [umma] in Toba Batak can be analyzed as follows:

[BL[umma]V → [BL[umma] + PREF[sa-]N] + insertion of the phoneme[ŋ]N → CW *sangumma* [saŋumma] V]

The verb *sangumma* [saŋumma] is derived from the BL *umma* [umma] through the attachment of the prefix *sa-* [sa-] and the insertion of the phoneme [ŋ]. In Toba Batak, the prefix *sa-* [sa-] is realized as *sangng-* [saŋŋ-], and the occurrence of this realization is highly restricted.

The word-formation process that yields *sangumma* [saŋumma] is inflectional in nature, as the resulting CW consists of the BL *umma* [umma] combined with the bound morpheme *sa-* [sa-] and the insertion of the phoneme [ŋ]. This rule generates the grammatical form *sangumma* [saŋumma] with the lexical meaning 'to kiss once'.

DISCUSSION

The findings of this study reveal four assimilatory allomorphs of the prefix *sa-* [sa-], i.e., *sam-* [sam-], *san-* [san-], *sang-* [saŋ-], and *sangng-* [saŋŋ-]. This pattern corroborates the accounts of Nida (1949), Inkelas (2011), and Ramelan (1988), who characterize assimilation as a morphophonemic process whereby a phoneme is modified when morphemes are combined, resulting in greater phonetic similarity between adjacent segments.

In Toba Batak, the attachment of the prefix *sa-* [sa-] to BL constitutes an inflectional process. The affix does not alter the syntactic category or the core lexical meaning of the base lexeme; rather, the original semantic content is fully retained in the resulting CW. Consequently, although *sa-* [sa-] introduces a formal variation of the V, this variation arises through inflection rather than derivation and does not encode a distinct grammatical category. Its grammatical function is to indicate that the action denoted by the BL is performed once.

The lexical interpretation of CW formed with *sa-* [sa-] is inherited directly from the BL. Through assimilation, the prefix generates predictable surface variants that serve specific morphophonemic allomorphs in Toba Batak. As demonstrated in the findings, adjacent phonological segments in the language may exert mutual influence on their realization. This phenomenon parallels Bauer's observation (2008) regarding English, where the negative prefix *in-* surfaces as *im-* in *impossible* but remains unchanged in forms such as *incongruous*, *insufficient*, *indecent*, and *inaudible*. The selection of the allomorph is determined by the initial segment of the following root, illustrating the sensitivity of morphological elements to their phonological environment.

(1) [in-] → [im-] in *impossible*

(2) [in-] retained in *incongruous*, *insufficient*, *indecent*, and *inaudible*

In these examples, the morpheme *in-* exhibits systematic allomorphy, surfacing as *im-* or *in-* in distinct yet predictable phonological contexts. The alveolar nasal [n] in *in-* assimilates to the bilabial nasal [m] when preceding a bilabial stop, such as [p] in *possible*,

while it remains [n] before non-bilabial segments, as observed in the other examples. This alternation reflects a general assimilatory tendency whereby a phoneme adjusts its articulatory features to align more closely with a neighboring sound, thereby facilitating articulatory ease and phonological coherence.

Such phonologically conditioned variation is widely attested in natural languages. In the English data discussed above, the alternants *im-* and *in-* represent morphophonemic alternations, or allomorphs, of a single underlying morpheme. These alternations arise in regular and predictable environments, with *in-* conventionally analyzed as the underlying form from which the surface realizations are derived.

CONCLUSION

This research provides a fresh viewpoint on the varying forms of the prefix *sa-* in Toba Batak. A key finding is the recognition of four morphophonemic allomorphs of the prefix *sa-* [sa-], i.e., (i) *sam-* [sam-], (ii) *san-* [san-], (iii) *sang-* [saŋ], and (iv) *sangng-* [saŋŋ-]. From a grammatical standpoint, the prefix *sa-* [sa-] does not alter the syntactic category of the root words; therefore, it is inflectional. Consequently, no new grammatical function can be detected. Nevertheless, their application communicates ideas associated with intensity or surplus. The meaning of the resulting complex words is obtained from the meanings of the original root words.

This research highlights the significance of recording the unspoken regulations that dictate the usage of the prefix *sa-* [sa-] in Toba Batak, with the goal of formalizing these into grammatical guidelines, especially due to the scarcity of written materials in the language. Although the results are encouraging, this research also supports additional studies on regional languages employing comparable methods or frameworks. These initiatives will not only help protect the linguistic legacy of local languages but also provide significant understanding to the wider area of universal grammar.

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