MORPHOLOGICAL COMPARISON OF NUMERAL SYSTEMS IN INDONESIAN AND TAGALOG: AUSTRONESIAN ROOTS AND COLONIAL INFLUENCES

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Abstract: Numeral systems are essential for understanding the structure and evolution of languages, as they reflect cognitive processes and are deeply shaped by historical and cultural influences. This study examines the numeral systems of Indonesian and Tagalog, two Austronesian languages, focusing on the morphological processes involved in numeral formation. Despite sharing a common linguistic ancestry, the numeral systems of these languages differ significantly due to various historical and cultural factors, including the impacts of colonization. The research employs a descriptive-qualitative approach, utilizing contrastive analysis to compare the morphological structures of numerals in both languages. Data were collected from literary texts, dictionaries, and language corpora in both languages, and the analysis involved distributional, comparative, and contextual methods. Additionally, consultations with native speakers helped verify numeral usage and clarify any ambiguities. Findings reveal that while both languages use a decimal numeral system, Indonesian generally employs simpler affixation patterns, such as the prefix "se-" in numerals like "seratus" (one hundred) and "seribu" (one thousand). In contrast, Tagalog incorporates more complex structures, often using bound morphemes like "isang-" (one) and "limang-" (five) for larger numbers, such as "isang daan" (one hundred) and "limang libo" (five thousand). The influence of colonial history is evident in both languages, with Tagalog borrowing extensively from Spanish, as seen in numerals like "mil" (thousand) and "milyon" (million), while Indonesian draws influence from Sanskrit and Dutch. The study also highlights the use of reduplication, which is more common in Tagalog, especially in informal contexts, whereas it is rarely used in Indonesian numerals. These findings provide insights into how the numeral systems of Indonesian and Tagalog have evolved differently despite their shared Austronesian roots, shaped by distinct socio-historical contexts. This research contributes to the field of contrastive linguistics and offers a deeper understanding of how external influences, such as colonialism, have shaped the structure of numeral systems in both languages. It also opens avenues for future research on numeral systems in other Austronesian languages.

Keywords: Contrastive Linguistics, Numeral Systems, Bahasa Indonesia, Tagalog, Morphology.

INTRODUCTION

Languages around the world offer valuable insights into the diverse ways people express ideas and connect with their environments (Uwasomba & Okiemute, 2024). One important aspect of language is numerals, which are words that represent numerical values and are a fundamental part of speech

(Veselinova, 2020). Found in nearly all languages, numeral systems vary significantly, shaped by the unique characteristics of each language. While these systems are distinct, some languages share similarities, offering a fascinating lens through which to explore the interplay of morphology, culture, and history. Despite the lack of universal rules, numeral systems possess unique features that reflect their linguistic forms and functions, highlighting the influence of both cultural and historical contexts (Shofiya, 2021).

Numeral systems are a fundamental component of language, serving as a crucial means of representing numerical concepts and facilitating communication about quantities, measurements, and relationships. These systems are not just linguistic tools but also reflect the cognitive structures and frameworks through which humans process and categorize the world around them. The way different cultures conceptualize numbers and express them through language is shaped by their cognitive abilities, societal needs, and historical contexts. For instance, some cultures may have more complex numeral systems due to the need to represent more intricate numerical concepts, while others may have simpler systems based on their particular cultural or economic requirements.

The phenomenon of numerals extends beyond simple counting; numerals also encode cultural values, social hierarchies, and even philosophical ideas. In many languages, the way numerals are formed or expressed can indicate a cultural preference for certain numbers or a particular system of measurement. For example, in languages with a base-10 numeral system, such as English or Indonesian, the structure of numerals reflects the human tendency to group quantities in sets of ten. In contrast, some languages use base-12 or base-60 systems, indicating alternative ways of thinking about and organizing the world (e.g., ancient Babylonian and Sumerian systems).

Understanding the differences and similarities between languages can shed light on broader linguistic phenomena (Bauer, 2003), such as how languages evolve to meet the communicative needs of their speakers and how they are influenced by cognitive and social factors. These differences in numeral systems can highlight the ways in which linguistic structures are shaped by culture, geography, and historical events. For instance, languages with a history of colonialism may exhibit numerals borrowed from foreign languages, as seen in Tagalog's adoption of Spanish numerals for higher numbers. Similarly, numeral systems in languages spoken in isolated regions may retain older, more complex forms that reflect their specific cultural practices or environmental conditions.

This study aims to delve into the numeral systems of Indonesian and Tagalog, specifically focusing on how these two languages use morphological processes to form and structure numerals. Numeral systems are a fundamental component of any language, as they allow speakers to convey quantitative information, and understanding how numerals are constructed can offer valuable insights into the underlying morphological structures of a language. While much research has been conducted on various linguistic features of Tagalog and Bahasa Indonesia, such as phonology, orthography, and syntax, fewer studies have provided a comparative analysis of their numeral systems.

Raymunde, Caangay, Ponce, and Mamonong (2023) conducted a comparative analysis of Tagalog, Bahasa Indonesia, and Bahasa Melayu, focusing on orthography, phonology, and semantics. Their findings revealed that Tagalog has a more complex orthography, with additional letters and diacritical marks not found in the other two languages. Phonologically, Bahasa Indonesia and Bahasa Melayu share an additional /ə/ sound, which makes their pronunciation distinct from Tagalog. The study also highlighted the role of affixation and reduplication in all three languages, with Tagalog primarily using syllabic reduplication, while Bahasa Indonesia and Bahasa Melayu tend to repeat entire root words. In conclusion, the authors emphasized that, despite the similarities among these languages, contrastive analysis is crucial for uncovering structural differences that contribute to their uniqueness within the Austronesian family.

Raymunde (2023), in another paper, also investigated the morphosyntactic features of Tagalog and English, comparing

their sentence structures and morphological processes. Tagalog follows a V-S-O (verb-subject-object) word order, while English uses an S-V-O (subject-verb-object) structure. Additionally, Tagalog does not require subject-verb agreement, unlike English, where the subject strongly influences the verb. The study concluded that these morphosyntactic differences are crucial for language learners, as they directly impact how sentences are constructed and understood. This research highlighted the importance of understanding morphosyntax in both language acquisition and production.

Safitri, Ariani, and Pratiwi (2024) focused on reduplication in Tagalog and Bahasa Indonesia, examining how this morphological process influences word formation and meaning. Their study found that reduplication in Tagalog is mainly used to indicate tense changes, whereas in Bahasa Indonesia, it is primarily employed to express quantity. Both partial and full reduplications were observed, with Tagalog's partial reduplication altering both word form and meaning, while Bahasa Indonesia's full reduplication generally affects meaning without changing tense. The study concluded that the patterns of reduplication in Tagalog and Bahasa Indonesia differ in their function, with Tagalog focusing on tense shifts and Bahasa Indonesia focusing on numerical aspects.

However, despite these shared linguistic foundations, the numeral systems in Indonesian and Tagalog also display unique characteristics that have been shaped by distinct cultural and historical influences. The development of these numeral systems has been influenced by various external factors, such as colonialism, trade, and interactions with neighboring cultures. For instance, while Indonesian numerals have been influenced by languages like Sanskrit and Dutch, Tagalog numerals exhibit a significant influence from Spanish, especially in terms of vocabulary for larger numbers (e.g., "mil" for thousand and "milyon" for million). These historical encounters have introduced variations in the numeral systems, leading to differences in their morphological structures and the specific ways in which numerals are formed and used.

Indonesian and Tagalog are two languages that, while geographically separated, share a common linguistic ancestry within the Austronesian language family. The cultural practices within each language community have contributed to the formation of unique numeral features. For example, the use of numerals in rituals, social hierarchies, and economic practices may differ between Indonesian and Tagalog-speaking communities, influencing the complexity and organization of their numeral systems. As such, while both languages retain core morphological similarities rooted in their shared Austronesian heritage, their numeral systems have evolved to reflect the distinct cultural, social, and historical contexts in which they are spoken. This interplay between shared linguistic ancestry and external influences highlights the dynamic nature of numeral systems and their ability to adapt to the specific needs and histories of different societies.

Despite this shared heritage, a notable research gap exists in the comparative study of their numeral systems. The contrastive analysis theory was used as the focus of this study, particularly concerning the morphological rules governing their formation. The contrastive analysis focuses on revealing the similarities and differences between both languages (Al-Sobhi, 2019; Davies, 2016; Obudikianga & Naomi, 2022; Raji, 2012). Through these frameworks, this study hypothesizes that the numeral systems in Indonesian and Tagalog share similar morphological formation rules due to their common ancestry in the Austronesian language family. These shared roots likely result in fundamental similarities in the way both languages structure their numerals, such as the use of free and bound morphemes and the application of affixation to form larger numbers. Given their Austronesian heritage, it is expected that the numeral systems in both languages will follow comparable patterns, reflecting similar cognitive processes and linguistic structures.

The novelty of this research lies in its detailed comparative analysis of the numeral systems in Indonesian and Tagalog, highlighting both shared features and distinctive differences shaped by cultural practices and historical contexts. For instance,

while Indonesian uses morphemes like "puluh" for tens, "ratus" for hundreds, and "ribu" for thousands, Tagalog incorporates morphemes such as "ampu" for tens, "daan" for hundreds, and "libo" for thousands. This study explores how these differences align with broader Austronesian linguistic patterns and reflect the unique historical and cultural trajectories of each language. The analysis includes the basic morphemes in both languages, their combinations to form larger numerals, and how numerals are used in various socio-cultural contexts, particularly in rituals and ceremonies, which reflect each language's cultural values and historical experiences (Aeur, 2020; Severo & Görski, 2017).

Additionally, the research examines the historical influences on the numeral systems, specifically the impact of Dutch on Indonesian and Spanish on Tagalog, both of which have shaped their numeral structures. Indonesian has undergone more rigorous standardization of orthography and word formation due to its status as the official language, while Tagalog, despite being an official language in the Philippines, exhibits more dialectal variation. This historical evolution has significantly influenced the morphological distinctions observed in the numeral systems of both languages. By employing contrastive analysis (Al-Rickaby, 2023) and considering linguistic variation (Sigurðsson, 2020), this research offers a comprehensive understanding of how shared Austronesian ancestry and distinct cultural and historical factors have shaped the numeral systems of Indonesian and Tagalog.

In conclusion, this study addresses the central question of how the numeral systems in Indonesian and Tagalog differ in their morphological structures and the cultural and historical factors that contribute to these differences. It explores the similar rules for numeral formation that both languages share, despite their common Austronesian roots, while also examining how their numeral systems have evolved due to their unique cultural and historical contexts. This research fills a gap in the literature by offering a detailed comparative analysis of the numeral systems in both languages, providing new insights into the morphological rules governing numeral formation and the cultural and historical influences that shape these systems. The findings contribute to a deeper understanding of these two languages and further enrich discussions in comparative and historical linguistics.

METHOD

This study employs a descriptive-qualitative approach, utilizing contrastive analysis as the primary methodological framework, following the guidelines set by Mahsun (2005). The contrastive analysis method is particularly suited for this research as it enables a systematic comparison of the numeral systems in Indonesian and Tagalog, focusing on their morphological structures, such as affixation, compounding, reduplication, and borrowing. By comparing these systems, this study aims to identify both the similarities and differences in numeral formation, shaped by their shared Austronesian roots as well as distinct cultural and historical influences. This approach is effective in uncovering structural patterns and linguistic phenomena that may not be immediately apparent through individual language analysis.

Data for this research were collected from authentic written sources, including literary texts, dictionaries, and language corpora from both Indonesian and Tagalog. These materials were selected to ensure a representative sample of formal and standard numeral usage. Literary texts provided rich linguistic examples, while dictionaries offered standardized numeral forms. Then, language corpora reflected everyday usage. The selection criteria prioritized materials that reflect official, standard usage, such as government publications, educational materials, and media content, ensuring a broad and accurate representation of numerals in both languages.

In addition, the researchers conducted consultations with native speakers of these languages to verify the accuracy of the findings. Introspective interviews were used to clarify contextual and usage-based ambiguities in numeral formation. To mitigate potential biases introduced by dialectal differences or individual speaker variation, the authors maintained a balance between native speaker input and corpus-based data. The distributional method was applied to

analyze the internal structure of numerals, focusing on the identification of free and bound morphemes, affixation patterns, and compounding. This analysis allowed for a detailed examination of how basic numeral morphemes combine to form complex numerals. The comparative technique was then used to contrast the morphological structures of Indonesian and Tagalog numerals, highlighting both their shared features and distinct differences. Additionally, the contextual method was employed to explore the socio-cultural and historical factors influencing numeral systems, including the impact of historical language contact with Dutch in Indonesia and Spanish in the Philippines. This method helped explain how cultural practices, historical events, and external linguistic influences have shaped the numeral usage in both languages.

The results were presented using descriptive explanations and comparative tables, as recommended by Sudaryanto (1993). This data presentation technique was employed to clearly illustrate the similarities and differences between the numeral systems of the two languages. Linguistic terminology and formal notation were employed to describe the morphological structures.

FINDINGS

This study analyzes the numeral systems in Indonesian and Tagalog from a contrastive morphological perspective (Auni & Manan, 2023). Both languages belong to the Austronesian language family (Aqromi & Hendrawan, 2019; Blust, 2009) and share similarities in several linguistic aspects, including numeral systems. However, there are notable differences between these two languages, particularly in morphological structure and formation processes. The numerals in both languages are presented in the table 1 below:

Table 1. Numerals in Indonesian and Tagalog

Numeral	Indonesian	Tagalog
Basic	*Satu, Dua, Tiga, Empat, Lima, Enam, Tujuh, Delapan, Sembilan, Sepuluh.*	*Wisa, Dalawa, Tatlo, Apat, Lima, Anim, Pito, Walo, Siyam, Sampu.*
Tens	*Sepuluh, Dua puluh, Tiga puluh, Empat puluh, Lima puluh, Enam puluh, Tujuh puluh, Delapan puluh, Sembilan puluh.*	*Sampu, Dalawampu, Tatlumpu, Apatnapu, Limampu, Animnapu, Pitumpu, Walumpu, Siyamnapu*
Hundreds	*Seratus, Dua ratus, Tiga ratus, Empat ratus, Lima ratus, Enam ratus, Tujuh ratus, Delapan ratus, Sembilan ratus.*	*Isang daan, Dalawang daan, Tatlong daan, Apat na daan, Limang daan, Anim na daan, Pitong daan, Walong daan, Siyam na daan.*
Thousands	*Seribu, Dua ribu, Tiga ribu, Empat ribu, Lima ribu, Enam ribu, Tujuh ribu, Delapan ribu, Sembilan ribu.*	*Isang libo, Dalawang libo, Tatlong libo, Apat na libo, Limang libo, Anim na libo, Pitong libo, Walong libo, Siyam na libo*

To understand the numeral systems of both languages, the analysis is conducted based on several morphological aspects, namely affixation, compounding, reduplication, and borrowing (Gardani, 2020; Nugraha, 2024; Sulistyawati & Bram, 2021; Syarifaturrahman et al., 2022). The key findings related to the morphology of numerals in both languages are as follows:

The Morphological Structure of Indonesian Numerals

Indonesian uses a decimal-based numeral system. The basic morphemes that are often used are free morphemes, which can stand alone as words. However, there is also the use of bound morphemes in certain contexts (Bauer, 2003; Heine et al., 2015; Kay & Adnyani, 2021; Ramadhan & Aliffudin, 2022), especially when expressing large numbers or sequences. Below are examples of numerals in Indonesian

Table 2. Numerals in Indonesian Language

Numeral	Free Morpheme	Bound Morpheme	Compounding
One	*Satu*	-	
Two	*Dua*	-	
Three	*Tiga*	-	
Four	*Empat*	-	
One Hundred	*Satu + ratus*	*Se-*	*Satu + ratus*
One Thousand	*Satu + ribu*	*Se-*	*Satu + ribu*

Basic numerals in Indonesian consist of simple forms like "*satu*" (one), "*dua*" (two), "*tiga*" (three), and so on up to "*sepuluh*" (ten), "*seratus*" (one hundred), and "*seribu*" (one thousand). This indicates a highly structured

decimal system. Numerals above ten, such as "*sebelas*" (eleven), "*dua belas*" (twelve), and up to "*sembilan belas*" (nineteen), follow a pattern where the prefix "se-" (meaning "one") is added, while "*puluh*," "*ratus*," and "*ribu*" denote tens, hundreds, and thousands, respectively. Basic numerals in Indonesian can undergo affixation, as in "*seratus*" *(se- + ratus*) and "*seribu*" *(se- + ribu),* where the prefix *"se-"* denotes the number one in the context of larger numbers.

The Morphological Structure of Tagalog Numerals

The Tagalog language of the Philippines also employs a decimal numeral system with free morphemes as the basic form of numbers. Tagalog numerals rely on free morphemes, often accompanied by bound morphemes for larger numbers. The influence of Spanish is prominent in higher numeral forms. Below are examples of numerals in Tagalog:

Table 3. Numerals in Tagalog

Numeral	Free Morpheme	Bound Morpheme	Compounding
One	*Isa*	-	-
Two	*Dalawa*	-	-
Three	*Tatlo*	-	-
Four	*Apat*	-	-
One Hundred	*Isa + daan*	*Isang-*	*Isa + daan*
Five Thousand	*Lima + libo*	*Limang-*	*Lima + libo*

Similar to Indonesian, basic numerals in Tagalog follow a decimal system, such as "*isa*" (one), "*dalawa*" (two), "*tatlo*" (three), and so forth, up to "*sampu*" (ten). However, numerals above ten are formed by adding the morpheme "*labing-*" before the unit numeral, such as "*labing-isa*" (eleven) and "*labing-dalawa*" (twelve). Tagalog also uses bound morphemes such as "*isang-*" in "*isang daan*" (one hundred) and "*limang-*" in "*limang libo*" (five thousand), forming composite numerals from basic numerals and larger quantity units.

Both languages utilize free and bound morphemes in their numeral systems. However, Tagalog tends to use bound morphemes for larger numerals, such as "*limang libo*" (five thousand), more frequently than Indonesian, which often employs free morphemes and simple prefixes like "*seribu*" (one thousand).

Morphological Processes in Numeral Formation

Affixation

Affixation is the process of word formation by adding an affix to a base word (Chairunnisa et al., 2024). In numeral formation, affixes can be added to create new numerals by increasing the quantity or sequence. In Indonesian, the most common affixation is the prefix "se-," as seen in "*seratus*" (*se- + ratus*) and "*seribu*" (*se- + ribu*), which indicate the number one. In Tagalog, prefixation occurs with morphemes such as "*isang-*" to indicate "one" in the context of large numbers, such as "*isang daan*" (one hundred), similar to the prefix *"se-"* in Indonesian.

Compounding

Compounding involves combining two or more base words (Chaer, 2008) to form new numerals. This occurs when two free morphemes are combined to form larger numerals. In Indonesian, compounding is seen in combinations like "*dua puluh*" (twenty) and "*seratus" (se- + ratus*). In Tagalog, a similar process occurs in forms like "*dalawampu*" (twenty), a combination of "*dalawa*" (two) and *"pu"* (ten).

Borrowing

Borrowing involves adopting words from other languages into the target language (Chaer, 2008; Gardani, 2020; Gardani et al., 2015). In numeral formation, borrowing occurs when a language adopts numerals from another language. Most numerals in Indonesian are native, although there is influence from Sanskrit and Dutch in some large numbers, such as *"juta"* (million). In Tagalog, borrowing is more pronounced, with many large numerals, such as *"mil"* (thousand) and "*milyon*" (million), coming from Spanish.

Reduplication

Reduplication involves repeating a syllable or the entire word to express intensity, groupings, or quantity (Mas et al., 2024; Urbanczyk, 2017). In numeral formation, reduplication can be used to indicate a larger quantity or intensity.

Reduplication is not commonly used in Indonesian numerals, but some informal forms, like *"ratus-ratus*" (hundreds), are occasionally used to indicate an indeterminate large quantity. In Tagalog, reduplication also occurs, although rarely in formal numerals. For example, *"libo-libo"* (thousands) can express an unspecified large number.

Based on the findings, there are several similarities and differences between the numeral systems of Indonesian and Tagalog, which can be explained using a contrastive linguistic framework as proposed by scholars such as Al-Sobhi (2019); Davies (2016); Obudikianga and Naomi (2022); and Raji (2012).

Similarities of Indonesian and Tagalog

Both Indonesian and Tagalog use a decimal system, a common feature of Austronesian languages. This reflects a shared linguistic heritage from a common historical origin, who identified the decimal system as a common feature of languages that evolved from the Austronesian family. This similarity is likely due to contact and migration of Austronesian-speaking communities in the past (Blust, 2009). Both Indonesian and Tagalog numeral systems are based on free morphemes as the primary base, such as "*satu/isa*" (one), "*dua/dalawa*" (two), and *"tiga/tatlo*" (three), reinforcing their shared Austronesian origin, where basic numbers follow a similar pattern.

Both languages use affixation in the formation of complex numerals. Prefixes like *"se-"* in Indonesian and *"isang-"* in Tagalog function similarly to indicate the number one in the context of large numbers. This affixation is used to add units or amounts to base numbers, particularly in hundreds and thousands. The following table illustrates this usage:

Table 4. Examples of Affixation in Indonesian and Tagalog

No	Language	Numeral	Affixation
1	Indonesian	*Seribu (se- + ribu)*	Prefix *"se-"* indicating one
		Seratus (se- + ratus)	Prefix *"se-"* for hundreds
2	Tagalog	*Isang libo (isa + libo)*	Suffix *"-libo"* for thousands
		Dalawang daan (dalawa + daan)	Suffix *"-daan"* for hundreds

Both languages also use the compounding of free morphemes to form larger numerals, such as tens and hundreds. This process is evident in the formation of numerals like "*dua puluh"* (twenty), "*lima puluh*" (fifty), and "*seratus"* (one hundred) in Indonesian, and "*dalawampu*" (twenty), "*limampu*" (fifty), and "*isang daan*" (one hundred) in Tagalog.

In both Indonesian and Tagalog, the formation of ordinal numerals (numerals indicating sequence, such as first, second, third) follows a similar pattern. Ordinal numerals are formed through morphological changes to the base numeral, with the addition of specific affixes to indicate order. In Indonesian, ordinal numerals include "*pertama*" (first), "*kedua*" (second), and *"ketiga*" (third), while in Tagalog, they include *"una"* (first), *"ikalawa"* (second), and "*ikatlo"* (third). In Tagalog, the prefix *"ika-"* indicates that the numeral is ordinal, whereas in Indonesian, the prefix *"ke-"* serves a similar function.

Differences of Indonesian and Tagalog

A significant morphological difference between Indonesian and Tagalog numerals is how the two languages form numerals above ten. Indonesian employs a relatively simple pattern, with the addition of the prefix *"se-"* or a basic numeral followed by a quantifier like *"puluh"* (ten), *"ratus"* (hundred), or *"ribu"* (thousand). In contrast, Tagalog adds the morpheme *"labing-"* before the unit numeral, reflecting a higher degree of morphological complexity. According to Bauer (2003) it represents a more developed agglutinative morphology in Tagalog, compared to the more isolative structure of Indonesian.

Tagalog is more inclined to use bound morphemes like *"isang-"* and *"limang-"* in complex numerals, which are less commonly found in Indonesian. This suggests that Tagalog has a greater tendency to morphologically bind base numbers with higher quantity units. More specifically, Tagalog displays a different morphemic pattern compared to Indonesian. Tagalog uses "*sampu*" (ten), "*daan*" (one hundred), and *"libo*" (one thousand) to represent tens,

hundreds, and thousands, with greater flexibility in phrase structure. For example, *"dalawang daan*" (two hundred) and *"tatlong libo"* (three thousand) demonstrate the use of base numerals that can stand alone and function as quantifiers.

The influence of foreign languages is more pronounced in Tagalog, particularly with Spanish borrowing for large numbers such as *"milyon"* (million) and *"mil"* (thousand), whereas Indonesian relies on native words or borrowings from different languages like Sanskrit and Dutch. This highlights the distinct historical and colonial influences on each language.

In Indonesian, large numbers typically do not undergo changes to the base form, whereas in Tagalog, there is morphological variation through bound morphemes, such as *"limang libo"* (five thousand), where the base number *"lima"* is modified to *"limang-."*

Tagalog tends to use affixation more frequently in numeral formation, while Indonesian rarely employs it in this context. The use of affixation in Tagalog is tied to its tendency to incorporate affixes across various grammatical aspects, which emphasizes how languages differ in their use of bound and free morphemes. While reduplication is more commonly found in Tagalog, this phenomenon is rarer in Indonesian language.

Factors Influencing Similarities and Differences

Indonesian and Tagalog belong to the same language family, i.e., Austronesian languages, which explains the similarities in the basic numeral structures, rooted in a shared linguistic ancestry that inherited a similar decimal numeral system.

In addition to their shared language family, external influences on both languages have led to the adoption of borrowed numerals from foreign languages. For example, the influence of Spanish on Tagalog and the influence of Dutch and Sanskrit on Indonesian have shaped differences in larger numerals. The historical and language contact (Aeur, 2020) between Tagalog and Spanish, which introduced complex numeral structures during colonization, is particularly significant. For instance, the affix pattern *"labing-"* in Tagalog may have been influenced by the Spanish numeral system, although it still follows an Austronesian pattern. On the other hand, Indonesian has been more influenced by classical Malay and Arabic, which tend to have simpler numeral systems.

Different colonial histories and cultural interactions have led to divergent borrowing and numeral usage, resulting in notable morphological differences between the two languages. Cultural and social factors also play a role so sociolinguistic factors significantly shape language structure (Lamhot, 2020), including numerals. Both languages were influenced by different cultural and social contacts, with Tagalog being more heavily influenced by Spanish colonization and Indonesian by Malay, Arabic, and later Dutch influences, contributing to differences in numeral morphology.

The findings from the previous studies align with several aspects of the current study, especially in terms of affixation and reduplication in both Tagalog and Bahasa Indonesia. Raymunde et al. (2023) and Safitri et al. (2024) explore how affixation and reduplication influence word formation and meaning in these languages. Raymunde et al. (2023) highlighted the phonological and orthographic complexities of Tagalog, noting that it uses syllabic reduplication, unlike Bahasa Indonesia and Bahasa Melayu, which often use whole-word reduplication. Similarly, Safitri et al. (2024) focused on how reduplication changes tenses in Tagalog and indicates quantity in Bahasa Indonesia. The current study investigates the role of morphemes in the numeral systems of both languages, specifically how morphemes such as "puluh," "ratus," and "ribu" in Indonesian, and "ampu," "daan," and "libo" in Tagalog are used to construct larger numerals. While these previous studies focus on general morphological processes, the current study targets numeral systems, providing a more specific exploration of how affixation and reduplication are applied in forming numerals. Furthermore, Raymunde et al. (2023) discuss the influence of historical and cultural factors on language, noting the impact of Spanish on Tagalog and Dutch on Indonesian. These findings resonate with the current study's exploration of how historical influences have shaped numeral systems in both languages, particularly through the use of Spanish-

derived terms in Tagalog numerals. Additionally, the current study examines how numerals are used in cultural and ritualistic contexts, a dimension not fully explored by the previous studies, which primarily focus on broader language features. Raymunde (2023) also analyzed morphosyntactic differences between Tagalog and English, noting distinct sentence structures, which, while not directly related to numeral systems, help contextualize the structural differences between the two languages. In contrast, the current study emphasizes how Tagalog and Indonesian numeral systems, shaped by their Austronesian heritage and external influences, differ in structure and cultural context. While the previous studies employ contrastive analysis to examine language features, the current study fills a gap by offering a focused comparison of numeral systems, contributing valuable insights into how these languages' numeral structures have been shaped by shared linguistic ancestry and unique historical and cultural influences.

CONCLUSION

This study explores the numeral systems of Indonesian and Tagalog, revealing both shared linguistic features and distinct differences. As two languages of Austronesian origin, both employ free and bound morphemes in their decimal numeral systems, reflecting their common heritage. However, historical influences—such as Spanish colonization of Tagalog and Dutch influence on Indonesian—have led to notable divergences in numeral formation. Indonesian utilizes a simpler morphological structure, relying primarily on free morphemes with affixation, while Tagalog incorporates more bound morphemes and greater complexity in forming numerals, especially for numbers above ten. Furthermore, Tagalog has borrowed extensively from Spanish, incorporating loanwords such as *"mil"* (thousand) and *"milyon"* (million), whereas Indonesian has integrated Sanskrit and Dutch influences.

This comparative analysis not only highlights the structural distinctions between the two languages but also offers insights into the socio-cultural and historical factors that have shaped their numeral systems. The findings contribute to the understanding of the diverse morphological processes in numeral formation within the Austronesian language family and provide a valuable addition to the field of contrastive linguistics.

Future research could expand on these findings by exploring other Austronesian languages, investigating how their numeral systems have evolved, and assessing the impact of globalization on contemporary numeral usage. Additionally, further research could examine how these morphological differences influence language learning, particularly in bilingual or multilingual contexts, shedding light on cognitive and pedagogical implications.

However, this study acknowledged some potential limitations, such as its limited corpus scope, which may not capture all regional variations as well as the potential biases in native speaker consultations. Additionally, the influence of historical language contact is complex and may not be fully accounted for in this analysis, requiring further research to explore its long-term effects on numeral systems in both languages.

REFERENCES

Aeur, P. (2020). Language contact:Pragmatic factors. In E. Adamou & Y. Matras (Eds.), *The routledge handbook of language contact* (pp. 147–167). Routledge.

Al-Rickaby, A. (2023). The survival of contrastive analysis hypothesis: A look under the hood. *Theory and Practice in Language Studies*, *13*(1), 1–7. https://doi.org/10.17507/tpls.1301.01

Al-Sobhi, B. M. S. S. (2019). The Nitty-gritty of language learners' errors – Contrastive analysis, error analysis and interlanguage. *International Journal of Education and Literacy Studies*, *7*(3), 49-60. https://doi.org/10.7575/aiac.ijels.v.7n.3p.49

Aqromi, N. l., & Hendrawan, F. (2018). Bahasa tidung di Kalimantan Utara: Sebuah tinjauan dari perspektif diakronis. *Kembara: Jurnal Keilmuan Sastra, Bahasa, dan Pengajarannya*, *4*(2), 200–207. https://doi.org/10.22219/kembara.v4i2.5803

Auni, L., & Manan, A. (2023). A contrastive analysis of morphological and syntactic aspects of English and Indonesian adjectives. *Studies in English Language and Education*, *10*(1), 403–423. https://doi.org/10.24815/siele.v10i1.27401

Bauer, L. (2003). *Introducing linguistic morphology* (2nd ed.). Georgetown University Press.

Blust, R. A. (2009[13]). The Austronesian languages. In *asia-pacific linguistics, research school of pacific and asian studies*. Australian National University.

Chaer, A. (2008). *Morfologi bahasa Indonesia: Pendekatan proses [Indonesian morphology: Process approach]*. Rineka Cipta.

Chairunnisa, T., Anggraeni, D., Marshanda, P., & Jumanto, J. (2024). Analysis of the affixation process in the second victory novel by Morris West. *Surakarta English and Literature Journal*, *7*(1), 101–116. https://doi.org/10.52429/selju.v7i1.209

Davies, A. (2016). *Glossary of applied linguistics*. Taylor and Francis. https://doi.org/10.4324/9781315045597

Gardani, F. (2020). Borrowing matter and pattern in morphology: An overview. *Morphology*, *30*(4), 263–282. https://doi.org/10.1007/s11525-020-09371-5

Gardani, F., Arkadiev, P., & Amiridze, N. (2015). Borrowed morphology: An overview. In *Borrowed Morphology* (pp. 1–24). De Gruyter. https://doi.org/10.1515/9781614513209.1

Heine, B., Narrog, H., & Booij, G. E. (2015). Morphological analysis. In *The Oxford handbook of linguistic analysis*. Oxford University Press. https://doi.org/10.1093/oxfordhb/9780199677078.013.0020

Kay, A. Y. A., & Adnyani, N. L. P. S. (2021). Morphological analysis of derivational bound morpheme in Magena language: A language spoken in Central Sumba regency. *Jurnal Pendidikan Bahasa Inggris Indonesia*, *9*(2), 101–108. https://doi.org/10.23887/jpbi.v9i2.604

Lamhot, N. (2020). *Introduction to sociolinguistics*. UKI Press.

Mahsun. (2005). *Metode penelitian bahasa tahap strategi, metode, dan tekniknya*. RajaGranfindo Persada.

Mas, I. G., Sina, M. W., & Raja, F. d. (2024). Types and morphological process of reduplication in Kedang dialect. *Linguistics and Language Teaching*, *5*(1), 1-10.

Nugraha, D. S. (2024). Constructions of the compound noun in Indonesian: A derivational morphology approach. *EAS Journal of Humanities and Cultural Studies*, *6*(1), 1–12. https://doi.org/10.36349/easjhcs.2024.v06i01.001

Obudikianga, B. L., & Naomi, C.-W. (2022). A contrastive analysis of affixation in English and Kirika. *International Journal of Humanities and Social Science*, *9*(2), 34–39. https://doi.org/10.14445/23942703/IJHSS-V9I2P105

Raji, O. W. (2012). A syntactic contrastive analysis of English And Yoruba language: A re-examination. *Journal of Qualitative Education*, *8*(1), 1-6.

https://www.globalacademicgroup.com/journals/qualitative%20education/Olalere1.pdf

Ramadhan, B. A., & Aliffudin, M. (2022). Morphological analysis of free and bound morphemes in the novel *Healing is the New High* by Vex King. *Undergraduate Conference on Language, Literature, and Culture*, *2*(1), 609-628. http://publikasi.dinus.ac.id/index.php/unclle

Raymunde, P., Caangay, R. B., Ponce, M. R., & Mamonong, V. (2023). Tagalog, Bahasa Indonesia, And Bahasa Melayu Language: A Comparative Analysis. *Psychology and Education: A Multidisciplinary Journal*, *14*(5), 586-606.

Raymunde Jr, P. P. (2023). Demystifying the Morphosyntactic Features of the Tagalog and English Languages: A Contrastive Analysis. *East Asian Journal of Multidisciplinary Research*, *2*(11), 4489-4498.

Safitri, H., Ariani, N., & Pratiwi, D. I. (2024). Reduplication in Tagalog and Indonesian Language (Bahasa): A Comparative Study. *Jurnal Onoma: Pendidikan, Bahasa, dan Sastra*, *10*(2), 1829-1843.

Severo, C. G., & Görski, E. (2017). On the relation between the sociology of language and sociolinguistics: Fishman's legacy in Brazil. *International Journal of the Sociology of Language*, *2017*(243), 119-132. https://doi.org/10.1515/ijsl-2016-0048

Shofiya, A. (2021). Numeral systems of Indonesian, Arabic, English and Thai (Numeralia dalam Bahasa Indonesia, Arab, Inggris, dan Thai). *Al Qorin*, *1*(1). https://prosiding.arab-um.com/index.php/iccal/article/view/1151 [suspended]

Sigurðsson, H. Á. (2020). Universality and variation in language. *Evolutionary Linguistic Theory*, *2*(1), 5–29. https://doi.org/10.1075/elt.00013.sir

Sudaryanto. (1993). *Metode dan aneka teknik analisis bahasa: Pengantar penelitian wahana kebudayaan secara linguistis*. Duta Wacana University Press. https://onesearch.id/Record/IOS3189.slims-5915

Sulistyawati, E. E., & Bram, B. (2021). Word formation processes in There Will Come Soft Rains short story. *Lingua: jurnal Bahasa, Sastra, dan Pengajarannya*, *18*(2), 272-289. https://doi.org/10.30957/lingua.v18i2.719

Syarifaturrahman, W. K., Abdussamad, Z., & Rahmawati, L. (2022). Morphological study of affixation in Sasak Selaparang dialect. *Humanitatis: Journal of Language and Literature*, *8*(2), 297–306. https://doi.org/10.30812/humanitatis.v8i2.2022

Urbanczyk, S. (2017). Phonological and morphological aspects of reduplication. In *Oxford research encyclopedia of linguistics*. Oxford University Press. https://doi.org/10.1093/acrefore/9780199384655.013.80

Uwasomba, B., & Okiemute, A. (2024). Contrastive analysis of the morphological and syntactic aspects of Urhobo and Ijaw languages. *International Journal of Language and Linguistics*, *12*(3), 104–110. https://doi.org/10.11648/j.ijll.20241203.11

Veselinova, L. N. (2020). Numerals in morphology. In *Oxford research encyclopedia of linguistics*. Oxford University Press. https://doi.org/10.1093/acrefore/9780199384655.013.559