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Quechua Phonology

# Introduction

Quechua describes a dialect continuum that was once spoken across the Incan Empire in South America, and in the present day ranges geographically from southern Ecuador to northern Argentina. Due to colonialization by the Spanish, Quechua has had extensive contact with Spanish, resulting in extralinguistic and linguistic changes. Extralinguistically, there has been a vast change in speaker structure in the last three centuries, where Quechua monolingualism has seen a great decrease and a great rise in Quechua-Spanish bilingualism. Linguistically, even monolingual Quechua speakers have adopted Spanish loan words, such as *fiesta* (“party, feast”, Sp: fiesta) or *faltay* (“to lack”, Sp: faltar). Non-native sounds have also been introduced to Quechua, typically restricted to loan words, such as the labiodental fricative /f/ or the mid vowels /e/ and /o/ (Torero 1983).

Quehcua is typically divided into two major dialect groups, Quechua I and Quechua II, both of which have further subdivisions. This works focuses on South Bolivian Quechua (henceforth, SBQ), a Quechua II dialect. This paper will investigate vowel lowering in SBQ, which occurs when a high vowel is adjacent to /q/.

# Phoneme Inventory

## Consonants

SBQ presents the typical inventory of phonemes for a Quechua language (Table 1), retaining the three-way series of simple, aspirated, and glottalized (AKA ejective) stops.

Table 1. South Bolivian Quechua consonant inventory (Garland et al., 1971).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **bilabial** | **alveolar** | **palatal** | **velar** | **uvular** | **glottal** |
| **nasal** |  | m | n | ɲ |  |  |  |
| **stop** | *simple* | p | t |  | k | q |  |
| *aspirated* | pʰ | tʰ |  | kʰ | qʰ |  |
| *glottalized* | pʼ | tʼ |  | kʼ | qʼ |  |
| **affricate** | *simple* |  |  | tʃ |  |  |  |
| *aspirated* |  |  | tʃʰ |  |  |  |
| *glottalized* |  |  | tʃʼ |  |  |  |
| **fricative** |  |  | s |  |  |  | h |
| **flap** |  |  | ɾ |  |  |  |  |
| **lateral** |  |  | l | ʎ |  |  |  |
| **approximant** |  | w |  | j |  |  |  |

## Vowels

There is an active and historic debate about whether Quechua should be represented orthographically with a three-vowel or five-vowel system. While institutions like the Peruvian Academy of the Quechua Language established a five-vowel system in 1987 (Coronel-Molina, 1997), whereas other institutions and linguists prefer the three-vowel system. The three-vowel system (/i a u/) is motivated by the fact that the mid vowels /o/ and /e/ only occur in Spanish loan words and as allophones when adjacent to the velar stop. Although this essay will take for granted that Quechua has a three-vowel system, it will make use of a SBQ dictionary (Lott 1978) that *does* use a five-vowel system. Henceforth, all instances of [e] and [o] are assumed to be underlying /i/ and /u/ respectively, unless otherwise stated.

## Mid Vowels

Lott’s (1978) dictionary, although using a five-vowel system, actually makes a good case for a three-vowel system by thoroughly demonstrating the conditioning factor of the mid vowels. In fact, of the 359 words in which <e> or <o> occur in the dictionary, approximately 81% of the cases can be explained by its adjacency to <q> or it being a loanword from Spanish.

The remaining instances of <e> and <o> occur adjacent to syllable-final <j> (e.g. *sojta* “six”, *Diosman kutirej* “convert”). The phonetic status of <j> here is unclear. Molina-Vital (2020), a speaker of Southern Quechua, transcribes and pronounces *suqta* [soχta] “six”, indicating that the underlying phoneme here is /q/. What Lott transcribes as *wajtan* “rib” is recorded in other dictionaries as *waqta.* However, there is not a clear correspondence between <j> in this dictionary and <q> /q/. For example, *ujyay* “to drink” has correspondences with *upyay* in other dialects. The Spanish loanword *carajo* “damn it” corresponds to Spanish /x/, which most likely is realized as [h] in SBQ. *Uj* “one” corresponds to [(h)uk] in other dialects.

However, it seems that when <j> occurs with <e> or <o>, there are clear correspondences with /q/ in other varieties. For example, *mosoj* “new” is *musuq* in other dictionaries; *yachayniyoj* “teacher” is *yachachiq* in other dictionaries. Most notably, *wijsayoj* “pregnant” is *wiksayuq* in other dictionaries. This gives strong motivation that <j> is not a single phoneme, as the orthography might suggest. That is, if they were representing the same phoneme, we would expect \**wejsayoj*.

The present evidence suggests that <j> can represent the surface forms [h] and [χ]. Where other dialects have /q/, the surface form [χ] most likely surfaces; otherwise, [h] surfaces. Furthermore, there is evidence that the underlying phoneme is /q/ in such cases that vowel lowering occurs. With this in mind, I will investigate vowel lowering only in proximity to <q> /q/ (and its aspirated/glottalized counterparts) and <j> only when it clearly has correspondences to /q/ in other dialects.

# Vowel Lowering

## Environments

As discussed, high vowels lower to mid vowels when adjacent to /q/. However, /q/ can also lower vowels across some consonants. In this dictionary, /q/ can lower /i/ to [e] when there is an intervening /n/, /r/, or /l/; it can lower /u/ to [o] when there is an intervening /n/, /r/, or /s/ (Table 2).

Table 2. Vowel lowering across a phoneme.

|  |  |  |  |
| --- | --- | --- | --- |
| **Vowel** | **Intervening phoneme** | **Quechua** | **English gloss** |
| e | n | enqhay | to add wood to the fire |
| r | erqhe | crybaby |
| l | qelqey | to write |
| o | n | ch'onqay | to suck |
| r | morq'o | ball, round object |
| s | mosqoy | dream, to dream |

This situation is similar to what Adeelar (1977) records for another Quechua variety, Tarma Quechua. However, he claims that vowel lowering can occur across /l/ for back vowels, but not front vowels (the opposite of what is found here). It is unknown if both Adeelar and/or Lott (1978) are missing relevant data, or if this is simply a difference between the two dialects.

There is exactly one entry for the sequence /ulq/ *p’ulqo* “baby boots made from yarn”, which exhibits blocking of vowel lowering for /u/. The sequence /wq/ does appear, and thus legal, but not with /i/ and /u/. Adeelar notes that stop+/q/ sequences are phonotactically allowed in other dialects of Quechua, so it is unclear if Lott incidentally did not include such sequences or if SBQ differs in this way.

In summary, /q/ can lower a high vowel in SBQ, according to Lott (1978), when it occurs after a segment that is [-vocoid] and not a stop. Within the feature geometry described by Clements & Hume (1995), there is no single feature that groups together these phonemes. Within McMarthy’s (1988), it is even more difficult to find a natural class in these phonemes. However, when looking at what segments are not transparent to vowel-lowering, we see that they are either [+vocoid] (i.e. /j w/) or they are part of the tripart series of plain, aspirated, and glottalized (i.e. the stops and affricate). The exception here is /h/, but the sequence /hq/ is not attested in Lotte [1978] or Adeelar [1977]).

## Spreading of [-high] and Underspecification

A possible account for /q/ lowering high vowels in SBQ is the spreading of the feature [-high] from the consonant’s DORSAL node to the vowel’s DORSAL node. This would result in the vowel having the DORSAL feature [-high], which could contrast with /a/, if we posit that /a/ has the feature [+low]. However, this leaves us with the issue of explaining why /q/ can spread over all segments except stops and vocoids.

A possible account is inspired by Yip (1989) and Avery & Rice (1989). Yip claims that obstruents are always specified for place, but sonorants “may or may not be specified for Place” (p. 352). Since coronal is the unmarked PLACE, and there are other features that distinguish the sonorant segments and /s/ at the node (namely, [+sonorant] for sonorants and [+continuant] for /s/), the PLACE feature is underspecified underlyingly.

However, the stop series, /w/, /j/, and /ʎ/ must be specified for PLACE. The semivowels are specified for DORSAL with their relevant features, as they are simply vowels. /ʎ/ must contrast in PLACE with the alveolar /l/. However, /l/ does not need to be specified for [coronal] underlyingly. Instead, as Avery & Rice (1989) posit, only one of the two segments needs to be underlyingly specified. That is, /ʎ/ must be specified, and it is specified for DORSAL. Lastly, the stop series must all be specified for PLACE, as Yip claims.

Now that I have determined which segments are specified for PLACE in SBQ, the pattern for when /q/ can spread over a consonant to lower a high vowel is clear.

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