

Quadrisyllabic Ideophones in Southern Quechua: Constrained Peculiarities in the Phonology

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Ideophones are phonologically-marked words that denote sensory imagery in a depictive manner. Not only do they exhibit phonological peculiarities, but they are also constrained by the ordinary phonological system of prosaic (non-ideophonic) words. This paper presents a case study of the peculiarities and conformities of quadrisyllabic ideophones in Ayacucho Quechua. Quadrisyllabic ideophones in this language are a group of quadrisyllabic roots with ideophonic meanings. Most share a similar phonological structure: $C_1V_1(C)C_2V_1C_2V_1C_2V_1$. In this paper, it is argued that two phonological features of quadrisyllabic ideophones, (i) quadrisyllabic structure and (ii) triplication of the same syllable, are phonologically peculiar features of this language. Importantly, quadrisyllabic ideophones also exhibit the same phonotactics and syllable structure as prosaic words. This combination of two peculiar phonological features and conformity to the phonotactics and syllable structure of the language in general has not been reported in the ideophones of other languages and is a typologically intriguing characteristic of Ayacucho Quechua.

Keywords: Quechua, ideophone, typology, phonological structure, markedness

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1. Introduction

Ideophones (e.g., *boom* in English and *bun-bun* ‘buzzing, shaking’ in Japanese) have gained much attention in the study of phonology. Ideophones are characterized as “marked words that depict sensory imagery” (Akita and Dingemanse 2019: 2). More specifically, ideophones are marked in the sense that they are distinguished from prosaic words (i.e., non-ideophonic words, or “non-expressive words” in Diffloth (1979: 50)) in terms of their peculiar phonological features, such as special sounds or special phonotactics. For example, while word-initial voiced obstruents are dispreferred for native¹ prosaic words in Japanese, *bun-bun* has a voiced obstruent in the word-initial position (see Section 2.3.1). Ideophones are words in the sense that their use is conventionalized, and they are not ad

¹ The Japanese lexicon can be classified into three strata in terms of etymological origin: native, Sino-Japanese, and foreign. The native lexicon refers to words that are indigenous to Japanese. The Sino-Japanese lexicon refers to words consisting of roots borrowed from Chinese. The foreign lexicon refers to words borrowed from languages other than Chinese.



hoc series of sounds that convey only impressions. For instance, both *boom* and *bun-bun* are conventionalized to the extent that they are listed in the dictionaries of English and Japanese, respectively. Ideophones express their meaning in a depictive manner and can express sensory imagery and denote sensory perceptions. The duration or repetition of the real-world phenomenon an ideophone represents may be indicated by lengthening or repeating certain phonemes or morphemes. For example, in the case of the English ideophone *boom*, further emphasis can be given to the deep, resonant sound the ideophone represents by lengthening the vowel: *boooooooooom*.

Importantly, ideophones have both peculiar features and features shared with prosaic words (Newman 2001; Childs 2014). The dual nature of ideophones is referred to as a “constrained peculiarity” in this study.

On the one hand, ideophones are characterized by special sound patterns and distinct grammatical properties (Dingemanse 2012: 654; Childs 2014: 342). For example, consider the Hausa ideophones in (1). The peculiarity of Hausa ideophones is shown in the grouping of phonemes. The Hausa ideophones shown in (1) have the consonants /n/ and /r/ in the word-final position, which is marked and peculiar because word-final consonants are rarely seen in prosaic words in this language.

- (1) Hausa ideophones (Newman 2001: 252)
tsán-tsán ‘cautiously, securely tied’
kàzàr-kázár ‘in an energetic manner’

On the other hand, ideophones, to a certain extent, share the same phonological features as prosaic words in a given language. For example, ideophones in Hausa contain sounds and tones also found in the language’s prosaic words. For example, the phonemes /ts/, /n/, /k/, /r/, /z/, and /a/, and the high and low tones used in *tsán-tsán* and *kàzàr-kázár* are all found in prosaic words (Newman 2001). Features common to ideophones and prosaic words in individual languages have gained attention over the last decade (Childs 2014; Nuckolls et al. 2016).

The purpose of this paper is to examine the constrained peculiarity of ideophones in Ayacucho Quechua, one of the Quechuan languages spoken in southern Peru. Ideophones in this language display various phonological structures, such as monosyllabic *fiw* ‘sound of wind blowing’, disyllabic *ñawñaw* ‘meow’, trisyllabic *chiwiwi* ‘to whistle (wind)’ and quadrisyllabic *sallallalla* ‘to clink (pieces of metal or pebbles)’. Among these ideophones, this paper focuses on quadrisyllabic ideophones, as in (2).

- (2) *katatata* ‘to shiver from coldness or horror’
chipipipi ‘to twinkle, to sparkle’
kunununu ‘to tremble (the earth)’
wihihihhi ‘to neigh’

The existence of such ideophones has already been reported in Parker (1969: 75). However, the phonological and morphosyntactic characteristics of this class of ideophones have not been discussed heretofore in the literature.

This paper offers a description of quadrisyllabic ideophones in Ayacucho Quechua based on the data collected from Parker's (1969: 75) word list, an electronic dictionary of Ayacucho Quechua (Jacobs 2006), two published folktales (Hinostroza Ayala 2000; Cárdenas 2009), and data elicited from a speaker of Ayacucho Quechua. This paper compares certain phonological features of quadrisyllabic ideophones, such as phonemic inventory and syllable structure, to those of prosaic words. It then examines the peculiarities and conformities of these words as compared to the phonology of prosaic words in Ayacucho Quechua.

This paper offers three main findings. First, quadrisyllabic ideophones in Ayacucho Quechua exhibit two peculiar phonological features, (i) quadrisyllabic structure and (ii) triplication of the same syllable. Second, ideophones and prosaic words in Ayacucho Quechua are nearly indistinguishable in terms of phonemic inventory and phonotactics. Lastly, quadrisyllabic ideophones are typologically intriguing because the patterns of constrained peculiarities they display are not commonly found in the ideophones of other languages.

This paper is organized as follows: Section 2 provides background information on Quechuan languages. Section 3 provides a brief overview of the literature on the peculiarities and conformities of ideophones across languages. In Section 4, a description of quadrisyllabic ideophones in Ayacucho Quechua is presented, focusing on phonological peculiarities and conformities. Section 5 examines the typological characteristics of the phonological peculiarities of quadrisyllabic ideophones in Ayacucho Quechua. Finally, Section 6 concludes the paper.

2. Background information on Ayacucho Quechua and the data

2.1. Ayacucho Quechua

This study focuses on Ayacucho Quechua, a variety of the Quechuan languages spoken in the Andean region of South America, which includes Peru, Bolivia, and Ecuador. According to Crevels (2012: 168), there are approximately 8.5 million speakers of Quechuan languages. Ayacucho Quechua refers to the variety spoken in and around the Province of Ayacucho in the southern area of Peru. The approximate location of the Ayacucho Quechua speaking region is shown in Figure 1.²

Ayacucho Quechua is a morphosyntactically agglutinating language. Grammatical functions such as indexing of person and number, case, tense, and voice are marked by suffixes. (3) is a typical sentence in Ayacucho Quechua.

- (3) *huk runa hayta-chka-n pelota-ta*
 a man kick-PROG-3SG ball-ACC
 'A man is kicking the ball' (present author's fieldnote)

In (3), the person of the subject *huk runa* 'a man' is indexed by the suffix *-n* on the verb *hayta* 'kick'. The progressive aspect is marked on the verb by *-chka*. Ayacucho Quechua

² The graphic was created by the author based on the information in Adelaar and Muysken (2004) and Aschmann (2013).



Fig. 1 Distribution of Ayacucho Quechua

not only has verbal suffixes such as *-n* and *-chka*, but it also has a number of nominal suffixes. For example, in (3), the direct object *pelota* ‘ball’ is marked by the accusative case suffix *-ta*.

In Ayacucho Quechua, nouns and verbs can be clearly distinguished by their morphological features. Nouns can be marked for case and indexed for person and number of the possessor. For example, the noun *pelota* ‘ball’ is marked by accusative *-ta* in (3). Verbs inflect for the person of the subject and object, tense, and aspect. For example, the verb *hayta* ‘kick’ is marked by the progressive aspect marker *-chka* and person-indexing marker *-n*.

2.2. Phonology of Ayacucho Quechua

The consonant inventory of Ayacucho Quechua is listed in Table 1. In Table 1, each phoneme is written in the orthographic transcription used in this paper (left) and phonetic value in IPA (right) in square brackets.

The vowel system of Ayacucho Quechua is shown in Table 2.

³ While /q/ is described as a “post-velar stop” (Parker 1969, 17; Zariquiey and Córdova 2008, 28), the speakers of Ayacucho Quechua with whom I conducted research pronounced /q/ as a fricative and did not phonetically distinguish it from /h/.

Table 1 Consonants in Ayacucho Quechua

	Labial	Alveolar	Palatal	Velar	Uvular	Glottal
Stop or Affricate	p [p]	t [t]	ch [tʃ]	k [k]		
Fricative		s [s]			q [χ~h]	h [χ~h] ³
Nasal	m [m]	n [n]	ɲ [ɲ]			
Liquid		r [r], l [l]	ll [ʎ]			
Glide	w [w]		y [j]			

Table 2 Vowels in Ayacucho Quechua

	Front	Central	Back
Close	i [i]		u [u]
Open		a [a]	

Ayacucho Quechua allows four types of syllable structures: V, CV, VC, and CVC. Native words in Ayacucho Quechua do not allow consonant clusters in a single syllable. The structures V and VC are allowed only word-initially; thus, no hiatus occurs in native words. The possible structures of the first two syllables in a word are listed in (4) as disyllabic words. In this study, syllable boundaries are indicated by periods.

(4) Possible structures of first two syllables in a word in Ayacucho Quechua

V.CV	V.CVC
a.qu ‘sand’	a.tuq ‘fox’
CV.CV	CV.CVC
ru.na ‘man’	ku.nan ‘today’
VC.CV	VC.CVC
all.qu ‘dog’	un.quy ‘illness’
CVC.CV	CVC.CVC
war.mi ‘woman’	kaw.say ‘life’

3. Peculiarities and conformities of ideophones: An overview

Ideophones have received much attention not only because of their peculiarities, but also because of their conformity to the phonology of the language of which they are part. The literature on ideophones has traditionally focused on their peculiarities, and ideophones have tended to be regarded as a distinct word class because of their unique phonological features; however, several recent studies, such as Newman (2001), Childs (2014), and Nuckolls (2014), have shown that ideophones follow the phonological system

of the language of which they are part to some extent.

This section presents an overview of the previous literature on ideophones, focusing on the peculiarity and conformity of ideophones. Section 3.1 examines the definition of ideophones proposed by Dingemanse (2012). Section 3.2 discusses the constrained peculiarity of ideophones with two illustrative case studies in Japanese (Nasu 2015) and Pastaza Quichua (Nuckolls et al. 2016). Section 3.3 summarizes this section.

3.1. More on ideophones

The definition of ideophones given by Dingemanse (2012: 655) can be summarized as the four points listed in (5).

- (5) a. Ideophones are marked.
- b. Ideophones are words.
- c. Ideophones express their meanings in a depictive way.
- d. Ideophones denote sensory imagery.

First, ideophones are marked in that they have special phonological or morphosyntactic features that are not shared by other words. For example, Hausa ideophones often have a word-final consonant rarely seen in prosaic words (see Section 1). In Kambara (Malayo-Polynesian), the low vowels /ɔ/ and /ɛ/ and the super-short high vowel /ù/ appear only in ideophones (Klamer 2002: 263). As for morphosyntax, ideophones tend to occur at the peripheral position of the utterance and/or without inflectional morphology. For example, Japanese ideophones such as *kira-kira* ‘sparkling’ and *fuwa-fuwa* ‘fluffy’ can occur without any morphological modification. Such markedness is found across languages, but the particular way in which ideophones are marked varies from language to language.

Second, ideophones are words in the sense that they are linguistic signs. An ideophone functions as a fixed combination of form and meaning rather than an ad hoc expression. An individual instance of an ideophone may exhibit formal variations like *kuru-kuru* and *guru-guru* ‘spinning’, or polysemy like Japanese *goro-goro* ‘rolling movement of a heavy thing, being lazy’, but ideophones are stable conventionalized words.

Third, depiction refers to the way ideophones signify the referent, in contrast to the descriptive function of prosaic words. Dingemanse (2012: 655) illustrates the difference between the “descriptive” mode and the “depictive” mode as follows:

The description consists of arbitrary signs, interpreted according to a conventional symbol system. The depiction [...] is a performance, inviting us to “look” in such a way that we make believe we are actually experiencing the scene depicted ... (p. 655).

In serving this depictive function, ideophones often exhibit iconicity between their phonological structures and sensory images (Dingemanse 2012). For example, an ideophone in Siwu (Eastern Ghana: Kwa) *wùrùfùù* depicts the sensory imagery ‘fluffy’.

This meaning can be further intensified by iconic lengthening of the final vowel: *würüfũũũũ* ‘very fluffy’ (Dingemanse 2015: 959).

Lastly, ideophones depict sensory perceptions such as sounds, visual features, kinesthetic sensations, and inner feelings. For example, Japanese ideophones may denote sounds like *piyo-piyo* ‘tweeting’, visual features like *kira-kira* ‘twinkling’, textures like *sara-sara* ‘dry and smooth’, and inner feelings like *waku-waku* ‘excited’ (Akita 2017: 316).

3.2. The constrained peculiarity of ideophones

Among the four major distinctive features of ideophones listed by Dingemanse (2012: 655), the literature on ideophones (Newman 2001; Childs 2014) has tended to focus on structural markedness and integration into prosaic words. On the one hand, ideophones have special phonological and morphosyntactic statuses in the language they belong to. On the other hand, they share some features with prosaic words and can be identified as a part of the language. That is, they do not completely fall outside the phonological system of the language. The following two subsections show illustrative examples of the constrained peculiarity of ideophones in Japanese and Pastaza Quichua.

3.2.1. The constrained peculiarity of ideophones in Japanese

The word-initial voiced obstruent in Japanese ideophones is an example of a constrained peculiarity. In Japanese native prosaic morphemes, voiced obstruents in the initial syllable are generally prohibited, as in (6).

- (6) Prohibition of an initial voiced obstruent in Japanese prosaic morphemes (Nasu 2015: 2)

**basi* (cf. *hasi* ‘bridge’)
 **dosi* (cf. *tosi* ‘year, age’)
 **zaku* (cf. *saku* ‘fence’)
 **gata* (cf. *kata* ‘shape’)

Contrastively, Japanese ideophones rather favor initial voiced obstruents, as in (7).

- (7) Initial voiced obstruents in Japanese ideophones (Nasu 2015: 2)

basi-basi ‘as hard as possible, violently’
dosi-dosi ‘willingly’
zaku-zaku ‘crunching’
gata-gata ‘clattering’

However, the distribution of voiced obstruents in Japanese ideophones is not completely free from phonological constraints; instead, it is governed by a phonological regularity called Lyman’s Law that holds in both native prosaic words and ideophones (Nasu 2015: 5–7). Lyman’s Law states that one morpheme can have only one voiced obstruent. It constrains a morphophonological phenomenon in Japanese called *rendaku*, which refers to the voicing of the first syllable of the second element in a compound. Under Lyman’s Law,

a prosaic compound like *te-gami* ‘letter’ (*te* ‘hand’ + *kami* ‘paper’) allows for *rendaku*: *gami* has only one voiced obstruent. In contrast, the compound *han-sode* ‘short-sleeve’ (*han* ‘half’ + *sode* ‘sleeve’) does not display *rendaku*. The expected form **han-zode* is prohibited because *zode* contains two voiced obstruents (Nasu 2015: 7).

Similarly, although some exceptions like *gabu-gabu* ‘gulping’, *guzu-guzu* ‘halting, slugging’, and *doba-doba* ‘gushing’ are found, Japanese native ideophones often prohibit multiple voiced obstruents in a morpheme. For example, ideophones such as those in (8) are not used.

- (8) Prohibition of multiple voiced obstruents in Japanese ideophones (Nasu 2015: 5)
- *bada-bada* (cf. *bata-bata* ‘flapping, rattling’)
 - *dogu-dogu* (cf. *doku-doku* ‘gurgling, gushing’)
 - *zagu-zagu* (cf. *zaku-zaku* ‘crunching’)
 - *gada-gada* (cf. *gata-gata* ‘clattering’)

Thus, even though Japanese ideophones have peculiar phonological features, they are still governed by Lyman’s Law, just like native prosaic words.

3.2.2. The constrained peculiarity of ideophones in Pastaza Quichua

The constrained peculiarity of ideophones has also been observed in Pastaza Quichua,⁴ as illustrated by Nuckolls et al. (2016), which is the first case study of the constrained peculiarity of ideophones in the Quechuan language family. Pastaza Quichua has a number of adverbial ideophones that depict manner of motion or action denoted by verbs. An example of ideophones in Pastaza Quichua is *chak* in (9).

- (9) Papaya urma-sha *chak*, mana mikwi-bak tuku-n.
 Papaya fall-COR plop.IDPH NEG eat-PURP become-3
 ‘(The) Papaya fell *plop*, and it became inedible.’ (Nuckolls 2014: 363)

In (9), *chak* is used as an adverbial to depict the manner of the falling motion of a papaya.

Ideophones in Pastaza Quichua show phonological peculiarities like irregular intonation, multiple repetitions, anomalous stress patterns, and expressive, sound-symbolic lengthening and aspiration (Nuckolls 2014: 355). (10) is an example that includes sound-symbolic lengthening.

- (10) Gjauuuuuuunng blhuuuuuu puthunnng! urma-gri-n
 (creaking sound) (breaking off) (impact with ground) fall-TRSL-3
 ‘Creeeeaaak and craaaaack it falls smaaaaack.’
 (Adapted from Nuckolls 2004: 2)

In (10), the duration of the sounds of creaking *g^jaung* is expressed by the lengthening of the vowel /u/.

⁴ Pastaza Quichua is a variety of Quechuan languages spoken in Ecuador. See the genetic classification of Quechuan languages by Torero (1964).

Furthermore, ideophones in Pastaza Quichua are marked because they employ sounds that are rarely or never used in prosaic words. For example, the palatalized stops /k^j/, /p^j/, and /t^j/ are rarely used in the prosaic lexicon of Pastaza Quichua (16 words out of 2,045 words, 0.8%). In contrast, they have a higher rate of occurrence, especially in the case of /t^j/, in the ideophonic lexicon. Specifically, 7 out of 230 ideophonic words (3.0%) include palatalized stops (Nuckolls et al. 2016: 104–105).

As stated above, ideophones in Pastaza Quichua may use phonemes that are never used in prosaic words. Pastaza Quichua allows only three types of palatalized consonants, /p^j/, /t^j/, and /k^j/, in prosaic words. In contrast, eight types of palatalized sound are attested in ideophonic words. For example, the palatalized voiced stops /b^j/ and /g^j/ never occur in prosaic words, but they do occur in ideophones, as in (11a) and (11b) (Nuckolls et al. 2016: 107).

- (11) a. *b^joŋ* ‘sound of a creaking, heavy door’
 b. *g^juŋ* ‘sound of a frog’

Nonetheless, ideophones in Pastaza Quichua are not completely outside the phonology of the language. While ideophones in Pastaza Quichua employ phonemes that are not used in prosaic words, as in (11), these phonemes are “stretched”⁵ from prosaic phonemes by adding secondary articulation or a release feature or covering accidental gaps in the phonemic inventory. Thus, they are not invented at random. See Table 3.

Table 3 Consonants in Pastaza Quichua

	Labial		Alveolar		Alveolo-Palatal	Palatal	Velar	Glottal
Stop or Affricate	p	b	t	d			k	g
	Aspirated	p ^h	b ^h	t ^h			k ^h	
	Labialized		b ^w				k ^w	
	Palatalized	<p ^j >	b ^j	<t ^j >			<k ^j >	g ^j
Fricative			s	<z ~ dz>	ɕ		x	h ~ ʔ
	Aspirated		s ^h		ɕ ^h			
	Palatalized			z ^j ~ dz ^j	ɕ ^j			h ^j
Affricate				<ts>	ɕ (ɕ)			
	Palatalized			ts ^j	ɕ ^j			
Nasal		m (m)		n (ŋ) (ŋ)		ɲ		
Liquid				r, l		ʎ		
Glide		w (β)				j		

() - allophone; ~ - free variant; < > - marginal sound;

gray shading - appears only in ideophones

Table 3 lists all the consonants used in Pastaza Quichua (based on Nuckolls et al. (2016): Table 1 on p. 102 and Fig. 1 on p. 106). As seen in Table 3, the extra consonants indicated

⁵ “Stretch” in Nuckolls et al. (2016) is used in the sense of Newman (2001: 251): “Ideophones are somewhat different from prosaic words, but they are not ‘outré-système’, i.e., they usually stretch the system of some language a bit, but they do not totally disregard it” (Newman 2001: 251).

by gray shading are extended from canonical consonants, accompanied by aspiration and/or a new secondary articulation. For example, /b^j/ and /g^j/, shown in (11), are extended from the prosaic stops /b/ and /g/ by adding a secondary articulation i.e., palatalization. The only exception to this extension is /x/, which is not extended from another phoneme by aspiration, labialization, or palatalization. It occupies an accidental gap in the canonical phonemic system (Nuckolls et al. 2016: 108–109).

3.3. Summary of the constrained peculiarity of ideophones

As demonstrated by the above discussion of Japanese and Pastaza Quichua, ideophones in a given language do not occur randomly or with complete disregard for the phonological system of prosaic words. Phonemes that are not used for prosaic words do appear in ideophones, but they are often extended from prosaic phonemes by adding secondary articulations or release features. They are not invented with no regard for the prosaic phonological system of the languages they belong to.

The next section focuses on the constrained peculiarities of quadrisyllabic ideophones in Ayacucho Quechua. Like Japanese and Pastaza Quichua, quadrisyllabic ideophones in Ayacucho Quechua display phonological constrained peculiarities. However, the phonological peculiarities of quadrisyllabic ideophones and their similarities to prosaic words in this language are different from those found in Japanese and Pastaza Quichua.

4. Quadrisyllabic ideophones in Ayacucho Quechua

4.1. Quadrisyllabic ideophones

Ayacucho Quechua has ideophones with various phonological structures, such as monosyllabic *tin* ‘sound of the harp’ and disyllabic *wayway* ‘sound of crying’. There are also quadrisyllabic ideophones, such as *katatata* ‘to shiver from cold or horror’, *kunununu* ‘to tremble (the earth)’, and *llipipipi* ‘to twinkle, to sparkle’. These quadrisyllabic ideophones constitute a well-defined subclass, displaying a similar phonological structure: C₁V₁(C)C₂V₁C₂V₁C₂V₁.

To examine the phonological characteristics of quadrisyllabic ideophones, I collected data from several different sources, which are listed in Table 4.

Table 4 The source of the data

Source	Feature of the Source
Parker (1969: 75)	list of words in reference grammar
Jacobs (2006)	electronic dictionary data file (3,327 lexical items in Ayacucho Quechua)
Hinostroza Ayala (2000)	published text of folktale (115 pages)
Cárdenas (2009)	published text of folktale (88 pages)

The sources above include a list of words in a reference grammar (Parker 1969: 75), an electronic multi-lingual dictionary data file (Jacobs 2006), and two folktale anthologies: *Narrativa Picaresca Andina* (Hinostroza Ayala 2000) and *Sipascha: Runasiminchikpi*

Willakuykuna (Cárdenas 2009). Parker (1969) is a reference grammar of Ayacucho Quechua. In Section 7.31 of Parker (1969), a number of quadrisyllabic ideophones are listed. Jacobs (2006) is a multi-lingual electronic dictionary of Quechuan languages that includes 25,458 items. The data in Jacobs (2006) were collected from dictionaries and grammars published or presented online by Jacobs himself. Jacobs (2006) covers various regional varieties, such as Standard Quechua, Cusco Quechua, Ayacucho Quechua, Cajamarca Quechua, and Ecuadorian Quechua. This study focuses on lexical items in the Ayacucho Quechua column. Finally, Hinostroza Ayala (2000) and Cárdenas (2009) are anthologies of folktales written in Ayacucho Quechua.

The instances of quadrisyllabic ideophones were identified in the dataset according to the following three criteria: First, they had a quadrisyllabic structure. Second, they were not derived words. Lastly, they denoted sensory imagery (Dingemanse 2012), such as sounds, visual patterns, manner of motion, and inner feelings.

In addition, I also conducted additional elicitation sessions with a speaker of Ayacucho Quechua.⁶ She clarified the meanings of quadrisyllabic roots⁷ whose translations were not found in the sources in Table 4. She also provided examples of quadrisyllabic ideophones that were not found in them.

As a result, 33 quadrisyllabic ideophones were collected. See Table 5.

⁶ The consultant is a woman in her 40s. She is a fluent bilingual of Ayacucho Quechua and Spanish.

⁷ The term “root” in this paper refers to a form to which an affix can be attached and which cannot be analyzed any further into constituent morphemes (Haspelmath & Sims 2010: 19).

Table 5 List of quadrisyllabic ideophones in Ayacucho Quechua

Form	Meaning
1 <i>bunrururu</i> (<i>tunrururu</i>) ⁸	to make a thundering noise, to thunder
2 <i>challallalla</i>	to make the sound of liquid falling onto a surface
3 <i>chililili</i>	to produce the sound of fat or oil being fried
4 <i>chipipipi</i>	to twinkle, to glitter
5 <i>chiririri</i>	to buzz
6 <i>chullullullu</i>	to be wet (clothes or soil)
7 <i>hakakaka</i>	to creak
8 <i>katatata</i>	to shiver from cold or horror
9 <i>katkatata</i>	to shiver, to tremble
10 <i>kikikiki</i>	to be radiant, in good health
11 <i>kunununu</i>	to tremble (the earth), to roar
12 <i>kutututu</i>	to make the sound of a male guinea-pig courting
13 <i>liqiqiqi</i>	to make a repeated splashing noise
14 <i>llipipipi</i>	to twinkle, to sparkle
15 <i>ñusususu</i>	to speak awkwardly
16 <i>pallallalla</i>	to warble, to trill
17 <i>pararara</i>	to flap one's wings, to flap one's arms like wings
18 <i>piltititi</i>	to struggle furiously
19 <i>qallallalla</i>	to be luxuriant
20 <i>qamamama</i>	to turn green again
21 <i>qapapapa</i>	to make the sound of slowly breaking wood
22 <i>qichichichi</i>	to make teeth chatter
23 <i>qiñiñiñi</i>	to cry from joy (dog)
24 <i>qullullullu</i>	to growl (stomach)
25 <i>rapapapa</i>	to flutter, to wave, to snap (flag in wind), to crackle (fire)
26 <i>raqaqaqa</i>	to make a clapping noise
27 <i>sallallalla</i>	to clink (pieces of metal or pebbles)
28 <i>saqaqaqa</i>	to rustle (leaves or clothes)
29 <i>suquququ</i>	to make a squishing noise
30 <i>taqaqaqa</i>	to make a knocking noise
31 <i>taqrarara</i>	to make any slight sound of movement
32 <i>wihihihhi</i>	to neigh
33 <i>witititi</i>	to convulse, to shimmer

Almost all the quadrisyllabic ideophones in Table 5 share the structure C₁V₁(C)C₂V₁C₂V₁C₂V₁. The only exception is *katkatata* 'to shiver, to tremble'.

These quadrisyllabic ideophones are verbs and have the characteristics of verbal

⁸ *tunrururu* is described as an allomorph of *bunrururu* in Parker (1969: 75).

morphology mentioned in Section 2.1. An example sentence with a quadrisyllabic ideophone is given in (12).

- (12) ... rinri-ta taspi-kacha-spa kusi-ku-y-manta wihihhi-yku-n.
 ear-ACC shake-ITER-SR.SS rejoice-REFL-INF-ABL neigh.IDPH-into-3SG
 ‘... (the horse) shaking its ear neighs from happiness.’

(Cárdenas 2009: 52)

In (12), the directional suffix *-yku* and the index of third person singular *-n* are attached to *wihihhi*.

To compare the phonological characteristics of quadrisyllabic ideophones to those of prosaic words, I created a dataset for prosaic words in Ayacucho Quechua. It was compiled based on Jacobs (2006) with 3,327 lexical items in Ayacucho Quechua. Only native content words were selected for the database. Interjections, loan words, technical terms, clearly⁹ derived words, overlapping entries, and quadrisyllabic ideophones were excluded. As a result, the prosaic word database contains 1,509 entries. Note that the infinitive nominalization suffix *-y* is attached to all verb entries in Jacobs (2006) but was removed in the prosaic word database. In the following sections, I discuss the result of the comparison of quadrisyllabic ideophones and prosaic words in Ayacucho Quechua.

4.2. Phonological peculiarities of quadrisyllabic ideophones

In this section, I demonstrate that the two phonological characteristics of quadrisyllabic ideophones (Table 5), namely, quadrisyllabic structure and triplication of the same syllable, are indeed peculiar when compared to prosaic words. First, roots with four syllables are rare in Ayacucho Quechua. Among the 1,509 entries in the above-mentioned prosaic word database, only 57 entries (3.8%) are quadrisyllabic. See Table 6. This shows that quadrisyllabic ideophones deviate from the phonological norm in this language.

Table 6 Number of quadrisyllabic prosaic roots in Ayacucho Quechua

Number of Syllables	Number of Roots	Percentage
1	21	1.4%
2	1,156	76.6%
3	270	17.9%
4	57	3.8%
5	5	0.3%
Total	1,509	100.0%

Some examples of prosaic quadrisyllabic roots are given in (13).

⁹ Here, ‘clearly’ means that the root form appears in the dictionary data and the relation between the meaning of the quadrisyllabic word and the root word is obvious. Some words are suspected to be derived words with derivative suffixes, such as *-naya* ‘to feel like, to be likely to’ and *-paya* ‘to continue to’. However, unless clear evidence of the root word is attested, the present analysis considers such suspected words prosaic roots. Thus, the actual number of non-derived prosaic roots may be smaller.

- (13) *all.qa.ma.ri* ‘raven’ VC.CV.CV.CV
u.luy.pi.ña ‘a kind of plant’ V.CVC.CV.CV

Another peculiarity of quadrisyllabic ideophones is triplification of the same syllable. Almost all quadrisyllabic ideophones contain three copies of the same CV, such as triple /pi/ in *chipipipi* ‘to twinkle, to glitter’. The only two exceptions in the data were *katkatata*, with only two copies, and *kikikiki*, with four copies. In contrast, none of the 1,509 prosaic words in the database has three identical syllables. See Table 7.

Table 7 Number of prosaic roots with repetition of the same syllable in Ayacucho Quechua

	Number of Roots	Percentage
No Repetition	1,455	96.4%
Duplication	54	3.6%
Triplification	0	0%

Prosaic roots with any repetition of the same syllable accounted for only 3.6% (54 of 1,509) of all prosaic roots. All these prosaic roots only contain duplications, such as *llullu* ‘soft, immature’ and *pututu* ‘horn’; no prosaic root contains triplification of the same syllable like *pipipi* in *chipipipi*. Thus, the presence of a triplified syllable in quadrisyllabic ideophones is also a peculiar feature of Ayacucho Quechua.

4.3. Phonological conformities of quadrisyllabic ideophones

While quadrisyllabic ideophones in Ayacucho Quechua display the phonological peculiarities shown in Section 4.2, they also show phonological features similar to those of prosaic words. This subsection focuses on the conformities of quadrisyllabic ideophones to the phonological system in this language.

Quadrisyllabic ideophones in Ayacucho Quechua conform to the phonological system of the language in the following three areas: i) phonemic inventory, ii) syllable structure, and iii) grouping of phonemes. First, quadrisyllabic ideophones and prosaic words have nearly identical phonemic inventories. All the phonemes that appear in quadrisyllabic ideophones are listed in (14). Except for /b/, these are the same phonemes found in the phonemic inventory of Ayacucho Quechua presented in Tables 1 and 2.

- (14) a. Consonants: /b/, /p/, /t/, /ch/, /k/, /s/, /q/, /h/, /m/, /n/, /ñ/, /r/, /l/, /ll/, /w/
 b. Vowels: /a/, /i/, /u/

In addition, most of the phonemes observed in quadrisyllabic ideophones are also common in prosaic roots. The frequencies of phonemes used for quadrisyllabic ideophones and 1,509 prosaic words are presented in Figures 2¹⁰ and 3, respectively.

These figures show that quadrisyllabic ideophones and prosaic words share much the same phonemic inventory and frequency. Phonemes that are not employed for prosaic words, such as voiced stops or palatalized stops, rarely appear in quadrisyllabic

¹⁰ /b/ and /t/ are counted as 0.5 time for *bunrururu* (*tunrururu*).

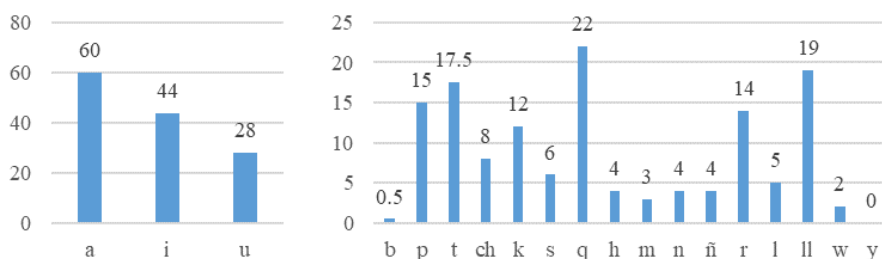


Fig. 2 Frequency of phonemes used in quadrisyllabic ideophones

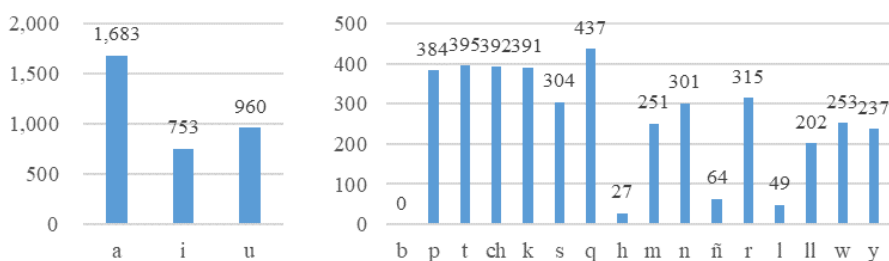


Fig. 3 Frequency of phonemes used in prosaic roots

ideophones. According to my Ayacucho Quechua consultant, there is no form like **zallallalla* or **p'allallalla*. In addition, phonemes that are rarely or never used for prosaic roots, such as /b/, /h/, /ñ/, /l/, are not frequently employed for quadrisyllabic ideophones either. Of course, this is only a tendency. The frequencies of phonemes such as /ll/, /y/, and /p/ differ between quadrisyllabic ideophones and prosaic roots. Exceptionally, /b/ is used in the quadrisyllabic ideophone *bunrururu* 'to make a thundering noise, to thunder'.

Second, the syllable structures common in Ayacucho Quechuan quadrisyllabic ideophones are also common in the prosaic words of this language. Quadrisyllabic ideophones use only two types of syllable structures: CV and CVC. Figure 4 shows the frequency of syllable structures in quadrisyllabic ideophones.

Figure 4 shows that the most common syllable structure for quadrisyllabic ideophones is CV, followed by CVC. This tendency is also found in prosaic roots. The frequency of syllable structures in 1,509 prosaic roots is shown in Figure 5.

Figure 5 indicates that CV is the most used syllable structure, followed by CVC. Moreover, no syllable structure prohibited in prosaic words, such as consonant clusters in the onset, occurs in quadrisyllabic ideophones. For example, there is no quadrisyllabic ideophone like **stallallalla* or **pantllallalla*, according to my consultant.

Finally, most of the syllables in quadrisyllabic ideophones also occur in prosaic roots. All syllables seen in quadrisyllabic ideophones are listed in (15).

- (15) /bun/, /pa/, /pi/, /pil/, /ta/, /ti/, /tu/, /taq/, /tun/, /cha/, /chi/, /chu/, /ka/, /ki/, /ku/, /kat/, /qa/, /qi/, /qu/, /sa/, /su/, /ha/, /hi/, /ma/, /nu/, /ñi/, /ñu/, /ra/, /ri/, /ru/, /li/, /lla/, /lli/, /llu/, /wi/

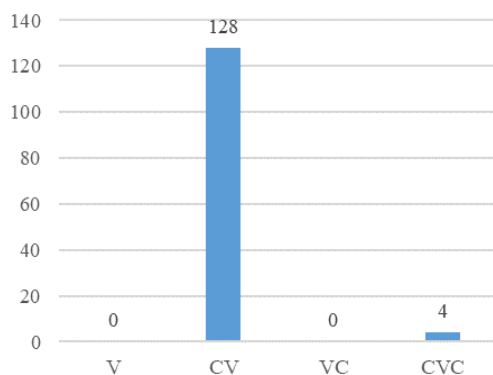


Fig. 4 Frequency of syllable structures used in quadrisyllabic ideophones

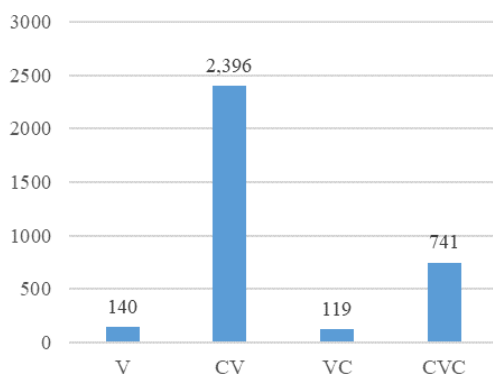


Fig. 5 Frequency of syllable structures used in prosaic roots

Except for /bun/, all the syllables listed in (15) can occur in prosaic roots. All consonants except /b/ can occur in the onset, and all vowels can occur in the nucleus (see Section 2). In addition, most of the syllables in (15) are also common in prosaic roots. Table 8 presents the frequency of the syllables listed in (15) for 1,509 prosaic roots and 33 quadrisyllabic ideophones.

Table 8 Frequency of syllables used in prosaic roots and quadrisyllabic ideophones

Syllable	Number in Prosaic Words	Number in 4-Syllabic Ideophones	Syllable	Number in Prosaic Words	Number in 4-Syllabic Ideophones
/bun/	0	0.5	/bun/	0	0.5
/pa/	134	8	/pa/	134	8
/pi/	63	3	/pi/	63	3
/pil/	0	1	/pil/	0	1
/ta/	99	6	/ta/	99	6
/ti/	79	6	/ti/	79	6
/tu/	97	3	/tu/	97	3
/taq/	11	1	/taq/	11	1
/tun/	7	0.5	/tun/	7	0.5
/cha/	106	1	/cha/	106	1
/chi/	84	6	/chi/	84	6
/chu/	83	1	/chu/	83	1
/ka/	115	5	/ka/	115	5
/ki/	52	4	/ki/	52	4
/ku/	120	2	/ku/	120	2
/kat/	0	1	/kat/	0	1
/qa/	120	12	/qa/	120	12
/qi/	42	5	/qi/	42	5

Although several syllables, namely /bun/, /pil/, and /kat/, are not used, most syllables occurring in quadrisyllabic ideophones also occur in prosaic roots. In addition, syllables that are relatively frequently used in quadrisyllabic ideophones, such as /pa/, /qa/, /ra/, and /lla/, are also commonly used in prosaic roots.

4.4. Summary

Quadrisyllabic ideophones in Ayacucho Quechua clearly show a constrained phonological peculiarity in this language. On the one hand, quadrisyllabic ideophones display two phonological peculiarities: quadrisyllabic structure and triplification of the same syllable. On the other hand, quadrisyllabic ideophones display phonological conformity in three respects: phonemic inventory, syllable structures, and grouping of phonemes.

5. Quadrisyllabic ideophones from a typological perspective

In Section 4, I argued that quadrisyllabic ideophones in Ayacucho Quechua exhibit two peculiar phonological features, (i) quadrisyllabic structure and (ii) triplification of the same syllable, while also conforming to the ordinary phonology of prosaic words in terms of phonemic inventory, syllable structure, and groupings of phonemes. The fact that quadrisyllabic ideophones in this language exhibit a combination of the aforementioned peculiarities and conformities is typologically significant.

In the literature on ideophones, what has been deemed to be a phonological peculiarity of ideophones includes the occurrence of special phonemes and special groupings of phonemes unseen in prosaic words. For example, Japanese ideophones can have a

word-initial voiced plosive, which is dispreferred in prosaic words. Ideophones in Pastaza Quichua employ consonants like /b/ that are never used in prosaic words. Such special phonemes and special groupings of phonemes are not observed in the quadrisyllabic ideophones of Ayacucho Quechua. Instead, as described in Section 4.2, quadrisyllabic ideophones in Ayacucho Quechua are peculiar due to their quadrisyllabic structure and the presence of a triplified syllable.

In contrast, syllable structure and multiple copies of the same syllable or group of syllables are often considered to be conformities when comparing prosaic words to ideophones. For example, Japanese ideophones, such as *kira-kira* ‘sparkling’ and *fuwa-fuwa* ‘fluffy’, are quadrisyllabic and contain two copies of the same group of syllables. Both features are also common in Japanese prosaic words, and thus the quadrisyllables and duplication exhibited by Japanese ideophones are not peculiar in Japanese phonology. Again, these types of conformities are not found in quadrisyllabic roots in Ayacucho Quechua. As discussed in Section 4.3, quadrisyllabic structure and syllable triplification are almost exclusively found in quadrisyllabic ideophones. In Ayacucho Quechua, quadrisyllabic roots and prosaic words have similar phonemic inventories, syllable structure, and groupings of phonemes.

The typologically intriguing combination of phonological peculiarities and conformities exhibited by ideophones in Ayacucho Quechua has not, to the best of my knowledge, yet been reported in the literature. As such, the phonological features of quadrisyllabic ideophones in Ayacucho Quechua described in this paper are novel both typologically and in the literature on ideophones.

6. Conclusions

In this paper, I have described quadrisyllabic ideophones in Ayacucho Quechua and analyzed their phonological peculiarities and conformities. Quadrisyllabic ideophones in Ayacucho Quechua are quadrisyllabic forms with ideophonic meanings. They share a similar phonological structure: $C_1V_1(C)C_2V_1C_2V_1C_2V_1$. Two phonological features of quadrisyllabic ideophones, namely, quadrisyllabic structure and triplification of the same syllable, are rarely observed in prosaic roots. Nonetheless, quadrisyllabic ideophones mainly follow the patterns of the Ayacucho Quechua phonological system, including the overall phonemic inventory and syllable structure found in the language.

Importantly, quadrisyllabic ideophones in Ayacucho Quechua exhibit a pattern of phonological peculiarity and conformity that differs from that of ideophones in other languages. They exhibit two peculiar phonological features, (i) quadrisyllabic structure and (ii) triplification of the same syllable, while also conforming to the ordinary phonology of prosaic words in terms of phonemic inventory, syllable structure, and groupings of phonemes. As such, the constrained peculiarity of Ayacucho Quechua described in this paper offers a new perspective on phonological peculiarity and conformity in the typology of ideophones.

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Abbreviations

3	third person	INF	infinitive	SG	single
ABL	ablative	ITER	iterative	SR	switch-reference
ACC	accusative	NEG	negative	SS	same subject
COR	coreferential	PURP	purposive	TOP	topic
IDPH	ideophone	REFL	reflexive	TRSL	translocative

References

- Adelaar, Willem F. H. and Pieter C. Muysken. 2004. *The Languages of the Andes*. Cambridge: Cambridge University Press.
- Akita, Kimi. 2017. “The linguistic integration of Japanese ideophones and its typological implications”. *Canadian Journal of Linguistics/Revue Canadienne de Linguistique* 62(2), pp.314–334.
- Akita, Kimi and Mark Dingemanse. 2019. “Ideophones (mimetics, expressives)”. *Oxford Research Encyclopedia of Linguistics* [Accessed 2021–6–12].
- Aschmann, Richard P. 2013. “QuechuaLanguageFamily.gif”. <https://quechuas.net/Q/#PeruBoliviaOeste> [Accessed 2021–6–12].
- Cárdenas, Juan P. 2009. *Sipascha: Runasiminchikpi Willakuykuna*. Ayacucho, Peru: Bautista EIR.L.
- Childs, G. Tucker. 2014. “Constraints on violating constraints: How languages reconcile the twin dicta of “be different” and “be recognizably language””. *Pragmatics and Society* 5(3), pp.341–354.
- Crevels, Mily. 2012. “Language endangerment in South America: The clock is ticking”. In Campbell, Lyle and Verónica Grondona (eds.) *The Indigenous Languages of South America*. Berlin and Boston, MA: De Gruyter Mouton. pp.167–234.
- Diffloth, Gérard. 1979. “Expressive phonology and prosaic phonology in Mon-Khmer”. In L. Thongkum, Theraphan (ed.) *Studies in Tai and Mon-Khmer Phonetics and Phonology in Honour of Eugénie J. A. Henderson*. Bangkok: Chulalongkorn University Press. pp.49–59.
- Dingemanse, Mark. 2012. “Advances in the cross-linguistic study of ideophones”. *Language and Linguistics Compass* 6(10), pp.654–672.
- . 2015. “Ideophones and reduplication: Depiction, description, and the interpretation of repeated talk in discourse”. *Studies in Language* 39(4), pp.946–970.
- Haspelmath, Martin and Andrea Sims. 2010. *Understanding Morphology*. 2nd edn. London: Routledge.
- Hinojosa Ayala, Aquiles. 2000. *Narrativa Picaresca Andina*. Lima, Peru: Bendeáz S.A.
- Jacobs, Philip. 2006. “Vocabulary (Updated as of 2006–5–12)”. <http://www.runasimi.de/runaengl.htm> [Accessed 2021–6–12].

- Klamer, Marian A. F. 2002. "Semantically motivated lexical patterns: A study of Dutch and Kambara expressives". *Language* 78(2). pp.258–286.
- Nasu, Akio. 2015. "The phonological lexicon and mimetic phonology". In Kubozono, Haruo (ed.) *Handbook of Japanese Phonetics and Phonology*. Berlin and Boston, MA: De Gruyter Mouton. pp.253–288.
- Newman, Paul. 2001. "Are ideophones really as weird and extra-systematic as linguists make them out to be?". In Voeltz, Erhard F. K. and Christa Kilian-Hatz (eds.) *Ideophones*. Amsterdam: John Benjamins. pp.251–258.
- Nuckolls, Janis B. 2004. "To be or to be not ideophonically impoverished". *SALSA XI: Proceedings of the Eleventh Annual Symposium about Language and Society*, Texas Linguistic Forum. pp.131–142.
- . 2014. "Ideophones' challenges for typological linguistics: The case of Pastaza Quichua". *Pragmatics and Society* 5(3). pp.355–383.
- Nuckolls, Janis B., Elizabeth Nielsen, Joseph A. Stanley, and Roseanna Hopper. 2016. "The systematic stretching and contracting of ideophonic phonology in Pastaza Quichua". *International Journal of American Linguistics* 82(1). pp.95–116.
- Parker, Gary J. 1969. *Ayacucho Quechua Grammar and Dictionary*. The Hague: Mouton.
- Torero, Alfredo A. 1964. "Los dialectos Quechuas" [in Spanish]. *Anales Científicos de la Universidad Agraria* 2(4). pp.446–478.
- Zariquiey, Roberto and Gavina Córdova. 2008. *Qayna, Kunan, Paqarin. Una Introducción Práctica al Quechua Chanca* [in Spanish]. San Miguel, Peru: Pontificia Universidad Católica del Perú.