
Semantic Transparency and Opacity in Xitsonga Compound Words

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Abstract: Compounding is a fundamental linguistic process in Xitsonga, playing a key role in word formation by combining various word categories. Despite its productivity, scholarly works on semantic transparency and opacity in Xitsonga compounds remain limited. This study investigates these aspects by examining how semantic and morphological structures impact the interpretability of compound words. Undergirded by the descriptive qualitative approach and Generative Lexicon Theory, it draws on data from secondary sources such as dictionaries, books and academic publications. A non-probability purposive sampling method was adopted to explore patterns of semantic transparency and opacity in Xitsonga compounds, with a specific emphasis on lexicalisation and idiomatic usage. The study found that Xitsonga compound words exhibit varying degrees of transparency and opacity, forming three main patterns: fully transparent, partially (transparent + opaque), and fully opaque compounds. Due to Xitsonga's left-headed structure, opaque + transparent combinations are not observed. Additionally, some compounds include nominal prefixes that contribute to transparency or opacity depending on the compound's overall meaning. These findings highlight the dynamic interplay between morphology and semantics in Xitsonga compound word formation, contributing to broader discussions on linguistic structure and cognitive processing in African languages.

Keywords: generative lexicon theory; opacity; semantic; transparency; Xitsonga

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Introduction

Languages utilise various word-formation processes to generate new lexical items, with compounding being one of the most significant. In Xitsonga, a Bantu language spoken in South Africa, as well as parts of Mozambique and Zimbabwe, compound words play a crucial role in vocabulary expansion and the expression of complex ideas (Vratsanos & Kadenge, 2017; Lee, 2021; Mlambo & Matfunjwa, 2025). These lexical units emerge from the combination of two or more morphemes to form a single word with a unique meaning (Moehkardi, 2016; Mlambo et al., 2022). As a fundamental linguistic feature, compound words contribute to clear communication, linguistic precision, and the continuous development of vocabulary (Mlambo et al., 2025). The formation of compound

words varies across languages, with different structural and semantic patterns. Some compounds retain a clear relationship between their constituent elements, making them semantically transparent, whereas others take on meanings that are not directly inferred from their individual components, resulting in semantic opacity (Kolobe, 2014; Sherko, 2015; Gagné et al., 2016). Libben et al. (2003) identify four fundamental levels of morphosemantic transparency in compounds. These include: compounds where both components are transparent, compounds where the head is transparent but the non-head is opaque, compounds where the non-head is transparent while the head is opaque, and compounds where both components are opaque. The distinction between these categories highlights the dynamic nature of compound words' meaning construction in languages. As linguistic systems evolve, the study of compounding remains vital for understanding lexical innovation, cognitive processing, and the diverse strategies languages employ in word formation.

Despite the complex morphological structure of Xitsonga compound words, research on their semantic transparency and opacity remains scarce. Previous studies (such as Mlambo & Matfunjwa, 2025; Mlambo et al., 2025; Marhanele, 2017; Mushwana & Ndhlovu, 1988; Mkhari & Shikwambana, 1987; Nkondo, 1981) have examined Xitsonga compound words, focusing on their structure, meaning, headedness and the role of nominal prefixes in their formation. These studies provided a crucial foundation for understanding the morphology and semantics of Xitsonga compound words. However, a systematic analysis of how transparency and opacity manifest in these compounds is lacking. Therefore, this study aims to address this gap by analysing the degree of semantic transparency and opacity in Xitsonga compound words. Specifically, it seeks to (1) classify Xitsonga compound words based on these semantic properties and (2) examine the linguistic and cognitive factors influencing their transparency or opacity. The study holds both theoretical and practical significance. Theoretically, it contributes to morphological and semantic studies by offering a detailed examination of compounding in an under-researched Bantu language. Practically, its findings can enhance language teaching strategies, dictionary development, and language policy efforts aimed at promoting and preserving indigenous African languages. Additionally, insights into transparency and opacity in compound words can inform the development of more effective pedagogical materials, facilitating vocabulary acquisition and comprehension for Xitsonga learners.

Literature review

Compounding is a fundamental process in morphology whereby two or more words combine to form a single lexical unit. These compounds exhibit remarkable variation in structure and semantic properties, reflecting the rich morphology of a language. From this perspective, understanding this process is not merely a descriptive exercise; it offers valuable insight into how linguistic elements come together to express complex meanings in a compact form. Furthermore, the way compounds are classified whether orthographically, functionally, or semantically, underscores their multifaceted nature and the sophisticated mechanisms through which a language evolves and expands its vocabulary. Sun and Harald Baayen (2021) categorised compounds according to their orthographic form, identifying open compounds, closed compounds, and hyphenated compounds. Open compounds are formed by two words that remain separate in writing (for example, "school bus"), a form which highlights the semantic unity of the components while retaining their independence. Closed compounds, by contrast, are solid formations without spaces or symbols between the components (for instance, "keyboard"), reflecting a greater degree of semantic fusion (Sun & Harald Baayen, 2021). Hyphenated compounds, for their part, connect components with a hyphen (such as "mother-in-law"), a form which signals a close semantic relationship while retaining a visible boundary between the constituent words. This categorisation highlights the varying degrees of semantic integration and structural cohesion among compound words, reflecting how form and meaning interact in written language.

Christianto (2020) and Manokaran et al. (2021) further classified compounds based on their function, distinguishing between noun compounds, verb compounds, and adjective compounds. Noun compounds are formations where the head is a noun, yielding a new nominal expression. An example is "lemongrass", a compound made of two free nouns "lemon" and "grass" which together form a semantic unity, while retaining the literal meanings of its components. From this view, this illustrates how compounds can create specialised meanings by combining two previously independent words. Verb compounds, by contrast, have a verb as their head and typically produce a new verbal form. For example, "crisp-fried" comprises an adjective, "crisp", and a verb, "fry", forming a composite that expresses a particular kind of cooking action. This highlights the ability of compounding to expand a language's vocabulary by adding semantic specificity to a base form. Furthermore, adjective compounds which have an adjectival head result in composite expressions that modify nouns. An example is "low-medium", which merges two free morphemes, both of them adjectives, yielding a nuanced

modifier. This underscores how compounding can produce finer distinctions in expression, adding depth and precision to the semantic resources available to a speaker.

Christianto (2020), Kisusi et al. (2022), Fernandez and Huan (2023), and Mlambo et al. (2025) classified compounds according to the semantic relationship between the head and its modifiers, yielding endocentric, exocentric, and copulative compounds. Endocentric compounds reflect a semantic hierarchy in which a clear head governs the composite's overall meaning. Kisusi et al. (2022) explain that the head in an endocentric compound dictates its lexical category, and these compounds typically form a subclass of their head. For example, in “doghouse”, the head “house” is modified by “dog”, forming a kind of “house”. This shows how compounding can produce specialised terms while retaining a clear semantic center. Exocentric compounds, by contrast, lack a semantic head; their meanings are not directly derivable from their components. Kisusi et al. (2022) and Fernandez and Huan (2023) observe that exocentric compounds often refer to entities that are not explicitly described by their components, a phenomenon which adds a layer of figurativity or semantic shift. The compound “lowlife”, for example, denotes a person of poor character and morals, not a literal “low life”, illustrating how compounds can develop meanings that are quite removed from their literal components. Lastly, copulative compounds consist of two elements of equal semantic weight, typically connected in a coordinate relationship. Kisusi et al. (2022) highlight this form as reflecting a semantic parity, where both components contribute equally to the compound's overall meaning. Christianto (2020) underscores this observation by noting that copulative compounds often form a semantic unity from two nouns as in “player-coach”, which denotes a person who performs two roles, a player and a coach at once. This illustrates the unique ability of compounding to combine roles, attributes, or concepts into a unified form without subordination. Understanding these classifications is crucial in analysing semantic transparency and opacity in compounds, particularly in a rich and morphologically productive language like Xitsonga. From this perspective, this understanding not only deepens linguistic analysis, but also reveals how speakers creatively use compounding to express complex meanings in a compact form, reflecting both their linguistic resources and their conceptual view of the world.

The role of nominal prefixes in the formation and interpretation of compound words has received considerable attention in Bantu and non-Bantu languages. In Lithuanian, Sereikaite (2018) distinguishes between lexical and nominal prefixes, highlighting the structural and semantic roles of nominal prefixes in forming nouns that are often capable of verbalisation. The study underscores how nominal prefixes contribute to idiomatic expressions and influence prosodic features such as stress and clitic distribution, revealing their embeddedness in compound and phrase-level structures. This understanding aligns with Mlambo and Matfunjwa's (2025) investigation into Xitsonga, where nominal prefixes are shown to be central in compound word construction, impacting both grammatical categorisation and semantic interpretation. In Xitsonga, the presence or absence of nominal prefix /va-/ in compounds such as *vandzindzakhombo* (insurers) versus *ndzindzakhombo* (insurance) significantly alters meaning, shifting focus from agents or providers to abstract concepts, thus expanding vocabulary and reflecting socio-cultural nuance. Similarly, Musehane (2007) examines noun+noun compounds in Tshivenda and illustrates how nominal class prefixes play a pivotal morphological and semantic role. The analysis shows that prefixes can be retained, omitted, or replaced to express singularity, plurality, diminutiveness, or augmentation. For instance, compounds like *liivhathavha* (rock pigeon) can be altered to *tshivhathavha* (small rock pigeon) through the replacement of the class prefix /li-/ by /tshi-/, while *muvhulavhusiku* (xylopia tree) shifts to *mivhulavhusiku* in the plural. Notably, Musehane (2007) also observes structural changes in consonant sounds triggered by prefix manipulation. Collectively, these studies demonstrate that nominal prefixes are not merely morphological markers but serve as integral components that govern the grammatical structure, meaning, and derivational flexibility of compound words across diverse linguistic contexts.

Compound words can vary in how easily their meanings can be derived from their constituent parts, which is referred to as semantic transparency. According to Ming (2016), compound words are considered semantically transparent when the meaning of the whole word can be predicted from the meanings of its morphemes. In this case, there is a clear semantic link between the compound and its components, making the word analysable and predictable. Sherko (2015) explains that semantic transparency involves two crucial aspects: analysability, the ease with which a word can be broken into morphemes, and predictability, the extent to which the meaning of the whole can be inferred from its parts. This transparency facilitates the learning and processing of complex words, as learners are able to use familiar morphemes to deduce the meaning of new compounds (Yi and DeKeyser, 2022). Bell and Schäfer (2016) emphasise that semantic transparency plays an important role in how words are stored and processed in the mental lexicon. Transparent compounds tend to be decomposed and processed morphemically, especially in dual-route models of lexical access, which assume both holistic and

morphological processing routes (Lorenz & Zwitserlood, 2016; Marchak, 2011). For instance, in compounds like candlestick or bookshelf, the meanings of candle and stick, or book and shelf, directly contribute to the overall meaning, making them transparent+transparent compounds. Marchak (2011) provides a nuanced classification of compounds based on transparency: transparent+transparent, transparent+opaque, and opaque+transparent. This classification allows for a more detailed understanding of how individual constituents may differ in semantic contribution. Thus, semantically transparent compounds support language learners and users by offering clues to meaning, making them cognitively more accessible and easier to acquire.

In contrast to transparent compounds, semantically opaque compounds are those whose meanings cannot be inferred from the meanings of their morphemes. As Ming (2016) points out, opacity arises when the relationship between the whole compound and its constituents is unclear or non-existent. Creemers and Embick (2022) define semantic opacity as a condition where at least one morpheme does not semantically align with the compound's overall meaning. For example, in the compound "payroll", the constituent "roll" does not transparently contribute to the compound's meaning, rendering it partially opaque. Similarly, "lawsuit" is another example where the meaning cannot be directly derived from the constituents "law" and "suit". Libben and Weber (2014) argue that opaque compounds challenge morphological decomposition because the functions of the constituents differ from their typical standalone meanings. This divergence makes it difficult for language learners and processors to infer meaning through morphemic analysis, often requiring whole-word storage and retrieval at the semantic level (Marchak, 2011). In such cases, the compound must be learned and remembered as an independent lexical item rather than a compositional construct. Creemers and Embick (2022) also highlight cases where the head of the compound contributes meaning, but the modifier does not or vice versa. This leads to classifications such as opaque+transparent, transparent+opaque, and opaque+opaque compounds. The semantic opacity of compounds can pose significant challenges in language acquisition and comprehension, particularly for second-language learners. Unlike transparent compounds, which allow for logical inference of meaning, opaque compounds necessitate rote memorisation or contextual learning. Despite this, opaque compounds are common in natural language use and often carry idiomatic or culturally specific meanings. Understanding and categorising their semantic structure is essential for deeper insights into lexical semantics, language teaching, and psycholinguistic processing.

Previous studies on compounding across various languages have explored morphological structures, semantic properties, and cognitive processing, offering valuable insights into the types, structures, and interpretations of compound words. Many of these studies have examined the semantic transparency and opacity of compounds, highlighting how meaning is either easily inferable from individual components or obscured within the compound structure. Additionally, the type and role of nominal prefixes has been analysed in relation to their contribution to compound formation and meaning construction. However, in the case of Xitsonga, existing research has primarily focused on the grammatical function and structural role of nominal prefixes in compound word formation, without specifically addressing the semantic transparency and opacity of these compounds. As a result, the semantic transparency and opacity of Xitsonga compounds remain underexplored. Therefore, this study aims to address that gap by investigating the extent to which compound words in Xitsonga are semantically transparent and opaque, thereby contributing to the existing body of knowledge.

Theoretical framework

This study is underpinned by Generative Lexicon Theory (GLT), as proposed by Pustejovsky (1995), to examine the semantic transparency and opacity of Xitsonga compound words. Unlike traditional lexical semantics, which treats word meaning as fixed, GLT posits that lexical items have a rich internal structure that dynamically interacts with context to generate meaning (Khan et al., 2013; Thalji, 2018). This approach is particularly relevant for understanding compounding, as it accounts for how words combine and develop new meanings. GLT is structured around four key components: (1) argument structure, which defines how words relate to others within a sentence; (2) event structure, which accounts for the dynamic aspects of meaning; (3) qualia structure, which encapsulates the inherent properties and functions of a word; and (4) lexical inheritance structure, which organises lexical knowledge hierarchically (Pustejovsky, 2017; Haber & Poesio, 2024). By applying this framework, the study provides a systematic analysis of how Xitsonga compounds exhibit either semantic transparency or opacity based on their internal lexical composition. Understanding these properties is crucial for identifying how meaning is constructed and processed in Xitsonga, a relatively underexplored Bantu language. Additionally, the study contributes to broader discussions in lexical semantics, cognitive linguistics,

and Bantu language morphology, offering insights into the principles governing word formation and semantic interpretation in agglutinative languages.

Research methodology

This study adopts a descriptive qualitative research approach to investigate semantic transparency and opacity in Xitsonga compound words. This approach focuses on interpreting and analysing non-numeric data such as words and meanings, allowing the researcher to explore how contextual factors influence semantic interpretation. Vorster and Prozesky (2011) noted that qualitative approaches rely on observational and analytical methods that remain closely tied to the subject under study. The descriptive nature of this study enables the researcher to present and explain linguistic phenomena as they naturally occur, without manipulating variables or imposing experimental controls (Siedlecki, 2020).

Data for the study were sourced from secondary linguistic sources. Kothari (2004) observed that secondary data comprise information previously collected and processed by other researchers, and therefore require careful evaluation for reliability, suitability, and adequacy to ensure relevance to the study's aims. In this study, such sources included Xitsonga monolingual and bilingual dictionaries (e.g., *Tihlungù ta rixaka: Dikixinari ya ririmi ra Xitsonga*, *Xilamulelamhangu Xitsonga–English Dictionary*, and *Dikixinari ya Xitsonga/English Dictionary*), grammar books, peer-reviewed journal articles, and academic theses focusing on Xitsonga word formation and semantic relations. These sources were selected because they provide authoritative descriptions of Xitsonga lexical items and offer documented examples of compounds in use. A purposive sampling strategy was employed to identify compound words that illustrate different degrees of semantic transparency and opacity. As a non-probability method, purposive sampling allows the deliberate selection of data most relevant to the research objectives (Palinkas et al., 2015; Ames et al., 2019). This approach ensured that the analysis focused on compounds that are both linguistically significant and representative of the Xitsonga lexicon.

To strengthen the credibility and trustworthiness of the findings, triangulation was employed through the use of multiple secondary data sources and analytical perspectives. This strategy entails cross-verifying information from diverse linguistic sources to develop a comprehensive understanding of semantic transparency and opacity in Xitsonga compounds (Natow, 2020; Donkoh & Mensah, 2023). In this study, triangulation involved systematically validating each compound by comparing definitions and examples across dictionaries, confirming morphological structures through grammar books and linguistic descriptions, and corroborating semantic interpretations with insights from scholarly articles, theses, and related literature. Any inconsistencies observed across sources, for instance, variations in the hyphenation of compound words were addressed by consulting current Xitsonga spelling and orthographic rules and giving precedence to sources with greater linguistic authority. This process enhanced the reliability and overall credibility of the analysis.

Thematic analysis was employed to interpret the data, a method that involves identifying, analysing, and organising recurrent patterns or themes within qualitative data (Braun & Clarke, 2006). As noted by Dawadi (2020), this analytical approach offers a structured yet adaptable framework for coding and interpreting complex linguistic data. In this study, the procedure entailed familiarising oneself with the dataset, coding relevant semantic features, grouping these codes into thematic categories such as full semantic transparency, partial transparency, and full opacity and interpreting these themes in relation to Xitsonga morphological processes and semantic norms. This method provided a coherent and flexible means of examining how meaning is constructed, negotiated, and obscured in Xitsonga compound words.

Results and discussion

This section presents the findings and discussion of the study, offering a detailed exploration of the compound words identified in the data. The main discussion focuses on the different patterns of semantic transparency and opacity observed in these compounds. Specifically, it covers fully semantic transparent compounds, partial semantic transparent compounds, and fully semantic opaque compounds. The analysis aims to shed light on how these formations reflect the semantic structures and word-formation processes in Xitsonga.

Full semantic transparency

Full semantic transparency of a compound word occurs when the meanings of its components directly contribute to and illuminate the overall meaning of the whole (Nation, 2016; Günther et al., 2020). In such cases, each constituent is easily identifiable and interpretable on its own, reflecting a clear and literal connection between

their meanings and that of the compound. Consequently, the composite form is fully motivated by its parts, forming a semantic unity that is immediately apparent and comprehensible. In Xitsonga, this phenomenon typically involves compounds formed from words that belong to similar lexical categories, as demonstrated in Figure 1.



Figure 1. Compounds *yinhlanhungu* and *honcinhova* showing full semantic transparency from same-category constituents

The compounds *yinhlanhungu* (octagon) and *honcinhova* (warthog) provide a clear demonstration of full semantic transparency within Xitsonga compound formations. In Figure 1, the formation of *yinhlanhungu* from *yinhla* (angle) and *nhungu* (eight), both of which are nouns, underscores a direct semantic relationship between its components and the composite meaning. The semantic components directly reflect the overall concept of “octagon”, a shape defined by having eight angles. Similarly, *honcinhova*, composed of *hongi* (pig) and *nhova* (veld), which are also nouns, reflects a literal combination of its roots, yielding a semantic unity that is easily interpretable and motivated by its constituent elements in Figure 1. Together, these components convey a literal “pig from the veld”, a warthog. Thus, the compounds transparently reflect their constituent meanings in a unified form. From a GLT perspective, these compounds exemplify a rich form of semantic composition, where the combination of two fully transparent elements results in a new, contextually appropriate word without semantic shift. The components retain their original semantic roles, and their combination simply merges their qualia structures to produce a composite that is both predictably formed and semantically coherent (Song & Zhao, 2013). Thus, this pattern highlights how the Generative Lexicon can account for the formation of compounds through the direct composition of their semantic components. Furthermore, this category can also encompass compounds formed across different lexical categories, as illustrated in Figure 2.



Figure 2. Compounds *dorobakulu* and *munhuntsena* demonstrating full semantic transparency from mixed-category constituents

The compounds *dorobakulu* (city) and *munhuntsena* (merely person) serve as clear exemplars of full semantic transparency that emerges from the combination of elements originating from different lexical categories. As illustrated in Figure 2, the compound *dorobakulu* is constructed through the juxtaposition of *doroba* (town), a nominal base, and *kulu* (big), an adjectival stem. The semantic components directly reflect the composite’s literal meaning of a “big town” which aptly corresponds to the concept of a city. Similarly, in Figure 2, the compound *munhuntsena* comprises *munhu* (person), a noun, and *ntsena* (merely), an adverb. The combination of these components results in a literal “merely person”, conveying the notion of an ordinary person, without additional attributes or distinctions. Therefore, the meanings of the compound words *dorobakulu* and *munhuntsena* are directly inferred from their constituent components. Furthermore, these compounds are copulative in nature, reflecting a morphosyntactic process in which two elements from different lexical categories are juxtaposed

to form a unified semantic whole (Sherko, 2015; Mlambo et al., 2025). The components retain their original semantic roles and directly contribute to the composite's overall meaning in a clear, literal, and transparent manner. Table 1 presents additional examples of fully semantically transparent compounds formed from both identical and varying lexical categories.

Table 1. Additional examples of fully transparent compounds from similar and different lexical categories

Words combination	Compound word	New meaning
nhloko (N) [head] + mhaka (N) [affair]	nhlokomhaka	heading
siku (N) [day] + nene (ADJ) [good]	sikunene	very good day
bava (N) [father] + ntsongo (ADJ) [small]	bavantsongo	uncle
manguva (N) [era] + lawa (PRON) [these]	manguvalawa	modern
ntiko (N) [weight] + xikarhi (ADV) [middle]	ntikoxikarhi	middleweight

Table 1 presents clear examples of fully semantically transparent compounds in Xitsonga, all of which are formed through the combination of components whose individual meanings directly contribute to the overall meaning of the compound. These compounds are drawn from both identical lexical categories, such as noun+noun, and varying ones like noun+adjective or noun+adverb. This demonstrates the productive and interpretable nature of transparent compounding in Xitsonga.

Furthermore, full semantic transparency in Xitsonga compounds can also manifest with a nominal prefix when the prefix directly specifies or modifies the main component's meaning. This phenomenon gives rise to compounds whose semantic unity is readily identifiable and easily interpreted, owing in part to the presence of nominal prefixes. In Xitsonga, these prefixes play a crucial grammatical, semantic, and morphological role marking noun class, guiding agreement patterns, and shaping the overall meaning and structure of the compound, as demonstrated in Figure 3.



Figure 3. Compounds *muongolamhangwini* and *vudyondzantirho* illustrating full semantic transparency with nominal prefixes

Morphologically, the compounds *muongolamhangwini* (paramedic) and *vudyondzantirho* (apprenticeship) exemplify full semantic transparency, as their constituent elements directly contribute to their composite meanings. In Figure 3, the compound *muongolamhangwini* comprises a class 1 nominal prefix /mu-/, the verb stem *ongola* (to cure), and the locative adverb *mhangwini* (at the accident). The locative adverb *mhangwini* is derived from the noun *mhangu* (accident) through a process of vowel reduction where the vowel /u/ is removed, yielding /w/, a voiced labial glide and subsequently attaching the locative suffix /-ini/. Within this compound, the prefix denotes a person, the verb stem highlights the action of healing or curing, and the noun *mhangu* which has been locativised by the locative suffix, specifies the contextual setting. These components integrate harmoniously to produce a semantic unity that transparently expresses “a person who provides medical aid at an accident site”.

Similarly, *vudyondzantirho* comprises a class 14 prefix /vu-/, the verb stem *dyondza* (to learn), and the noun *ntirho* (work) in Figure 3. Here, the prefix signals a process, the verb stem conveys the action of acquiring knowledge or skills, and the noun *ntirho* underscores the practical or active dimension of this learning process. Each morpheme performs a distinct semantic role, collectively yielding a compound that transparently means “the process of learning a job or a craft”. This morphology-meaning interaction resonates with Pustejovsky’s GLT, which posits that lexical meanings are composed of a rich structure of qualia roles (Jezek, 2016). Within this framework, the components of these compounds collectively realise formal, agentive, and telic roles (Romeo et al., 2013). The morphology guides semantic composition in a systematic, generative process, allowing for

the formation of compounds that are both linguistically precise and conceptually coherent. Consequently, the semantic unity emerges naturally from the interaction of form and meaning, reflecting a deep and purposeful structure within the morphology of these compounds. Table 2 provides further examples of fully semantically transparent compound words in Xitsonga that include nominal prefixes in their structure.

Table 2. Additional examples of full semantic transparency of compounds which incorporate nominal prefixes

Words combination	Compound word	New meaning
mu- (class 1) + dya (V) [eat] + ndzhaka (N) [inheritance]	mudyandzhaka	heir
xi- (class 7) + n'wana (N) [child] + manana (N) [mother]	xin'wanamanana	nepotism
vu- (class 14) + longoloxa (V) [list] + marito (N) [words]	vulongoloxamarito	syntax
ri- (class 5) + lava (V) [want] + ntivo (N) [knowledge]	rilavantivo	curiosity
swi- (class 8) + hakarha (V) [hug] + ndleveni (ADV) [in the ears]	swihakarhandleveni	headphones

Table 2 illustrates that all the Xitsonga compound words listed exhibit full semantic transparency, meaning that each component part contributes directly and explicitly to the overall meaning of the compound. These compounds are structurally composed of three distinct elements: a nominal prefix and two additional words drawn from other lexical categories, such as verbs, nouns or locative adverbs. The presence of the nominal prefix, often serving a classificatory or grammatical function does not obscure the semantic clarity of the compound but rather integrates meaningfully with the other constituents. As a result, the meaning of the compound word can be fully understood by analysing the literal meanings of its individual components. This morphological structure reflects a productive and systematic word formation process in Xitsonga, whereby transparent compounding enhances lexical creativity while maintaining intelligibility within the language community.

Partial semantic transparency

Partially semantically transparent compounds refer to compound words in which only some components directly contribute to the overall meaning, while other components become semantically obscured or less clear (Libben & Weber, 2014). In such formations, the composite cannot be fully understood by simply adding together the meanings of its constituent elements; instead, a portion of the compound retains its literal or transparent semantic role, while another part appears more opaque or figurative (Schäfer, 2018). Libben et al. (2003) classified this phenomenon into two main types: transparent+opaque and opaque+transparent. Transparent+opaque compounds consist of two components in which the first part is semantically transparent (its literal or original meaning is clear and recognisable), while the second part is semantically opaque (having undergone a semantic shift and no longer directly reflecting its literal meaning (Frisson et al., 2008)). Opaque+transparent compounds, on the other hand, are formations where the first part is semantically opaque (its literal or original meaning is not immediately clear), while the second part is transparent, directly contributing a clear semantic element to the compound (Bourque, 2014). In other words, the transparent + opaque compounds feature an initial element with a clear, compositional meaning followed by a second element whose meaning is figurative or culturally specific, whereas opaque + transparent compounds begin with an element whose meaning is idiomatic or non-literal, followed by a second element that retains its literal, interpretable sense. However, in Xitsonga, opaque+transparent compounds were not found in the data, reflecting a key feature of the morphology of the language. Xitsonga predominantly forms compounds where the semantic head is on the left side (Mlambo et al., 2025). Figure 4 illustrate partially semantically transparent compounds in Xitsonga, which consist of a combination of transparent and opaque components.



Figure 4. Compounds *njiyamavele* and *mpfundlahomu* exhibiting partial semantic transparency

The compounds *njiyamavele* (grasshopper) and *mpfundlahomu* (hare) present a particularly insightful case for understanding how transparent and opaque components combine within morphology to produce specialised

meanings. This pattern underscores a key linguistic phenomenon in which compounds may retain traces of their literal roots while simultaneously developing a semantic unity that evolves through semantic shift and historical change. In the case of *njiyamavele*, the first constituent, *njiya* (locust), is transparent, directly reflecting its literal semantic content. However, the second component, *mavele* (maize), is opaque in this context and no longer contributes literal semantic content to the composite. Nevertheless, this combination signals a specialised kind of locust, a “grasshopper”, reflecting a semantic shift from literal components toward a more unified, specialised meaning.

Similarly, in *mpfundlahomu*, the first element, *mpfundla*, is transparent and directly denotes a “rabbit”. The second, *homu* (cow), is opaque and no longer contributes literal semantic content to the composite. Instead, the two components together produce a specialised expression for a hare, “a kind of rabbit”, reflecting a semantic transformation that merges literal roots into a culturally informed whole. This pattern underscores the principle of endocentric compounding, where compounds retain their semantic heads and form a unified semantic structure (Lusekelo, 2019). It also illustrates how the qualia roles of constituent components combine to produce rich semantic structures. The result is a composite meaning that is more than the literal sum of its parts, reflecting a sophisticated process of semantic composition within the morphology of the language. This phenomenon highlights the creativity of linguistic formations and underscores the rich, culturally anchored view of the natural world that compounds can convey in context. Table 3 presents further examples of compound words in Xitsonga that exhibit partial semantic transparency.

Table 3. Additional examples of partially semantically transparent compound words

Words combination	Compound word	New meaning
tino (N) [teeth] + mafi (N) [human milk]	tinomafi	deciduous teeth
nkorho (N) [hornbill] + ndlopfu (N) [elephant]	nkorhondlopfu	crowned hornbill
nhlapfi (N) [fish] + ncila (N) [tail]	nhlapfincila	barrelfish
mimpfi (N) [wasp] + donki [donkey]	mimpfidonki	small wasp

Table 3 provides additional examples of partially semantically transparent compounds in Xitsonga. The listed compounds such as *tinomafi* (deciduous teeth), *nkorhondlopfu* (crowned hornbill), *nhlapfincila* (barrelfish), and *mimpfidonki* (small wasp) are composed of constituent elements in which the left-hand components are semantically transparent, while the right-hand components exhibit opacity. This partial transparency means that although certain semantic clues can be inferred from parts of the compound, the complete meaning is not fully predictable without additional cultural or contextual knowledge. These examples demonstrate how lexical interpretation in Xitsonga often relies on both linguistic structure and extra-linguistic understanding.

Full semantic opacity

Full semantic opacity compounds are compound words in which none of the constituent elements transparently contribute to the overall meaning. In such formations, the literal meanings of the individual components become entirely obscured or detached from the meaning of the whole (Libben & Weber, 2014). As a result, understanding the compound cannot be achieved through straightforward decomposition or analysis of its parts. Instead, the compound must be learned and processed as a single lexical unit. This reflects not only a semantic shift where meanings evolve beyond their original senses, but also a process of lexicalisation, where formerly transparent morphological structures are reinterpreted and stored holistically in the mental lexicon (Pollatsek & Hyönä, 2005). These compounds often signal a diachronic evolution in language, where frequent usage and cultural embeddedness cause the original semantic links to erode (Libben & Weber, 2014; Schäfer, 2018). In this way, full opacity compounds serve as powerful evidence of how language dynamically reorganises meaning and form, contributing to our understanding of cognitive processing and morphological change in natural languages. In Xitsonga, these compounds are formed by combining elements drawn from either identical or differing lexical categories, as demonstrated in Figure 5.



Figure 5. Compounds *mpfimbahongonyi* and *rilambyana* illustrating full semantic opacity from same or different lexical category constituents

The compounds *mpfimbahongonyi* (*Bolusanthus speciosus*) and *rilambyana* (new green grass) in Figure 5 respectively, illustrate full semantic opacity, wherein neither component transparently contributes to the meaning of the whole. This type of compounding challenges the principle of compositionality and instead highlights the role of metaphor, cultural symbolism, and lexical conventionalisation in meaning-making. Structurally, *mpfimbahongonyi* is formed by merging two nouns *mpfimba* (an animal that has been killed by hunters) and *hongonyi* (wildebeest). Though these constituents carry independent semantic content, their combination does not predictably denote a tree species, revealing a culturally embedded semantic shift that is inaccessible without contextual or ecological knowledge. Contextually, the semantic development of the compound *mpfimbahongonyi* becomes clearer when situated within traditional Xitsonga hunting practices. Hunters often covered a freshly killed animal with *Bolusanthus speciosus* leaves to conceal it while they continued the hunt. Over time, this cultural practice contributed to the evolution of the term *mpfimbahongonyi*. Additionally, because the wildebeest was historically one of the hunters' preferred targets, the word's meaning became closely associated with this particular animal. Conversely, *rilambyana* (Figure 5) combines elements from two different lexical categories: the verb stem *rila* (to cry) and the noun *mbyana* (dog).

While both words are independently meaningful, their compounded form metaphorically denotes fresh, sprouting grass, likely drawing from culturally symbolic associations with the image of a crying dog, possibly evoking themes of renewal, mourning, or seasonal transition. This blend of lexical categories further obscures the transparency of meaning and reinforces the creative capacity of Xitsonga morphology to encode symbolic and ecological knowledge. Both compounds are exocentric, lacking a semantic head, and demand an inferential approach to interpretation (Kolobe, 2014; Mokoaleli, 2020; Maboja, 2022). According to Pustejovsky's GLT, such opacity illustrates the centrality of qualia structure, particularly the telic (purpose) and agentive (origin) roles, where meaning emerges not through direct denotation but through function, use, and cultural relevance (Pustejovsky & Jezek, 2016). These compounds thus reflect the richness of Xitsonga's lexical innovation and its deep entwinement with sociocultural and environmental contexts, offering a critical lens through which to examine how morphology can preserve, encode, and transmit intangible cultural knowledge. Additional examples of fully semantically opaque compounds, derived from both similar and differing lexical categories, are provided in Table 4.

Table 4. Additional examples of full semantic opacity of compounds from similar and different lexical categories

Words combination	Compound word	New meaning
nghala (N) [lion] + mavivi (N) [kindling]	nghalamavivi	premature ageing
mbewulani (N) [swallow] + xibamu (N) [gun]	mbewulanixibamu	beautiful maiden
ntshwa (ADJ) [new] + vusiku (N) [night]	ntshwavirusiku	nettle-rash
chochela (V) [tap out] + mandleni (ADV) [into the hand]	chochelamandleni	schotia brachypetala
tshamela (V) [await] + nkambana (N) [earthenware bowl]	tshamelankambana	loafer/slacker

Table 4 presents examples of full semantic opacity in Xitsonga compounds derived from both similar and diverse lexical categories. The compounds *nghalamavivi* (premature ageing), *mbewulanixibamu* (beautiful maiden), *ntshwavirusiku* (nettle-rash), *chochelamandleni* (schotia brachypetala), and *tshamelankambana* (loafer/slacker) demonstrate instances where the composite meaning cannot be inferred from the literal meanings of their constituents. These formations involve the fusion of nouns, adjectival stems, verbs, and adverbs (e.g., *nghala*

‘lion’ and *mavivi* ‘kindling’; *ntshwa* ‘new’ and *vusiku* ‘night’), yet the resulting compounds convey meanings unrelated to their individual parts. This semantic disconnection signifies processes of idiomatisation and lexical conventionalisation, highlighting a sophisticated and evolving word formation system in Xitsonga, wherein meaning is shaped by cultural context and collective linguistic experience rather than compositional logic.

Additionally, full semantic opacity compounds in Xitsonga, like their fully transparent counterparts, can also be constructed with nominal prefixes. These prefixes, while typically signaling noun class or grammatical function, do not clarify the compound’s overall meaning when combined with semantically opaque roots (Mlambo & Matfunjwa, 2025). They contribute to the morphological integrity of the word without resolving the lack of semantic transparency, illustrating that opacity can persist even within grammatically structured forms, as illustrated in Figure 6.



Figure 6. Compounds *vunyokahansi* and *ximitantsengele* showing full semantic opacity with nominal prefixes

The compounds *vunyokahansi* (treacherous behaviours) in Figure 6 and *ximitantsengele* (adventurer) in Figure 6 serve as illustrative examples of full semantic opacity in Xitsonga compound formation, specifically those that incorporate nominal prefixes. In *vunyokahansi*, the class 14 prefix /vu-/, commonly associated with abstract nouns or qualities, combines with *nyoka* (snake) and the locative adverb *hansi* (underneath). Although the compound is morphologically transparent, its literal meaning “snake underneath” fails to convey its idiomatic meaning: actions that are deceptive, disloyal, or untrustworthy. This meaning only becomes accessible through culturally embedded metaphorical associations. Within many African linguistic and cultural contexts, the snake symbolises deceit or hidden danger (Manna, 2025), and *hansi* intensifies this image by evoking notions of secrecy or subversion. Therefore, the semantic development of the compound *vunyokahansi* is best understood within the cultural context of Xitsonga communities. The term draws on the observation that a snake gliding along the ground is extremely difficult to detect, an image that serves as a metaphor for individuals whose deceitful behaviour is equally hard to discern. This parallel between the snake’s silent movement and covert human actions likely shaped the formation of the compound, enabling its figurative meaning to emerge organically from everyday cultural experience. Likewise, *ximitantsengele* is composed of the class 7 prefix /xi-/, the verb stem *mita* (swallow), and the noun *ntsengele* (sour plum fruit). While its structure is syntactically analysable, the literal meaning “thing that swallows a sour plum fruit” does not reveal the intended sense of ‘adventurer.’ Contextually, this figurative interpretation relies on the metaphor of swallowing something bitter or unpleasant, a conceptual frame linked to courage and the willingness to take risks. The compounds *vunyokahansi* and *ximitantsengele* exemplify a type of lexical opacity not due to morphological complexity, but to deeply rooted cultural metaphors and idiomatic usage. Their meanings are not recoverable through straightforward compositional analysis but instead depend on shared cultural and cognitive models. As Mlambo et al. (2025) observe, such idiomatic compounds align with cross-linguistic patterns in which interpretation hinges on collective cultural knowledge rather than on the semantic contributions of individual elements. Table 5 presents additional examples of fully opaque compound words in Xitsonga that incorporate nominal prefixes in their formation.

Table 5. Additional examples of full opacity compounds of compounds which incorporate nominal prefixes

Words combination	Compound word	New meaning
xi- (class 7) + vatla (V) [carve out] + nkombe (N) [stick spoon]	xivatlankombe	cobra
ma- (class 6) + senga (V) [to milk] + huku (N) [chicken]	masengahuku	comedian

(Continued)

Table 5. (Continued)

Words combination	Compound word	New meaning
xi- (class 7) + siva (V) [replace] + nomo (N) [mouth]	xisivanomo	bribe
vu- (class 14) + tlukwa (IDEO) [to jump] + chola (IDEO) [into deep water]	vutlukwachola	prostitution
vu- (class 14) + chavela (V) (flee) + whawha (IDEO) [the crack of a sjambok]	vuchavelawhawha	exile

Table 5 presents additional examples of Xitsonga compound words that demonstrate full semantic opacity. In these compounds, the individual morphemes do not transparently contribute to or predict the overall meaning of the compound, making their interpretation heavily reliant on contextual or cultural knowledge rather than compositional analysis. Each compound is structurally composed of three distinct elements: a nominal prefix, which functions as a morphological marker typically associated with noun class systems in Xitsonga, and two further words derived from various lexical categories, including verbs, nouns, or ideophones. The presence of the nominal prefix signals that these compounds function grammatically as nouns, despite the semantic contribution of the root morphemes being obscured. This structural configuration highlights the process of lexicalisation, whereby the original meanings of the constituent parts become opaque within the compound. Consequently, the meaning of these expressions cannot be easily inferred from their individual elements, illustrating the degree to which idiomaticity and historical language development influence compound formation in Xitsonga.

Conclusion

This study examined the semantic transparency and opacity in the formation of compound words in Xitsonga. By classifying compounds into fully semantically transparent, partially transparent, and fully opaque categories, the study has illuminated the intricate relationship between morphology, meaning, and cultural context in the language. Fully transparent compounds displayed predictable, interpretable meanings aligned with compositional principles, often incorporating nominal prefixes without obscuring clarity. Partially transparent compounds reflected semantic shifts, where one element retained its literal meaning while the other took on a figurative role, illustrating stages of lexical transformation. This illustrates that while the meanings of such compounds in Xitsonga can be partially inferred from their constituent parts, the full interpretation often requires contextual or cultural knowledge for accurate understanding. In contrast, fully opaque compounds showed a complete semantic disconnect between the parts and the whole, indicating processes of idiomatisation and metaphorical encoding grounded in cultural knowledge. The presence of nominal prefixes across opaque compounds also highlighted their grammatical importance, though they did not always contribute to semantic transparency. This affirms that while Xitsonga fully opaque compounds are often morphologically analysable, their meanings are shaped by deeper cognitive, cultural, and linguistic influences. These insights also align with Pustejovsky's GLT, which views word meaning as structured through qualia roles such as formal, agentive, telic, and constitutive. Therefore, this study demonstrates how Xitsonga compounds embody these semantic structures, whether in straightforward compositional forms, more abstract or idiomatic expressions.

It contributes to a broader understanding of African language morphology, semantic theory, and the cultural dimensions of language. These findings also highlight the importance for Bantu linguistics and language documentation initiatives to consider not only the morphological structure of compounds but also the cultural and cognitive factors that shape semantic transparency and opacity. Such an approach can inform language teaching, enhance dictionary development, and guide language policy by ensuring that lexical descriptions and pedagogical materials adequately reflect idiomatic usage, contextual meaning, and culturally grounded interpretations. For future research, it is important to note that existing studies on Xitsonga compound words have largely concentrated on noun-based compounds, with limited attention given to compounds formed within other word categories. Consequently, further investigation should examine compound types beyond the nominal domain, thereby providing a more comprehensive account of compounding processes across the broader Xitsonga lexicon.

Declarations

Interdisciplinary Scope: This study adopts an interdisciplinary approach that integrates linguistics, cognitive semantics, anthropology, and cultural studies to examine compound word formation in Xitsonga. Drawing on morphological theory and Pustejovsky's Generative Lexicon Theory, it investigates how semantic transparency and opacity arise through cognitive structuring and the deployment of qualia roles. Simultaneously, the analysis foregrounds indigenous cultural knowledge, ecological practices, and metaphorical worldviews that inform lexical meaning in

Xitsonga. By linking formal linguistic analysis with sociocultural interpretation, the study contributes to African linguistics and language documentation, illustrating the dynamic interplay between linguistic structure, cognition, and culture in meaning-making processes.

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