CHAPTER 5

A preliminary, descriptive survey of rhotic and approximant fricativization in Northern Ecuadorian Andean Spanish varieties, Quichua, and Media Lengua

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This chapter examines acoustic data from six speech communities in the northern Andean region of Ecuador to describe variation in the Spanish rhotics /r, ɾ/ and approximants /ʎ, j/, as well as their relationship to the Quichua fricatives /z, ʒ/. Data were collected from four dialects of Spanish, Imbabura Quichua, and Media Lengua, a mixed language containing Spanish lexicon and Quichua morphosyntax. Results from this preliminary, descriptive survey support claims that speakers of both urban and rural dialects of Spanish make extensive use of [ʐ] for /r/ and [ʒ] for /ʎ/, in addition to a wealth of phonetic variation. Similarly, /r/ and /ʎ/ from Spanish borrowings in Media Lengua and Quichua assimilate to [ʐ] and [ʒ], respectively, with little exception.

Keywords: Ecuadorian Spanish, Media Lengua, Quichua, fricativization

1. Introduction

Intense contact between Spanish and Quichua in the Andean region of Ecuador has led to a complex linguistic dynamic in the region. Such conditions have resulted in a continuum of language varieties in which Urban Spanish from Quito (henceforth, Quito Spanish) rests at one end and unified Quichua at the other. In the middle of this continuum, a 'mixed language' known as *Media Lengua* (literally translated as 'half-language') formed through various processes of lexification

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(see Gómez-Rendón, 2005; Muysken, 1980, 1981, 1997; Shappeck, 2011; Stewart, 2011).[1]

This chapter provides a preliminary description of Northern Ecuadorian Spanish liquid phonemes (/r, ɾ, ʎ, j/) and their convergence with two fricatives, [ʐ, ʒ] (retroflex and postalveolar, respectively). The Spanish varieties under investigation include: Urban Andean Spanish from Quito and Ibarra; Rural L1 Spanish from the community La Cadena; Rural L2 Spanish (L1 Quichua) from the neighboring communities of Chirihuasi and Cashaloma; and Media Lengua from the community of Pijal. Fricative production in the Quichua spoken in the same communities as Rural L2 Spanish is also investigated to provide a point of comparison.

In addition to providing the first acoustic description of the liquid-fricative shift in the region, this study looks to explore the following question: Is there synchronic evidence that Quichua influences the use of [ʐ] and [ʒ] by Spanish speakers? If so, to what degree? Findings from this study reveal that Spanish speakers (of all dialects under analysis) overwhelmingly produce the /r/ phoneme as [ʐ], and that speakers of Ibarra and L2 Spanish overwhelmingly produce the /ʎ/ phoneme as [ʒ]. Similarly, Quichua and Media Lengua speakers assimilate /r/ and /ʎ/ in Spanish borrowings to the Quichua phonemes /ʐ/ and /ʒ/ (respectively) almost exclusively.

1.1 Andean Spanish

The Andean variety of Spanish spoken in the urban centers of Quito and Ibarra has undergone many phonological, morphosyntactic, and lexical changes as a result of close contact with Quichua. Older generations of both urban and rural Spanish varieties may have a productive or passive knowledge of many of Quichua words and/ or compound words, several of which have completely replaced standard Spanish lexemes (e.g., *chuchaqui* 'hangover' instead of *resaca*). Morphosyntactic borrowings include the extensive use of diminutive calques, interjections, the *dar* + gerund construction (Bruil, 2008; Hugo Albor, 1973; Murcia-Niño, 1995; Toscano-Mateus, 1953), extensive use of the limitive marker calque *nomás,* future verbal inflections (Haboud, 1998), and changes to the pronominal system (see

1. The transfer of the Spanish lexicon into Media Lengua involved the following processes: relexification (i.e., the transfer of the phonological shell of the lexifier language on to the semantic representation of the systemic language), translexification (i.e., the transfer of 2+ characteristics of the lexifier language into the systemic language, such as the phonological shell and syntactic features; see Muysken, 1981), and possibly adlexification where the lexical item from both languages co-exist (Shappeck, 2011).

Palacios Alcaine, 2005a, 2005b). Rural varieties of Spanish also include changes in word order and discoordinated use of gender and number.

One noticeable phonological shift is the substitution of the palatal lateral approximant (i.e., [ʎ], the standard/ prescriptivist pronunciation of <ll> in Ecuadorian Andean Spanish) with the voiced alveopalatal fricative [ʒ] (e.g., *ella* [ˈe.ʒa] for [ˈe.ʎa] 'she'). This substitution is often described by speakers of Northern Quito Spanish as a quality of Southern Quito speech, but it is also pervasive in the north and in other dialects (explored herein). It should be noted that many highland regions of Latin America, including parts of Colombia, Ecuador, Peru, Bolivia, Paraguay, northern Chile, and northern Argentina, are considered *yeísta* dialects, which merge /ʎ/ to /j̊/ (often realized as [j] in northern Ecuador and henceforth described as such); however, according to Haboud and de la Vega (2008), Andean Ecuadorian Spanish maintains the *lleísmo* contrast (i.e., /ʎ/ and /j/ as separate phonemes) with a slight twist. In the northern provinces of Pichincha, Imbabura, and Carchi, speakers substitute /ʎ/ with /ʒ/, while contrasting it with /j/ (e.g., *calló* [ka.ˈʒo] 'shut.up.3.PST' for [ʎ], versus *cayó* [ka.ˈjo] 'fell.3.PST'). Due to this contrast, Argüello (1978) refers to the Ecuadorian Spanish in this region as the *žeíta*, a term that has gained ground in subsequent studies (see e.g., ʒ*eísmo* in Gómez, 2003).

Another noticeable shift is the substitution of the Spanish trill (i.e., [r]) with an approximant trill (i.e., [r̝]) or a voiced retroflex (i.e., [ɻ]), often referred to in the literature as an assibilated trill/ strident fricative (i.e., [ř]). An example of this shift appears in the word *carro* 'car/bus' being realized as [ˈka.r̝o] or [ˈka.ɻo] rather than [ˈka.ro]. While numerous studies have provided descriptions of the trill in the Ecuadorian highlands (e.g., Argüello, 1978; Bradley, 1999; Gómez, 2003; Hammond, 1999; Toapanta, 2016; inter alia), and others have mentioned it in passing (Argüello, 1980; Lipski, 1989, 1990; inter alia), acoustic studies have thus far been lacking. Regarding the origin of this shift, Adelaar and Muysken (2004, pp. 591–592) suggest that there is a *sprachbund* (i.e., convergence) phenomenon involving both the trill and lateral approximant in northern highland Ecuador, realized as [ɻ] and [ʒ] (respectively) in local Spanish and Quichua dialects. They also claim that it is unlikely that Quichua influenced this change since more conservative southern dialects do not contain these sounds in the same distributions. Similarly, Gómez (2003, p. 66) and Toscano-Mateus (1953, p. 95) argue that the 'assibilated [ř]' either developed in parallel in both Spanish and Quichua or that Andean Spanish may have influenced Quichua.

Based on survey data gathered by Gómez (2003) regarding the level of prestige of [ř] in various social classes, her findings suggest that more formal upper-class pronunciation favors the trill, while informal lower-class pronunciation disfavor its usage. Similarly, Haboud and de la Vega (2008) show variation in [r]-[ř]

pronunciation based on level of formality of a speech event and speaker age (i.e., older equating to greater assibilation).

1.2 Imbabura Quichua

Imbabura Quichua is a Quechuan language spoken by an estimated 150,000 people in the province of Imbabura (Gómez-Rendón, 2007). Like other Quechuan languages, it is a highly agglutinating language with SOV word order. It is documented that nearly every semantic field, "from kinship and household to religion, education and administration," is influenced by Spanish lexical borrowings (Gómez-Rendón, 2007, p. 517).

Regarding phonological borrowings, Spanish mid vowels (i.e., /e, o/) appear to be entering Quichua's three vowel system (i.e., /i, u, a/), both productively and perceptually, through Spanish borrowings (e.g., *libroka* [lib**ɾo**ka] 'book.' TOP) (Stewart, 2014, 2018a), and Quichua speakers have already adopted the voiced series of stops (i.e., /b, d, g/) from Spanish borrowings (e.g., *vicinaka* [**b**isinaka] 'neighbor.' TOP) (Stewart, 2015, 2018b).

The voiced alveopalatal fricative [ʒ] is a highly productive phoneme in Imbabura Quichua, having replaced a number of phonemes found in other Quichua dialects. Toapanta and Haboud (2012) show that what are considered a lateral approximant /ʎ/, a voiced affricate /ʤ/, and a voiced alveopalatal fricative /ʒ/ in other Quichua dialects only appear as [ʒ] in Imbabura; for example, they show that what Cordero (1892) considers as distinct phonemes (i.e., /ʎ/ and /ʒ/) in more southern dialects are both produced as [ʒ] in Imbabura. Moreover, what Orr (1962) describes as the voicing of /ts/ (i.e., [ʤ]) in post-nasal position in other Quichua dialects undergoes spirantization to [ʒ] in Imbabura Quichua. Cole (1982) notes that the only lateral liquid in Quichua is the apico-alveolar lateral /l/, and that while many Peruvian dialects maintain /ʎ/, speakers of Imbabura Quichua historically shifted the lateral approximant to /ʒ/. Like Orr, Cole also shows that the post-nasal voiced allophone of /ʧ/ is pronounced as [ʒ] rather than [ʤ].

According to Stark and Muysken (1977, p. 365), <r> in both word-initial and word-final positions is produced as a "resonating voiced alveopalatal," as in the word *perro* 'dog' in the Ecuadorian highlands. In word-medial position, they claim that this grapheme is pronounced as a "voiced vibrant," as in the word *pero* 'but.' Contrarily, Orr (1962, p. 77) claims that "all word-initial r's are retroflexed ([ɻ]) in the mountain dialects and flapped ([ɾ]) in the jungle dialects," while making no mention of 'r' as an alveolar trill. Toapanta and Haboud (2012) claim that 'r' is produced as both a tap (i.e., [ɾ]) and a fricative (i.e., [ř]). Cole (1982, p. 202) claims that the "flapped dental liquid" is pronounced as a voiced retroflex fricative [ʐ] in word initial position and as a flap elsewhere" (e.g., *rasu* ['ʐa.su] 'snow'). He

also claims that Spanish borrowings containing the "rolled alveolar" /r/ are pronounced as a voiced retroflex fricative [ʐ] (e.g., *burro* 'donkey' produced as [ˈbu.ʐo]). While it is not often documented, /ʐ/ also exists in word-medial position in native Quichua words (e.g., the interjection *arrarray* [a.ʐa.ˈʐai] 'it's so hot!').

1.3 Media Lengua

Media Lengua (ML) is often described as a prototypical bilingual mixed language (Backus, 2003; McConvell & Meakins, 2005) because of its split between roots (mostly of Spanish-origin ~ 90%+) and suffixes (mostly of Quichua origin). ML appears to have mainly formed through a process of relexification in which nearly all the lexical roots in Quichua, including core vocabulary, were replaced by their Spanish counterparts. Impressionistically, ML appears to conform to the Quichua sound system (Gómez-Rendón, 2005; Muysken, 1997), while also maintaining Quichua word order and the vast majority of Quichua's agglutinating suffixes (Muysken, 1997; Stewart, 2011). While ML impressionistically sounds like Quichua, a number of studies by Stewart (2014, 2015, 2018a, 2018b) show that the language has borrowed several sounds from Spanish, including Spanish mid-vowels and voiced stops; therefore, it is of interest to learn how Spanish-origin /r/ and /ʎ/ behave in ML. An example of ML is provided in (1), where the italicized elements in the interlinear gloss are of Spanish-origin and the sounds under analysis in this study are bolded.

(1) *Ese caba**ll**oca elpa **rr**abowan**ll**ata quitachin moscota.*
[elicited by the author, 2015]

Ese *kabaʒu*–ka *el*-pa *ʐabo*-wan-ʒata *quita*-chi-n
DET horse-TOP 3-POSS tail-INST-TOT remove-CAU-3

mosko-ta. Consultant #43
fly-ACC[2]

'That horse swishes at the flies with his tail to get rid of them.'

2. Production of liquids and fricatives

To document variation of liquid and fricative consonant production in the region, acoustic correlates are used to categorize the phones. The following subsections

2. TOP = topic; POSS = possessive; INST = instrumental; TOT = totalitive; CAU = causative; ACC = accusative.

describe correlates that are used as general guidelines for identification and categorization.

2.1 Trills [r] and approximant trills [r̞]

As per Ladefoged and Maddieson (1996), trills are described as vibrations of an active articulator (e.g., tongue or lips), driven by aerodynamic conditions rather than muscular exertion during vibration (essentially, the Bernoulli effect), similar to vocal fold vibration during voicing. According to McGowan (1992) and Johnson (2008), trill production requires precise positioning of the active articulator and critical levels of airflow pressure. If such conditions are not met, vibrations may not occur, resulting in a non-trilled rhotic or a trill flanked by approximants (see Figure 1B), which I refer to as an approximant trill [r̞] (as per Bradley & Willis, 2012; Díaz-Campos, 2008). Cross-linguistically, approximant phases during apical trill production appear to indicate the failure to consistently maintain/return the tongue against the palate.

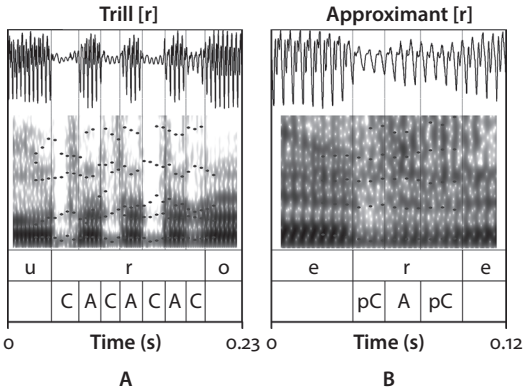

Figure 1. Image A represents a prototypical trill in the word *burro* 'donkey.' This instance, produced by a female speaker of Quito Spanish, contains 4 (c)losure and 3 (a)perture phases, with both averaging 21 ms in duration. Image B represents an approximant trill in the word *terremoto* 'earthquake,' as produced by a different female speaker of Quito Spanish, with 2 (p)artial (c)losure phases (averaging 22 ms) and one (a)perture phase (averaging 19 ms). The first phase appears to have less energy than the second, yet both contain clear vowel-like formants that smoothly transition through the partial closure phases. Both words were uttered in isolation

Apical trills generally contain two to three periods of vibration, where each period consists of a closed and open phase (see Figure 1A). During the closure phase, spectral energy may either be reduced or completely cut off during articulator contact (Ladefoged & Maddieson, 1996). On the other hand, the aperture phase produces vowel-like or approximant spectra, where dark concentrations of energy

appear in formant regions. Third formant lowering has also been attested by both Kavitskaya (1997) and Fant (1970) for Russian trills. Temporal analyses of Finnish and Russian trills reveal that their closed phase lasts 25 ms on average, while their open phase is roughly the same duration, creating a full cycle of ~50 ms.

2.2 Fricatives [ʒ] and [ʐ]

Both [ʒ] and [ʐ] are pre-palatal voiced coronal fricatives that differ only in tongue position, with the latter containing some degree of sub-apical curling or flattening (i.e., retroflex) and greater retraction of the tongue body. According to Reetz and Jongman (2009, p. 189), fricatives can be characterized in terms of four attributes: (1) spectral properties of the frication noise, (2) noise amplitude, (3) noise duration, and (4) spectral properties of formant trajectories into and out of surrounding vowels. The most notable difference between the palatal and retroflex fricatives in Figure 2 is the low spectral energy in B, which resonates between 3,000 and 5,000 Hz, while the spectral energy in A (not visible in Figure 2A) resonates between 7,500 and 10,000 Hz.

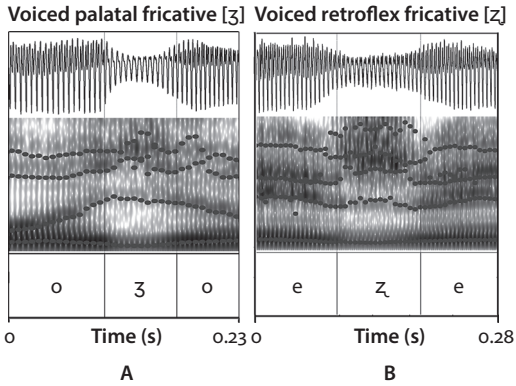

Figure 2. Image A represents a voiced palatal fricative in the word *pollo* 'chicken,' as produced by a female speaker of Quito Spanish. Image B represents a voiced retroflex fricative produced by a female speaker of rural Spanish in the word *terreno* 'land.' Both words were produced in isolation

Cross-linguistically, low spectral energy in retroflex fricatives is a common acoustic correlate; for example, Lee (1999) shows that spectral energy in Beijing Mandarin may reach as low as 2,000 Hz for [ʂ]. Additionally, retroflex consonants generally show lowering of the third formant during the transition from the preceding vowel and rise into the following vowel (as observed in Figure 2B, though not in Figure 2A), which is a characteristic that can be predicted by both articulatory and

manner-specific cues (Hamaann, 2003). According to Fant (1968), the lowering of high frequency formants in retroflex sounds is linked to place of articulation, where alveolars show lowering in F4 towards F3, while palatals show lowering of F3 towards the F2 range. According to Gordon, Barthmaier, and Sands' (2002) analysis of Toda fricatives in the speech of three women and three men, measurements from formant transitions during the last 23 ms of a vowel into a voiceless retroflex show that retroflexion caused lowering of F3, while the same transition into a palato-alveolar caused a raise in F2. They consider that F3 lowering might be an important cue for differentiating retroflexes from other sibliants. Similar results are present in Figure 2B, with F3 reaching 2,747 Hz and F2 reaching 1,787 Hz during the final 13 ms of the first vowel. These trends suggest that a more retracted tongue position equates to lower average F3 frequencies during vowel-to-retroflex transitions. Therefore, the two distinguishing correlates between [ʒ] and [ʐ] used in this study are: (1) Location of spectral energy during fricatives and (2) Lowering of F3 frequency in retroflexes during formant transitions from preceding vowels compared to that of [ʒ].

2.3 Approximants [ʎ] and [j]

The palatal approximant [ʎ] falls within the lateral classification, which is broadly defined in Ladefoged & Maddieson (1996, p. 182) as "sounds in which the tongue is contracted in such a way as to narrow its profile from side to side so that a greater volume of air flows around one or both sides than over the center of the tongue." Regarding position, palatograms of palatal laterals (i.e., [ʎ]) in Spanish show extended contact between the tongue dorsum and the hard palate, much more so than with [l], and little to no contact involving the tongue apex (Navarro-Tomás, 1968).

According to Zampaulo (2013), when formant frequencies of Spanish [ʎ] (F1 = 290 Hz, F2 = 2,047 Hz; see Quilis, 1993) are compared with those of Spanish [j] in *lleísta* dialects (F1 = 337 Hz, F2 = 2,064 Hz; see Rost Bagudanch, 2011), there is very little difference. He also notes that there is substantial variation in how [ʎ] is produced, so much so that he hypothesizes that there may be increased chances of listeners misidentifying [ʎ] as [j] (though it should be noted that high frequency minimal pairs are few in Spanish). Despite this claim, Figure 3 illustrates two identifiable acoustic correlates that consistently differentiate [ʎ] from [j], namely high F3 and F4 peaks in [j] near the center of the segment (see Figure 3A), which do not appear in [ʎ] (for reference see Figure 10CD). In addition, the second half of the segment in Figure 3B involves the production of lateral noise causing dispersion in the higher formants and the appearance of striations in the spectrogram between the F1 and F2 formant paths.

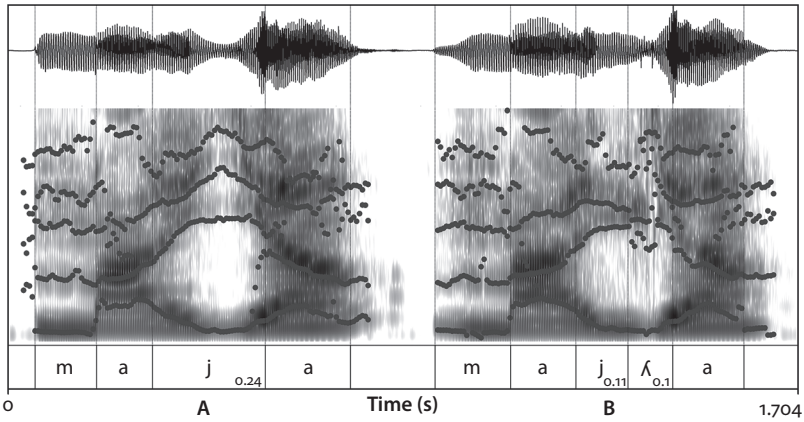

Figure 3. Image A represents a palatal approximant in the word *Maya* 'Mayan/proper name.' Image B represents a palatal lateral approximant in *malla* 'mesh.' Both words were produced in isolation by a female speaker of Quito Spanish

3. Method

3.1 Field locations

To explore the nature of the liquid-to-fricative shift in Ecuadorian Spanish, Quichua, and ML, this study makes use of acoustic measurements from six speech communities (illustrated in Figure 4). For Urban Spanish, these include recordings from the nation's capital of Quito and Imbabura's provincial capital of Ibarra, located 115 km to the north of Quito. For Rural L1 Spanish, recordings were gathered from the community of La Cadena, located on the eastern slopes of Mt. Imbabura and 7 km south of Ibarra. For Quichua and L2 Spanish, recordings were collected from bilingual speakers from the community of Chirihuasi, located approximately 3 km up slope from La Cadena, and in the community of Cashaloma, located 1.5 km up slope from Chirihuasi. Recordings of ML were gathered from the community of Pijal, located approximately 43 km south of Chirihuasi by main road (15 km hike).

3.2 Participants

Eighty-three participants took part in this study. From the Urban Spanish groups, 14 monolingual participants were from Quito and 10 monolinguals were from Ibarra. From the Rural Spanish groups, 16 monolingual participants were from La Cadena, and 14 bilingual participants (L1 Quichua) were from Chirihuasi and Cashaloma. Ten of these same bilingual participants also provided Quichua data,

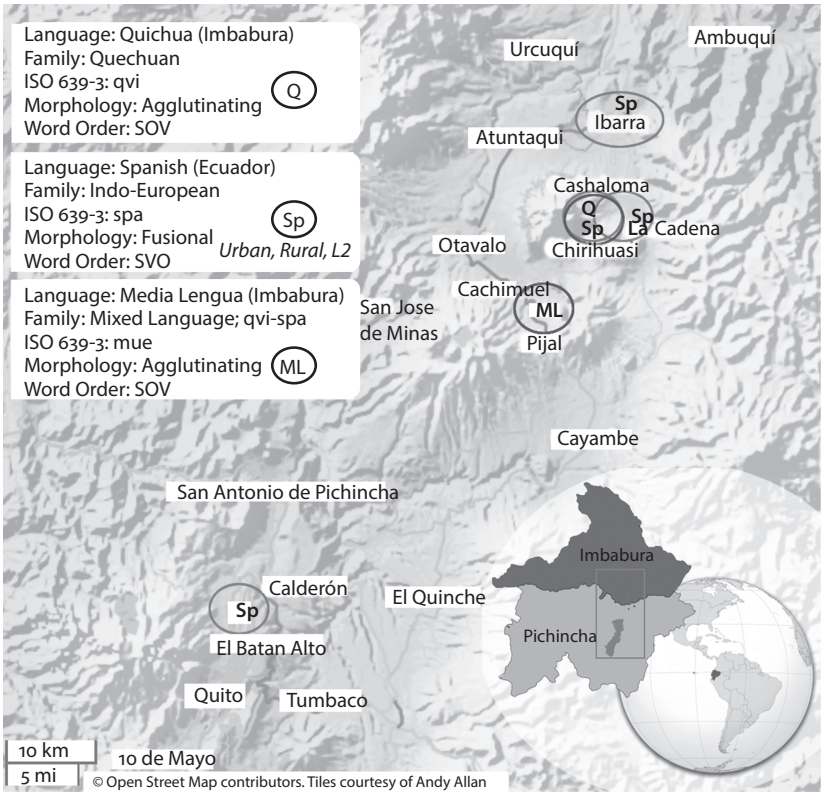

Figure 4. Map of the Ecuadorian provinces of Imbabura (north) and Pichincha (south), where data for this study were gathered. This map is freely licensed under the Open Data Commons Open Database License (ODbL) by the OpenStreetMap Foundation (OSMF). The globe is freely licensed under Creative Commons BY-SA 3.0

along with 10 additional participants, also from Chirihuasi. Four other bilingual participants from Chirihuasi, who only produced Spanish data, also participated. For the ML group. 19 trilinguals (i.e., ML, Quichua, Spanish) from Pijal also partook in the study (see Table 1 for further details).

Of the 20 Quichua participants, all are L1 Quichua-L2 Spanish bilinguals. Four women had a rudimentary level of Spanish, one man and one woman were simultaneous bilinguals, and one man acquired Spanish at the age of 18, while the rest acquired Spanish upon entering primary school, typically at 6–7 years of age. All participants were born and raised in their respective linguistic communities. Of the 19 ML participants, 17 acquired Quichua and ML from birth and learned Spanish upon entering primary school, typically at the age of 6 or 7. The two remaining participants were passive bilinguals in ML and Quichua, having been exposed to ML and Quichua from birth, but were raised speaking Spanish with their parents.

Table 1. Participant counts

Language	Total participants	Total women	Total men
Quito Spanish	14	12	2
Ibarra Spanish	10	5	5
Rural Spanish	16	10	6
L2 Spanish	4	1	3
L2 Spanish & Quichua	10	6	4
Quichua	10	6	4
Media Lengua	19	12	7
Total	**83**	**52**	**31**

3.3 Materials

Liquid and fricative data were gathered from two data sets I collected in the field, yielding a total of 3,096 tokens.[3] The first contained elicited data of ML and Quichua translations as well as reading lists produced by the Ibarra Spanish speakers (1,572 tokens). Elicitation sessions lasted approximately 15 minutes and the reading list with 98 sentences took approximately 5.5 minutes to complete (see Appendices A and B).

The second data set contained sentence list and word list data read by speakers of each language variety other than Ibarra Spanish (1,524 tokens; see Appendix C).[4] The ML and Quichua data were presented in short phrases on a computer screen to prime these languages and to avoid possible 'switches' in language mode, as borrowed lexical items in isolation may be ambiguous as to their source (e.g., *carro* 'car/bus' is the same word in all three languages). For the Spanish word list, additional words were added containing the sounds under investigation. For this list, each word was presented in isolation and read off a computer screen. These sessions lasted approximately 4–7 minutes.

The majority of words from both data sets (i.e., 57%) contain underlying trills, taps, palatal approximants, and palatal lateral approximants from Spanish and Spanish-origin words, and taps, voiced retroflex fricatives, voiced alveopalatal fricatives, and palatal approximants from Quichua and Quichua origin words, all

3. Neither data set was specifically designed for this study, yet both contained a wealth of clear tokens ideal for analysis.

4. It should be noted that due to differences in tasks (i.e., reading sentence and word lists versus elicitations), there may be some variation in the production of the sounds under analysis.

of which occur in word-medial position. Twenty-four percent of the tokens are in word-initial position (excluding taps, due to their distribution) and 18% are found in word-final position (only taps, due to their distribution).

Tokens from ML were gathered from both Spanish and Quichua lexical borrowings. These phonemes have the same graphemes as in Spanish: <ll>, <-rr->/<r->, <-r-/ -r>, and <-y->/<y-> (e.g., *llubia* /ʒubia/ 'rain,' *rio* /ʐio/ 'river,' *caro* /kaɾo/ 'expensive,' *carro* /kaʐo/ 'car/ bus,' and *yo* /jo/ 'I'). Tokens from Quichua also came from both Spanish borrowings and native Quichua words, which have the same graphemes as ML (e.g., *llakillami* /ʒankiʒami/ 'It's just sad.' *rurangui* /ʐuɾangi/ 'You do/make.' *yuyanimi* /jujanimi/ 'I think.')

3.4 Procedures

Tokens were analyzed from two data sets that differed in terms of how speech data was gathered; the first includes data collected in elicitation sessions (Section 2.3.1) and the second includes data gathered through the reading of word lists and/or sentence lists (Section 2.3.2). All consultants were monetarily compensated for their time.

3.4.1 *Elicitation sessions*

For the elicitation sessions, sentences were read aloud by either a native Spanish speaker (from Quito) or the author (a native speaker of English and a near native speaker of Spanish).[5] The participants were asked to give their best oral translation of each sentence and wait at least five seconds before producing the utterance. Consulting with other native speakers of the target language was encouraged if any doubt arose.[6] Voluntary written consent from the participants was received before each session began. Demographic information was also gathered from the participants prior to beginning the task. For the ML and Quichua elicitations, each sentence was read aloud in Spanish by the author or the native Spanish speaking assistant. For the Quichua elicitations, a native Quichua speaker interpreted if confusion arose. To help reduce Spanish influence, elicitation sessions were

5. It should be noted that since a native speaker of ML or Quichua did not elicit the sentences, there may be an increased chance of accommodation or hypercorrection in productions; however, this is not noted in the results, as Spanish-origin words containing /r/ were never trilled in ML and Quichua, and Spanish-origin words containing /ʎ/ were rarely produced as such (i.e., /r/ and /ʎ/ were overwhelmingly realized as [ʐ] and [ʒ], respectively).

6. Consultations with other participants and the five-second waiting period made it more likely that speakers were accessing their long-term memory and reducing mimicry (Guion, 2003).

held with three or more participants in their homes, and they were asked to speak in their language when consulting amongst themselves. Participants from both groups were also asked to repeat their utterance if needed. It should be noted that this method of data elicitation often produces idealized tokens compared to the realities of spontaneous speech. As such, it was also observed that some speakers produced prescriptivized tokens that were not observed in informal conversations. Therefore, frequency counts in this study may not be representative of spontaneous speech. Responses from the elicited sentence list were recorded in 16-bit Waveform Audio File Format (WAV) with a sample rate of 44.1 kHz on a TASCAM DR-1 portable digital recorder, using TASCAM's compatible TM-ST1 MS stereo microphone set to 90˚ stereo width placed fixed on a mic stand.

3.4.2 *Reading sessions*

For the reading sessions, participants were informed that they would be asked to read a series of short sentences (for the Quichua and ML groups) or words (for the Spanish groups) from a computer screen. As with the elicitation sessions, written consent was received, and demographic information was gathered before beginning. If a participant could not read (two cases in both ML and Quichua), the author (twice, once for each language) or the assistant (twice, once for each language) read the sentences/words and ask the participant to repeat them twice. In such cases, the second utterance was used for analysis. If a participant struggled with reading, he or she was asked to repeat the sentence/word from memory to allow for a more naturalistic sample. Readings were recorded using a NEXXTECH unidirectional dynamic microphone (50–13,000 Hz response) set to 90˚ stereo width. Both elicitation and reading sessions were recorded in the same format and sample rate mentioned in Section 3.4.1.

3.5 Categorization

Phonetic variation was categorized based on the acoustic correlates of each token observed in Praat version 6.0.19 (Boersma & Weenink, 2016). The basic criteria for categorization was based on the descriptions in Sections 2.1–2.3; however, such descriptions alone were not entirely adequate due to the wealth of variation and consonant clusters identified in the data. Therefore, criteria were expanded beyond these guidelines when deemed necessary. Such criteria typically involved simply combining the descriptions from Sections 2.1–2.3 (e.g., a voiced retroflex phase following an approximant tap (i.e., [ɾ̪ʐ]) or an approximant phase during the closure of a trill following a complete closure phase (i.e., [r̪r̪])). For other instances (e.g., [ʒ̥] vs. [ʃ]), the informal judgements of three native speakers of Quito Spanish were considered for categorization. To elicit judgments, listeners were asked to

informally listen several times to an isolated syllable containing the token in question alongside another syllable with a more 'prototypical' form from their dialect. They were then asked if the two syllables sounded the same or different. If they responded 'different,' they were asked to describe the difference.

4. Results[7]

Upon analysis, a great deal of variation in the four phonemes under investigation (i.e., /r, ɾ, ʎ, j/) was revealed. The trill data contains 19 forms, ranging from prototypical [r] to complex clusters, such as [r̪ʐ]. Thirty-one varieties were identified in the tap data, 13 in the palatal lateral approximant data, and three in the palatal approximant data. From a purely phonological standpoint, a number of different variants/ allophones of each phoneme have been identified, which appear to vary freely across speakers, especially for /r/, /ʎ/, and word-final /-ɾ/. The following sections (4.1–4.4) provide a breakdown of the variations observed and their distributions across each language variety. They also contain figures that illustrate much of the variation under analysis.

4.1 Trills (Spanish) and voiced retroflex fricatives (Quichua)

Table 2 outlines the phonetic variations of orthographic <r-/-rr->, with the most common realization in five of the six language varieties being the voiced retroflex fricative (i.e., [ʐ]; see Figure 5). The exceptional case is Ibarra Spanish, which at first glance appears to maintain prototypical [r]; however, it should be noted that speakers of Ibarra Spanish are often stigmatized for their extensive use of [ʐ] for /r/, which most likely resulted in idealized tokens ([r] 43%, n = 94) during the recording sessions.

In a possible attempt to produce the idealized trill, Ibarra speakers also show the highest degree of trills produced as taps (13%, n = 94) and tap-voiced retroflex clusters ([ɾʐ] 13%, n = 94). Quichua (75%, n = 204) and ML (85%, n = 152) speakers overwhelmingly produced [ʐ], with [ʒ] and [ʂ] in a distant second and third place (see Figure 7EF). No Quichua or ML tokens were identified as a trill, though it appears that L2 speakers are aware of the difference, as 15% (n = 94) of the L2 Spanish tokens were identified as trills or trill-like (i.e., [r, r̪, r̥], see Figure 6ABC).

7. An anonymous reviewer kindly pointed out that the use of inferential statistics may shed some light on possible correlates responsible for some of the variation identified in this study. While this is beyond the current scope of this initial descriptive survey, it is important that inferential statistics are used in follow-ups to this work.

Table 2. Allophonic variations of /r/ across each language variety. Numbers refer to the quantity of tokens analyzed

Language	**Variation of /r/ <r->/<rr> (Spanish) and /ʐ/ <r->/<-rr->**																			
	r	**r̪**	**r̥**	**rr̪**	**ɾ**	**ɾ̪**	**(ɾ)**	**jɾ**	**jɾ̪**	**ɾʐ**	**ɾʂ**	**ɾ̪ʐ**	**ɾ̪ʂ**	**ʂ**	**ʐ**	**ʔʐ**	**ʒ**	**ʒ**	**ʒʃ**	**Total**
Quito Sp.	31	12	2	2	4	2	0	3	3	0	2	1	0	9	37	3	0	0	0	**111**
Ibarra Sp.	40	8	0	0	12	0	0	0	0	12	0	0	0	0	22	0	0	0	0	**94**
Rural Sp.	9	11	1	2	5	0	1	4	0	9	0	0	0	22	46	0	0	0	0	**110**
L2 Sp.	9	3	2	0	3	2	0	1	0	2	5	2	1	14	50	0	0	0	0	**94**
Quichua	0	1	0	0	4	0	0	0	0	0	4	0	4	13	152	0	21	3	1	**204**
ML	0	0	0	0	5	0	0	0	0	0	0	0	0	8	129	0	10	0	0	**152**
Total	**89**	**35**	**5**	**4**	**33**	**4**	**1**	**8**	**3**	**23**	**11**	**3**	**5**	**66**	**436**	**3**	**31**	**3**	**1**	**764**

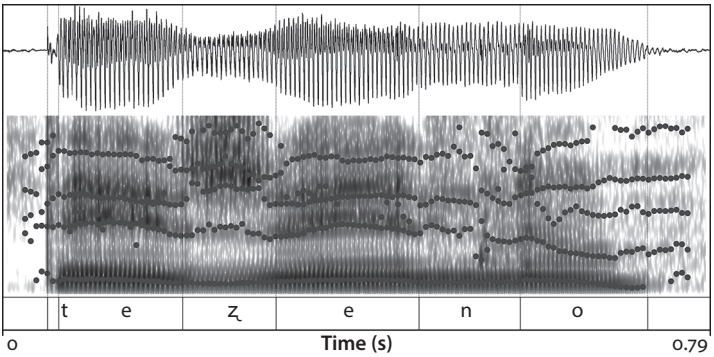

Figure 5. Voiced retroflex fricative (i.e., [ʐ]) produced in isolation by a female speaker of rural Spanish in the word *terreno* 'land.' This is reproduced, in its entirety, from Figure 2B

L2 speakers of Spanish overwhelmingly produced [ʐ] (53%, *n* = 94) or its voiceless variant [ʂ] (15%, *n* = 94). For the speakers of Quito Spanish, roughly half (43%, *n* = 111) of the tokens were identified as trills or trill-like (i.e., [r, r̪, r̥, rr̪], see Figure 6ABCD), while roughly the other half (47%, *n* = 111) resulted in the fricative or fricative-like tokens [ʐ̞, ʂ, ʔʐ] (see Figure 5 and Figure 7EG). A substantial number of trills (12%, *n* = 111) were also realized as taps or tap variations (i.e., [ɾ, ɾ̪, (ɾ), jɾ, jɾ̪, ɾʐ̞, ɾʂ, ɾ̪ʐ̞, ɾ̪ʂ]).

Of the trills, the approximant trill (i.e., [r̪]) is the second most common (Figure 6B). This variant was identified as a trill with continuous formant structure during the closure phases of the trill based on the description of approximant taps (i.e., [ɾ]) in Bradley and Willis (2012).

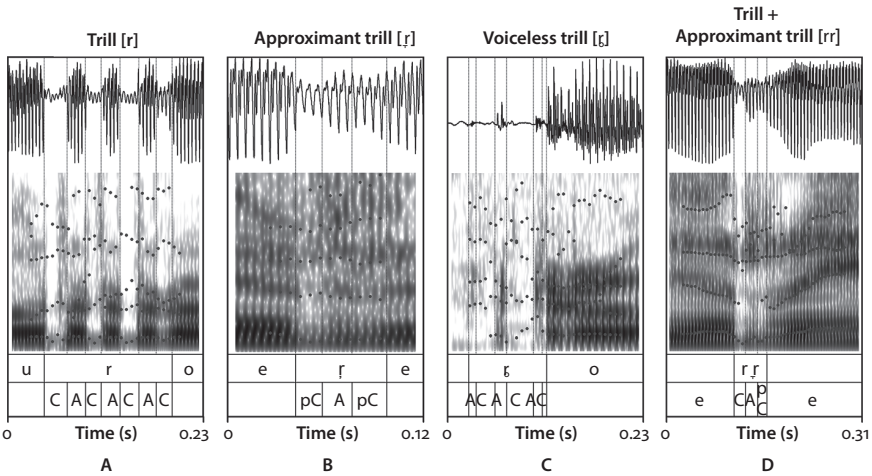

Figure 6. Image A and B are reproduced here from Figure 1 for reference. Image C represents a voiceless trill in word-initial position in the word *ron* 'rum,' as produced by a male speaker of L1 rural Spanish. This segment contains 3 (**a**)perture phases that show no discernible formant patterns. The final AC phase may be a release, though it is difficult to ascertain. Image D represents a trill-approximant trill cluster in the word *terreno* 'land' with clear (**c**)losure in the first phase and (**p**)artial (**c**)losure in the second. This segment was produced by a speaker of Quito Spanish

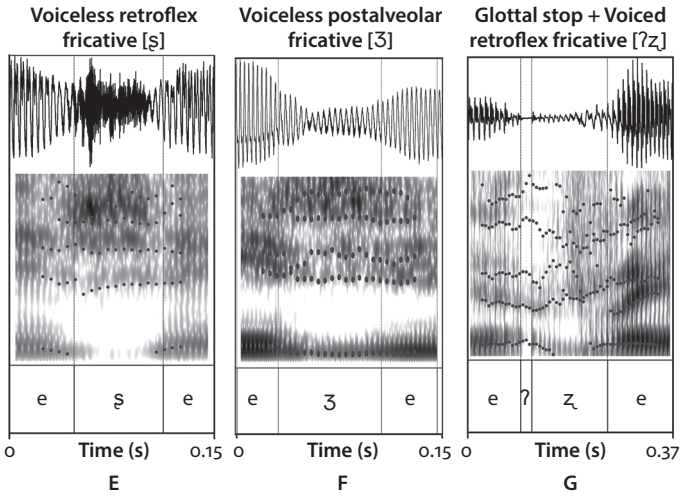

Figure 7. In continuation from Figure 6, image E, produced by a female speaker of rural L1 Spanish, represents a voiceless retroflex fricative in lieu of a trill in the word *terreno* 'land.' Image F, produced by a female ML speaker, represents a voiced alveopalatal fricative in the word *terreno-ka* 'land-TOP' in the phrase *terrenoka grandimi* 'The [plot of] land is large.' Image G, produced by a male speaker of Quito Spanish, represents a glottal stop-voiced retroflex fricative cluster in the word *terreno* 'land'

Beyond the observed continuant patterns of [ʂ] and [ʐ], nearly every instance of these phones was identifiable by an audible 'whistle' produced during the segment, most notably in the voiceless variant (see Figure 7E).[8] Other variants of interest include differences between [ʒ̥] and [ʒʃ], where the former was informally perceived (by both native speakers and myself) as a voiced [ʒ], but the waveform and spectrogram revealed voiceless noise throughout most of the segment (see Figure 10E). Acoustic analysis revealed that the latter (i.e., [ʒʃ]) maintains the devoiced pattern from approximately the middle of the segment until the end. When played informally for native listeners of Quito Spanish, alongside voiced [ʒ] and voiceless [ʃ] in an /eXo/ frame, listeners unanimously chose [ʃ] when asked which token it most resembled. Five voiceless trills were also identified in the data. In these instances, clear closure phases were identified between phases with higher energy output, which resembled release bursts with no formant structure (see Figure 6C).

4.2 Taps

Table 3 outlines the phonetic variation of the tap /ɾ/ (i.e., orthographic <-r-/-r>), with the most common realization in all six language varieties being the tap (see Figure 8A).

Approximant taps are the second most common realization of /ɾ/ (see Figure 8B), and are also quite common in all six language varieties. Like the approximant trills, approximant taps were identified as taps with continuous formant structure during the closure phase (Bradley & Willis, 2012). One of the few trends outlined in (2), which may be attributed to a co-articulation effect, is the realization of an approximant after a tap (or an approximant tap) when the tap directly precedes a consonant (see 2a and Figure 8E).[9] A similar pattern also occurs where an approximant is realized before a tap (or approximant tap) directly following a consonant (see 2b and Figure 9A). The trends described in (2a–b) are observed across all six language varieties; however, they are not present in every instance in any of the language varieties. Another realization of taps preceding a consonant (see 2c and Figure 8D), most notably voiceless stop consonants, was a complete lack of the release phase.

(2) Tap trends
  a. ɾ → ɾj / __C *deporte* 'sport' /deporte/ → [deporjte]
  b. ɾ → jɾ / C__ *diciembre* 'December' /disiembre/ → [disiembjɾe]
  c. ɾ → r̆ / __Voiceless Stop *parques* 'parks' /parkes/ → [par̆kes]

8. An anonymous reviewer pointed out that the whistling heard with the retroflexed fricatives is reminiscent of some speakers of Peninsular (Castilian) Spanish.

9. An anonymous reviewer pointed out that the approximant phase might actually be an intrusive vowel.

Table 3. Allophonic variations of /ɾ/ across each language variety. Numbers refer to the quantity of tokens analyzed

Language	Variation of /ɾ/ <-r->/<-r>																														
	ɾ	ɾ̪	ɾ̺	(ɾ)	ɾ̪j	ɾj	ɾ̪ʂ	ɾʂ	jɾ̪	jɾ	ɾ̪h	ɾh	ɾ̪ʐ	ɾʐ	ɾ̪ʐh	ɾʐh	ɾ̪ʐʂ	ɾ̪ʂh	ɾʂh	ɾ̪ʐʂh	ʐ	ʂ	ʐʂ	r	r̪	rr̪	rr̪ʂ	rr̪ʐ	rʐ	r̥	r̥̪	Total
Quito Sp.	75	53	13	8	17	61	5	24	5	12	2	12	3	3	0	0	0	0	0	0	1	1	0	19	13	2	0	0	0	4	5	**340**
Ibarra Sp.	37	29	25	30	4	8	3	0	9	33	0	1	3	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	**187**
Rural Sp.	63	13	1	8	1	18	14	17	4	17	3	8	12	20	0	0	0	0	0	0	8	5	0	10	7	1	2	1	1	4	0	**239**
L2 Sp.	50	12	6	10	7	29	37	35	2	13	4	4	8	9	1	2	4	6	11	1	12	13	12	3	3	3	1	0	0	0	0	**299**
Quichua	38	12	2	8	8	12	1	10	0	2	0	0	3	1	0	0	0	0	0	0	14	3	1	0	0	2	0	0	0	1	0	**118**
ML	26	17	3	3	14	15	0	3	5	8	0	0	4	7	0	0	1	0	0	0	8	3	0	2	2	0	0	0	0	0	0	**122**
Total	**289**	**136**	**50**	**67**	**51**	**143**	**60**	**89**	**25**	**85**	**9**	**25**	**33**	**41**	**1**	**2**	**5**	**6**	**11**	**1**	**43**	**25**	**13**	**35**	**26**	**8**	**3**	**1**	**1**	**9**	**7**	**1312**

Instances of the (2c) type resemble word-final unreleased stops that quickly taper off in amplitude. These realizations are most prevalent in the urban varieties of Spanish.

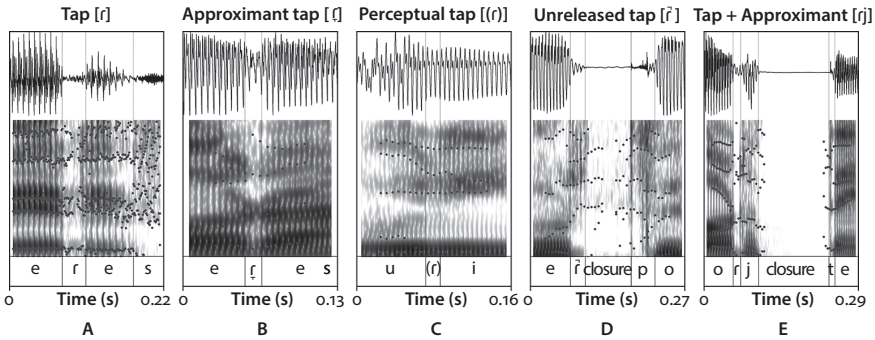

Figure 8. Image A represents a prototypical tap, as produced by a male speaker of Quito Spanish in the word *deberes* 'homework.' Image B represents an approximant tap in the word *computadora* 'computer,' as produced by a female speaker of Quito Spanish. Image C represents a 'perceptual tap,' which is indicated by only a slight decrease in energy in the speech signal. This instance was produced by a female speaker of Quito Spanish in the word *turista* 'tourist.' Image D represents an unreleased tap in the word *deporte* 'sports,' as produced by a male speaker of rural Spanish. Image E represents a tap followed by an approximant phase before closure in the following stop. This instance was produced by a female speaker of Quito Spanish in the word *deporte* 'sports.'

Beyond these patterns, there is a great deal of variation observed, particularly in word-final position. One of the more common occurrences is the quasi-absence of a tap. Bradley and Willis (2012, p. 51) label such realizations as 'perceptual taps,' and describe them as "typically having a slight reduction in the amplitude of the wave form or the intensity of F3 or F4" (see Figure 8C). Other common realizations include taps or approximant taps followed by aspiration (see Figure 9C), frication (see Figure 9BD) or combinations of frication and aspiration (see Figure 9E).[10]

10. An anonymous reviewer pointed out that the aspiration at the end of this word could simply be a transition into silence rather than an actual speech sound. I agree that this is a possibility.

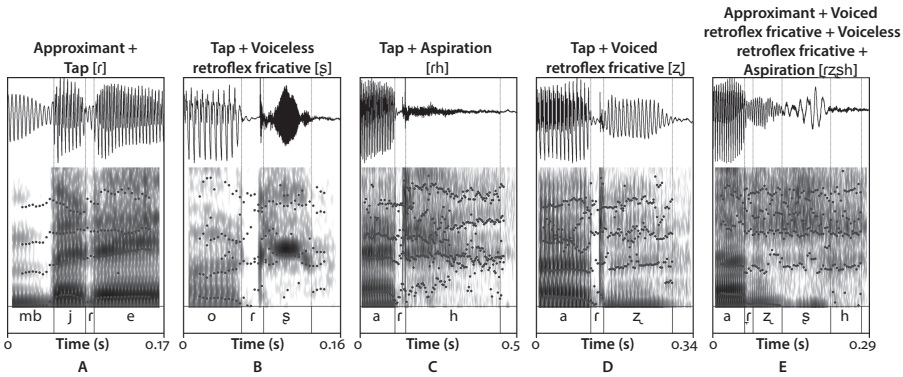

Figure 9. Image A represents an approximant phase after /b/ followed by a tap, as produced by a speaker of Quito Spanish in the word *diciembre* 'December.' Image B represents a tap with a release followed by a voiceless retroflex fricative in the word *dolor* 'pain,' as produced by a speaker of L1 Rural Spanish. Image C represents a tap followed by aspiration in word final-position in the word *besar* 'kiss,' as produced by a speaker of L1 Rural Spanish. Image D represents a tap followed by a voiced retroflex fricative in word-final position in the word *terminar* 'finish,' as produced by a speaker of L1 Rural Spanish. Image E represents a complex cluster consisting of an approximant tap followed by a voiced retroflex fricative that subsequently devoices and then undergoes debuccalization at its end. This instance was produced in word-final position by a speaker of L2 Spanish in the word *quedar* 'stay.'

L2 Spanish, Quichua speakers and, to a degree, ML speakers also produced a relatively high number of pure retroflex fricatives (i.e., [ʂ], [ʐ], and the [ʐʂ] cluster), suggesting some crossover with orthographic <r-/-rr-> (see Figure 5 and Figure 7A). Speakers of Quito Spanish also produced a substantial number of taps as trills or trill variants (13%, n = 340; see Figure 6 and Figure 7 for trill and trill variants). When asked if the <rr>s in these words sounded typical, informal native speaker judgements suggest that the speakers responsible for these trills were exaggerating due to the formality of the recording session. Lastly, there are several occurrences of taps realized as voiceless approximant trills in Quito Spanish.

4.3 Palatal lateral approximants (Spanish) and voiced alveopalatal fricatives (Quichua)

Table 4 outlines the phonetic variation of orthographic <ll>, with the most common realization being the voiced alveopalatal fricative (i.e., [ʒ]; see Figure 10A).

Both Quito and Rural Spanish speakers produced other variants more frequently. Speakers of Quito Spanish tended to produce more voiced palatal stops (i.e., [ɟ]; see Figure 10B) than any other segment, while Speakers of rural Spanish produced more lateral approximant-high front vowel clusters (i.e., [ʎi]; see Figure 10C). The voiced palatal stop is also common in all native varieties of

Table 4. Allophonic variations of /ʎ/ across each language variety. Numbers refer to the quantity of tokens analyzed

Language	Variation of /ʎ/ <ll> (Spanish) and /ʒ/ <ll> (Quichuan)													
	ʎ	ʎi	j	ʒ	ʒ	ʃ	ʂ	ʐ	ʒʃʝ	ɟ	cj	ɟj	çj	Total
Quito Spanish	8	5	6	8	0	1	0	0	0	24	4	5	6	**67**
Ibarra Spanish	16	5	0	68	1	0	0	1	0	39	0	0	0	**130**
Rural Spanish	7	28	18	11	0	0	0	0	0	13	0	0	0	**77**
L2 Spanish	11	16	2	33	1	1	0	0	0	1	0	0	0	**65**
Quichua	9	0	4	129	7	1	6	11	0	3	0	0	0	**171**
Media Lengua	1	0	2	104	0	8	8	19	1	1	0	0	0	**143**
Total	**54**	**54**	**32**	**353**	**9**	**11**	**14**	**31**	**1**	**81**	**4**	**5**	**6**	**653**

Spanish. Prototypical [ʎ] (see Figure 10D) was also produced, to a lesser degree, by speakers of all language varieties other than ML, where it was identified only once.

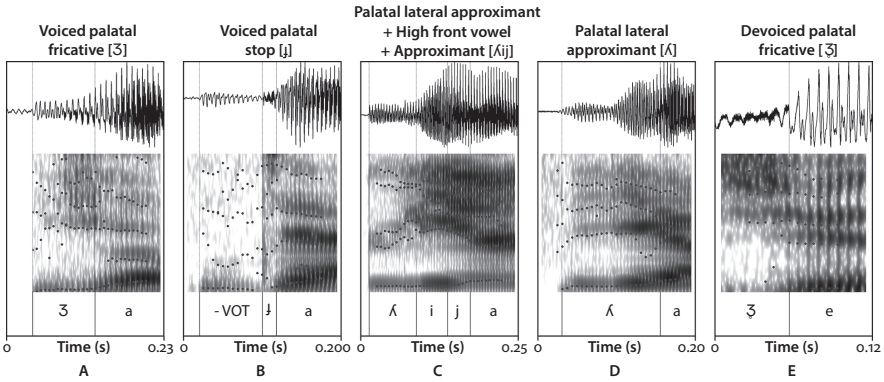

Figure 10. Image A represents a voiced alveopalatal fricative, as produced by a speaker of Quito Spanish in the word *llama* 'llama.' Image B represents a voiced palatal stop in the word llama 'llama,' as produced by a speaker of Quito Spanish. Image C represents a cluster consisting of [ʎij] in the word *llanta* 'tire,' as produced by a speaker of L1 Rural Spanish. Image D represents a palatal lateral approximant in the word *llamar* 'call,' as produced by a speaker of L1 Rural Spanish. Image E represents a devoiced alveopalatal fricative in the word *llenami* 'fullVAL,'[11] as produced by a ML speaker

Similar to trills and taps, it was also found on several occasions that Quichua and ML speakers produced [ʒ] as a retroflex fricative (i.e., [ʐ] or [ʂ]; see Figure 5 and Figure 7E, respectively, for reference) or devoiced to [ʃ] (see Figure 11A) or partially devoiced to [ʒ̊] (see Figure 10E).

11. VAL = validator marker.

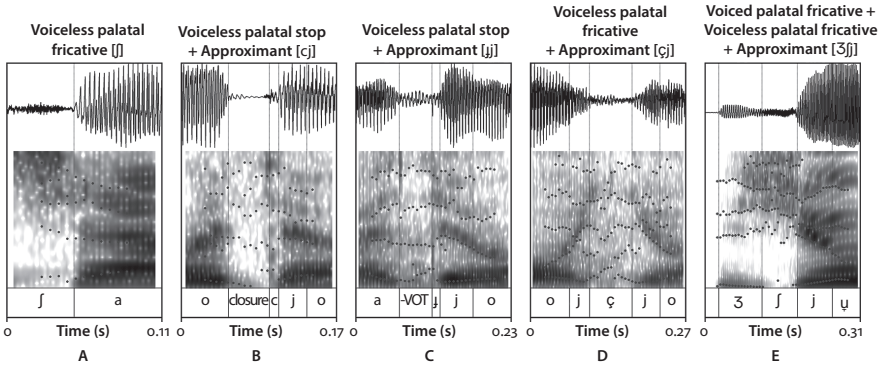

Figure 11. Image A represents a voiceless alveopalatal fricative, as produced by a ML speaker in the word *llamakunaka* 'sheep-PL-TOP.' Image B represents a [cj] cluster in the word *repollo* 'cabbage,' as produced by a speaker of Quito Spanish. Image C represents a voiced variant of the previous cluster in the word *gallo* 'rooster,' as produced by a speaker of Quito Spanish. Image D represents a complex cluster consisting of [jçj] in the word *pollo* 'chicken,' as produced by a speaker of Quito Spanish. Image E represents a complex cluster consisting of [ʒʃj] in the word *lluvigrihunmari* 'rain-FUT-PROG-3-AFF,' as produced by a ML speaker

Several speakers of Quito Spanish produced a number of clusters involving a final approximant preceding either a voiced or voiceless palatal stop (i.e., [cj] or [ɟj]; see Figure 11B and Figure 11C, respectively) or a voiceless palatal fricative (i.e., [çj]; see Figure 11D). One ML speaker also produced an interesting cluster comprised of [ʒʃj] (see Figure 11E).

4.4 Palatal approximants

Table 5 outlines the segment with the least amount of variation, the palatal approximant /j/ (i.e., orthographic <y>). Its most common realization is prototypical [j] (see Figure 12A).

Table 5. Allophonic variations of /j/ across each language variety. Numbers refer to the quantity of tokens analyzed

Language	**Variation of /j/ <y>**			
	j	**ɟj**	**çj**	**Total**
Quito Spanish	34	12	4	**55**
Ibarra Spanish	101	24	1	**126**
Rural Spanish	61	5	0	**66**
L2 Spanish	54	1	0	**55**
Quichua	53	0	0	**53**
Media Lengua	41	0	0	**41**
Total	**344**	**42**	**5**	**396**

Nonetheless, we observe that speakers of Ibarra Spanish produced a substantial number of [ɟj] clusters (19%, *n* = 126; see Figure 12C). The varieties with the greatest variation are the urban varieties of Spanish, which also include instances of [çj] (see Figure 12B).

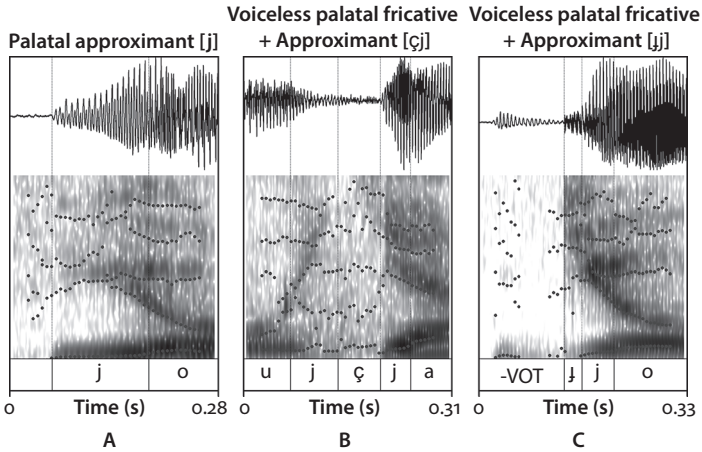

Figure 12. Image A represents a prototypical palatal approximant, as produced by a speaker of L1 Rural Spanish in the word *yoga* 'yoga.' Image B represents a [çj] cluster in the word *cabuya* 'fique rope,' as produced by a speaker of Quito Spanish. Image C represents a [ɟj] cluster in the word *yoga* 'yoga,' as produced by a speaker of L1 Rural Spanish

4.5 Results summary

Based on the results of this preliminary analysis, the percentages of the most common variants of each phone (excluding clusters) are presented in Table 6.

This breakdown reveals that both ML and Quichua overwhelmingly produce orthographic <r-/-rr-> and <ll> as [ɾ] and [ʒ], respectively. Results also show that Spanish dialects with close contact with Quichua (i.e., L2 and L1 Rural) favor [ɾ] over [r] for /r/, though with greater variation. A similar trend is found for /ʎ/ regarding L2 Spanish production, with speakers producing [ʒ] over [ʎ], though with greater variation than when speaking Quichua. Rural L1 Spanish shows a large shift away from [ʒ] toward other variants (namely [ʎi], not presented in Table 6), possibly as a mechanism for group disassociation. Contrarily, Ibarra Spanish speakers show a preference toward [ʒ] (on par with L2 Spanish speakers), while Quito Spanish speakers favor [ɟ] (not presented in Table 6) for /ʎ/; these points provide evidence that Urban Spanish is split up in various sub-dialects. The tap /ɾ/ shows the greatest amount of variation in each language group, with prototypical [ɾ] yielded at an average frequency of just 22% (Quichua speakers are most consistent at 32%). Finally, for /j/, speakers from all language varieties overwhelmingly prefer [j].

Table 6. Percentages of the most common variants identified in this study (excluding clusters)

	/r/			/ɾ/				/ʎ/			/j/		
	r	**ɻ**	**other**	**ɾ**	**ɾj**	**ɾ̪**	**other**	**ʎ**	**ʒ**	**other**	**j**	**jj**	**other**
Quito Spanish	28%	33%	39%	22%	18%	16%	44%	12%	12%	67%	62%	22%	16%
Ibarra Spanish	43%	23%	34%	20%	4%	16%	60%	12%	52%	35%	80%	19%	1%
Rural Spanish	8%	42%	50%	26%	8%	5%	61%	9%	14%	53%	92%	8%	0%
L2 Spanish	10%	53%	37%	17%	10%	4%	70%	17%	51%	29%	98%	2%	0%
Quichua	0%	75%	25%	32%	10%	10%	47%	5%	75%	17%	100%	0%	0%
Media Lengua	0%	85%	15%	21%	12%	14%	52%	1%	73%	25%	100%	0%	0%
Total	**12%**	**57%**	**31%**	**22%**	**11%**	**10%**	**57%**	**8%**	**54%**	**33%**	**87%**	**11%**	**3%**

5. Discussion

5.1 Fricative maintenance/divergence

Two observations from the literature are confirmed in this study: (1) Spanish speakers of all dialects most often produce the /r/ phoneme as [ɻ]; and (2) Ibarra and L2 Spanish speakers overwhelmingly produce the /ʎ/ phoneme as [ʒ] (as attested in Haboud & de la Vega, 2008), even under the formal conditions by which the data were collected. For ML, results show that Spanish-origin /r/ and /ʎ/ assimilate to [ɻ] and [ʒ] (as also revealed for Spanish borrowings in Quichua), suggesting that these sounds function more like the Quichua phonemes /ɻ/ and /ʒ/, respectively (i.e., instances of Spanish-like liquids are almost non-existent). For Spanish, popular theories often claim that fricativization of the liquids /r/ and /ʎ/ is the direct result of Quichua influence (detailed in, but not supported by, Gómez, 2003) since these sounds appear to be more 'prototypical' or 'robust' in native, northern Quichua words; however, previous studies have dispelled such hypotheses (e.g., Adelaar & Muysken, 2004; Gómez, 2003; Toscano-Mateus, 1953) in favor of linguistic convergence, which is most likely responsible for the parallel development of [ɻ] and [ʒ] in both northern Spanish dialects and northern Quichua dialects. This is based on the fact that these sounds are not attested in more conservative dialects of both languages. If the usage of [ɻ] and [ʒ] is indeed a case of linguistic convergence, then the distribution patterns from this study might

suggest that modern-day northern Quichua dialects may preserve these sounds to a greater extent than northern Spanish dialects and, by proxy, may also have an influence on the maintenance of these sounds in northern Spanish. This observation comes from the fact that Spanish dialects with greater contact with Quichua show increased instances of fricativization, while those with less contact show greater variation between more 'standard' liquid variants and fricative variants; for example, L2 speakers of Spanish (i.e., the dialect with the greatest Quichua influence) produced [ɻ] more frequently than speakers of L1 Rural Spanish (i.e., the dialect with the second highest degree of contact with Quichua), while L1 Rural speakers produced [ɻ] more often than urban varieties of Spanish (i.e., the dialects with the least amount of contact with Quichua), with the highest number of trills or trill-like variants. The production of the <ll> grapheme shares a similar trend, apart from the fact that speakers of Ibarra Spanish overwhelmingly produced [ʒ] over [ʎ]. Based on this evidence, it appears that the greater Quichua's influence on Spanish, the more often liquids undergo fricativization.

Contrarily, it may also be hypothesized that if the use of [ɻ] and [ʒ] developed in parallel in this region, Spanish dialects with less contact with Quichua might be in the midst of reverting back to the more 'standard' pronunciations [r] and [ʎ], respectively. Alternatively, the parallel development may not have been uniform in that Spanish speakers in the north with less contact with Quichua speakers may have only partially adopted the sound changes (i.e., the use of both liquids and fricatives interchangeably), whereas Quichua speakers fully adopted it.

The hypothesis that Quichua is maintaining or influencing the synchronic use of fricatives in northern Spanish dialects is also supported by the unidirectionality of the sound change (i.e., Spanish speakers show increased fricative usage when Quichua has more influence on their dialect), as the reverse influence (i.e., Spanish liquids making their way into Quichua) is minimal in the data; only a single approximant trill token, out of all 356 native Quichua and Spanish borrowings, is attested.

For ML, productions of [ɻ] and [ʒ] reveal the robustness of these sounds in Quichua. Even with the high lexical influence and adoption of other Spanish sounds, ML speakers unequivocally produce Spanish-origin /r/ as [ɻ], and /ʎ/ as [ʒ]. It should be noted that ML phonology is quite conservative in many regards, and maintains Spanish sounds that are no longer used in Spanish dialects of the region, such as word-initial /x/ in *hacha* [ˈxa.ʧa] 'axe' and *habas* [ˈxa.βas] 'fava beans' (Muysken, 1997, p. 372; Stewart, 2011, p. 85). While it is difficult to ascertain whether these sounds came directly from Spanish borrowings from 100 years ago, when ML formed, or have assimilated to Quichua phonology, they make up a set of a few sounds that do not show at least some degree of influence from 'standard' Spanish phonology.

5.2 Taps

While the graphemes <-r/-r-> were most often produced as taps, there was a substantial amount of variation, especially in word-final position. Trends in the data show that Spanish speakers most commonly realized taps as trills, tap-fricative clusters, and 'perceived-trills.' Contrarily, speakers of Quichua and ML tended to be more conservative in their production, although taps produced as fricatives and [ɾʂ] clusters were not unusual (more so in Quichua than ML). Such variation in Spanish might simply be attributed to cross-linguistic differences in tap production (i.e., non-contact induced change) or as a marker of social status. The latter can be seen in the number of trill realizations of the tap in Quito and L1 Rural Spanish, where native speaker opinions suggested an exaggerated pronunciation in an attempt to sound 'more refined.'

5.3 Yeísmo or lleísmo?

In all the Spanish dialects under investigation, there is evidence that speakers produce consistent differences between /ʎ/ and /j/, even though there is a great deal of variation in the former. The data suggest that even when /ʎ/ does not become [ʒ], speakers of these dialects/idiolects can still be categorized as *lleísta* speakers. One example of a variant that appears to be gaining ground in the L1 Spanish dialects is the voiced palatal stop (i.e., [ɟ]). Impressionistically, this variant appears to be more common with younger women (shown to be innovators of linguistic change; see Dale, 1976; Labov, 1990; López Rúa, 2006; Powell, 1979; Springer & Deutsch, 1989; Yang, 2001; inter alia)), suggesting that some degree of innovation could be taking place. For speakers that use [ʒ] for [ʎ], clear production differences between [ʒ] and [j] exist, suggesting that they also fall into the category of *lleísta* speakers (or more apt, *ʒeísta* speakers). Trends in the Quichua and ML data are more straightforward, revealing clear categorical differences between /ʒ/ and /j/, where /j/ was only produced as [j], and no [j] variants of /ʒ/ were identified.

6. Conclusions

The goal of this study was to identify phonetic variation in the phonemes /r, ɾ, ʎ, j/ across four dialects of Spanish and ML, as well as in the phonemes /ʐ, ʒ/ in Quichua. Based on the distribution of these variants, Spanish dialects with greater Quichua influence show greater use of [ʐ] for /r/ and [ʒ] for /ʎ/, suggesting that Quichua may play a role in maintaining these allophonic variations. Trends in the ML data are nearly identical to those of Quichua, suggesting that, even with its heavy influence from Spanish, Spanish-origin /r/ and /ʎ/ assimilate to Quichua [ʐ] and [ʒ],

respectively. For all language varieties, there is a high degree of allophonic variation in the tap phoneme /ɾ/, and little variation in the palatal approximant /j/.

While it was beyond the scope of this preliminary, descriptive survey, future studies might want to investigate liquid-fricative variation in this region using quantitative analyses of both production and perception data, which would involve various demographic and socioeconomic factors, in addition to phonetic correlates. Such analyses would enrich the descriptive observations made herein, while also uncovering trends not identified in this analysis.

References

Adelaar, W., & Muysken, P. (2004). *The languages of the Andes*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511486852

Albor, H. (1973). Da+gerundio, ¿un quechuismo? y otras maneras de atenuar los imperativos. *Hispania*, 56, 316–318. https://doi.org/10.2307/339024

Argüello, F. (1978). The žeíta dialect of Spanish spoken in Ecuador: A phonetic and phonological study (Unpublished doctoral dissertation). The Pennsylvania State University, University Park, PA.

Argüello, F. (1980). El rehilamiento en el español hablado en la región andina del Ecuador. *Lexis*, 4, 151–155.

Backus, A. (2003). Can a mixed language be conventionalized alternational codeswitching? In Y. Matras & P. Bakker (Eds.), *The mixed language debate. Theoretical and empirical advances* (pp. 237–270). Berlin: Mouton de Gruyter.

Boersma, P., & Weenink, D. (2016). *Praat: Doing phonetics by computer* [Computer software] (Version 6.0.19). <http://www.fon.hum.uva.nl/praat/> (19 February, 2020).

Bradley, T. G. (1999). Assibilation in Ecuadorian Spanish: A phonology-phonetics account. In J.-M. Authier, B. E. Bullock, & L. A. Reed (Eds.), *Formal perspectives on Romance linguistics* (pp. 57–72). Amsterdam: John Benjamins. https://doi.org/10.1075/cilt.185.06bra

Bradley, T. G., & Willis, E. W. (2012). Rhotic variation and contrast in Veracruz Mexican Spanish. *Estudios de Fonética Experimental*, 21(1), 43–74.

Bruil, M. (2008). Innovations in the Ecuadorian converb systems: Grammatical change in language contact situations (Unpublished master's thesis). University of Leiden, Leiden, the Netherlands.

Cole, P. (1982). *Imbabura Quichua*. Amsterdam: North-Holland.

Cordero, L. (1892). *Diccionario Quichua-Castellano y Castellano-Quichua* (Vol. 4to). Quito: Corporación Editora Nacional.

Dale, P. (1976). *Language development: Structure and function*. New York, NY: Rinehard and Winston.

Díaz-Campos, M. (2008). Variable production of the trill in spontaneous speech: Sociolinguistic implications. In L. Colantoni & J. Steele (Eds.), *Selected proceedings of the 3rd Conference on Laboratory Approaches to Spanish Phonology* (pp. 47–58). Somerville, MA: Cascadilla Proceedings Project.

Fant, G. (1968). Analysis and synthesis of speech processes. In B. Malmberg (Ed.), *Manual of phonetics* (pp. 171–272). Amsterdam: North-Holland.

Fant, G. (1970). *The acoustic theory of speech production, with calculations based on x-ray studies of Russian articulations: Description and analysis of contemporary standard Russian* (2nd ed.). The Hague: Mouton.

Gómez, R. (2003). Sociolinguistic correlations in the Spanish spoken in the Andean region of Ecuador in the speech of the younger generation (Unpublished doctoral dissertation). University of Toronto, Toronto, Canada.

Gómez-Rendón, J. (2005). La Media Lengua de Imbabura. In H. Olbertz & P. Muysken (Eds.), *Encuentros y conflictos: Bilingüismo y contacto de lenguas en el mundo andino* (pp. 39–58). Madrid: Iberoamericana. https://doi.org/10.31819/9783865278968-003

Gómez-Rendón, J. (2007). Grammatical borrowings in Imbabura Quichua. In Y. Matras (Ed.), *Grammatical borrowing in cross-linguistic perspective* (Vol. 1, pp. 481–521). New York: Walter de Gruyter.

Gordon, M., Barthmaier, P., & Sands, K. (2002). A cross-linguistic acoustic study of voiceless fricatives. *Journal of the International Phonetic Association*, 32, 141–174. https://doi.org/10.1017/S0025100302001020

Guion, S. (2003). The vowel systems of Quichua-Spanish bilinguals: Age of acquisition effects on the mutual influence of the first and second languages. *Phonetica*, 60, 98–128.

Haboud, M. (1998). *Quichua y Castellano en los Andes Ecuatorianos. Los efectos de un contacto prolongado*. Quito: Abya-Yala.

Haboud, M., & de la Vega, E. (2008). Ecuador. In P. Azucena (Ed.), *El español en América: Contactos lingüísticos en Hispanoamérica* (pp. 161–188). Barcelona: Ariel.

Hamaann, S. (2003). *The phonetics and phonology of retroflexes*. Utrecht: LOT.

Hammond, R. M. (1999). On the non-occurrence of the phone [r] in the Spanish sound system. In J. Gutiérrez-Rexach & F. M. Gil (Eds.), *Advances in Hispanic linguistics* (pp. 135–151). Somerville, MA: Cascadilla Press.

Johnson, K. E. (2008). Second language acquisition of the Spanish multiple vibrant consonant (Doctoral dissertation). University of Arizona. ProQuest.

Kavitskaya, D. (1997). Aerodynamic constraints on the productions of palatalized trills: The case of Slavic trilled [r]. *Proceedings of the 5th European Conference on Speech Communication and Technology* (Vol. 2, pp. 751–754). Rhodes, Greece.

Labov, W. (1990). The intersection of sex and social class in the course of linguistic change. *Language Variation and Change*, 2, 205–254. https://doi.org/10.1017/S0954394500000338

Ladefoged, P., & Maddieson, I. (1996). *Sounds of the world's languages*. Oxford: Blackwell.

Lee, W.-S. (1999). An articulatory and acoustical analysis of the syllable-initial sibilants and approximants in Beijing Mandarin. *Proceedings of the International Congress on Phonetic Science* (pp. 413–416).

Lipski, J. (1989). /s/-voicing in Ecuadorian Spanish: Patterns and principles of consonantal modification. *Lingua*, 79, 49–71. https://doi.org/10.1016/0024-3841(89)90019-3

Lipski, J. (1990). Spanish taps and trills: Phonological structure of an isolated opposition. *Folia Linguistica*, 24, 153–174. https://doi.org/10.1515/flin.1990.24.3-4.153

López Rúa, P. (2006). The sex variable in foreign language learning: An integrative approach. *Porta Linguarum*, 6, 99–114.

McConvell, P., & Meakins, F. (2005). Gurindji Kriol: A mixed language emerges from code-switching. *Australian Journal of Linguistics*, 25, 9–30. https://doi.org/10.1080/07268600500110456

McGowan, R. (1992). Tongue-tip trills and vocal tract wall compliance. *Journal of the Acoustical Society of America*, 91, 2903–2910. https://doi.org/10.1121/1.402927

Murcia-Niño, M. (1995). The gerund in Spanish of the North Andean region. In C. Silva-Corvalán (Ed.), *Spanish in four continents: Studies in language contact and bilingualism* (pp. 83–100). Washington DC: Georgetown University Press.

Muysken, P. (1997). Media Lengua. In S. G. Thomason (Ed.), *Contact languages: A wider perspective* (pp. 365–426). Amsterdam: John Benjamins. https://doi.org/10.1075/cll.17.13muy

Muysken, P. (1980). Sources for the study of Amerindian contact vernaculars in Ecuador. *Amsterdam Creole Studies*, 3, 66–82.

Muysken, P. (1981). Halfway between Quechua and Spanish: The case for relexification. In A. R. Highfield (Ed.), *Historicity and variation in Creole studies* (pp. 57–78). Karoma Publishers.

Navarro-Tomás, T. (1968). *Manual de Pronunciación Española* (14th ed.). Consejo Superior de Investigaciones Científicas.

Orr, C. (1962). *Ecuador Quichua phonology*. Norman, OK: Summer Institute of Linguistics of the University of Oklahoma.

Palacios Alcaine, A. (2005a). El sistema pronominal del español ecuatoriano: Un caso de cambio lingüístico inducido por contacto. In Y. Lastra & C. Chamoreau (Eds.), *Dinámica de las lenguas en contacto* (pp. 358–376). México: Universidad Hermosillo.

Palacios Alcaine, A. (2005b). La influencia del Quichua en el español andino Ecuatoriano. In *Homenaje al Dr. Luis Jaime Cisneros* (Vol. 1, pp. 389–408). Lima: Pontificia Universidad Católica del Perú.

Powell, C. (1979). Sex differences in language learning: A review of the evidence. *Audio-Visual Language Journal*, 17, 19–24.

Quilis, A. (1993). *Tratado de fonología y fonética españolas* (Vol. 74). Madrid: Gredos.

Reetz, H., & Jongman, A. (2009). *Phonetics: Transcription, production, acoustics, and perception*. Chichester: Wiley-Blackwell.

Rost Bagudanch, A. (2011). Variación en los procesos de palatalización de yod segunda (o cómo la sincronía permite la explicación de la diacronía) (Unpublished doctoral dissertation). Universitat de Girona, Spain.

Shappeck, M. (2011). *Quichua-Spanish language contact in Salcedo, Ecuador: Revisiting Media Lengua syncretic language practices*. PhD Dissertation, University of Illinois at Urbana-Champaign.

Springer, S., & Deutsch, G. (1989). *Left brain, right brain*. New York, NY: Freeman.

Stark, L., & Muysken, P. (1977). Diccionario Español-Quichua y Quichua-Español. Guayaquil: Archivo Histórico del Guayas, Museo del Banco Central del Ecuador.

Stewart, J. (2011). A brief descriptive grammar of Pijal Media Lengua and an acoustic vowel space analysis of Pijal Media Lengua and Imbabura Quichua (Doctoral dissertation). University of Manitoba. MSpace.

Stewart, J. (2014). A comparative analysis of Media Lengua and Quichua vowel production. *Phonetica*, 7, 159–182. https://doi.org/10.1159/000369629

Stewart, J. (2015). Production and perception of stop consonants in Spanish, Quichua, and Media Lengua (Unpublished doctoral dissertation). University of Manitoba, Winnipeg, Canada.

Stewart, J. (2018a). Voice onset time production in Spanish, Quichua, and Media Lengua. *Journal of the International Phonetic Association*, *48*(2), 173–197. https://doi.org/10.1017/S002510031700024X

Stewart, J. (2018b). Vowel perception by native Media Lengua, Quichua, and Spanish speakers. *Journal of Phonetics*, 71, 177–193. https://doi.org/10.1016/j.wocn.2018.08.005

Toapanta, J. (2016). Assibilated [ř] in Ecuador: Exploring sociolinguistic factors among young Quiteños. *International Journal of Linguistics*, 8(3), 23–30. https://doi.org/10.5296/ijl.v8i3.9593

Toapanta, J. & Haboud M. (2012). Quichua of Imbabura: A brief phonetic sketch of fricatives. *International Journal of Linguistics*, 4(2). https://doi.org/10.5296/ijl.v4i2.1474

Toscano-Mateus, H. (1953). *El español en el Ecuador*. Madrid: Gredos.

Yang, L. (2001). Sex and language proficiency level in color-naming performance: An ESL/EFL perspective. *International Journal of Applied Linguistics*, 11, 238–256. https://doi.org/10.1111/1473-4192.00016

Zampaulo, A. (2013). The evolution of the (alveolo)palatal lateral consonant in Spanish and Portuguese. In D. T. T. Haug (Ed.), *Historical Linguistics 2013: Selected papers from the 21st International Conference on Historical Linguistics* (pp. 69–86). Amsterdam: John Benjamins. https://doi.org/10.1075/cilt.334.05zam

Appendix A

Reading list – Imbabura Spanish	**Reading List – Media Lengua Translation Sample**
Hasta mañana.	Mañanacaman.
Estoy cansado.	Cansashcama**r**i cani.
La vela se está quemando.	Micha japi**r**ishca.
Cada pe**r**sona aquí habla t**r**es idiomas.	Aquipi genticuna t**r**es idiomata hablanchi.
La tienda está al f**r**ente.	Tiendaca cay ladopi.
El me**r**cado está atrás.	Ese me**r**cadoca aquiwasha ladopimi.
Mi hija está afue**r**a de la escuela.	Mio hijaca escuelamanta salishcamari.
Mi familia está dentro de la casa.	Mio familiaca casacupimi.
Antes de cocina**r** **y**o me lavo las manos.	Auno coznapash**ll**atami manota lavani.
Después de la fiesta **y**o fui a la casa.	**Y**oca fieshtamanta vinini.
Tengo mucho trabajo que hace**r.**	**Y**oca a**r**to tabajotami tinini.
¿Usted puede habla**r** más despacio?	Vosca mas despacio**ll**a hablanguichu?
Estoy demasiado cansado.	**Y**oca cansashcami cani.
Estoy comiendo.	**Y**oca cominjunimi.
Yo saldr**é** co**rr**iendo pa**r**a **r**ecibirte cuando vos **ll**egues.	**Y**oca co**rr**ishpa salisha oste vinipica.
Mi he**r**mana está comp**r**ando en la tienda.	Mio he**r**manaca tendapimi comp**r**ajun.
Él es mi amigo.	Elca miopa amigomi.
Estas personas se van a la ciudad.	Ese gentecuna pueblomanmi inajun.
¿Qué estás viendo?	Quetata vijungui
¿Dónde está tu esposa?	Tu**y**o muje**r**ca ondepitay?
¿Cómo se **ll**ama usted?	Vosteca que nomb**r**eta cangui?
¡Mañana voy a dormir hasta tarde, no me despiertes!	Mañanaca totacamanmi dormig**r**ini. No **r**ecordachiwanguichu!
Aye**r** me fui a Quito.	Aye**r**ca quitomanmi i**r**cani.

Las personas siempre vienen aquí.	Genticunaca aquimanmi vinin.
Yo nunca hago mis deberes.	Yoca debercunataca no azinichu.
Nuestro bosque está protegido.	Ñucanchi bosquica cuidashcami.
Yo quiero dormir.	Yoca dorminatami kirini.
Después de haber comido me fui a la casa.	Comishca jipaca casamanmi ircani.
En la noche yo veo la tele antes de dormir.	Tardeca antes dorminahorasmi televisionta vircani.
¡Escribiste mal, bórralo!	Maltami escribircangui y ajora, borray!
Mi terreno está muy bonito.	Mio terrenoca bonitomi.
Casi llegamos a la ciudad.	Casipashmi llegarcanchi puebloman.
Mi pie se hinchó después de caerme.	Mio piesca incharcanmi.
Arriba en la montaña cayó nieve.	Arriba cerropica rasurcanmi.
El niño hizo una pregunta.	Ese wawaca preguntajurcanmi.
Él quiere que tú le enseñes a leer.	Elca enseñachichun leenatami kirijun.
Si sales de aquí vas a tener frío.	Aquimanta salishpaca chirichinguimi.
Mi vecina me saluda todos los días.	Mio vizinaca saludajomi cada dia.
Cuando tú dibujas tienes mucha concentración.	Vosca empeñarishpami debujangui.
Ella va a hacer la sopa.	Ella coznagrijunmi.
La máquina se paró.	Maquinaca ya no trabajanchu.
Yo te seguí gritando cuando saliste de mi casa.	Yoca gritajurcanimi casamanta salipica.
Ustedes no han leído este libro.	Ustecunaca no este librotaca leishcanguichichu.
Yo hago una investigación.	Yoca preguntajurcanimi.
Los turistas no pueden subir la montaña.	Turistacunaca serromanca no subinchu.
Los pintores pintaron la casa.	Pinturcunaca casatami pintanajun.
Tengo que limpiar mi cuarto.	Cuartotaca barrinami cani.
Ayer fuimos a comer a Otavalo.	Ayerca comingapa otavalomanmi ircani.
Mi casa es más nueva que la tuya	Miu casaca mushukmi.
Tu carro es más grande que el mio.	Vospa carruca mas grandimi.
El gobierno dio computadoras a las escuelas.	Gobiernoca computadoracunatami escuelacunaman darca.
Voy a bañar al niño que se cayó en el lodo.	Wawataca bañachigrijunimi cayshcamanta.
¿Cuándo vamos a salir?	Cuandota salishayari?
¿Cómo estás?	Comota cangui?
Había algunas personas en la reunión.	Alguno genticunami reunionpi carca.
Ellos quieren jugar.	Elcunami juganata kirirca.
Las nubes son blancas.	Nubicunaca blancumari.
La culebra me mordió el pie.	Culebra piespemi mordiwarca.
Yo quiero que tu escribas una carta.	Yoca uno cartata escribichunmi kirini.
Tenemos que evaluar el trabajo.	Trabajotaca valoranami canchi.
Ella cortará la comida, pero no con un cuchillo.	Ellaca comidata cortajunmi pero no cuchillowan.
El está estudiando.	Elca estudiajunmi.

¿Por qué olvidaste tu cuaderno?	Porqueta olvidarcangui cuadernota?
Son las estrellas que brillan en la noche.	Estrellacunaca brillanajunmi denoche.
Mañana la luna estará llena.	Mañanaca lunaca llenomi canga.
Los pulmones toman aire.	Pulomoncunaca airetami recibin.
Tomar mucho alcohol es malo para el hígado.	Arto tragota tomayca malo higadocunapa.
Los invernaderos usan mucho plástico.	Invernaderocuna mucho plasticotami usan.
Hay muchos patos en el Lago San Pablo.	Arto patocunami lagunapyca abin.
Usamos el caparazón de los armadillos para hacer charangos.	Nosotrosca armadillotaca cojinchimi charangota azingapa.
Los burros se llevan las cargas, son muy fuertes.	Borrocunaca cargataca artotami lliban.
El lunes me toca ir a la ciudad.	Lunestaca pueblomanmi ina cani.
Las plumas del pavo real son lindas.	Pavo realpa plumacunaca lindomi.
En Julio los niños tienen vacaciones en la escuela.	Juliopica wawacunaca vacaciontami tinin.
La ciudad de Otavalo queda a quince minutos de Pijal.	Otavalomanca quinze minutospimi llegarin.
Necesito cinco voluntarios que me ayuden.	Cinco genticuna voluntariotami minisitini ayudachun.
¿Te gusta el pescado frito?	Pescado frituta kiringuichu?
Los gusanos son buenos para las chagras.	Gusanocunaca chagrapi buenochu.
¿Cuál es tu fruta favorita?	Que frutatata cominata kiringui?
Los murciélagos chupan sangre.	Morcielagocunaca sangretami chupan.
Él estaba escupiendo las pepas.	Elcunaca pipata botajurcami.
Tienes que soplar más duro.	Mas fuerzawan soplana cangui.
Ustedes salieron temprano hoy de mañana.	Ustedcunaca tempranomi salircanguichi.
El niño malcriado me mordió.	Niñu malcriadomi mordiwarca.
Nosotros comimos ayer juntos.	Nosotrosca ayermi comercanchi igual.
El trabajará mucho el próximo mes.	Elcunaca proximo mesca bastantetami trabajana.
Tenemos que coger un bus para ir a Otavalo.	Carrotami cogina canchi otavaloman ingapa.
Ayer caí al suelo riendo.	Ayerca cayercanimi suelopi.
Las personas que hablan mucho saben poco.	Artuta gentecuna hablanacunataca no sabinchu.
La Pachamama es la dueña de la tierra.	Pachamamaca dueñomi nuestro tierrapa.
¿Dónde está el dibujo que hiciste en la escuela?	Ondepita dibujuca escuelapi azishcaca?
No he visto un cóndor por aquí en muchos años.	Condortaca yoca no vishcanichu tanto tiempota.
Ese reloj está dañado.	Ese relojuca dañashcami.
¡Estás cansado, pues descansa!	Cansashca cashpaca descansay.
Cuando el venga, me avisas.	El vinikpica avisawangui.
El árbol es más grande que el maíz.	El eucaliptota mas grandimi.
Aquí está el palo que estabas buscando.	Aquipimi paloca buscajurcangui.
Tenemos que ir allá.	Allimanmi ina canchi.

Appendix B

Reading list – Imbabura Spanish	**Reading List – Quichua Translation Sample**
Hasta mañana.	Ka**y**akaman.
Estoy cansado.	Shayhushkami kani.
La vela se está quemando.	Esp**e**rma **r**upahunmi.
Cada pe**r**sona aquí habla t**r**es idiomas.	Kaypi ñukanchika ishkay shimitami **r**imanchi.
La tienda está al f**r**ente.	Tienda kay ñuka f**r**entepi**ll**ami.
El me**r**cado está atrás.	Me**r**cado kay washa ladupimi.
Mi hija está afue**r**a de la escuela.	Ñuka hihaka escuelamanda **ll**ugshishkami.
Mi familia está dentro de la casa.	Ñuka familia tukuy**ll**ami wasipi kanchi.
Antes de cocina**r** **y**o me lavo las manos.	Ñukaka na**r**a yanushpa**ll**atami makita may**ll**ani.
Después de la fiesta **y**o fui a la casa.	Fiesta tulu**r**igpika wasimanmi **r**ini.
Tengo mucho trabajo que hace**r.**	Ñukaka achika t**r**abahutami cha**r**ini.
¿Usted puede habla**r** más despacio?	Ali**ll**agu **r**imay ushangichu?
Estoy demasiado cansado.	**Y**apata shayhushkami kani.
Estoy comiendo.	Ñukaka mikuhunimi.
Yo saldr**é** co**rr**iendo pa**r**a **r**ecibirte cuando vos **ll**egues.	Ñukaka kalpahushkami **ll**ugshini kangu chayamunau**r**aska.
Mi he**r**mana está comp**r**ando en la tienda.	Ñuka ñañaka tiendapi **r**andihunmi.
Él es mi amigo.	Chaymi ñukapa amigu.
Estas personas se van a la ciudad.	Kay hintikunaka vi**ll**amanmi **r**inahun.
¿Qué estás viendo?	Imata **r**ikuhungi?
¿Dónde está tu esposa?	Maypiti kamba wa**r**mika.
¿Cómo se **ll**ama usted?	Imashutita kangi?
¡Mañana voy a dormir hasta tarde, no me despiertes!	Kayaka chishikamanmi puñusha, ama **r**igchachingichu.
A**y**e**r** me fui a Quito.	Kaynaka quytutami **r**i**r**kani.
Las pe**r**sonas siemp**r**e vienen aquí.	Chay hintikunaka cada **r**atumi kayman shamun.
Yo nunca hago mis debe**r**es.	Ñukaka na **r**u**r**anichu nunca.
Nuest**r**o bosque está p**r**otegido.	Ñuka busquyka na **r**upachinachu.
Yo quiero dormi**r.**	Kuataka puñuna**y**ahunmi.
Después de habe**r** comido me fui a la casa.	Mikushka hipaka wasimanmi **r**i**r**kani.
En la noche **y**o veo la tele antes de dormi**r.**	Ñukaka tutaka teletami **r**ikuni na**r**a puñushpa**ll**ata.
¡Escribiste mal, bó**rr**alo!	Chay escribishkaka nalichu bu**rr**ay.
Mi te**rr**eno está muy bonito.	Ñuka alpaka hu**y**alagumi.
Casi **ll**egamos a la ciudad.	Ñami cha**y**anahunchi vi**ll**aman.
Mi pie se hinchó después de cae**r**me.	U**r**mashka hipaka ñuka chakika pungi**r**kami.
A**rr**iba en la montaña ca**y**ó nieve.	Hahua u**r**kupi fuyu u**r**ma**r**kami.
El niño hizo una p**r**egunta.	Chay wawaka shug tapuytami **r**u**r**a**r**ka.
Él quie**r**e que tú le enseñes a lee**r.**	Chayka kangutaka **y**achachichunmi munan.
Si sales de aquí vas a tene**r** frío.	Kaymanda **ll**ugshishpaka chi**r**ichingimi.
Mi vecina me saluda todos los días.	Vicinaka ñukawan tukuy pun**ll**ami saludan.

Cuando tú dibujas tienes mucha concentración.	Dibuhashpaka ñukaka chaytaka yuyayllami kani.
Ella va a hacer la sopa.	Chayka supatami yanugrihun.
La máquina se paró.	Maquyna shayarkami.
Yo te seguí gritando cuando saliste de mi casa.	Ñuka wasimanda llugshika kanguta kaparishpami katirkani.
Ustedes no han leído este libro.	Kangukuna kay librota na lishkangichichu.
Yo hago una investigación.	Ñukaka shug investigaciundami rurasha.
Los turistas no pueden subir la montaña.	Gringukuna urkuma na sikay ushanllu.
Los pintores pintaron la casa.	Trabahadurkuna wasita pintashka.
Tengo que limpiar mi cuarto.	Ñuka cuartukunata fichanami kani.
Ayer fuimos a comer a Otavalo.	kayna utavalupi mikurkanchi.
Mi casa es más nueva que la tuya	Ñuka wasimi kangupagtash yalig mushug?
Tu carro es más grande que el mio.	Kangupaka ashtawan hatun carumi kuapagtash yali.
El gobierno dio computadoras a las escuelas.	Gubiernu cumputadurakunata kararka escuylaman.
Voy a bañar al niño que se cayó en el lodo.	Wawata armachigrini turupi urmarka.
¿Cuándo vamos a salir?	Imawrata rishun?
¿Cómo estás?	Imashnalla kangi?
Había algunas personas en la reunión.	Tawka hintikunami sesiunbi karka.
Ellos quieren jugar.	Chaykuna puglanayashkami.
Las nubes son blancas.	Fuyuka yuragmi.
La culebra me mordió el pie.	Culebra chakipimi kanirka.
Yo quiero que tu escribas una carta.	Ñukaka kangu shug cartata rurachunmi munani.
Tenemos que evaluar el trabajo.	Ñukaka dibirista rikunami kani burashka na rurashka?
Ella cortará la comida, pero no con un cuchillo.	Ñukaka villama rinayashkami kani peru tiemputa na charinichu.
El está estudiando.	Chayka yachahuhunmi.
¿Por qué olvidaste tu cuaderno?	Imata rushpata kungarkangi cuadirnuta.
Son las estrellas que brillan en la noche.	Luciruka yanapika funchagshami rikurin.
Mañana la luna estará llena.	Kayaka lunaka intirumi kanga.
Los pulmones toman aire.	Ñuka shunguka rispiranmi.
Tomar mucho alcohol es malo para el hígado.	Yapata traguta ufiashpaka nalichu.
Los invernaderos usan mucho plástico.	Invernadirukunaka yapatami plastikuta ukupan.
Hay muchos patos en el Lago San Pablo.	Achika patukunami chay kuchapika tian.
Usamos el caparazón de los armadillos para hacer charangos.	Armadillupa kaparazondami utilizanchi charangukunata rurangapa.
Los burros se llevan las cargas, son muy fuertes.	Burrukunaka achikatami aparin.
El lunes me toca ir a la ciudad.	Lunistaka villama rinami chayan.

Las plumas del pavo real son lindas.	Pavupa plumaka huyalagumi.
En Julio los niños tienen vacaciones en la escuela.	Hunio killataka ñami iscuylamanda llugshigrin.
La ciudad de Otavalo queda a quince minutos de Pijal.	Villamanda chirihuasiman quynse minutustami rurana.
Necesito cinco voluntarios que me ayuden.	Cincu puratami minishtini ñukata ayudachun.
¿Te gusta el pescado frito?	Piscadu frishkata munanllu?
Los gusanos son buenos para las chagras.	Hurukunaka chagrapika huyalami tian.
¿Cuál es tu fruta favorita?	Mayhanda kangupaka frutas favorito kan.
Los murciélagos chupan sangre.	Murcielaguka yawartami chupan.
Él estaba escupiendo las pepas.	Chayka muyutami tukarka.
Tienes que soplar más duro.	Sinllitami fukuna kangi.
Ustedes salieron temprano hoy de mañana.	Kangukunaka kunan tutamandatami llugshirkangichi.
El niño malcriado me mordió.	Chay wawa malkiryadumi kanirka.
Nosotros comimos ayer juntos.	Kaynaka kuanchika pagtami mikurkanchi.
El trabajará mucho el próximo mes.	Kaya killaka chayka sinllitami trabahanga.
Tenemos que coger un bus para ir a Otavalo.	Shug bustami hapigrina kanchi utavalupi chayagringapaka.
Ayer caí al suelo riendo.	Kaynaka asihusha alpapimi urmarkani.
Las personas que hablan mucho saben poco.	Yapata rimakunaka ashanagutallami yachan.
La Pachamama es la dueña de la tierra.	Pachamamaka alpa dueñumi kan?
¿Dónde está el dibujo que hiciste en la escuela?	Maypita kan dibuhu iscuylapi rurashkaka?
No he visto un cóndor por aquí en muchos años.	Nachu kanga rikurkangi kundurta kayta purihugta ima watakunapipash.
Ese reloj está dañado.	Chay reluhuka dañarishkami kan.
¡Estás cansado, pues descansa!	Shayhushka kashaka samay.
Cuando el venga, me avisas.	Chay chayamugpika villawangi.
El árbol es más grande que el maíz.	Chay yuraka saratapash yalishkami.
Aquí está el palo que estabas buscando.	Kaypi kashkaka maskahurkangi chay kaspika.
Tenemos que ir allá.	Chayman rinami karkanchi?

Appendix C

Spanish word list – Quito, L1, L2	ML phrase list	Quichua phrase list
Deberes	Deberesta no gustanichu.	Deberesta na munanichu.
Dar	Quita kiringui?	Deportita alimi kan.
Dolor	Deportika buenomi kan.	Domingotami rinchi.
Deporte	Comigrini.	Turistaka urmarka.
Ver	Turistaka caerka.	Decisionta na alichu rurangi.
Garaje	Terminajunchi.	Dicimbripimi ringi.

Comer
Tomar
Terminar
Diciembre
Tener
Cortar
Votar
Computadora
Dormir
Quedar
Terreno
Comprar
Pintor
Terminal
Pintar
Gobierno
Parques
Grande
Besar
Gordo
Buscar
Gringo
Perro
Cultura
Colibrí
Pollo
Golpear
Gustar
Planchar
Terno
Demorar
Perder
Parqueadero
Terremoto
Barato
Color
Burro
Ganar
Culebra
Quitar
Poner
Casar

Proyectoka buenomi.
Diciembripimi ingui.
Cortanguichichu?
Documentoka largomi kan.
Computadoraka dañashkami.
Dorminata no kirinichu.
Dedoka inchawarka.
Terrenoka grandimi.
Comprarkanguichu?
Pintorka mal trabajashka.
Terminalka ondepita kan?
Gobiernoka buenomi kan.
Parqueka abinmi.
Grande grandemi.
Papelka acabarkami.
Gordoka no andajunchu.
Gringoka perdishka.
Perrorukuka bravomi kan.
Culturatami teninchi.
Colibrika bonitomi kan.
Pinchotami kirini.
Polloka escapajun.
Princesaka bonitami.
Planchanata no kirinichu.
Ternoka negromi.
Demorashka.
Tiendamantami vinirkani.
Perdinata no kirinchichu!
Gafaskunaka perdishka.
Parqueaderoka llenomi kan.
Pantalonka rotomi.
Bonitami ese warmika.
Terremotoka abinmi!
Baratomi kan!
Bebeka llorajurka.
Cañawanmi pegawarka.
Color azulta gustani.
Burroka fuertemi.
Ganarkani.
Culebraka mordiwarka.
Tetami tomanata kirini.
Casaranajunchi.

Bosqueka rupajun.
Goltami ruranchi!
Computadoraka waklishkami.
Televisionta rikujuni.
Dedoka pungawarka.
Terrenoka jatunmi.
Pinturukuka na alichu llankashka.
Terminalka maypita kan?
Gobiernoka alimi kan.
Parqueka yarin.
Papelka tukurinlla.
Gordoka na purijunchu.
Costaka karu karumi.
Princesaka sumakmi.
Ternoka yanami.
Dimurashka.
Tiendamantami shamurkani.
Butunka llukshishka.
Parqueaderoka juntami kan.
Terremotoka yarin!
Baratomi kan!
Problematami charini.
Cañawanmi makawarka.
Tiempoka na charinichu.
Color azulta munani.
Burroka sinchimi.
Ganarkanichu.
Culibraka kaniwarka.
Duraznoka mishki mishkimi.
Gorroka verdemi kan.
Cargata llashashkami.

Go**rr**o
Ca**r**ga
Ca**rr**o
Lleno
Yema
E**rr**or
Cabu**y**a
Río
Llama
Yegua
Ron
Lluvia
Ayuda**r**
Yerno
Rayo
Llanta
Ensa**y**o
Yoga
Repo**ll**o
Llama**r**
A**ll**á
Ani**ll**o
Ba**ll**ena
Ba**rr**a
Fa**ll**o
Yo
Hie**rr**o
Ga**ll**o
Apo**y**a**r**
Bo**y**a
Rábanos
A**rr**oz

Bancotami **r**obashka.
Go**rr**oka ve**r**demi kan.
Guanteskunaka **r**ojomi kan.
Ca**r**gata pesashkami.