

The meaning and form of onomatopoeias in Tjwao

ALEXANDER ANDRASON

University of Cape Town, Cape Town, South Africa | Living Tongues Institute for Endangered Languages, Salem, Oregon, OR, USA

aleksand@hi.is

ADMIRE PHIRI

University of the Free State, Bloemfontein, South Africa

phiriadmire1@gmail.com

and

ANNE-MARIA FEHN

*CIBIO, Centro de Investigação em Biodiversidade e Recursos Genéticos, InBIO Laboratório Associado, Campus de Vairão, Vairão, Portugal
BIOPOLIS Program in Genomics, Biodiversity and Land Planning, CIBIO, Campus de Vairão, Vairão, Portugal*

afehn@cibio.up.pt

Abstract

The present article analyzes the meaning and form of onomatopoeias in Tjwao, a Khoe-Kwadi (Kalahari Khoe) language. Making use of a prototype approach to categorization, a corpus of 113 onomatopoeic lexemes were tested for their compliance with the semantic, phonetic, and morphological features associated with the prototype of onomatopoeias in scholarly literature. The evidence demonstrates that Tjwao onomatopoeias tend to instantiate the prototype fully. This signifies, in turn, that, as far as their phonetics and morphology are concerned, Tjwao onomatopoeias tend to be extra-systematic.

Keywords: Tjwao, Kalahari Khoe, onomatopoeia, semantics, phonetics, morphology

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Résumé

Le présent article analyse la signification et la forme des onomatopées en tjwao, une langue Khoe-Kwadi (Kalahari Khoe). En utilisant une approche de prototypage de la catégorisation, un corpus de 113 lexèmes onomatopées est testé pour leur conformité avec les caractéristiques sémantiques, phonétiques et morphologiques associées au prototype d'onomatopées dans la littérature savante. Les données démontrent que les onomatopées tjwao ont tendance à correspondre complètement au prototype. Cela signifie, à son tour, qu'en ce qui concerne leur phonétique et leur morphologie, les onomatopées tjwao ont tendance à être extra-systématiques.

Mots-clés: tjwao, Khoe Kalahari, onomatopée, sémantique, phonétique, morphologie

1. INTRODUCTION

The Tjwao language (tshw 1239 / hio),¹ spoken in the Tsholotsho district of western Zimbabwe (see [Figure 1](#)), belongs to the Kalahari Khoe branch of the Khoe-Kwadi language family (Vossen 1997, Güldemann and Vossen 2000: 103, Güldemann 2014a: 27).² Preliminary comparative analyses suggest that it is closely related to languages spoken in eastern Botswana commonly referred to as Tshwa (tsoa1238 / hio), particularly the doculects Hiechware, Ganadi, G'labak'e, and Teire-Teire (a *doculect* is a language variety emerging from specific documentation; see Fehn and Phiri 2017, Bowerman 2008). Like other Khoe-Kwadi languages, Tjwao makes use of phonemic click sounds and forms part of the typological unit “Southern African Khoisan”, which unites the unrelated Kx'a, Tuu and Khoe-Kwadi families within the frame of a ‘Sprachbund’ setting (Güldemann and Fehn 2017).

Tjwao is a moribund language. It is currently used by no more than seven elderly speakers whose age ranges from 70 to 95 years. Tjwao is neither employed in everyday personal communications, where it has been replaced by Kalanga and Ndebele, nor does it entertain any official or emblematic function in the community. It is also absent from local primary schools and education, where English, as well as the above-mentioned Kalanga and Ndebele, are preferred. Since children have not been acquiring Tjwao naturally by means of parental transmission and have very seldom been exposed to Tjwao in their daily interactions for decades, all younger generations have, at best, passive knowledge of this language. Indeed, the Tjwao community of Zimbabwe has almost entirely shifted to other languages, mostly Kalanga and Ndebele (Phiri 2015, Andrason and Phiri 2018).

¹In parentheses we provide the iso- and glottocodes of the languages cited. The first code is the code used by glottolog.org. The second code, where provided, refers to ISO 639-3.

²Abbreviations: ADV: Adverbial(izer); C: Consonant; CAU: Causative; COMP: Complementizer; DEM: Demonstrative; f.n.: field notes; IPA: International Phonetic Alphabet; INTENS: Intensifier; IPFV: Imperfective; J: Juncture; M: Masculine; NOM: Nominative; ONOM: Onomatopoeia; PASS: Passive; PRF: Perfective; PST: Past; SG: Singular; TAM: Tense-Aspect-Mood; v: Vowel; VOL: Volition.

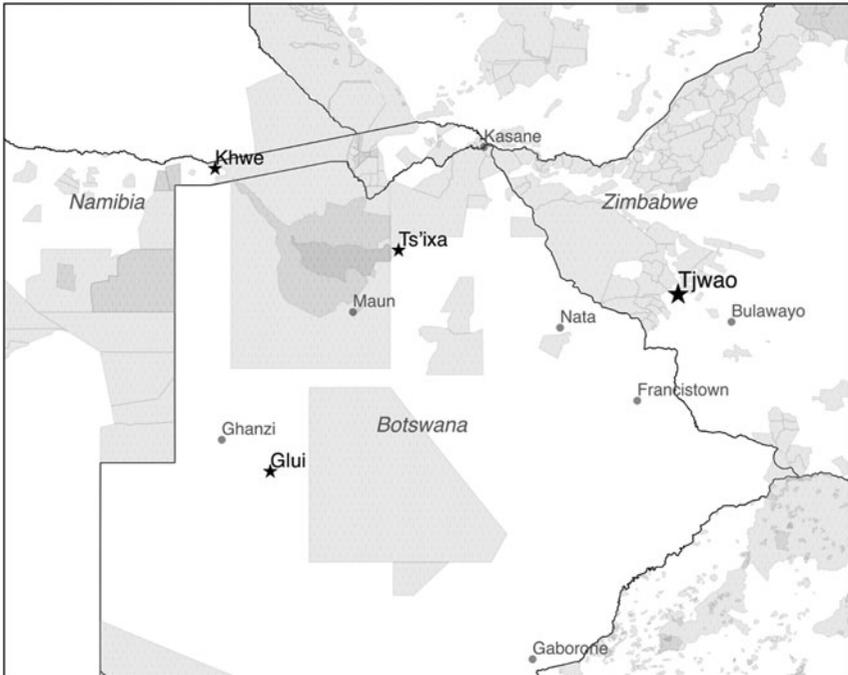


Figure 1: Map showing the geographic location of the Tjwao community and the linguistically related Ts'ixa, Khwe and Glui speech communities referenced in this study. (Grey zones indicate conservation areas which in many instances correspond to the former habitats of the Southern African San before resettlement.)

Like other Khoe languages from the eastern Kalahari Basin fringe, Tjwao is also profoundly under-researched. References to Tjwao in the scholarly literature are scarce. Note, for instance, that Tjwao is not mentioned in the seminal works on the Khoe family by Vossen (1997, 2013) and by Güldemann and Vossen (2000). The most significant contributions are papers published recently by Fehn and Phiri (2017) on the Tjwao nominal system, Andrason and Phiri (2018) on some aspects of the verbal system, and Andrason et al. (2020) on interjections.

The present article aims to contribute to the further documentation of both Tjwao and the Kalahari Khoe subgroup of Khoe-Kwadi. Specifically, we analyze the meaning (semantics) and form (phonetics and morphology) of the category of onomatopoeias – one of the least studied grammatical phenomena in the “Khoisan” Sprachbund. The analysis is developed within a typologically driven prototype approach to categorization. The prototype of an onomatopoeia itself is designed by drawing on the work of Ameka (1992, 2006), Rubino (2001), Reay (2006), Ibarretxe-Antuñano (2006), Feist (2012), Meinard (2015), Stange (2016), Johansson et al. (2020), and Körtvélyessy (2020), as well as on typological studies dedicated to the related category of ideophones, especially those authored by

Childs (1994, 2003), Voeltz and Kilian-Hatz (2001), Dingemanse (2011, 2012, 2015, 2017), Lahti et al. (2014), Ibarretxe-Antuñano (2017), and Andrason (2020). Given our framework, we principally aim to determine the extent of the compliance of Tjwao onomatopoeias with an onomatopoeic ideal plotted cross-linguistically. This analysis will additionally allow us to ascertain how the situation attested in the Tjwao language approximates, or differs from, the behaviour exhibited by onomatopoeias in other Kalahari Khoe varieties. Therefore, while our study is developed within the frame of linguistic typology and our findings will hopefully contribute to the general scholarship of onomatopoeias, our research is oriented towards the Khoe-Kwadi family, and its focus is language specific.

To achieve its objective, this article is structured as follows: In section 2, we present the framework underlying our research. In section 3, we describe the previous work on onomatopoeias in related (Kalahari) Khoe languages. In section 4, we introduce our original evidence, which, in section 5, is evaluated within the adopted framework. Section 6 concludes the article.

2. FRAMEWORK

Following a view widely accepted in linguistic studies (Hinton et al. 1994: 3; Coleman 2006: 471; Nänny and Fischer 2006: 646; Reay 2006: 531; Feist 2012: 107, 116; Stange and Nübling 2014: 1983; Johansson et al. 2020: 256–257, 289; Körtvélyessy and Štekauer 2020: 335–336), we understand onomatopoeias in phono-semantic terms as *lexemes that mimic sounds existing in the real world*. The relation between the onomatopoeia (a linguistic form-meaning pairing) and a particular sound of nature is iconic (De Jong 2001: 127). Sometimes, it is even regarded as direct (Childs 1994: 189, Kaufman 1994: 66, Watson 2001: 396) and absolute, that is, as “a fairly straightforward one-to-one resemblance” (Dingemanse 2015: 606). More often, however, this relation is viewed as indirect, “rang[ing] from recognizable to approximate” (Johansson et al. 2020: 257; see also Ibarretxe-Antuñano 2006: 147–149). Onomatopoeias are constrained by human cognition and anatomy, the phonological system of a particular language, and that language’s socio-cultural conventions (Nänny and Fischer 2006: 646, Reay 2006: 531, Sasamoto and Jackson 2016, Johansson et al. 2020: 257). As a result, the onomatopoeic representation *simulates* (*echoes*) a sound rather than constitutes its unaltered reproduction or an exact copy (Berlin 1994: 89, Reay 2006: 531, Sasamoto and Jackson 2016). The directness of mimicking is especially questionable when representing non-vocal and/or non-human sounds. These types are visibly imitative since other creatures’ sound systems and non-animated sounds can be reproduced only approximately, due to the limited capacity of a human vocal apparatus (Assaneo et al. 2011: 4, Reay 2006: 531). Nevertheless, as onomatopoeias generally “optimize their spectral content with respect to the original sounds” (Assaneo et al. 2011: 5), various onomatopoeias are shared across languages, revealing a certain universality (Childs 1994: 189).

Onomatopoeias are “complete acoustic signs” (Nänny and Fischer 2006: 646) and constitute one of the primary types of sound symbolism, together with

phonesthemes or iconic (combinations of) phonemes (Rey 2006: 537). This mimicking nature of onomatopoeias is possible by exploiting one of the two types of iconicity: imagic iconicity, which draws on absolute or natural resemblance between a real-world sound and the lexeme; and diagrammatic iconicity, which draws on relative or relational similarity between reality and language (Klamer 2001: 168, 178; Nänny and Fischer 2006: 462). Onomatopoeias belong to the lexical class of ideophones (Dingemanse 2012) and like all ideophones they depict, simulate, or demonstrate extra-linguistic reality through linguistic sounds (Clark and Gerrig 1990, Voeltz and Killan-Hatz 2001, Dingemanse 2012). Onomatopoeias occupy the first (lowest) position on the implicational hierarchy of ideophones that leads from ideophones denoting auditory sensations (i.e., onomatopoeias) to ideophones denoting visual sensations, and, further, to ideophones denoting psychological and cognitive states (see Childs 1988: 166; Kilian-Hatz 2001: 162–163; Dingemanse 2012: 661–664; Lahti et al. 2014: 336; Johansson et al. 2020: 255–257, 287, 290–294).

By drawing on typological evidence and taking into consideration both the frequency of the features exhibited by onomatopoeias attested in the languages of the world and these features' saliency (i.e., distinctiveness from other grammatical phenomena), it is possible to design an ideal representative of the category of onomatopoeias – an onomatopoeic prototype. In other words, the prototype is a cumulative model – abstract, although motivated – that encompasses the most common and/or the most characteristic features exhibited by onomatopoeias, whether non-formal (semantic) or formal (phonetic and morphological). Below, we present such prototypical features, drawing on previous studies on onomatopoeias (Ameka 1992, 2006; Rubino 2001; Rey 2006; Feist 2012; Meinard 2015; Stange 2016; Körtvélyessy 2020) and ideophones (Childs 1994, 2003; Voeltz and Kilian-Hatz 2001; Dingemanse 2011, 2012, 2014, 2015, 2017; Lahti et al. 2014; Dingemanse and Akita 2017; Ibarretxe-Antuñano 2017; Andrason 2020) – as explained above, a larger category that also comprises onomatopoeias.³

Semantically, onomatopoeias are descriptive (Ameka 1992: 113, 2006: 743) or, more properly speaking, entertain a referential function (Meinard 2015: 517, 167; Stange 2016: 17). They inform us of reality, point at a referent, usually external to the speaker, and “focus on an object of conceptualization” (Meinard 2015: 517–518). Therefore, onomatopoeias may be used as – and often evolve (i.e., grammaticalize) into – verbs, adjectives, nouns, and adverbs (see Dwyer and Moshi 2003; Dingemanse 2011, 2017; Dingemanse and Akita 2017; Andrason 2021a). The sounds mimicked by onomatopoeias are extra-linguistic in essence and can be produced by people themselves, animals, natural phenomena, and objects (e.g., musical instruments, tools, and machines) (Ibarretxe-Antuñano 2006: 154–158, Assaneo et al. 2011: 4, Stange 2016: 16, Körtvélyessy and Štekauer 2020: 335–336). The sounds produced by living creatures (whether human or non-human) may be vocal (i.e.,

³As expected, the formal features of the prototype of onomatopoeias coincide with the features associated with the prototype of an ideophone, which Andrason (2020) posited in his earlier study dedicated to ideophones in Xhosa. They also agree with the prototypical ideophonic features posited by Ibarretxe-Antuñano (2017).

their production “involves a sound source, generally the larynx, coupled to a sound filter represented by the vocal-tract airways (the oral and nasal cavities) above the larynx” (Ghazanfar and Rendall 2008: 457) or non-vocal (i.e., sounds that are made by other parts of the body or that accompany the motion of an animal and specific activities performed by it). In several languages, onomatopoeias tend to be semantically specialized and generally monosemous. Nevertheless, in others, they may be (slightly) more polysemous, with several meanings extended through metaphor and/or metonymy (see the varying extents of polysemy exhibited by onomatopoeias in Japanese, Korean, Chinese (Mandarin), and English (Akita 2013)).

Phonetically, onomatopoeias allow for extra-systematic sounds – including non-speech sounds that cannot be represented within the International Phonetic Alphabet (IPA) – and extra-systematic sound combinations and syllable structures (see Hinton et al. 1994: 9; Childs 2003: 118–119; Ibarretxe-Antuñano 2006: 151–152; Dingemanse 2011: 134–136, 2012: 656). Onomatopoeias extensively exploit vocalic and consonantal length and tolerate degrees of length that are otherwise rare or ungrammatical in a language (Childs 2003: 119; Andrason 2020: 126). The difference between onomatopoeias and the other word classes found in a language may also concern prosody – onomatopoeias being generally produced with special phonation, air stream intensity, and melody (Feist 2012: 114; see also Childs 2003: 119; Dingemanse 2012; Ibarretxe-Antuñano 2006: 152, 2017: 211). Lastly, onomatopoeias abound in harmonious patterns (whether vocalic or consonantal), and rhymes (Reay 2006: 531; Childs 2003; Dingemanse 2011, 2012).⁴

Morphologically, onomatopoeias are one of the few matrices of word formation characterized by “pure creation” (Meinard 2015: 151). They tend to be mono-morphemic and, thus, indivisible into more complex meaningful morphemes (Rubino 2001: 307). They typically resist inflections, derivations, and compounding (Stange 2016: 16).⁵ The only morphological processes more generally available to onomatopoeias are expressive patterns (Dingemanse 2011: 139–142, 158), in particular, replication (Hinton et al. 1994: 9, Rubino 2001: 307, Ibarretxe-Antuñano 2006: 151, Reay 2006: 531; see also Childs 1994: 185). Three types of replicative patterns are distinguished: genuine (full) repetitions (e.g., *bul-bul*),⁶ replicas with vowel alternation (e.g., *bim-bam-bom*), and “rhyming combinations” (e.g., *chlast-prast*; see Reay 2006: 531, Blake 2017: 308–310). The use of linking elements (e.g., “ding-a-ling”) in replicated sequences is also common (Reay 2006: 531). Lastly,

⁴All such phonological properties of onomatopoeias are related to their iconicity, discussed above. Childs (2003) and Dingemanse (2011, 2012), generalizing over all ideophones, note that the iconicity of onomatopoeias is the most direct.

⁵In contrast, onomatopoeias may host morphemes that transfer them to other word classes, for example, being lexicalized as verbs or nouns (Reay 2006: 531, Meinard 2015: 157, Körtvélyessy and Štekauer 2020). This, in turn, eases their syntactic integration in a language (Meinard 2015: 151).

⁶The examples of the three repetitive patterns of onomatopoeias are extracted from Polish. They imitate boiling water, a ringing clock, and an object hitting something else (see Bańko 2008: 148, 154, 160).

onomatopoeias constitute an open and productive category (Meinard 2015: 157, 167; see also Andrason 2020: 157-158).⁷

Table 1 captures all the prototypical features of onomatopoeias:

General definition	Depiction: a lexeme that mimics sounds existing in the world through imagic or diagrammatic iconicity
Semantics	Referentiality Sources of the imitated sounds: humans, animals, natural phenomena, and objects Types of the imitated sounds (including those of living creatures): vocal or non-vocal Specialization and monosemy
Phonetics	Extra-systematicity of sounds (including the presence of non-speech sounds) and sound combinations Vocalic and consonantal length Marked prosody and phonation Harmonious patterns
Morphology	Pure creation matrices or radical origin Mono-morphemicity and absence of inflections, derivations, and compounding Expressive morphological patterns: full repetitions, replicas with vowel alternation, and rhyming combinations with linking elements Openness and productivity

Table 1: The features of a prototypical onomatopoeia

Overall, onomatopoeias – like ideophones, a subtype of which they constitute – tend to be extra-systematic, that is, marked, as far as their phonetics and morphology are concerned (Nuckolls 1999: 240–242, Voeltz and Kilian-Harz 2001: 2, Dingemanse 2012: 655–656, Feist 2012: 109, Lahti et al. 2014: 335–336, Andrason 2020: 124). Although part of (any given) language, they (more or less radically) distinguish themselves from, as elegantly referred to by Körtvélyessy (2020: 530), “the non-onomatopoeic word-stock”.⁸

⁷Onomatopoeias also exhibit syntactic commonalities, in that they “are syntactically isolated” (Meinard 2015: 151) and their syntactic realization is typically more peripheral than the other types of ideophones (see Dingemanse 2012: 657). Regarding syntactic properties of onomatopoeias (and ideophones), see Voeltz and Kilian-Hatz (2001); Kilian-Hatz (2001); Childs (2003); Nübling (2004: 37); Ameka (2006: 743); Dingemanse 2011, 2012; Meinard (2015: 151, 157, 167); Stange (2016: 16); Ibarretxe-Antuñano (2006: 152–154, 2017); and Andrason (2020).

⁸This extra-systematicity (or markedness / uniqueness) of onomatopoeias (and ideophones) is sometimes questioned (see, e.g., Newman’s (2001) study of Hausa, as well as Körtvélyessy’s (2020) and Körtvélyessy and Štekauer’s (2020) analysis of Slovak and English). For example, there are languages in which the phonetics of onomatopoeias are not particularly extra-systematic (Körtvélyessy 2020) and/or where onomatopoeias exhibit some types of more standard morphology (Rubino 2001: 307, 319; Bańko 2008).

As recognized in the prototype approach that underlies our study, although the prototype structures the category, the category itself cannot be reduced to the prototype. That is, real-world instantiations of the prototype need not comply with it fully. Instead, their compliance may gradually decrease without necessitating the elimination of such members from the category. Accordingly, onomatopoeias attested across languages do not always conform to the onomatopoeic prototype – rather, they exhibit varying degrees of compliance. Those onomatopoeias – perhaps very few – that match the prototype fully are canonical. (To avoid confusion, we reserve the adjective ‘prototypical’ to refer to the prototype (both in general and to its specific features). In contrast, ‘(non-)canonical’ is used when referring to real-world instantiations.) Those onomatopoeias that comply with the prototype minimally are non-canonical. Those that comply with it to a certain extent are semi-canonical. Crucially, as mentioned above, violations of prototypical features do not automatically relegate an instantiation out of the category – instead, they are responsible for its placement in more peripheral regions of the categorial network.

Given the approach presented above, we will analyze Tjwao onomatopoeias from the perspective of the onomatopoeic prototype and estimate their overall extent of canonicity.

3. STUDY OF ONOMATOPOEIAS IN KALAHARI KHOE

Studies on the semantic, phonetic, and morphological properties of onomatopoeias in Kalahari Khoe are scarce. The most comprehensive analyses are found in publications devoted to ideophones – of which, as explained above, onomatopoeias are considered to be a sub-class. Such publications primarily concern two languages, namely Khwe (Kilian-Hatz 2001, 2008; Brenzinger and Fehn 2013) and G|ui-G|lana (Nakagawa 2011, 2012). In addition, a few onomatopoeic lexemes have been described for the Botswanan language Ts’ixa (Brenzinger and Fehn 2013, Fehn 2016: 41), which appears to display a comparatively large ideophone inventory as well (Fehn, f.n.). There are few other mentions of onomatopoeias in Kalahari Khoe and more generally in Khoe: Saguwara (2001: 71, 74; 2016: 85, 89, 96–97) refers to onomatopoeias when studying bird-names and personal names in G|ui and G|lana. The use of onomatopoeia in bird names is also noted in Damara by Low (2011: 298). Their ability to be borrowed is observed in Korana by den Besten (2013: 907, 917). Lastly, a few onomatopoeic lexemes are mentioned in Khoekhoegowab by Fredericks (2013: 171) and in Khoe, in general, by Andrason (2017: 142).

Khwe (kxoe 1243 / xuu) contains a robust set of 70 onomatopoeias (Kilian-Hatz 2001: 159). Onomatopoeias typically pertain to the following semantic domains related to the source of a sound: bird calls and other animal cries, sounds caused by movements, sounds associated with certain actions, and sounds produced by objects and natural phenomena (Kilian-Hatz 2008: 241–243). As in many other languages, Khwe onomatopoeias are simulations rather than direct copies – they reflect reality with “the phonology, phonotactics and perception” provided by the language

(Kilian-Hatz 2001: 157). Crucially, onomatopoeias are semantically specialized and “do not show any trait of existing or beginning polysemy” (Kilian-Hatz 2008: 243). Onomatopoeias in Khwe may be “phonologically” extra-systematic, although the majority of lexemes “are not phonologically aberrant” (Kilian-Hatz 2008: 245). Onomatopoeias allow for phones and clusters of phones that are absent elsewhere in the language. For instance, complex replications of syllabic consonants as well as words built only around consonants are tolerated. Morphologically, onomatopoeias are “simplicia” (Kilian-Hatz 2001: 156, 2008: 243–245) and fail to host inflectional or derivational morphemes. They neither “participate in the morphology of other word classes”, nor are they marked with grammatical morphemes that would “inform [us] about grammatical and semantic relations of a given sentence” (Kilian-Hatz 2001: 156–157). The only productive “derivative” processes are replication (of a phoneme, cluster, or morpheme) and vowel lengthening – both are “iconic” in nature and signal the iteration of an event and its continuity or intensity, respectively (Kilian-Hatz 2008: 245). It should be noted that onomatopoeias constitute the only class of ideophones found in Khwe. That is, Khwe ideophones are restricted semantically to imitations of sounds (Kilian-Hatz 2001: 161; 2008: 241, 244), specifically “audible sensations and/or visible sensations that [are] associated with a certain sound” (Kilian-Hatz 2001: 160). Ideophones in Khwe match, thus, the lowest position available to ideophones on the continuum of ideophony (Kilian-Hatz 2001: 162–163, Dingemanse 2012: 663; see section 2 above).

G|ui (gwii 1239 / gjw) contains 31 onomatopoeias out of its total set of 172 ideophones (Nakagawa 2011: 208, 283; 2012: 415; 2013: 100). These imitate a variety of sounds of the real world: sounds made vocally by humans and animals; sounds produced during determined activities performed by humans or animals; sounds accompanying natural phenomena; and sounds made by inanimate objects (Nakagawa 2012: 415–416, 2013: 103–119). Phonetically, onomatopoeic roots can be bi- and monomoraic. They often exploit systematic syllable structures (i.e., CVCV, CVV, and CVN), which are all typical of the other “word roots” (Nakagawa 2011: 280, 2013: 100). However, the phonetics of onomatopoeias can also be extra-systematic. Onomatopoeic lexemes may exhibit phones and phonotactics otherwise absent and/or disallowed in the language (Nakagawa 2012: 419, 2013: 100). For instance, onomatopoeias are subject to fewer constraints in codas than the other word classes (Nakagawa 2012: 419). In particular, they allow for monosyllabic structures, may end in a stop consonant /p/ or /t/ (Nakagawa 2012: 419, 2013: 100–101), and exhibit certain tonal peculiarities (see Nakagawa 2013: 100–101). Similarly, in the closely related G|ana dialect, ideophones – and thus onomatopoeias – are less constrained phonologically and tolerate structures disallowed in other lexical classes (Nakagawa 2012: 419). Morphologically, onomatopoeias are bare roots (Nakagawa 2013: 100), lacking any nominal and verbal morphology (Nakagawa 2011: 281). They “are not words” but rather “mimetic signs” (2012: 416, 2013: 100).

The Ts'ixa (tsix 1234) dictionary currently contains 27 onomatopoeias (Fehn 2021) which include calls and other sounds made by animals, vocal sounds made by humans, sounds accompanying natural phenomena, and sounds made by inanimate objects. In general, the observations made for G|ui above also apply to

onomatopoetic lexemes in Ts'ixa: onomatopoeias form part of a larger word-class “ideophone” which extends to food texture verbs and manner-related sound symbolism (Brenzinger and Fehn 2013). Ideophones generally fit within the phonotactic template of the language, but also accept less systematic structures such as CVp, CVng, and CVpV. In addition, two click accompaniments absent in other segments of the lexicon are attested in onomatopoeias (exemplified by the alveolar click): affricated ejective clicks /!qɣ/ and delayed aspiration /!'h/ (see fn. 17). One item, the onomatopoetic noun *?oara* ‘crow’ has a variant *?o^ʕa* which displays creaky voice, a phonation type otherwise absent in Ts'ixa. Only two of the onomatopoeia recorded, namely, *phphph* ‘sound of a large bird diving to the ground’ and *ʃkrʃkr* ‘sound of a tin can being squeezed’, exhibit atypical consonant clusters and the complete absence of vowels. Onomatopoeias are highly lexicalized in Ts'ixa and even display limited cognacy with the ideophone inventory of G!ui (see Nakagawa 2014; for instance, *lɪp* ‘sound with which a (heavy) spear pierces the ground’; *lɪp* ‘sound with which the stopper is pulled from a bottle’), suggesting some genealogical depth or areal connection. Scholars have also noted the peculiar syntactic properties of onomatopoeias in Khwe and G!ui. In Khwe, onomatopoeias can function holophrastically, that is, as entire utterances. They cannot be modified nor negated (Kilian-Hatz 2008: 244–245). In G!ui, onomatopoeias are, similar to other ideophones, “free forms” (Nakagawa 2013: 100) and “single units”, which allows for their production and identification in syntactic isolation (Nakagawa 2011: 280). However, onomatopoeias may host the suffix *-ts'i* (Nakagawa 2011, 2013: 101–102) that transforms them into “sound verbs”. In such cases, de-onomatopoetic verbs can be inflected in all TAM categories (Nakagawa 2011: 281–283). The suffix *-ts'i* may have been borrowed from the neighboring but unrelated Tuu language East !Xóǝ, which has a formative *ts'êê~ts'ĩĩ* “used in certain onomatopoetic expressions” (Traill 2018: 197). In all Kalahari Khoe languages surveyed, the integration of onomatopoeias in the syntax of a clause or sentence usually requires the presence of the “dummy” speech verb *mĩĩ* ‘say’ and/or the complementizer *tà* (/cà/ in G!ui, see Nakagawa 2012: 416, 2013: 101), as illustrated in the following example (from Ts'ixa): *Ixóá tà xām=ím kyáã-nā-tā* (lit. gloss: ONOM COMP lion=SG.M enter-J-PST) ‘The lion entered (the bush) with the sound !xoa’. Otherwise, onomatopoeias (as well as the other ideophones) cannot entertain a syntagmatic function in clauses or sentences, contrary to other lexical classes (Nakagawa 2011: 284, 2013: 101).

4. EVIDENCE

The evidence presented in this section was collected in 2019 in the Tsholotsho region, north-west from Bulawayo, in the western part of Zimbabwe, close to the border of Botswana. Given the very limited number of Tjwao speakers, our objective was to involve all of them in the research. Five speakers were present in Tsholotsho at the time of our fieldwork and participated in the collection of data. Nevertheless, Mthandazo Kuphe Vundla contributed the most. Each onomatopoeia was primarily collected through linguistic elicitation and translation tasks from Ndebele and/or Kalanga. This approach allowed us to establish the phonetic and morphological

ehehehehe	laughing lightly
g ug ug u	jumping
grrr	dog – growling
gubugubugubu	walking on water (deep)
guff	banging the door
gufff	a big gun shooting
gugugugugu	knocking the door
guguguguuuhhh	walking on deep water
haaa	chameleons
(h)ihihihih	horse – neighing
hm-hm-hm-hm	owl
huduhuduhudu	ground hornbill
huuu	river – flowing
kakakakaka	isiqoqodo (woodpecker)
kekekekeke	isiqoqodo (woodpecker)
khaakhaakhaa	cutting a tree with an axe
khapakhapakhapa	walking on shallow water
kha!ha kha!ha kha!ha kha!ha	clock ticking
khe!xe	locking something with a key
khokhokhokhokhokho	horse – galloping
khukhukhu	using a hoe to dig
kl'uakl'ua	puppy – whining
kokoguuu	rooster
kokoko(koko)	yellow-billed hornbill
kokokogokokokogo	rooster – attracting a female
kokokokoko(oo)	hen
krpukrpu	donkey – scratching each other's back
kx'uakx'ua	dog – being beaten
kx'aikx'ai	dog – being beaten
kx'uakx'uakx'ua	frog
lelelelelele	mosquito
lihihihi	horse – neighing
mboomboo	inkonkoni (wildebeest)
meeemeee	goat
mhuuumhuuu	cow
mmm	singing
n eren eren eren ere	bell ringing
ng eng eng eng eng engle	clapping while dancing
nguēnguē / ngēngē	bell ringing
ŋāāŋāāŋāā	cat
ohohohoho	laughing loudly
oo-o-o-o	donkey – braying
ooaaaa	yawning
oooeee	yawning

paa	a car hooting
phu	spitting
piii	breaking wind
popi	a car hooting
prrr	birds / ikhwezi (Cape starling) – flying or fluttering
tatarata	birds
tc'uaaa	jacobin cuckoo
tcatarcatcatcaratcatcaratcatcara	dancing (modern music)
tcatcatca	walking on leaves
tcatcatcaaaa	Guinea fowl
tcatcatcatcatcatca	sound made by amahlwayi (leg rattles) while dancing
tccc	breaking wind
tcuaaa	small types of owls
tcuatcuatcuatcua	birds – flying or fluttering
tcuaxx	having diarrhoea
tcxuua	peeing
teee	isiqoqodo (woodpecker) – alarming
ts-ts-tsui	birds
tsrrr	plowing the field with a plow
tsuatsuatsuatsua	birds – fighting
tsuiyotsuiyo	chicken
tũthuthutũthuthutũthuthutũthuthu	singing
txitxitxi	beating heart
vofoovofoo / voofofofo	(kudu) horn
vrrr	elephant – in the stomach
vrrrvrrr	lion – growling
vu	buffalo
waahlo	falling tree
waawaa	wolf
wauwau	dog – barking
wiii ₁	bees
wiii ₂	flies
wohwoh	dog – barking
xãããõ	lion – roaring
xõõõ	lion – roaring
xoopopopopopo	hippopotamus
xo?	kudu
xuaxuaxua	scratching
xuuu	strong wind blowing
yiyiyiyi	siren of an ambulance / police car
zuanzuanzuan	'zwan' bird
zi	frog – when rivers are full

differentiates the various dog-related onomatopoeias concerns the characteristic manner with which the animal produces a vocal call, that is, barking (*wohwoh* and *wauwau*), growling (*grrr*), and whimpering while being beaten (*kx'aikx'ai* and *kx'uakx'ua*). Additionally, one lexeme is specific to puppies (*kl'uakl'ua*). With regard to onomatopoeias imitating sounds made by chickens, some lexemes are associated with roosters (*kokoguuu*, *?e?e?e?e?eee*, and *kokokogokokokogo* – the last one being used to attract a female), while others are typical of hens (*kokokokoko(oo)*) and small chicks (*tsuiyotsuiyo*). As for donkeys' onomatopoeias, *oo-o-o-o* imitates a vocal cry, while *krpukrpu* imitates a sound produced when the animals scratch each other's backs. Lastly, regarding the onomatopoeias associated with horses, (*h)ihihihih* and *lihihih* mimic cries of neighing, while *khokhokhokhokhokho* simulates a sound made during galloping. Overall, the hierarchy of species in domestic-animal onomatopoeias differs from the hierarchy typifying wild-animal onomatopoeias and exhibits the following structure: mammals → birds.

Onomatopoeias imitating sounds made by humans are much fewer than those imitating animal sounds that were described above. To be exact, 27 lexemes are human onomatopoeias. Nine tokens mimic vocal sounds, namely: laughing (*ehehehehe*, *ahahaha*, *ohohohoho*), yawning (*ooooaa* and *ooooee*), sneezing (*atsu*), kissing ($\downarrow B$), spitting (*phu*), and singing (*mmm* and *tũthuthutũthuthutũthuthutũthuthu*). The three laughter onomatopoeias are associated with different types of laughter: light (*ehehehehe*), heavy (*ohohohoho*), and indefinite, that is, both light and heavy (*ahahaha*). (This relationship of the vowels *e*, *o*, and *a* found in laughter onomatopoeias in Tjwaw with specific types of laughter largely matches the universal behaviour of laughter onomatopoeias described in typological literature; see Xhosa (Andrason 2021c), Polish (Andrason 2021a), and Danish (Levisen 2019).) Seventeen tokens mimic non-vocal sounds made by humans, that is, noises produced while walking (*|ha|ha|ha*, *tcatcatca*, *|hap|haph|haph|haph*, *khapakhapakhapa*, and *gubugubugubu*), breaking wind (*buu*, *piii*, and *tccc*), dancing (*didididididi* and *tcatcatcatcatcatcatcatcatcara*), clapping (*ng|eng|eng|eng|eng|eng|e* and *!ha!ha!ha*), peeing (*tcxuaaa*), having diarrhea (*tcuaxx*), jumping (*g|ug|ug|u*), and scratching (*xuaxuaxua*), as well as the sound made by a beating heart (*txitixi*). The five walk-related onomatopoeias are not synonymous: *|ha|ha|ha* refers to all types of walking; *tcatcatca* refers to walking on leaves; *|hap|haph|haph|haph* and *khapakhapakhapa* refer to walking on shallow water; and *gubugubugubu* refers to walking on deep water. The two dance-related onomatopoeias depict dancing accompanied by either traditional (*dididididididi*) or modern (*tcatcatcatcatcatcatcatcatcara*) music. For clapping-related onomatopoeias, *ng|eng|eng|eng|eng|eng|e* implies that clapping takes place concurrently with dancing.

The second major group of onomatopoeias are lexemes that mimic sounds made by inanimate entities: constructed objects or natural phenomena. There are 24 such lexemes, which means that this group of onomatopoeias is significantly less numerous than the “animate” group analyzed in the previous paragraphs. Out of 25 tokens, 15 imitate sounds made by specific objects: a bell ringing (*nguũnguũ/ngũngũ*, and *n|eren|eren|eren|ere*), a clock ticking (*kha!ha kha!ha kha!ha kha!ha*, *!xa!xa!xa!xa*, and $\ddagger\ddagger\ddagger$), a gun shooting (*gufff* and *!huu*), a car hooting (*paa* and *popi*), an

ambulance or police siren (*yiyiyiyi*), and a musical instrument (a kudu horn – *vofoo-vofoo/vofoofofo*; amahlwayi or leg rattles – *tcatcatcatcatca*), as well as anything that cracks (*haa*) or explodes (*dudj*). One lexeme imitates the sound of a tree falling (*waahlo*). The two gun-related onomatopoeias are used depending on whether the shooting sound is produced by a big (*gufff*) or a small (*!huu*) gun. In contrast, the various onomatopoeias for bells and clocks are generally synonymous. The other class of inanimate-source onomatopoeias mimics natural phenomena and contains seven tokens. These lexemes imitate the sound made by a wind (a light wind – *ccc* and a strong wind – *xuuu*), thunder (*guguguuuhhh*), lightning (*!ha!ha!ha!ha!ha!ha!ha!ha*), thunder and lightning jointly (*!hu!hu!hu!hu!hu!hu!hu!hu*), a flowing river (*huuu*), and sparking fire (*|ha|ha|ha|ha|ha|ha|ha*). Additionally, *caaa* imitates sound made by boiling water and *!ō!ō!ō!ō* imitates the sound made by drops dripping on a metallic surface.

Lastly, six onomatopoeias mimic sounds made by specific objects when manipulated by human beings. Therefore, from a semantic perspective, the classification of these lexemes is more complex – they draw on two domains (animate and inanimate) simultaneously. Such onomatopoeias imitate sounds made when a person is knocking (*gugugugugu*) or banging the door with their fists (*guff*), locking something with a key (*khe!xe*), cutting a tree with an axe (*khaakhaakhaa*), using a hoe to dig (*khukhukhu*), and plowing the field with a plow (*tsrrr*).

Overall, the meaning of an onomatopoeia tends to be specialized – an onomatopoeic lexeme is either monosemous, or semantically restricted to a much larger extent than, for instance, interjections (Andrason et al. 2020: 304, 313; Andrason and Dlali 2020: 165).⁹ That is, an onomatopoeia refers to a sound produced by a very specific source, for instance a determined animate creature, inanimate object, or natural phenomenon (see the various examples introduced in the section). It may furthermore be restricted to a very specific activity performed by a given creature (e.g., *tsuatsuat-suatsua* and *prrr* associates with birds – the former mimicking sounds made when fighting, the latter when flying; see also the onomatopoeias imitating sounds made by humans). For animals, this specificity may even concern gender (i.e., male versus female, e.g., *koguuu* and *kokokoko(oo)*, which mimic sounds produced by roosters and hens, respectively) and age (i.e., old/adult versus young, e.g., *tsuiyot-suiyo* and *kl'uakl'ua* restricted to chicks and puppies). For objects and natural phenomena, specificity may concern size (e.g., big versus small – see *gufff* and *!huu* which imitate the sound made by a big and by a small gun) and intensity (e.g., strong versus light – see *xuuu* and *ccc* which imitate the sound made by a strong and by a light wind). This semantic specialization is reflected in the fact that Tjwao onomatopoeias seem to be largely resistant to any type of semantic extensions, for instance through metonymy and metaphor. Indeed, metonymical or metaphorical uses of the collected onomatopoeias that would be, at least relatively, entrenched were unattested in our fieldwork.

⁹Of course, we are aware of the fact that true monosemy does not exist. By the very nature of being used in different contexts, any word or construction produces meanings that differ at least minimally.

The monosemy of onomatopoeias and their resistance to semantic extension explained above refer to onomatopoeic words used as onomatopoeias proper. In contrast, we have not studied semantic changes that could emerge in cases where onomatopoeic roots would, through derivative word-formation processes, contribute to the creation of lexemes belonging to other lexical classes, especially nouns. Such a study, which would concern not the semantic properties of onomatopoeias but rather that of nouns (or other lexical classes) derived from onomatopoeic sources, falls beyond the scope of this article. It should nevertheless be noted that our field-work revealed no examples of the use of onomatopoeias as genuine nouns – whether as bare forms (formally identical to onomatopoeias) or accompanied by derivative affixes. This, in turn, renders (at least, any nominal) types of semantic “extensionability” highly unlikely (see section 4.3 dedicated to morphology).

4.2 Phonetics

One of the most remarkable phonetic features typifying onomatopoeias in Tjwao is their ability to host extra-systematic sounds. Such sounds may be of two types: non-speech and speech.

Non-speech sounds constitute the most radical exponent of phonetic extra-systematicity: they do not form part of standard phonetic inventory of natural languages and are not included in the International Phonetic Alphabet. In Tjwao onomatopoeias, the presence of extra-systematic non-speech sounds is very limited. Only one such sound has been fully stabilized and entrenched in a single onomatopoeic lexeme. This sound is an ingressive endobilabial click used to imitate kissing. Following Poyatos (1993: 87), we represent this phone by the symbol [↓B’]. This “kissing” click [↓B’] is distinct from the bilabial click represented by the IPA symbol [⊙]. In [↓B’], the lips are more protruded/outward, and the sound involves two closures “a dorsovelar [...] and a forward labial one” (Poyatos (1993: 87, 117). In contrast, in [⊙], the lips are more compressed/inward. (It should be noted that [⊙] is attested in the “Khoisan” Sprachbund, e.g., in the Tuu family and the †Amkoe branch of Kx’a, and it is also found in Tjwao, specifically in interjections (Andrason et al. 2020)). Although, as explained above, only one non-speech sound has truly penetrated the onomatopoeic lexicon, virtually every onomatopoeia collected in our field-work may be realized in a more extra-systematic manner and, thus, approximate more closely the original non-speech sounds they imitate. For instance, the fully linguistic and entrenched forms such as *grrr* and *wohwoh* usually pronounced as [gr:] and [wohwoh], may be realized in a manner that is less linguistically tamed, but on the contrary that increasingly resembles the growling and barking noises made by dogs. In general, if the speaker aims to be more expressive and depict a given sound in a way which (in their view) represents it more faithfully, they may resort to a less phonetically harnessed and more extra-systematic non-speech realization. This “flexibility” and compatibility with a range of pronunciations that are less systematic and accommodated in human language, but more oriented towards the actual source (as perceived by humans), is a typical property of all onomatopoeias and

distinguishes them from the other lexical classes, including interjections (which may also contain extra-systematic sounds in Tjwao; see Andrason et al. 2020).

The other group of extra-systematic sounds found in onomatopoeias in Tjwao are phones that, although unattested in the Tjwao phonetic system (i.e., the (sub) system(s) operating in the other lexical classes) are found across languages and are included in the International Phonetic Alphabet. In other words, these sounds are not extra-systematic *per se* – they simply do not occur in Tjwao grammar and the non-onomatopoeic lexicon of this language. Seven such sounds are found in onomatopoeias. Six are consonants: [ʒ] in ʒ,¹⁰ [fi] in *bhuu*, [ɬ] in *waahlo* (this sound and the entire lexeme are borrowed from Nguni, most likely Ndebele; see section 3.3), [m̥] in *hm-hm-hm-hm*, and two clicks, palatal [ɬ] in ɬɬɬɬ and alveolar [!] in *!ha!ha!ha, khe!xe, kha!hakha!hakha!hakha!ha, !xa!xa!xa!xa, !ha!ha!ha!ha!ha!ha!ha!ha, !ō!ō!ō!ō*, and *!hu!hu!hu!hu!hu!hu!hu!hu*.¹¹ There is only one extra-systematic vowel, namely, [ə], which may be used in *?e?e?e?e?eee* as an alternative to [e].¹² By exhibiting this class of extra-systematic sounds, onomatopoeias are similar to interjections. Although, like onomatopoeias, the majority of interjections “do not involve sounds that are absent from the phonological or phonetic inventory of the Tjwao language”, four noticeable exceptions are attested: [ɬ] (realized ingressively as [ɬ:↓]), [m̥], [!], and the above-mentioned bilabial click [ɔ] – all of them, except for [ɔ], also found in onomatopoeias (Andrason et al. 2020: 311).¹³

The phonetic extra-systematicity of onomatopoeias is particularly visible with regard to the feature of vocalic and consonantal length. In Tjwao, vowels are either mono-moraic (short vowels) or bi-moraic (long vowels) with longer vocalic phones being unattested, with the exception of a few interjections. However, even in interjections, the presence of exaggerated length is extremely rare, being limited to a few lexemes. One of them is the interjection of repugnance *oo*, in which [o:] is often extended to a three-moraic, or even four-moraic, pronunciation [o::(:)] (Andrason et al. 2020: 312, Phiri 2021). In contrast, apart from being mono-moraic and bi-moraic, vowels in onomatopoeias often exhibit three morae and,

¹⁰Tjwao only has a voiceless fricative [ʃ]. Even this fricative is rare and occurs in a few lexical roots (e.g., *coo* ‘lung’, *coro* ‘monitor lizard’, and *cori* ‘tobacco’). In contrast, [ʃ] is relatively common in onomatopoeias, as attested by *cc-cc, caaa, ccc₁*, and *ccc₂*.

¹¹Tjwao only has two types of clicks or influxes: dental /l/ and lateral /ll/. This stems from the fact that, as in other Kalahari Khoe varieties, Tjwao has neutralized the alveolar click /l/ to /k/ and the palatal click /ɬ/ to /tʃ/. The sound [dʒ] found in *dudj, djwii*, and *djuiddjuirrrdjuiddjuirrr* is also rare in the non-onomatopoeic lexicon. It appears in *djii* ‘tree’, *djore* ‘bark’, and *djibe* ‘axe’ (Phiri 2021).

¹²Tjwao has five vowel phonemes: /i/, /e/, /u/, /o/, and /a/ (Phiri 2021) and [ə] does not constitute an allophonic variant of any one of them.

¹³Although, strictly speaking, the consonant [m̥] appears outside onomatopoeias and interjections, it is only found in a single lexeme, that is, *hmm* [m̥:] ‘smell’. This form can be reconstructed to Proto Khoe-Kwadi and may originally have had a breathy voice phonation not present anymore in the modern languages. However, it also is plausible that *hmm* and/or its diachronic predecessor might have had an interjective foundation related to the sensation of good smell/taste.

thus, are extra-long, for instance *ooooaa* [o::a:], *ooooee* [o::e:], *tcuaaa* [tʃu:a:], *huuu* [hu:], *xuuu* [xu:], *tee* [te:], and *caaa* [tʃa:]. The pronunciation of all such tokens may even be extended further to exaggerated degrees of length, (i.e., [::(:)ⁿ]). Similarly, lexemes that are usually bi-moraic can be lengthened to three or more morae, for instance *!huu* [!hu:] and *!haa* [!ha:] are sometimes realized as [!hu::(:)ⁿ] and [!ha::(:)ⁿ]. The preference for atypical vowel-lengthening appears to dominate in contexts in which the onomatopoeias are pronounced in isolation, that is, without being embedded syntactically in a clause. This is illustrated in (1), taken from a narration about a competition between sun and wind:

- (1) *?e.xa.ka xai tan-a kũũ-tam-kũũ, pfuuu!*
 ADV wind stand.up go-INTENS-go ONOM
 ‘The wind kept on blowing and blowing, **pfuuu!**’

In contrast, onomatopoeias produced in the context of carrier phrases often follow the mono- or bimoraic templates otherwise common in the language (see *keke* [keke] and *djuiddju* [dʒuidʒui] in (2a–b) below). This suggests that, from a phonological perspective, onomatopoeias tend to become more word-like if they are syntactically integrated into a sentence, thus losing their direct expressiveness.

- (2) a. *yii huku kua keke ta mii kika ?e*
 DEM chicken IPFV ONOM COMP say when it
kua luu-kaa
 IPFV give.birth-VOL
 ‘When this hen is making the noise **keke**, it wants to lay eggs.’
- b. *Tire lam-a-ha yii khuri djuidju ta mii=se*
 1SG hear-J-PRF DEM pig ONOM COMP say=ADV
tire lam-a ?e xoo-e-ha.
 1SG hear-J it catch-PASS-PRF
 ‘If you hear the pig making the noise **djuiddju**, it has been caught.’

Furthermore, according to the ‘decomposition hypothesis’, long vowels exhibited by contemporary Kalahari Khoe languages are original sequences of two vowels that have merged due to the loss of a medial consonant, (i.e., (C)VCV > (C)VV). (Güldemann 2001; Nakagawa 2006, 2010, 2011). Following this view, it has recently been proposed that surface long vowels in Tjwao, (i.e., [V:]), also have an underlying (C)VCV > (C)VV structure (Phiri 2021). This seems not to be the case with onomatopoeias. There is no synchronic, diachronic, or comparative evidence suggesting that long vowels in Tjwao onomatopoeias have emerged due to the reduplication of short vowels and, if possible, the elimination of an onset consonant. Therefore, any long vowel found in onomatopoeias is most likely ‘primary’ (see section 4.3 on the radical origin of onomatopoeias). If the decomposition hypothesis is correct, the origin of long vowels in onomatopoeias would thus be radically different from the origin characterizing the general lexicon of Tjwao. However, in this respect, onomatopoeias would behave like primary interjections; that is, similar to onomatopoeias, long vowels found in these types of interjections (see, for instance, *oo* expressing repugnance and contempt and *xuu* expressing disappointment, tiredness, and relief)

do not result from contraction but are original and belong to respective interjective roots (see Andrason et al. 2020).

Onomatopoeias may also contain long and extra-long consonants, as in *djuiddjuirrrrdjuiddjuirrr* [dʒuidʒuir::dʒuidʒuir::], *grrr* [gr::], *vrrr* [vr::], *vrrrvrrr* [vr::vr::], *cc-cc* [ʃ:f:], *ccc₁* and *ccc₂* [ʃ::] *mmm* [m::], *tccc* [tʃ::], and *tsrrr* [tsr::]. Significantly, long and especially extra-long consonants do not form part of the standard phonetic system of Tjwao, with interjections being again the only exceptions (see Andrason et al. 2020: 312). As is the case with (extra-)long vowels, (extra-)long consonants do not result from the replication (reduplication or triplication) of a consonantal simplex, but are primary and original.

Overall, onomatopoeias make extensive use of vocalic and consonantal length and commonly distinguish between three degrees of length: short, long, and extra-long. In some cases, the difference between long and extra-long realization is phonemic. For instance, *guff* [guf:] imitates banging with a fist on the door, while *guffff* [guf::(:)] – with an exaggeratedly long consonant in the coda – imitates a sound made by a big gun when shooting. This phenomenon is again only attested in interjections (Andrason et al. 2020).

The type of extra-systematicity discussed above is related to a broader phenomenon of extra-systematic phonotactics, which is pervasive in Tjwao onomatopoeias. That is, onomatopoeias relatively often exhibit sound combinations and syllabic structure that are unusual. To begin with, lexical roots in Tjwao are bi-moraic, and their syllables exhibit the following consonant (C) and vowel (V) combinations: CVV, CVN, CVCV, C(C)VCV, C(C)VN, C(C)VV. Tri-moraic radical structures are very rare, while mono-moraic structures are attested only in grammatical morphemes.¹⁴ More complex radical structures are limited to a few nouns that may themselves have an imitative origin and draw on the replication of one of the segments (e.g., *teteberu* ‘butterfly’ and *tcibiriri* ‘lizard’) and loanwords (which may allow for CVC(C)V, C(C)VCV, CVC(C)VCV structures; Phiri 2021). Furthermore, except for loanwords (Phiri 2021) and interjections (Andrason et al. 2020), the only consonants that may appear word-finally are nasals (i.e., [m] and [n]). In a word-medial position in (C(C))VCV roots, the only consonants attested are [b], [r], and the nasals [m] and [n] – again, with the exception of loanwords, see, for instance, *gomba* ‘antbear’, *beke* ‘week’, *gudo* ‘baboon’, *mbuta* ‘hare’, *kwala* ‘read’, and *mbizi* ‘zebra’ (Phiri 2021).

The abovementioned phonotactic patterns, prevalent in the other parts of Tjwao grammar, are often violated in onomatopoeias. Six types of such violations may be distinguished. First, onomatopoeias can contain non-vocalic syllables, for example *ts-ts-tsui* [ts.ts.tsui]. Indeed, there are onomatopoeic lexemes that consist entirely of consonants with no vowels. Such lexemes may be monosyllabic (e.g., *grrr* [gr::], *vrrr* [vr::], *ccc* [ʃ::], *tccc* [tʃ::], and *tsrrr* [tsr::]), bi-syllabic (e.g., *vrrrvrrr* [vr::vr::] and *cc-cc* [ʃ:f:]) or pluri-syllabic (e.g., †††† [†.†.†.†]). Second, if replicated

¹⁴An example for a tri-moraic root structure is the verb *boori* ‘to tell’, which can be analyzed as deriving from the original bi-moraic root of a CV(C)V structure and a suffix, that is, *boo + ri > boo.ri* (Phiri 2021; see also Nakagawa 2006 and Fehn 2016).

onomatopoeias (see section 4.3) are treated as indivisible roots (similar to *teteberu* ‘butterfly’ and *tcibiriri* ‘lizard’ above), onomatopoeias commonly transgress the constraints determining the possible root structure in Tjwao (see, for instance, the CVCVCVCVCVCVCV structure in *didididididi*). Third, even if one considers only non-replicative onomatopoeias and the single segment, formative of a given replicated onomatopoeia, the attested structures often violate the CV combinations presented in the previous paragraph. That is, non-replicative onomatopoeias may exhibit the following extra-systematic structures: CVVV (e.g., *tee* [te:] and *ηãũηãũ* [ŋã:ũ-]), V₁V₁V₁V₂V₂V₂ (e.g., *aaaooo* [a::o:] and *oooeee* [o::e:]), CVVCV (e.g., *waahlo* [wa:ʎo]), CVCC(C) (e.g., *guff* [guf:] and *gufff* [guf::]), and VCCV (e.g., *astu* [atsu] and *khe!xe* [k^he!xe]). The formative segments allow for the following extra-systematic structures: CVVCVVCCC (e.g., *djuiddjuirrr* [dʒuir::]) – the formative segment of *djuiddjuirrrdjuiddjuirrr*, CVCVV (e.g., *vofoov* [vofo:-]) – the formative segment of *vofoovofoo* and CVCVCV (e.g., *tũthuthu* [tũ^hut^hu-]) – the formative segment of *tũthuthutũthuthutũthuthutũthuth*. Other extra-systematic structures are CV(CV)CVCV (e.g., *tatarata* [tatarata]) and CVCVCVVV (e.g., *kokoguuu* [kokogu::]). (Additionally, one may also include the structures found in roots containing non-syllabic syllables, that is, C₁C₁(C₁) (e.g., *ccc*), C₁C₂C₂(C₂) (e.g., *vrrr*) that were mentioned above.) Four, onomatopoeias allow for consonants other than [m] and [n] to appear in final codas, specifically, [h] (e.g., *wohwoh* and *guguguuuhh*), [r] (e.g., *djuiddjuirrrdjuiddjuirrr*), [p] (e.g., |hap|hap|hap|hap), [f] (e.g., *guff* and *gufff*), and [dʒ] (e.g., *dudj*). Of course, the non-vocalic onomatopoeias mentioned above may end in other consonants, (e.g., [ʃ] in *cc-cc*). Five, the constraints on word-medial consonants are also heavily violated. This is most evident if replicated roots are treated in their totality. Nevertheless, even if one considers only non-replicated onomatopoeias and the formative segments of replicated onomatopoeias, a large number of onomatopoeic lexemes still exhibit extra-systematic medial consonants, namely: [t], [g], [ʃ], [f], [p], [ʰ], [t^h], [ts], and [x] (see *tatarata*, *kokoguuu*, *waahlo*, *vofoovofoo*, *popi*, *kha!hakha!hakha!hakha!ha*, *tũthuthutũthuthutũthuthutũthuthu*, *atsu*, and *khe!xe*, respectively). Six, onomatopoeias allow for unusual complex word-initial clusters, for instance [krp-] in *krpukrpu* and, more generally, a C₁C₂C₂-onset structure, which is ungrammatical elsewhere in the language. Most of the above-mentioned phenomena are strictly limited to onomatopoeias, even being absent in interjections (Andrason et al. 2020). The only property shared to a similar extent by onomatopoeias and interjections is the presence of non-vocalic syllables. There are eight such interjections, one of them being *ppf* expressing the sensation of bad odor (Andrason et al. 2020: 312)

The last type of extra-systematicity attested in Tjwao onomatopoeias concerns suprasegmental features. Onomatopoeias are typically realized with special – at least, special for Tjwao – phonation. This may involve: an exaggerated air stream intensity (e.g., *guff* and *atsu*), delayed aspiration (which also appears to be often exaggerated; e.g., *!ha!ha!ha!ha!ha!ha!ha!ha*), creaky or breathy voice (e.g., *bhuu*), extreme production speed (e.g., *didididididi* and *tcatcaratcatcaratcatcaratcatcara*), excessive loudness (e.g., *dudj* and *guguguuuhh*) or, on the contrary,

specific phonetic (see section 4.2) and morphological material (see further below), this imitation is ‘primary’ rather than ‘secondary’ – that is, it is not achieved through modifying or recombining lexemes and roots that already form part of Tjwao vocabulary. Onomatopoeias share this property of being radical and underived matrices with primary interjections (Andrason et al. 2020).

The remaining two onomatopoeias, that is, *khe!xe* and *waahlo*, are loanwords from Bantu, most likely Ndebele. *Waahlo* is a reflex of the Nguni ideophone *wahla* found in Ndebele, Xhosa, and Zulu that depicts the falling or crashing of hard (metallic or crockery) objects as well as bones (see Pahl 1989: 539 for a Xhosa equivalent). Similarly, *khe!xe* derives from a Nguni ideophone depicting the sound made by metal objects when locking something (see *khexe* [khe|e] in Ndebele, and *khixi* [khi|i] in Xhosa) or when falling “with a light clattering sound” (see Mini 2003: 57 for Xhosa). Similar scarcity of borrowings characterizes interjections. There is only one certain case of a borrowed interjective lexeme: the conative (i.e., expressing volitive states and wishes; Ameka 1992, Stange and Nübling 2014) interjection *tsua(-tsua)*, borrowed from Southern Bantu (Tswana/seSotho), that is used to order motion to a person or animal (Andrason et al. 2020: 310).

Onomatopoeias are generally mono-morphemic and thus not divisible into separate, simpler meaning-bearing units (see further below regarding replications). Related to this, no onomatopoeia carries inflections or derivations. Indeed, the use of inflectional or derivative morphemes with onomatopoeias seems ungrammatical. Similarly, the use of a compounding mechanism (e.g., by incorporating additional verbal or nominal roots) is unattested and perceived by native speakers as ungrammatical. The incompatibility of onomatopoeias with inflections, derivations, and compounding does not necessarily preclude the presence of such inflectional, derivative, and compounding-related elements in words belonging to other word classes that have onomatopoeic foundations. Nevertheless, thus far, our fieldwork activities have revealed no example in which any of the 113 onomatopoeic roots would have been nominalized, or verbalized, or have generated a word from another lexical class. This mono-morphemic structure and the absence of both inflectional and derivational affixes as well as any traces of compounding mechanisms are also typical of primary interjections in Tjwao (Andrason et al. 2020: 309).

The mono-morphemic structure is the most evident with non-replicative onomatopoeias such as *grr*, *vu*, *djwii*, *bhuu*, *buu*, *guff*, *gufff*, *!xuaa*, *xōōō*, *xāāāō*, *vrrr*, *xo?*, *tcuaa*, *tee*, *zi*, *cc*, *haaa*, *wiii₁*, *wiii₂*, *tc’uaaa*, *atsu*, *↓B’*, *phu*, *pii*, *tccc*, *tcxuaa*, *tsrrr*, *!huu*, *!haa*, *dudj*, *paa*, *huuu*, *ccc*, *xuuu*, and *caaa*. None of the above lexemes can be divided into more basic morphological units. It is also patent in the case of *khe!xe* and *waahlo*, borrowed from Ndebele. These lexemes are indivisible into more elementary morphemes – not only in Tjwao but even in the donor Nguni languages (note that ideophones, including *khe!xe* and *waahlo*, are generally viewed as radical and morphologically indivisible in Xhosa; see Andrason 2020).

The only morphological structure or process available to onomatopoeias is the replication of mono-morphemic segments. This strategy is highly common in onomatopoeias, being attested in 71 tokens, and is responsible for the majority of

replicative structure and are typically composed of three identical segments, for example, *psi-psi-psi* employed to summon cats (Andrason et al. 2020: 309).

The replicative strategy operating in onomatopoeias, especially the exact one, seems to be productive. Indeed, when producing onomatopoeias creatively in spontaneous episodes, the speakers always resort to replications (see below). Furthermore, although several lexemes tend to appear in sequences of two, three, four, five, six, seven, or eight – with the entrenched reduplications and triplications being the most common – virtually any sequence may be extended recursively by an additional segment (or shortened to the minimal replicative pattern, i.e., duplication). All of this could, in turn, suggest that single segments are true morphemes. However, certain properties of such single segments lead to a different conclusion. First, for replicative onomatopoeias, the use of singletons instead of the sequences is generally ungrammatical. Second, replications have no evident semantic bearings. Although the repetitive patterns (as well as lengthening) exploited by onomatopoeias across languages are sometimes argued to imply the continuity, iteration, and/or intensity of a sound (Reay 2006: 531, Rubino 2001: 309), this does not always hold true for Tjwao. Even though extreme replications may indeed suggest the extended duration and/or increased intensity of a sound, this does not apply to less radical cases of replicas: a triplicated onomatopoeia does not simulate a sound that is longer or more intense than its reduplicated onomatopoeia; similarly, such a relationship fails to exist between quadruplicate and triplicate variants. Even more importantly, the presence of an additional segment does not modify the referential content of an onomatopoeic lexeme. Whether reduplicated, triplicated, or multiplied, an onomatopoeia refers to and simulates the same real-world sound source. Overall, unlike canonical morphemes, which are meaning-bearing units, onomatopoeic segments have no true individual meaning. Therefore, replications, exact/total or imprecise/partial, may be viewed as inherent to an onomatopoeic root – even though unstable (see above) – and constitute a blended morpho-phonetic rather than genuine morphological and derivative strategy. A comparable interpretation has been proposed for (conative) interjections exhibiting replicative patterns in Tjwao, for instance, *kip-kip-kip*, *kiti-kiti-kiti*, *mbh-mbh-mbh*, *psi-psi-psi*, *!-!-!*, and *|-|-|* (Andrason et al. 2020). As is true of replicated onomatopoeias, these interjections cannot appear as “mono-segmental units, i.e. as *kip*, *kiti*, *mbh*, *psi*, *!*, and *|*”. This is, in turn, interpreted as the indication of their morphological simplicity. In other words, “multiplication found in sequences composed of more than three segments has no morphological (derivative) function.” (Andrason et al. 2020: 309; see also Nübling 2004 with regard to reduplication found in interjections, more generally). Replications found in laughter onomatopoeias in Xhosa (Andrason 2021b) and Polish (Andrason 2021c) as well as replications operating in ideophones in Maasai (Karani and Andrason 2022) have been analyzed in an analogous manner.

Overall, the morphology of onomatopoeias is extra-systematic when compared to other referential (content) lexical classes such as nouns, verbs, adjectives, and adverbs. Contrary to these lexical classes, onomatopoeias do not exploit the main morphological strategy of Tjwao, which consists of combining roots with affixes. This strategy is also absent in primary interjections (see Andrason et al. 2020) and

a few other functional lexical classes such as adpositions and conjunctions (Phiri 2021). The absence of other morphemes rather than the root itself and, especially, the incompatibility with all types of inflectional or derivational affixes are the main reasons for the morphological extra-systematicity of onomatopoeic lexemes. Specifically, although Tjwao is a flectional and synthetic language as far as referential (content) lexical classes are concerned, onomatopoeias – despite being referential (content) lexemes themselves – never have a flectional and synthetic composition. This results in the opacity of onomatopoeias; that is, the category of onomatopoeias does not exhibit a uniform pattern that would be specific to it. This is evident when one compares lexemes such as: *vu*, *grr* and *tccc*, with *ŋãũũŋãũũ*, *tcatcatca*, and *[hap]hap[hap]hap*, or with *voofofofo*, *tatarata* and *waahlo*. Moreover, although replications are extremely common in onomatopoeias, they are not exclusive to them. Across Kalahari Khoe, the reduplication of lexical roots is exploited for two major derivational processes: causative formation and the expression of iteration/intensification (Vossen 1997). While not particularly frequent in Tjwao, causative formation through reduplication is attested as illustrated by example (3) below. Furthermore, replications are attested in conative interjections (Andrason et al. 2020), especially those directed to animals, which tend to exhibit a triplicated structure (Andrason and Phiri 2022). Crucially, onomatopoeias do not contain any “onomatopo-izers” – markers (e.g., affixes) that would identify a lexeme as a member of the onomatopoeic lexical class. Nevertheless, as replications larger than three segments, highly frequent in onomatopoeias (40x), are virtually limited in Tjwao to the onomatopoeic lexemes – thus, being absent in other parts of grammar and/or vocabulary – the opacity of onomatopoeias might overall be lower. At least, for sequences composed of four or more segments, the form of a lexeme would be (almost) directly associated with its onomatopoeic function.

- (3) *Tshaa ka ?ama ?e.be lx'ue.lx'ue-na-ha.*
 water with pot 3SG.M.NOM full:CAU-J-PRF
 'He filled the pot with water.'

Lastly, onomatopoeias constitute an open and productive category. The total of 113 tokens collected by us – which are the most entrenched and constitute the part of the Tjwao language understood as a pan(idio)lectal phenomenon – may easily be expanded by novel lexemes. That is, speakers can coin new onomatopoeias spontaneously and idiolectally to represent other sounds they experience. As explained above, the use of replicated patterns is typical of all such onomatopoeias produced in an ad-hoc manner. In this regard, onomatopoeias again behave like the category of interjections, which “is [too] open and relatively easily renewable” (Andrason et al. 2020: 315)

However, the above-mentioned productivity of onomatopoeias does not imply a similar productivity of onomatopoeic derivatives. As we explained above, to our knowledge, none of the 113 onomatopoeias has been nominalized or verbalized, or marked with nominal or verbal derivative affixes, respectively.

5. DISCUSSION

The evidence presented in the previous section reveals the following profile of onomatopoeias in Tjwao. Semantically, onomatopoeias imitate sounds made by animate beings (both animals and humans, and both vocal and non-vocal) as well as those produced by inanimate sources (natural phenomena and objects). Animate onomatopoeias are more common (73%) than inanimate onomatopoeias (21%).¹⁷ Among all animate onomatopoeias, animal onomatopoeias are more common (67%) than human onomatopoeias (33%). Among all animal onomatopoeias, those referring to wild animals are more frequent (61%) than those referring to domestic species (39%). Among all wild-animal onomatopoeias, onomatopoeias mimicking sounds made by birds are more common (44%) than those imitating sounds made by mammals (35%) and lower species (21%). In case of domestic-animal onomatopoeias, this hierarchy is reversed with mammals (68%) contributing more than birds (32%). The meaning of onomatopoeias is often highly specialized – each lexeme is usually associated with a sound produced by a specific source, sometimes being further restricted to an equally specific activity. As onomatopoeias are also resistant to stabilized meaning extensions, whether through metonymy or metaphor, they are essentially monosemous.

Phonetically, onomatopoeias may contain extra-systematic sounds, even though many onomatopoeic lexemes are composed entirely of fully systematic phones. Among all extra-systematic sounds, speech sounds are exploited to a larger extent than non-speech sounds. Out of all extra-systematic speech sounds attested, most (86%) are consonants. Another common extra-systematic feature of onomatopoeias is the presence of extra-long vowels and consonants. As any phones can usually be lengthened to exaggerated degrees of length, the phonetic substance of onomatopoeias is relatively unstable or flexible. With regard to long vowels, their bi-moraicity does not result from reduplication and the loss of a medial consonant, as is probably the case with native lexical roots, but is, instead, etymological. Equally extra-systematic are the phonotactics of onomatopoeias. Onomatopoeias often exhibit unusual root and syllable structures, including more diversified types of word-initial onsets, word-final codas, and word-medial consonants. Onomatopoeias are also accompanied by distinctive suprasegmental features, in particular, highly marked phonation. Lastly, by making extensive use of vocalic and consonantal harmony, onomatopoeias tend to exhibit rhyming patterns.

Morphologically, nearly all onomatopoeias (98%) constitute pure-creation matrices, with a few others (2%) being borrowed from Bantu (Nguni) languages. Onomatopoeias are generally mono-morphemic: they do not carry any inflections or derivations, nor do they draw on compounding mechanisms. A large number of onomatopoeias (63%) exhibit a replicative structure, being built around more basic segments. Exact/total replications are more common (82%) than imprecise/partial replications (13%) and mixed patterns (4%). As replicative onomatopoeias can be

¹⁷The remaining 5% is constituted by onomatopoeias that exploit both animate and inanimate semantic components. (The “missing” 1% is the consequence of rounding.)

extended by additional segments or reduced to shorter sequences, their form is relatively unstable or flexible (compare with the similar instability/flexibility that characterizes the phonetics of onomatopoeias, as discussed in the previous paragraph). However, the single segments formative of replicated onomatopoeias are not true morphemes – replication is thus not a genuine morphological strategy but a blended morpho-phonetic one. The overall structure of onomatopoeias diverges from the rules governing the morphology of other referential (content) lexical classes. It is also opaque, with the exception of sequences that are more complex than triplication, as these are virtually restricted to an imitative function in Tjwao. Onomatopoeias constitute an open category, and new lexemes are usually produced by drawing on an exact/total replicative strategy.

Consequently, our findings demonstrate that onomatopoeias in Tjwao tend to instantiate the prototype fully and be canonical. With regard to non-formal (meaning-related) properties, onomatopoeias comply with the referentiality, specialization, and monosemy of the prototype and exhibit the entire variation of semantic types expected. With regard to formal (structure-related) properties, onomatopoeias (may) comply with the prototype in terms of phonetics (the presence of marked phones, phones' combinations, prosody and phonation, and the common use of length and harmonious patterns) and morphology (radical structure, mono-morphemicity and the absence of inflections, derivations, and compounding, use of expressive replicative patterns, as well as openness and productivity). This close compliance with the prototype implies, in turn, that Tjwao onomatopoeias are (often) profoundly extra-systematic.

A collateral, thought-provoking result of our study is the formal similarity of Tjwao onomatopoeias and interjections. Onomatopoeias share phonetic extra-systematicity with primary interjections. Both types of words contain extra-systematic sounds and sound combinations, allow for extra-long vowels (that may even have a phonemic status), tolerate non-vocalic syllables and non-standard root structures and suprasegmental features, exhibit long vowels that are primary (i.e., they do not result from contraction), and make common use of harmonious patterns (compare with Andrason et al. 2020). Nevertheless, the phonetic extra-systematicity of onomatopoeias is greater than that exhibited by interjections. This is especially evident with regard to root structures and phonetic flexibility, which are significantly more extra-systematic in onomatopoeias. Onomatopoeias also allow for a larger number of extra-systematic sounds and exploit harmony to a much greater extent than interjections (note, for instance, that several extra-systematic features found in interjections are only present in their conative class). Similarly, both onomatopoeias and primary interjections exhibit a comparable extent of morphological extra-systematicity. Both categories are morphologically opaque; they constitute radical and underived matrices characterized by mono-morphemic structures with no inflections, derivations, and compounding; they are also relatively resistant to borrowings. However, although both onomatopoeias and interjections make use of replicative mechanisms, these are much more pervasive (i.e., more lexemes exploit replications) and extreme (i.e., longer sequences are grammatical) in onomatopoeias. Of course, Tjwao onomatopoeias and interjections differ semantically and pragmatically. Onomatopoeias are

referential, deliberate, specialized, and monosemous. In contrast, interjections are non-referential and reflexive (they point back to the speaker), often constitute unplanned reactions to extra-linguistic stimuli, and tend to be highly context dependent and polysemous. Lastly, in contrast to onomatopoeias, interjections very rarely exhibit iconic imitative properties (Andrason et al. 2020).

Overall, our research suggests that, at least in Tjwao, onomatopoeias constitute an independent category that is semantically, pragmatically, phonetically, and morphologically distinct (certainly to varying degrees) from any other lexical class. That being said, two important issues pertaining to this categorial distinctiveness remain to be examined. Firstly, the syntax of onomatopoeias requires further study. Such an analysis would verify whether, apart from the formal distinctiveness studied in this article (i.e., phonetic and morphological), onomatopoeias also exhibit syntactic individuality differentiating them from other lexical classes. Secondly, it needs to be determined if Tjwao attests to other possible types of ideophones which are located higher on the hierarchy of ideophony, that is, iconic depictions of visual and non-visual sensations (e.g., tastes and textures) as well as psychological and cognitive states. Such a study could establish whether onomatopoeias constitute a proper lexical class (if other types of ideophones are absent) as in Khwe (Kilian-Hatz 2001, 2008), or belong to a larger ideophonic lexical class (if other types of ideophones are present) as in G|ui-G|ana and Ts'ixa (Nakagawa 2011, 2012, 2013, 2014; Fehn f.n.).

When onomatopoeias across Kalahari Khoe are compared, it becomes evident that Tjwao onomatopoeias share a set of properties with the corresponding lexical categories in Khwe (Kilian-Hatz 2001, 2008), G|ui-G|ana (Nakagawa 2011, 2012, 2013, 2014) and Ts'ixa (Fehn f.n.). The monosemy of onomatopoeias (see Kilian-Hatz 2008: 243), their (at least, potential) phonetic extra-systematicity (especially with regard to phones, phones' clusters, and syllable structures, e.g., codas; see Kilian-Hatz 2008: 245; Nakagawa 2012: 419, 2013: 100-101), and even more extra-systematic morphology (in particular, a bare, radical, and, thus, monomorphemic structure, and the incompatibility with inflectional and derivational morphemes; see Kilian-Hatz 2001: 156-157, 2008: 245; Nakagawa 2011: 281, 2013: 100) seem to be pervasive characteristics of the onomatopoeic category across the Kalahari Khoe subgroup. From a comparative perspective, it is further interesting to note that several extra-systematic sounds attested in Tjwao onomatopoeias were not randomly chosen from an open set of available phonemes, but were either present in the language at an earlier stage (the palatal /h/ and alveolar /l/ click influxes), or are attested in other languages of the Kalahari Basin Sprachbund (e.g., delayed aspiration /'h/ and breathy/creaky voice phonation). Similar observations have been made for Ts'ixa, which displays an equally extended phoneme inventory in the ideophone domain (Fehn f.n., see above). It may therefore be proposed that Kalahari Khoe onomatopoeias are phonologically rooted in (but not restricted to) an areal repertoire.

Notwithstanding these similarities, major differences arise when the overall integration into the phonotactic structure of the individual languages as well as the degree of lexicalization of the onomatopoeias are considered. While Kalahari Khoe

onomatopoeias generally allow for a deviation from the closed set of permitted syllable structures found within other parts of the lexicon, the extent to which a violation of existing constraints is tolerated differs between languages. Whereas Tjwao and Khwe both display a relatively high degree of extra-systematicity with regard to the phonotactic templates allowed in the general lexicon – this concerns both syllable count and vowel length features – Glui-Glana and Ts'ixa seem to possess a word class “ideophone”, comprising a subset of onomatopoeias, which is constrained by and/or allows for a small number of deviations, typically related to the consonants permitted as C₂ or in coda positions. Onomatopoeias in Glui-Glana and Ts'ixa preferably follow CVCV, CV(V), and CVC templates and appear to be more firmly entrenched in the shared cultural lexicon of these languages than the more spontaneous and flexible expressions found in Tjwao and Khwe. The high degree of lexicalization in Glui-Glana and Ts'ixa is further supported by the sharing of apparent cognate forms between them, even though they are not currently involved in a contact situation.

Although the syntax of onomatopoeias has not explicitly been discussed in this article, the extra-systematic or peripheral status of Tjwao onomatopoeias appears to be related to their syntactic embedding. While onomatopoeias may be embedded by means of a *verbum dicendi* and/or a complementizer particle (see example (2) in section 4.2.1.), they may also appear outside the clause without any morphological support whatsoever (see example (3) in that same section). Similar examples of non-embeddedness are also attested for Khwe, for example in the rich text corpus collected by Köhler (2020):

- (4) †Xéí-hè khúvi, bóóóŋ!
 eye-3SG.F burst ONOM
 ‘The eye burst, **boooŋ**.’

It is interesting to note that the severely restricted text corpus available for Tjwao attests to syntactically non-embedded onomatopoeia, while not a single instance of a non-embedded onomatopoeia could be found in the quite extensive text collection available for Ts'ixa (Fehn *f.n.*), which includes narrations, fairytales, live stories, and interviews. This absence is certainly not due to a lack of narrative talent of Ts'ixa speakers: narrations are accompanied by co-speech gestures, feature performative elements like enactments and songs, and may even be interrupted by sound imitations played on a musical instrument like a thumb piano or mouth bow. One may therefore cautiously suggest that the role of onomatopoeias as syntactically peripheral lexical elements is more defined in Tjwao and Khwe than it is in Ts'ixa.¹⁸

The various similarities between Tjwao and Khwe on the one hand, and Glui and Ts'ixa on the other that have been mentioned above are unexpected from a historical perspective. Following Vossen's (1997) classification according to which Shua and Tshwa form a genealogical subgroup “Eastern Kalahari Khoe”, the Tshwa dialect

¹⁸As there is no text data from Glui available to the authors, we cannot comment on the situation in this Kalahari Khoe language. However, all onomatopoeia and ideophones featured in the dictionary (Nakagawa 2014) are syntactically embedded, rather than peripheral to the clause.

Tjwao and the (presumed) Shua dialect Ts'ixa would be expected to show more affinities with one another than either does to the “Western Kalahari Khoe” languages Khwe and Glui-Glana. Even if one assumes that Ts'ixa is in fact not a dialect of Shua but displays links to Khwe instead (Fehn 2016), the data on onomatopoeia does appear to trace typological, rather than genealogical boundaries.

However, the apparent differences in form and function of onomatopoeias within a small group of relatively closely related Kalahari Khoe languages may be explained by their distinctive contact profiles. As the Khoe-Kwadi languages are commonly thought to be a comparatively late (ca. 2,000BP (i.e., Before Present)) arrival to the area (Güldemann 2008, 2020), the extent to which individual members of the family take part in the “Khoisan” Sprachbund characterized by the typologically close Kx'a and Tuu families differs significantly. Interestingly, both Glui and Ts'ixa have been identified as languages with a strong tendency to adhere to Kx'a and Tuu patterns in a variety of linguistic domains, while Khwe, Shua and Tshwa appear to have been less influenced by contact (Güldemann and Fehn 2017: 518–519). Due to the lack of documentation of onomatopoeias across the “Khoisan” unit, it is impossible to say whether a clearly defined category “onomatopoeias” and/or the lexical class “ideophones” that comprises it, exist in languages of the Kx'a and Tuu families. However, the dictionary of !Xóǝ (Traill 2018), a language belonging to the Taa-Lower Nossob subgroup of the Tuu language family (Güldemann 2014b), includes a surprising number of onomatopoeias and ideophones following a phonotactic template which is intriguingly close to Glui and, by extension, to Ts'ixa. It therefore does not seem too far-fetched to assume that certain phonotactic and lexical properties of onomatopoeias may constitute a demarcating feature of the Sprachbund. In such a scenario, Glui-Glana and Ts'ixa display core features also shared by at least a subset of Kx'a and Tuu languages, while Khwe and Tjwao remain more individualized and possibly peripheral to the areal consensus.

From a theoretical perspective, our findings provide additional support for the view that onomatopoeias may formally be extra-systematic – this extra-systematicity should therefore be considered as inherent to the prototype. Certainly, given our approach, not all onomatopoeias in all languages need to match the prototype. On the contrary, the canonicity and extra-systematicity of onomatopoeias in some language systems may be (considerably) lower. As demonstrated by Körtvélyessy (2020), English and Slovak onomatopoeias are generally systematic, with their phonetics and morphology largely complying with the rules of the grammars of the respective languages.

These different extents of formal canonicity and extra-systematicity may be related to two phenomena: (a) varying degrees of expressiveness exhibited by onomatopoeias across languages and (b) the transfer of original onomatopoeic lexemes into members of other word classes, specifically those whose syntactic functions overlap with the functions available for embedded (i.e., syntagmatic) onomatopoeias (and ideophones): predicate, part of complex predicate, and (verbal / adjectival) modifier. That is, the less expressive onomatopoeias are, the more integrated grammatically and, ultimately, the more systematic they are (see Dingemanse 2017, Dingemanse and Akita 2017). Similarly, the less independent the category of

onomatopoeias is and, inversely, the more diffused across other lexical classes (especially verbs, adverbs/adjectives, and nouns), the more systematic it is (Andrason 2021b, Karani and Andrason 2022, Andrason and Heine 2023). The difference in the formal canonicity and extra-systematicity of onomatopoeias – especially with regard to their phonetics – may also be (at least, partly) related to the presence of literary tradition, as proposed by Levisen (2019) for laughter onomatopoeias and interjections. That is, (the need of) incorporating onomatopoeias in writing texts gradually results in onomatopoeias being “harnessed” and exhibiting more systematic shapes. In contrast, the lack of written texts arguably shelters onomatopoeias from such adaptations to the more “tamed” frame of the language, thus safeguarding their original extra-systematic nature. Indeed, Körtvélyessy’s (2020) study, which points to phonetic systematicity of onomatopoeias in English, draws on written corpora rather than oral discourses, contrary to our study of Tjwao. Thus, the systematicity of English ideophones seems to be true for the written language. However, this does not mean that speakers of English do not employ extra-systematic sounds in onomatopoeias in their spoken discourse. Our impressionistic view is that they often do so. Therefore, the spoken source of Tjwao data might be one of the reasons for the deviation from the phonological system of this language. It is possible that the transcription of the data into a written corpus would yield different results – especially if the written canon acquires a status parallel to a colloquial language, as is the case in languages with long written traditions such as English.

6. CONCLUSION

The present article has studied the meaning and form of onomatopoeias in Tjwao within a prototype-driven approach to categorization. After testing 113 onomatopoeic lexemes for the presence of semantic, phonetic, and morphological features associated with the cross-linguistic prototype of onomatopoeias, we can conclude the following: Tjwao onomatopoeias tend to instantiate the prototype fully and thus are canonical both in non-formal and formal aspects. This means, in turn, that, as far as their phonetics and morphology are concerned, Tjwao onomatopoeias are usually extra-systematic – in fact, their extra-systematicity is greater than the extra-systematicity attributed to (primary) interjections. The profile of onomatopoeias in Tjwao also largely coincides with the profiles of onomatopoeias in other Kalahari Khoe languages and overall corroborates the formal extra-systematicity associated with an onomatopoeic prototype in scholarly literature.

In this study, we centered our attention on the semantic, phonetic, and morphological aspects of Tjwao onomatopoeias. However, we did not analyze the syntax of onomatopoeias, nor did we discuss the presence of non-onomatopoeic members of the broader category of ideophones and examine their properties. All such issues, necessary for a more complete understanding of the placement of onomatopoeias in the Tjwao language system, will constitute the focus of our future research activities.

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