Readdressing the Quechua-Aru Contact Proposal: Historical and Lexical Perspectives

Thesis

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Abstract

The genesis of aspirates and ejectives in several Southern Quechua varieties, and their putative Aymara source, remain in contest. They are scantily distributed in Quechuan languages outside the Quechua II-C Sprachraum. Such consonants occur in Aymara under less restrictive phonotactic parameters and are generally more freely distributed. A majority of linguists subscribe to what Landerman (1994) terms the “Aymara Origin Hypothesis”, which postulates that Southern Quechua varieties acquired these phonemes through long periods of intensive bilingual contact with Aymara in Peru and Bolivia. Some linguists dissent, claiming they are inherited from earlier phonemic vestiges of a Proto-Quechumaran language (an idea henceforth designated the Proto-Quechumaran Hypothesis).

Chapter 1 of this thesis presents a survey of various scholarly arguments for the Aymara Origin Hypothesis and considers their Proto-Quechumaran counterarguments. After examining claims within a theoretical framework of historical phonology and contact-induced language transfer, I cast doubt on the conclusiveness of arguments in favor of a Proto-Quechumaran language and subscribe to the Aymara Origin Hypothesis. Chapter 2 reviews the pre-Incan history of the region as well as the pre-Columbian
historiography regarding Incan social organization and imperial expansion that brought a Southern Quechua variety as far north as Ecuador. It describes the pre-Columbian historical setting in which Quechuan and Aru speakers cohabited for centuries prior to Spanish invasion. Chapter 3 interprets the results of a Swadesh lexical comparison of Southern Quechua, Aymara, Northern Kichwa, and Central Quechua words. I then discuss the probability that the high percentage of shared vocabulary in these lists is the consequence of contact phenomena that manifested during centuries of Quechua-Aru contact in the Central Andes in pre-Columbian and pre-Incan times. Using the van Coetsem (1988) framework, I construct the interplay of two language transfer mechanisms at various historical stages in order to explain lexical and phonological commonalities shared by Quechuan and Aru languages.

This subject, especially as it depends on the historical contact situation, is pivotal in the ongoing endeavor to classify Andean languages. Further evidence for contact-induced featural importation from Aymara into Quechua reinforces the argument for distinct genealogies of these two language groups. This discussion encourages continued analysis of the issue within contact linguistics and historical linguistics frameworks. Adopting the view that assumes importation of the complex obstruent series into Southern Quechua varieties, I pursue different theoretical approaches to the question in an attempt to explain their occurrence in Southern Quechuan languages, particularly Cuzco-Collao and Bolivian dialects.
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Chapter 1: Quechuan historical linguistics

1.1. Introduction: the genetic status of Southern Quechua complex obstruents

Quechua, popularly believed to be a single language spoken by the Incan Empire, is in actuality the most widely spoken indigenous language family in the Americas. It consists of two principal subdivisions, framed by two esteemed Andean scholars as Quechua A and Quechua B (Parker 1969a) or Quechua II and Quechua I, respectively (Torero 1964).¹ This language family has a far reach, spanning from southern Colombia through much of Ecuador, Peru, and Bolivia, and an area of Argentina.

Aymara is a member of the Aru language family—a group encompassing Aymara as well as related languages Jaqaru and Kawki—that is spoken in a geographically more compact area including Bolivia, southeastern Peru, and parts of northern Chile and northwestern Argentina. There is significant overlap in these two languages’ modern-day Sprachraums, and it is believed that their proto-languages originated in adjacent

¹ Throughout this work I adhere to Torero’s 1964 classification schema of Quechuan languages, which divides the family into two major subfamilies: Quechua I (Central Coastal Peruvian varieties) and Quechua II, which further subdivides into II-A (Northern Peruvian varieties), II-B (Ecuadorian Kichwa varieties), and II-C (Cuzco and Bolivian varieties).
areas of Peru—Proto-Quechua on the central coast and Proto-Aru on the southern coast (Torero 2005:46). Due to periods of intensive contact between these two groups over the course of more than a millennium, the two languages harmonized to a formidable degree their phonologies, typologies, and lexicons (Torero 1998:606). More recently, it is believed that high levels of bilingualism and acute degrees of cultural and linguistic exchange led to a massive diffusion of lexicon between the two, more notably from Aymara into Southern Quechua, a granddaughter language of the aforementioned Proto-Quechua. A principal topic of this thesis is whether the series of complex obstructant consonants found in Southern Quechua varieties resulted from these terms of substantial lexical traffic.

These complex obstruents, alongside their plain counterparts, form tripartite contrastive phoneme series at bilabial, alveolar, palato-alveolar, velar, and uvular points of articulation: /pʰ/, /p’/, /tʰ/, /t’/, /kʰ/, /k’/, /qʰ/, and /q’/.\(^2\) Their occurrence in Cuzco-Collao and Bolivian dialects of Southern Quechua is frequently cited as evidence of Aymara’s strong influence on these dialects, and comparative data with these segments are used to argue against the theory of a hypothetical Proto-Quechumaran language, an

\(^2\) All lexical and phonological items, both in the compiled Swadesh 100 List and within the body of this paper, are represented using International Phonetic Alphabet (IPA) symbols.
idea mostly rejected by linguists.

This chapter presents a broad review of various arguments in support of the Aymara Origin Hypothesis as well as in support of the Proto-Quechumaran Hypothesis, as they are henceforth designated. Some of the most crucial sources reviewed are articles and books by Alfredo Torero (1964, 1983, 1998, 2005), Rodolfo Cerrón-Palomino (1982, 1984, 2006), Willem F.H. Adelaar (2004), Peter Landerman (2004), Bruce Mannheim (1991), Gary J. Parker (1969, a & b), and Caroline Orr and William A. Longacre (1968).³ Both sides of the debate make valid arguments and raise claims true to their theoretical loyalties, but these loyalties may fail to speak to every possible outcome of the linguistic situation in discussion. I begin with a review of the claims made by proponents of the Quechumaran Hypothesis, focusing principally on the work of Orr & Longacre (1968) in which they defend their arguments against the probes of Aymara Origin Hypothesis proponents. I then proceed to address several major arguments from scholars compiled in Landerman’s comprehensive 1994 article.

³ See the References page for a full list of literature consulted for this research.
1.2. Review of some arguments for a Proto-Quechumaran language

The most prominent and frequently cited arguments that are made for the occurrence of aspirated and glottalized stop and affricate series⁴ in a hypothesized Proto-Quechumaran language were established by Orr and Longacre (1968). In this work, they applied standard comparative methods to Quechua and Aymara word lists in order to determine the probability of cognacy as opposed to borrowing matches.⁵ They also put forth several reasonable arguments to explain the persistence of modified obstruents in some Quechuan languages—most prominent in Quechua varieties occupying language areas adjacent to the Aymara Sprachraum.

In their work “Proto-Quechumaran”, Orr & Longacre (1968:528) argue the unlikelihood that complex obstruents were borrowed from Aymara into Southern Quechua varieties on the grounds that these purportedly borrowed features were then broadly “extended in wholesale fashion to many native Quechua roots.” They also dispute the case for morphologically restricted importation of complex obstruents into Southern

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⁴ Elsewhere in this work, for the purpose of terminological unity, the aspirated and glottalized (ejective) stops and affricates in Southern Quechua varieties are collectively referred to as “complex obstruents”.

⁵ I define match(ing) as the relationship of words exhibiting similar lexical shapes for any reason. I define cognacy as the relationship between words with similar lexical shapes resulting from common etymology. I use the term borrowing match for those resulting from a borrowing and cognate for those resulting from a shared ancestry. Match(ing) is employed more broadly, as defined here, or when the historical status of the relationship is unknown.
Quechua, stating that “the fact that only one laryngealized\(^6\) stop… occurs per word in Quechua and that such stops occur only in roots, while in Aymara they occur several times anywhere in the stem-affix string” does not necessarily follow since inherited modified stops could have become restricted and ultimately lost in Quechua dialects outside of the overlapping Aymara-Quechua language area (Orr & Longacre 1968:529).

Furthermore, Orr & Longacre (1968:528) suggest that if Quechua and Aymara are related, it would not constitute an uncommon occurrence for Quechua dialects in contact with Aymara to retain features also retained in Aymara and inherited from a hypothesized Proto-Quechumaran language. A comparable development is believed to have taken effect in Andean Spanish, wherein the palatal lateral approximant /ʎ/ is preserved in contrast with the palatal approximant /j/. Lapesa (1980:551) postulates that “it is probable that the conservation of the /ʎ/ in Andean territories has had support in the Quechua and Aymara adstrates, since both languages possess the voiced palatal lateral phoneme; Mapuche also has it…”\(^7\) This contrast came about in Old Castilian and was likely retained in Andean Spanish due at least in part to the influence of the same contrast in Andean indigenous languages (Penny 2002:71).

\(^6\) Orr & Longacre refer to the complex obstruent consonants as “laryngealized”.

\(^7\) This quote from Lapesa (1980:551) was translated by me.
This argument put forth by Orr & Longacre is tenable and, while it offers no evidence for the shared genetic ancestry of the Quechuan and Aru language families, it does make the so-called “Geographic Argument” seem less convincing. This argument claims that only those Quechua dialects that are contiguous to Aymara have complex obstruents, and is used to further the Aymara Origin Hypothesis. A crux in this argument is the distinction between the Cuzco-Collao dialect group and the Ayacucho-Chanka dialect group, the former of which contains complex phonation and the latter of which does not. The Ayacucho-Chanka dialects are distant from Aymara, and so this data thus far checks out with the Geographic Argument (Landerman 1994:341).

Landerman also contends, however, that an inconsistency exists in the geographic featural spectrum between Cuzco-Collao and Ayacucho-Chanka in the Parinacochas and Aymaraes dialects, which exhibit complex phonation but lack several other changes characteristic of purportedly Aymara-influenced Quechua varieties, including some of the syllable-final lenitions and mergers theorized to exhibit a causal relationship with the introduction of complexity into Southern varieties. This would mean, in adherence to the claims of the Geographic Argument, that the Parinacochas and Aymaraes dialects must have borrowed the complex consonants from the Cuzco-Collao dialects since their
language area is not directly adjacent to contemporarily Aymara-speaking areas. This is the position held by Mannheim (Landerman 1994:342). For more on this causal relationship, see Section 1.4.

In order to generate support for the theory that 1) there existed such a language as Proto-Quechumaran and that it was the mother language of modern-day Quechuan and Aru languages; 2) that this Proto-Quechumaran contained complex obstruents whose reflexes persist strongly in Aymara, similarly in Cuzco and Bolivian Quechua, and to a restricted degree in Ecuadorian Kichwa⁸; and 3) that the reason for their retention in Southern Quechua dialects (Cuzco and Bolivian) is contact with another descendant of Proto-Quechumaran that preserved these reflexes (Aymara), it would have to be demonstrated that Ecuadorian Kichwa dialects have differentiated themselves from Southern Quechua dialects through sufficient changes so as to merit an independently classified subgroup, possibly stemming directly from Proto-Quechumaran (Landerman 1994:340). He further questions Orr and Longacre in their declaration of an independent subgroup for Ecuadorian Kichwas by providing data from Torero 1964 in which he presents cognate sets exhibiting strong likenesses between the Southern “complex” varie-

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⁸ Many Ecuadorian dialects contain aspirated stops at bilabial, alveolar, and velar points of articulation, and several feature what is said to be the reflex of an aspirate, namely /φ/.
ties and the Ecuadorian varieties. Some counterexamples are nonetheless also listed, generating a warrant for further research of historical work with the phonology of the Ecuadorian dialects (Landerman 1994:341). He concludes his discussion of this argument by stating that the Ecuadorian varieties apparently do not provide independent evidence of complex obstruents in Proto-Quechua (outside of borrowing from the Incan capital or a close genetic link to the Southern varieties) and thus must be deferred pending further investigation. I perceive an unfortunate lack of definitive evidence for either eventuality, and am not convinced of their validity solely on the basis of these arguments. An array of possible motivations for retention of the plosives exists, and it is naïve to restrict consideration of these motivations to either phonological evolution or a random yet far-reaching borrowing dynamic without also taking into account the possibility of influence from other languages in Ecuador on the Northern varieties, influence from other languages in Southern Peru and Bolivia on the Southern varieties, or other motivations for the radical innovations in the Northern Peruvian dialects. Inconsistencies persist in the data, and the present project does not explore the question of Kichwa contact with neighboring Ecuadorian languages. I therefore echo my academic forebears in deferring a more definitive conclusion until further comparative research is undertak-
en. I do believe, however, that in addition to a closer genetic link, it is also likely that Northern Kichwa borrowed complexity from Southern Quechua during the fifteenth-century Incan expansion.

1.3. The importance of the Ecuadorian dialects in the classification question

Proto-Quechumaran Hypothesis proponents contend that series of aspirated occlusives found in Ecuadorian Quechua varieties constitute sound evidence for a proto-language also containing such features. These aspirated occlusives usually correspond to complex segments in the Southern dialects (Landerman 1994:340). Due to the great distance of these varieties from the Aymara language area, it is theorized that these featural retentions point to an earlier language form containing traces of similar sounds. This point sullies the persuasiveness of the Aymara Origin Hypothesis. It must be that these Kichwa varieties either inherited the complex phonemes or borrowed them, and since no solid alternative motivation for the Ecuadorian aspirate retentions has been presented, I concede credit to the idea. Meticulous consideration of the place of Ecuadorian Kichwa varieties in the Quechuan language family is thus a crucial component of the Proto-Quechumaran theoretical framework, since supporters of the Aymara Origin Hy-
hypothesis argue either for a Cuzco-influenced borrowing dynamic between Southern and Ecuadorian varieties or for a closer Ecuadorian-Southern genetic relationship by positing a more recent split to account for residual aspiration in Ecuadorian varieties (Landerman 1994:340). In this vein, Parker (1969a:74) has posited a Proto-Quechua reconstruction which subgroups Ecuadorian varieties under a hypothesized Proto-Ecuadorian-Southern Quechua alongside the Southern varieties of Cuzco, Bolivia, and Argentina.

Figure 1. Part of Parker’s (1969a) reconstructed Quechua family tree, the so-called Quechua A.⁹

⁹ Taken from Parker (1969:74).
So the Aymara Origin Hypothesis would claim that Proto-Aymaran contained complex features since other Aru languages also contain them (Campbell 1995:158), and that Proto-Quechua did not. Thence it is thought that Proto-Quechua diverged into two major subgroups, one of which diverged further into what are the dialects regarded by this hypothesis, Northern Peruvian, or Proto-Quechua II-A, and Ecuadorian-Southern, or Proto-Quechua II B-C (Parker 1969a:74). The Cuzco and Bolivian dialects, part of the Ecuadorian-Southern subgrouping, experienced various centuries of intimate contact with Aymara, motivating them to acquire both aspirated and ejective stops. Under imperial influence from Cuzco, the Ecuadorian dialects then borrowed from Southern Quechua what Southern Quechua had previously borrowed from Aymara: the complex obstruents. From there it is assumed that through regular sound change the distribution of these modifications was restricted and in some cases lost in Ecuadorian varieties, yielding the present-day situation of bilabial, alveolar, and velar aspirates in some dialects. One such example of a Kichwa variety containing complex phonemes of this sort is described in Section 2.4.

While the aforementioned hypothesis is not immediately dismissible, it begs some questions and leaves several questions unanswered. One such question is whether
Ecuadorian and Southern Quechua varieties must have derived from the same subfamily, since borrowing easily could have occurred without this stipulation. However, if they did emerge from a Proto-Ecuadorian-Southern Quechua, it is not clear whether the theories surrounding this possibility assume a relative chronology that would have Ecuadorian Kichwa inheriting complex obstruents from Proto-Ecuadorian-Southern Quechua (which presumably would have acquired them from Aymara) or the bifurcation occurred prior to the Aymara→Southern Quechua borrowing and then the Southern Quechua→Ecuadorian Kichwa re-borrowing. Neither the hypothesis put forth by Torero (1964) nor Parker (1969a) necessarily precludes one or the other avenue. Moreover, is it more probable for Ecuadorian Quechua to have selectively borrowed complexity from Southern Quechua or to have borrowed all complex segments and then lost some through regular sound change? The answers to some or all of these contentions could pave the way for new theories.

1.4. The productivity of the Causality Argument

This section deals with an argument brought forth by Mannheim (1991) and

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10 Coinage of the terminology for Mannheim’s argument is credited to Peter N. Landerman in Landerman (1994:368-374).
(2014) and addressed by Landerman (1994:368-374) regarding the purported causal relation between the introduction of complex segments in syllable-initial position and the lenition or weakening of stops in syllable-final position in certain Southern Quechua varieties. The data specifically pertaining to the weakening (fricativization) and mergers of syllable-final stops in Southern Peruvian dialects were presented in the work of Mannheim (1991:208-217). Namely, Mannheim proposes that upon acquiring complex obstruents from Aymara in syllable-initial positions, the Southern Quechua varieties embarked on a progression of syllable-final lenitions, deaffrications, depalatalizations, and final affricate aspirations (k > x; q > χ; t > s; p > f > χ; tʃ > f > s), in chronologically successive stages (Mannheim 1991:208-209). Landerman (1994:370) cites the data of an early seventeenth-century Andean linguist to confirm the chronology of the diffusion of complex phonation throughout the varieties prior to the time that the weakenings and mergers were documented. These features are innovative in these dialects in longstanding contact with Aymara, and are unique in the Quechua language area. Mannheim (2014) holds that these changes were triggered by the introduction of complex obstruents into these varieties.

Mannheim (2014) proposes that the introduction, by whatever contact mecha-
nism, of complex obstruents into Southern Quechua both created and corrected an imbalance in the informational load of words by causing far-reaching and phonologically significant coda lenitions. He quotes in his forthcoming paper: “It appears to me plausible… that the systematic erosion of syllable-finals represents an informational compensation (possibly along with the sibilant and palatal mergers) for the incorporation of ejectives and aspirates” (Mannheim 2014:21). This centuries-long chain reaction of sound changes dates at least to the sixteenth century, according to Mannheim (2014:10).

Mannheim’s observations are extremely significant, as they explain the relationship between the introduction of complexity into Southern Quechua and subsequent sound changes in the language. That he does so without conflating the importation of salient phones with sound change to account for Southern Quechua’s aspiration and eactivy is vital. This is the next big step in understanding the Quechua-Aru question.

Recall that the Parinacochas and Aymaraes dialects, spoken between Ayacucho and Cuzco-Collao, exhibit complex phonation but lack what Mannheim (1991) and (2014) reports as phonological changes triggered by introduction of complexity. Landerman (1994:369) identifies a gap in the scope of these changes, pointing out that a number of dialects in the provinces of Parinacochas and Aymaraes which do exhibit
complex obstruents remain unaffected by the weakenings and mergers posited by Mannheim. He moreover objects to Mannheim’s view that complexity was borrowed from Cuzco-Collao into Parinacochas and Aymaraes on account of its selectivity: why would these dialects have borrowed complex phonation from Cuzco, but not the triggered changes such as syllable-final weakenings and mergers? I have several recommendations to offer as possible answers to this question.

Taking into consideration the chronology of these changes, it is plausible that the Parinacochas and Aymaraes dialects borrowed complexity from Cuzco-Collao before it had taken its toll on the functional load of the syllable-final consonants. We do not know exactly what the time window looked like separating the introduction of complex phonation into Southern Quechua dialects from the subsequent manifestation of the syllable-final changes, but Mannheim documented some of these processes over a span of centuries (Mannheim 1991:208-217). Mannheim’s arguments seem to have an upper hand in the matter due to his heavy reliance on and regard to sociolinguistic dynamics throughout history to explain the seemingly constant borrowing relationships between Andean languages. Landerman (1994:369) also concedes that resistance to a change heretofore does not constitute sufficient evidence for disproving these claims, and so a
consensus on this argument must be deferred pending further research.

I would make a yet stronger statement against any claim of conclusiveness based on this observation. Distinct dialects which exhibit shared innovations until a certain point in time are in theory not required to continue sharing innovations once they have diverged. Applied to this scenario, the fact that many Southern Quechua varieties exhibit a correlation between two features, namely, that they seem to have undergone these coda weakenings and mergers as a result of the introduction of complex segments into the lexicon, does not imply that the introduction of complex segments into other varieties (Parinacochas and Aymaraes) must also yield coda weakenings and mergers. Indeed, as they are recognized as dialectologically separate entities, this causation in some dialects does not necessarily have any bearing on whether the same causal dynamic will manifest itself in other dialects, though Mannheim expects this in accordance with universal phonological tendencies pertaining to functional load reallocation. If we do expect a consistent isoglossal pairing to continue developing in the region, as Mannheim projects, then the changes simply may not have manifested yet; it could simply be a temporal question of when the coda lenitions and mergers begin to follow suit in the Quechuas of Parinacochas and Aymaraes Provinces. Landerman’s insistence on pointing
out the non-universality of the occurrence of these changes is an appeal to an inconclusive argument.

A second flaw with the Causality Argument, Landerman (1994:369-370) proclaims, is that there is evidence that these weakenings and mergers occurred in Aymara before they occurred in Southern Quechua. Referring to his citation of the seventeenth-century work (Bertonio 1612), Landerman demonstrates that the proposed changes must have occurred in Southern Quechua after they had manifested in Aymara sometime after the early seventeenth-century time of Bertonio’s work. These changes in Southern Quechua, where applicable hypothesized to have been precipitated by the addition of a complex segment, include the following:

Fricativization of syllable-final plosives

\[ p > \phi; \quad t > s; \quad tf > f; \quad k > x; \quad q > \chi \]

rapra > raφra; utqay > usqʰay; utʃpa > ufʃʰa;

wak > wax; maqtʃʰij > maχtʃʰij

Deaffrication \(tf > f\)

pʃqa > pʰiʃqa

Depalatalization (f > s)

pʰiʃqa > pʰiʃqa

It has been noted that these changes were already documented by Bertonio

\[ ^{11} \text{The addition of modification does not apply to the evolution of maqtʃʰij > maχtʃʰij since this lexical item apparently already contained a palato-alveolar ejective plosive /tʃʰ/.} \]
(1612) as occurring in Aymara, and accordingly, in Quechua loanwords borrowed into Aymara such as tsuq'ul > tsʰuχul “corn”. Landerman contends that these syllable-final lenitions in lexemes borrowed from Quechua occurred in order to align offending Quechua phonotactic structures (namely, occlusives, which include both stops and affricates in syllable-coda position) with the Aymara phonotactic restriction of allowing no occlusives in syllable-coda position (Landerman 1994:371). At least some of these lenitions may well have been applied to Quechua when words containing these changes were re-borrowed into Quechua from Aymara, assuming the various stages of heavy borrowing that were responsible for the transfer of complexity. In seeking out the reasons for one series of changes (complexity), it seems that this development has allowed linguists to trace the genesis of yet another change (a restriction disallowing occlusive segments in coda position), which seems to have been adapted from the so-called Aymara Coda Restriction (Landerman 1994:373). A high rate of co-occurrence between these syllable-final lenitions and modified segments in many lexical items both in Aymara and in Southern Quechua suggests that they are somehow linked, and evidence

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12 To my knowledge, these lenitions have not yielded phonemic contrasts in any Quechua varieties to date. Because of this, throughout this work I use the IPA symbol for the phoneme /χ/ (and not /q/), despite the fact that in many varieties of Southern Quechua these two phones are in free variation, not only in syllable codas, but also in syllable onsets when immediately following certain other consonants.
that they occurred *first* in Aymara may suggest that they shared a co-origin. This however does not constitute *proof* that they must have seeped into the adjacent Quechua language area, and thus for now remains inconclusive.

1.5. *Lexical diffusion by iconicity: Mannheim’s associative lexical influence*

I would like to briefly address Mannheim’s arguments regarding introduction of complex phonation into Southern Quechua by way of selective borrowing and then subsequent spread by sound imagery and associative lexical influence. This theory posits that a limited number of lexical items containing complex phonation were borrowed into Southern Quechua via Aymara, and that these innovations then diffused through the language via semantic links, lexical associations, and imitative sound symbolic (onomatopoetic) phenomena, as synopsized in Landerman 1994:374. Mannheim 2014:8 expands on this theory with this quote from his unpublished forthcoming paper: “Ejectivity was directly placed on the initial oral stop in the process of borrowing a stem with ejectivity or by associative lexical influence.”

While several authors including Mannheim (1991) and Hardman (1985) have accepted the idea of featural diffusion beyond borrowed lexical items in the case of
Southern Quechua and Aymara as being highly probable, Landerman finds this theory to be not sufficiently persuasive to effectively explain the broad scope of the complexity within the lexicon of Southern Quechua. My own observation of widespread imitative sound symbolism in both Quechua and Aymara languages leads me to conclude— as Mannheim does— that the contribution of onomatopoetic structures to diffusion of complex obstruents throughout Southern Quechua lexicons is very likely great. Complex occlusive phones abound in both Quechua and Aymara sound symbolism— I hope in the future to pursue a project documenting the occurrence of such sounds in onomatopoetic expressions in both language families. Landerman seemed to largely dismiss Mannheim’s conclusions, saying that he assumes a distinct world view for Andean peoples as it pertains to their own language and thereby approached the question through his own subjective lens and preconceived standard. While I concur with Landerman that more evidence of these lexical spreads is due, so that their associative lexical influences could possibly be traced to their origins, a mere comparison of Southern Quechua and Aymara onomatopoetic or imitative sound symbolic lexemes would show the important impact of the spread of complex obstruents in these varieties.
1.6. The Aymara origin

This chapter has presented a mere sampling of the myriad arguments that have been brought forth in recent decades in attempts to refute the hypothesis of shared genetic ancestry between Quechuan and Aru languages in the Andes. After considering multiple accounts of the same issues, exploring alleged flaws in various theories as to the origin of Southern Quechua’s aspirate and ejective stops, and myself stumbling across holes in the logic of the challenges to the theory, I am compelled to support the Aymara Origin Hypothesis. The idea that complex obstruents were introduced into Southern Quechua via Aymara is more supported by the available evidence, and Mannheim’s theory of associative lexical influence not only accounts for the wider distribution of these phonemes, but also can be demonstrated by modern onomatopoetic expressions in Quechua and Aymara languages. Both the Causality Argument and the Geographic Argument make strong statements suggesting an Aymara origin. For the purposes of the present work, I adhere to the idea that aspirated and glottalized stops and affricates penetrated into Southern Quechuan languages by way of enduring, intimate contact with Aymara speakers.
Chapter 2: Clues from the Andean past

2.1. The significance of pre-Columbian history

A crux in the hypotheses of historical contact-induced featural importation from Aymara into Southern Quechua is to demonstrate that the Northern Kichwa varieties “descended from or influenced by the [Inca] lingua franca” (Mannheim 1991:42), which contain some reflexes of complex phonation, had a degree of contact with Southern Peruvian Quechua that the Central Quechua dialects did not have. To this end, I have included in my Swadesh compilation a fourth lexical list for interlinguistic comparison. Demonstrating that Central Quechua (Quechua I) varieties remained largely isolated or free of dramatic influence from the Inca lingua franca (and thus from any features that the Inca lingua franca may have acquired from Aymara) should mean that the margin of lexical variation between this fourth dialectal list (Central Quechua I) and the other three (Southern Quechua II-C varieties, Aymara, and Northern Kichwa II-B varieties) would be greater than that of any other cross-dialectal comparison in my Swadesh data.

This chapter explores the pre-Columbian history of Peru and Ecuador in hopes
of understanding the mechanisms of socio-ecological, linguistic, and ethno-historical change that may have been at play, especially up until the point of Spanish colonization.

Alfredo Torero’s (1998) account of the ancient prehistory of the Central Andes paints an appreciable scenario of the post-Neolithic encounters between the region’s major ethno-linguistic groups. As many as 5,000 years ago, the spheres of activity between various civilizational nuclei began to overlap as economies and societies interacted, undeniably propitiating conditions for prolonged periods of intensive language contact and bi- and even multilingualism. It was during this span that the Proto-Aru and Proto-Quechua languages can be said to have reached regional levels of expansion, rooting themselves as the most populous language communities in the area while intermingling to a degree sufficient to occasion mass-scale transfer of linguistic material between them (Torero 1998:602).

The interactions between the Proto-Quechuan and Proto-Aru languages are historical events to which we have limited access. Speakers of the proto-languages co-resided in a common area as early as 400-200 B.C.E. at the time of the consolidation of the Chavín culture in Peru, an event which occasioned first major contacts between the languages (Torero 1998:602). Around 200 B.C.E. the two proto-languages began ex-
panding their territories to what modern-day academics consider to be their original homelands, a process which continued until about 600 C.E. (Torero 1998:605). It is important to observe that evidence does not suggest a time depth for the diffusion of complex phonemes into Proto-Quechua from Proto-Aru that reaches back to this initial period of intense interaction” (Torero 1998:606). Much of the ancient evidence we depend on is archaeological and anthropological.

Following the proto-languages’ initial expansions, they came to occupy overlapping linguistic areas in a territory near to the Peruvian coast, which is said to be the locus of the initial ramification of the Quechua language family into Quechua I and Quechua II (Torero 1998:605). For want of socio-historical data from this period, there is little speculation that can be done regarding this subject, though I suspect this may have been the initial period of lexical swapping that began yielding such structural, lexical, and phonological congruencies as we observe today between Quechua and Aru languages. Some of the lexical items that are categorized in the Unconfirmed Matching Category may have resulted from this period. See Section 3.4 for more on this.
2.2. An overview of ancient Ecuadorian encounters with Quechua

Ancient cultures in what is today Peru achieved a significant degree of commercial trade with civilizations to the north, probably reaching as far north as Mexico. Such commercial (and consequently cultural/religious) exchange likely introduced a Quechuan language to present-day Ecuador. Within the territories of Ecuador itself, a great degree of commercial integration took place, and trade routes extended northward to Mexico and southward to Peru. Quechuan languages, as they probably had the most considerable numbers of speakers during the centuries leading up to the Incan conquests, were likely the varieties of prestige and economy throughout the region. As such, during these times of trade expansion and cultural exchange, a Quechua variety must have been the language of commerce (possibly Proto-Quechua II B-C), and its expansions are thought to have advanced as far north as Quito well before the Incan conquests of Wayna Qhapaq in modern-day Ecuador (Torero 1998:94).

The influences of the imperial conquests of Wayna Qhapaq are better documented, as they occurred within the century immediately preceding the Spaniards’ arrival in the region. The territorial acquisitions of Tupaq Inka Yupanki and Wayna Qhapaq brought the Inca lingua franca as far north as Tumipampa and Quito, in Ecuador, as late
as the latter half of the fifteenth and early half of the sixteenth centuries (Ogburn 2001:365). It is plausible that there were already bilingual sectors of pre-Incan Ecuadorian societies where a variety of Quechua was spoken alongside the local vernacular (Moya 1987:12-13).

In the period following its annexation to Incan territory (Tawantinsuyu), Ecuadorian territory was called Chinchaysuyu and a variety of Quechua was made to be its administrative language. As had occurred in the southern provinces, a situation of bilingualism developed between the local languages and Quechua in the Ecuadorian highlands at the end of the fifteenth century, circa forty years prior to the Spanish invasion and conquest. Moya (1987:13) observes that many historians have postulated a Quechua presence in the Ecuadorian highland region dating from 1000 C.E. due to the aforementioned commercial relations between ancient Andean cultures. Among these authors are Torero (2005):93 and Rojas (1978):49-50. According to Torero (1998:94), the state of active commerce in northern territories propitiated the advance of Quechua II-B before the time of the Incan expansion.

Since little is known about the variety of Quechua that penetrated into the Ecuadorian Highland more than a millennium ago, we take up accounts of its development
from the time of the Spanish Conquest of the Andean Region. Witnessing the wane of Quechua’s significance in commerce and administration accompanying the Spanish arrival and territorial conquests, many communities reassumed speaking their own native languages (Moya 1987:13). The Catholic Church, as well as organs of the Spanish Crown, recognized the power of the Quechua language and Incan culture throughout the region. They began employing Quechua as a general, administrative, and evangelical language during Colonization, even within non-native Quechua-speaking areas; this venture effected a stronger and even wider diffusion of Quechua throughout the region (Moya 1987:14-15).

So it can be summarized that the Ecuadorian and Colombian (Kichwa) varieties were dispersed throughout the northern territories under the regime of the Tawantinsuyu, and further during the colonial period, although some variety of Quechua II likely predated Incan expansion to the Northern Province. The modern-day diversity of Quechuan languages in Ecuador and Colombia can thus be said to reflect aboriginal linguistic substrata, which would have diverged and developed distinctly from one another ever since (Mannheim 1991:16).
2.3. The role of the Inca lingua franca in the pre-Columbian Andes

What kinds of sociohistoric conditions might have precipitated, or even just permitted, the diffusion of Quechua in the Central Andes? What socio-ecological relationships fostered between language groups might have allowed for transfer of features, particularly lexemes and with them, phones? Ethnohistorical evidence suggests that the linguistic landscape of pre-Columbian Southern Peru was highly complex, and therefore potentially conducive to areal diffusion of linguistic features via contact (Mannheim 1991:40). Southern Peruvian Quechua, the most politically influential variety known from the Quechuan family, was paradoxically quite confined in its reach, both geographically and socio-stratally, such that Mannheim (1991:33) describes its influence in territories external to the capital of Cuzco as a “thin overlay” over a linguistic and “cultural mosaic” in the Andean Region. That is, it served as the vernacular language of those indigenous to the Cuzco region, as the language of the ruling elite, and as a regional lingua franca for the territories occupied by the Inca Empire (an administrative language). Despite this administrative function of the Inca lingua franca, historical sources suggest that the Incas did not attempt to impose their language and culture on their conquered peoples wholesale (Mannheim 1991:18). In fact, the Inca state may
have even promoted cultural and linguistic diversity among its conquered populations.

Mannheim (1991:2) remarks that “even though Southern Peruvian Quechua was the administrative language of an expansionist state, before the European invasion, it never became hegemonic, nor was it ever standardized, even in the territory immediately surrounding the Inca capital”. The Inca ruling elite presided over a region fraught with “stable interdigitated multilingualism”, and given the lively and complex state of linguistic diversity and overlap in Inca-conquered territories and the Incas’ tendency to promote said linguistic diversity, it comes as no surprise that the ruling elites exercised a propensity to borrow words from neighboring languages and submit them toward wider use in Southern Peruvian Quechua, and/or in the Inca lingua franca variety of Quechua (Mannheim 1991:59).

Much can be said also about the sociolinguistic situation in Southern Peru and Bolivia prior to the arrival of the Spaniards in the sixteenth century, where Aymara kingdoms reigned from about the twelfth century (Klein 2003:12). Their relative military prowess and strong civilizational roots along and around the shores of Lake Titicaca afforded their language a strong sociolinguistic prestige in the region, which did not begin its wane until the encroachment of the Incas in the decade of the 1460s. Even
then, the Aymaras never fully submitted to the control of the Incan state as did many
other groups, and thus they preserved a considerable degree of sociopolitical and socio-
linguistic power (Klein 2003:16-17).

2.4. The implantation of Kichwa: the ordinary case of Salasaca

Alfredo Torero (1964) suggested that various Ecuadorian dialects borrowed aspi-
rated occlusives from Southern Quechuan varieties under influence from the imperial
Cuzco variety. High correspondence rates between these phonemes and Southern
Quechuan complex obstruents are cited as evidence of this borrowing; however, Gary
Parker (1969a:68) additionally proposes a closer genetic link between Northern Kichwa
and Southern Quechua (as ramified from Central Peruvian Quechua I). There seems to
be sound reason to believe that the preservation of complex consonants in the Northern
Kichwa varieties spoken in Ecuador constitutes a case for a more proximal genetic rela-
tionship (understood as a more recent ramification) between Quechua II-B (Ecuadorian
Kichwa) and Quechua II-C (Southern Peruvian-Bolivian), or for a closer socio-historic
contact relationship between the two, or both.

I spring off Torero’s and Parker’s theories of closer genetic relationships and an
influential lingua franca overlay in supporting the idea that the occurrence of complex consonants in Kichwa varieties can best be explained not by inheritance from a proposed Proto-Quechumaran ancestral tongue; rather, either by way of borrowing by Kichwa speakers of Southern Peruvian Quechua aspirated and glottalized consonants or by a more recent inheritance from the Inca lingua franca, specifically during its epoch of imperial influence. In the following paragraphs, I consider several historical possibilities, and provide ethno-historical accounts of a particular Kichwa-speaking group in Ecuador to substantiate claims of Inca-influenced varieties and their movements northward from former southerly homelands in other corners of the Empire.

I now turn to an example of a Northern Kichwa variety which contains reflexes of the complex consonants occurring in Southern Quechua varieties. If historical sources can make a reasonable argument for the historical mobility of groups speaking said Kichwa varieties in northern territories, and place them in conditions under which they would have been subject to linguistic influence from the Inca lingua franca, then perhaps a sound case can be argued for the transfer of complex consonants into Kichwa varieties by way of some contact mechanism. Data on mitmaq resettlements offer the possibility of addressing the question of this ethno-linguistic mobility precisely to this
end. *Mitmaq* policies “moved entire populations into new locations, sometimes to provide specialized services to the state, sometimes to secure state control over a region” (Mannheim 1991:50). If the Salasaca variety of Quechua II-B already contained complex obstruents upon being relocated to Ecuador during Incan expansion, this might help us to understand how these aspirate consonants traveled so far north in the Quechua Sprachraum.

Salasaca Kichwa is a variety of Quechua II-B with approximately 12,000 speakers, spoken in Salasaca, Pelileo Canton, Tungurahua Province in centermost Ecuador (Masaquiza & Marlett 2008:223). The Salasacans, as a cultural group, maintain in their oral history that they were transplanted from Bolivia to Ecuador by the Incas (Waskosky 1990:1). Ethnohistoric research concurs with this account, resolving that the Salasacans were likely brought to their current homeland by the Inca Wayna Qhapaq in the early years of the sixteenth century as part of a *mitmaq* resettlement operation, placed strategically in territories adjacent to subversive tribal groups for reasons of territorial conquest and political domination (Barriga López 1988:16). Waskosky (1990) warns that though this notion is generally believed, some have voiced skepticism as to its accuracy. These skeptic accounts are, as I understand them, based on linguistic and
toponymic discrepancies regarding the group’s provenance. For more on this subject, see Barriga López (1988:16-21).

Despite there being slightly differing data from two discrete sources, Waskosky (1990) and Masaquiza and Marlett (2008), some general observations about the phonological system of Salasaca Kichwa are salient. There are, as in most other Northern Kichwa II-B varieties, high rates of correspondence of Southern uvular and velar consonants with Salasacan /k/ and /g/ (since they must have been phonetically conditioned changes, there is variation in the correspondences depending on phonological context). We see in Waskosky’s data (Waskosky 1990:7-28) tokens such as /katʃu/, which corresponds to Southern /qatʃu/ ‘grass’; /ungi/, which corresponds to Southern /unqu/ ‘sickness’; /iskun/, which corresponds to Southern /hisq’un/, /isqun/, etc. ‘nine’; /kuʃni/, which corresponds to Southern /q’uʃni/ or /q’usni/ ‘smoke’; /ʃug/, which corresponds to Southern /(h)uk/ ‘one’; /tsunga/, which corresponds to Southern /tʃunka/ ‘ten’, and so forth. These data demonstrate a general collapse of voiceless velars and uvulars into the velar category, though distinguished by voicing according to phonetic conditions. Also expected is the emergence of new phonemes /b/ and /d/, consistent with Kichwa voicing conditions in intervocalic and post-nasal positions, for instance. What is the most strik-
ing about these correspondences, however, is the occurrence of aspirate phonemes at bilabial, alveolar, velar, and possibly palato-alveolar points of articulation /\textipa{pʰ}/, /\textipa{tʰ}/, /\textipa{kʰ}/, /\textipa{tʃʰ}/.\textsuperscript{13} From the meager data at my disposal, these seem to correspond to aspirate and ejective consonants in the Southern Quechua II-C varieties, at least in some measure. For example, Salasaca /pʰunʒa/ corresponds to Southern /pʼuntʃaj/ or /pʼuntʃaw/ ‘day’ (depending on the variety); Salasaca /aʃpʰa/ corresponds with Southern /aʎpʼa/ or /haʎpʼa/ ‘earth’; and Salasaca /tʰinbu/- corresponds with Southern /tʼimpu/- ‘to boil’. In any case, as Masaquiza & Marlett mention, the occurrence of aspirated consonants in Salasaca Kichwa is neither particularly frequent nor productive.

The period of the functional administrative and economic overlay of this Inca lingua franca referred to by Durston (2007), Mannheim (1991), and others likely post-dates the period marked by the enduring contact between Quechua and Aymara languages which occasioned situations of bilingualism conducive to heavy borrowing.

There is strong reason to believe, based on historic documents and archaeo-historic sources about Inca imperial expansion and with it the propagation of the lengua general del Perú in areas not contiguous to Southern Peru and Bolivia (where complex

\textsuperscript{13} Masaquiza & Marlett, in their “Salasaca Quichua” phoneme inventory, have parenthesized the voiceless aspirated palato-alveolar affricate (/tʃʰ/), seemingly for dearth of lexical data containing this sound, though no explanatory statement is provided for clarity.
obstruents are less common and less productive), that Cuzco Quechua enjoyed a substantial level of prestige throughout the imperial territories, especially in other Quechua-speaking areas. The Incan political entity was in a position to raise Quechua to a level of prestige, which could have influenced the directionality of borrowing during the Incan expansion. However, before the epoch of Incan power and therefore Quechua prestige, the two proto-languages co-existed on much more equal footing in adjacent regions, at least until about 500-600 C.E. (Torero 1998:605). It therefore seems that this question ought to be tackled separately, and that in order to do so, we must revert into the further past, earlier than the epoch of the Inca polity and possibly even earlier than the period of the greatest expansion of pre-Incan Quechua.
Chapter 3: Contact and comparative lexicostatistics

3.1. Contact phenomena: the micro-mechanics of language transfer

As an expansion of previous academic work in this field which supposes contact-induced change to account for the strong lexical and phonological commonalities between Southern Quechuan languages and Aymara, I hope to superimpose the theoretical framework proposed by van Coetsem (1988), and propagated by Winford (2013), of a bipartite distinction between mechanisms for transfer of linguistic material between two languages in contact. These two mechanisms are borrowing and imposition. The first section addresses firstly the theory associated with this theoretical unification of concepts, which are applied to the historical setting of the Andes later. A following section takes into account the historical clues at our disposal, focused specifically on the economic, social, and socio-linguistic relationships between the most significant language groups in the Andes prior to European contact, in order to venture an educated guess at which type (or types) of these transfer mechanisms might have been at play between Quechua and Aymara speakers in the Central Andes, as well as the directional-
ity of the transfer.

3.2. *The bipartite distinction of contact-induced transfer mechanisms*

Understanding the contact dynamics that transpired between the two principal Andean linguistic groups is an arduous task for historical linguists, precisely because the nature of these dynamics, as well as their probable oscillations throughout history, are difficult to pinpoint. Contact situations amounting to high levels of bilingualism may result in the shifting both of linguistic dominance relationships (individual speakers shift away from their dominant language to the effect that another language becomes their most dominant) as well as of social dominance relationships (one language gains or loses prestige vis-à-vis another within communities) over time. As Winford (2013:46) declares, “Such shifts in dominance result in differences in the nature and direction of change in the languages in contact.” This is important to consider when positing a hypothetical transfer dynamic and the directionality of its effect.

I follow the theoretical paradigm established by van Coetsem in his 1988 work to identify the different ways that linguistic material can be transferred from language to language in contact situations. His article is an attempt to unify the myriad of different
proposed names for the mechanisms behind contact-induced language transfer, which he
did by classifying all such mechanisms as either borrowing or imposition (van Coetsem
1988:46). van Coetsem (1988) distinguishes between the two mechanisms based on
speaker agentivity. In essence, if a speaker dominant in the recipient language (the lan-
guage which receives the transfer of linguistic material) actively takes material from the
source language, it is referred to as borrowing. If, in turn, a speaker dominant in the
source language (the language from which the transferred linguistic material originates),
when speaking the recipient language, employs features of his dominant language, it is
referred to as imposition. Winford summed up the definition of imposition in his 2013
work, citing "In imposition… the speaker, as agent, is linguistically dominant in the
source language, and hence transfers features of it into his version of the recipient lan-
guage, via SL agentivity, ‘as in the case of a French speaker using his French articulato-
ry habits while speaking English’” (Winford 2013:46).

This theoretical framework is novel in its unification of mechanisms as well as
its preference for psycho-linguistic competence rather than sociopolitical language dom-
inance in distinguishing and labeling the mechanisms at play. As noted above, sociopo-
litical dominance often exerts a considerable degree of influence over which language
speakers are psycho-linguistically competent in. However, the labels of the mechanisms in this unified theory do not take into account social or sociopolitical motives (despite their being frequently determined by these forces), but rather are decided by speaker agentivity. Sociopolitical language dominance is then regarded as a discrete question.

In exploring the relationship between Quechua II-C varieties (Southern) and Quechua II-B varieties (Northern/Ecuadorean), I consider both the possibility of imposition of features by speakers of Southern varieties and the possibility of borrowing of features by speakers of Northern varieties under the sociolinguistic influence of Quechua varieties that may have been perceived as more prestigious speech forms, by virtue of their affiliation with Imperial Cuzco. The mitmaq resettlement ventures of the Incas may be implicated in the development of such a prestige dynamic, since if they were relocated for strategic and/or political reasons, the locals may have associated them with the Incas and adopted their speech patterns accordingly (borrowing).

In the previous section, I established the importance of the occurrences of complex phonation types (phonemic aspiration and glottalization) in the Northern Kichwa varieties, however sparse these occurrences are. In general, Kichwa varieties with complex phonation are central to determining the expanse of featural importation even to the
northern extremities of the pre-Columbian Andes, and more specifically within the far-
uesth reaches of the Quechua language family.

3.3. The Swadesh study: introduction to the methodology and hypotheses

I have compiled a full 100-item Swadesh List for a comparative study of South-
ern Quechua, Aymara, Northern Kichwa, and Central Quechua lexicon. The rationale
behind compilation of a lexical list between these specific languages is to gauge the
likelihood of a strong borrowing relationship between Quechuan languages and Aymara,
due to many centuries and maybe even more than a millennium (Torero 1998) of adja-
cent and overlapping language areas, and additionally between Southern Quechua and
Northern Kichwa, considering the possibility of importation of lexemes when Imperial
Cuzco established a second throne in the northern reaches of its empire in Quito. Specu-
lation regarding this theory can be found in Landerman (1994:340-342), who stream-
lined the idea from data on Salasaca Kichwa compiled by Waskosky (1990). For a more
contemporary review of Salasaca Kichwa data, see Masaquiza & Marlett (2008).

Much ado has been made about Southern Quechua’s having stops and an affri-
cate with different phonation types, as Aymara has, and much postulated about possible
reasons why they are overwhelmingly present in Quechua varieties in language areas adjacent to Aymara’s however meagerly distributed throughout the rest of the Quechuan Sprachraum. For more on the comparative hypothesis advanced by several linguists to explain the occurrence of these complex obstruents, referred to by Landerman (1994:334) as the Aymara Origin Hypothesis, return to Section 1.2.

I utilized various dictionaries for Aymara, Quechua II-B (Northern Kichwa), and Quechua I (Central Quechua), all of which are listed in the bibliography, and checked certain items with native speakers of Aymara and a variety of Quechua I. In addition to consulting a Quechua II-C (Southern Quechua) dictionary, I elicited my Southern Quechua tokens from a native speaker. My Aymara and Southern Quechua informants are my language instructors in these languages, and my Quechua I informant is a former instructor at my institution.14

My hypotheses in this experiment are several, and are enumerated and described in this paragraph:

Hypothesis 1: I expect considerably higher rates of matching between any two Quechua varieties than between any Quechua variety and Aymara, precisely because the Quechua

14 My Southern Quechua (II-C) informant is Luís Morató-Peña, my Aymara informant is Miguel Huanca, and my Central Quechua (I) informant is Félix Julca-Guerrero.
varieties have been demonstrated to share a common genetic ancestor.

Hypothesis 2: I expect to find a marginal number of matches between any Quechua variety, including Southern Quechua, and Aymara—the two languages whose contact-fraught histories inspired this study—in the Swadesh 100 List.

Hypothesis 3: I foresee higher rates of matching between Aymara and Southern Quechua than between Aymara and either Northern Kichwa or Central Quechua. A high number of lexical matches between Aymara and Southern Quechua would suggest either that the level of contact between the groups was so intimate as to defy the tendencies of resistance to borrowing that Swadesh (1955:124-126) discusses in his monumental comparative linguistic work, or that these words have shared etymologies that date back to before periods of intense contact between the languages’ speech communities. Both of these eventualities seem quite unlikely.

Hypothesis 4) As mentioned in Section 2.2, I expect the margin of lexical variation between Central Quechua I and the other three (Southern Quechua II-C varieties, Aymara, and Northern Kichwa II-B varieties) to be greater than that of any other cross-dialectal comparison in my Swadesh data. That is to say, I expect the most innovation and divergence from Central Quechuan varieties.
We can draw conclusions from the emergent data regarding what the matching frequency might indicate about the status of the shared lexicon. For example, a high matching rate between any variety of Quechua and Aymara might imply that the question of common inheritance from a proto-language is still entertainable (since it is unlikely that so many words from the Swadesh 100 List were borrowed between Aymara and Southern Quechua, and they must have come about in a different way other than through borrowing). The results of the lexical comparisons in the Swadesh List show high rates of cognacy between Quechua varieties, as expected. The matching rates between any Quechuan language and Aymara turn out ultimately to be too low to propose common genetic ancestry with any level of confidence.

The results also largely confirm my hypotheses, however with some considerable caveats. For example, the Quechua-Aru Category (see Section 3.4 and Appendix B) contains tokens which co-occur in both Quechuan and Aru languages of any of the varieties surveyed, and represent 29% of the total corpus—a percentage higher than anticipated, nonetheless still in line with the predictions of Hypothesis 2. My Hypothesis 3 technically turned out confirmed, however by the thinnest of margins: 1%. This single token was *feather*, which exhibits a match between Southern Quechua /pʰurʊ/ and Ay-
mara /pʰuju/.

The implications of certain statistical tendencies in the results must also be considered. For example, high rates of shared lexicon and phonological innovations between Northern Kichwa and Aymara should be treated either as evidence of early borrowings between Proto-Quechua and Proto-Aru or as witnesses for an Incan-inspired lexical diffusion. High rates of overlap between Southern Quechua-Ecuadorian Kichwa match pairs and Southern Quechua-Aymara match pairs would suggest that Southern Quechua had indeed borrowed these words from Aymara, and that Northern (Ecuadorian) Kichwa varieties had then re-borrowed them from Southern (Imperial Cuzco) Quechua. Ecuador is sufficiently geographically removed from Southern Peru and Bolivia that, assuming the Quechuan and Aru ancestral language families are not common, the Inca Empire is the only vehicle that had the range and mobility to bring these phonemes so far north. The Aymara civilization would not have been in a position to do this from a Southern Peruvian-Northwestern Bolivian geographic seat.

In this study special attention is afforded to matches containing complex obstruents. I expected sound correspondences to be exhibited among Quechuan languages, some of which contain complex segments. These tokens in the finalized list of 100
words—from any language surveyed—are included in a separate, non-mutually exclusive category labeled the Complexity Category.

This leads into another important aspect of this project, and a later section of this chapter: the socio-historical context that might have permitted extensive lexical (and thereby phonological) borrowing between Aymara and Southern Quechua speakers, and additionally the socio-historical context that would have brought those lexemes (and phones) all the way north to Ecuador. The latter is the simpler argument to make, since the Inca Empire stretched this far north and indeed established an additional (albeit brief) seat of power in Quito less than a century before the European arrival.

The varieties in which these phonemes occur were indeed in contact with Aymara for centuries, both before and during the political conquest of the Incan Empire. This fact may facilitate the suggestion, with a speculative tone, of various stages of both types of contact-induced change described in van Coetsem’s (1988) theoretical framework. I assess this possibility, as well as the mechanism which could be responsible for the matching between Aymara and Southern Quechua.
3.4. Complete results of Swadesh List analysis

As expected of the tripartite list, there are many more solid lexical correspondences to be found between Quechuan languages (and indeed more still between the Southern Quechua and Northern Kichwa varieties) than between Southern Quechua and Aymara. Below the 100 lexical items are divided into six categories, and have additionally included a separate category to address the strong degree of lexical divergence of Quechua I tokens. These are: Category 1: Quechua Cognates (tokens which are indicative of shared etymologies and/or borrowing relationships across all Quechua varieties. This category’s tokens exhibit nearly perfect matching across Quechua varieties only); Category 2: Cuzco Superstratum Matches (tokens which are indicative of the more proximal borrowing relationship between (a) Quechua II language(s) and Aymara, or of the closer borrowing and/or genetic relationship between Quechua II languages); Category 3: Pan-Andean Matches (tokens which are indicative of expansive and far-reaching shared etymologies and borrowing relationships across Quechuan and Aru languages, or pan-Andeanisms.)\(^{15}\) Tokens in this category exhibit matching across all four surveyed languages; Category 4: Other Patterns (tokens which are indicative of some other shared

\(^{15}\) Torero (1998:605) refers to these as “panamericanismos”.
etymology or borrowing pattern, and exhibit an anomalous or rare matching pattern); Category 5: Non-Matches (tokens which are indicative of recent innovations, different lexical retention patterns, and/or exogenous [non-Quechuan and non-Aru] sources of borrowing among the languages); Category 6: Miscellaneous Items (tokens which exhibit exceptional characteristics which require that they be categorized miscellaneously and otherwise accounted for). A complete legend of the category content is provided below, as well as in Appendix B. The full Swadesh 100 List is attached to this work as Appendix A.

Category 1: Quechua Cognates

Model:

*English gloss*/Southern Quechua/ ~ /Aymara/ ~ /Northern Kichwa/ ~ /Central Quechua/

*star*/qujʃur/ ~ /warawara/ ~ /kujʃur/ ~ /qajʃur/, /qujʃur/

*cloud*/puhju/ ~ /qinaja/ ~ /puju/ ~ /pukutaj/

*water*/jaku/ ~ /uma/ ~ /jaku/ ~ /jaku/

*smoke*/q’uʃni/, /q’uʃni/ ~ /xiwq’i/ ~ /kuʃni/, /kusni/ ~ /kuʃni/, /kusni/, /quʃ/ntaj/, /qusqi/

*sand*/t’iju/, /aqu/ ~ /tʃ’aʃa/ ~ /tiju/ ~ /aqu/

47
stone /rumi/ ~ /qala/ ~ /rumi/ ~ /rumi/, /lumi/

mountain /urqu/ ~ /quₕu/ ~ /urku/, /satʃa/ ~ /ulqu/

ash /usϕa/, /uʃpa/ ~ /qʰiʃa/ ~ /uʃpa/ ~ /utʃpa/, /utʃpa/

earth /haʃp’a/ ~ /laq’a/ ~ /aʃpa/ ~ /aʃpa/, /alpa/

we (incl.) /nuqantʃi/, /nuqantʃi/, /nuqantʃis/, /nuqantʃi/ ~ /xiwasa/ ~ /juqantʃi(k)/

/n/nuqants/tʃi(k), /nuqantʃi(k)/, /jaqantʃi/

that /tʃaj/ ~ /uka/ ~ /tʃaj/, /tʃij/ ~ /tʃaj/, /haj/

who? /pi/ ~ /kʰiti/ ~ /pi/ ~ /pi(m/n)/

not /mana/ ~ /xani-/ ~ /mana/ ~ /mana(n)/

all /tukuj/ ~ /tʃaptʃa/ ~ /tukuj/ ~ /kapaj/, /kapan/, /tʃipʃaj/, /tʃipʃan/, /tukuj/

many /aʃkʰa/ ~ /walxa/ ~ /atʃka/ ~ /antsaj/, /aʃapa/, /aʃapi/, /kamaʃ/, /atʃga/, /atʃka/

one /(h)uk/ ~ /maja/ ~ /ʃuk/g/ ~ /ʃ/huk/

two /iskaj/ ~ /paja/ ~ /iʃkaj/, /iʃki/ ~ /iʃkaj/

man /qʰari/ ~ /tʃatʃa/ ~ /kari/ ~ /kari/, /r/nuna/, /uʃqu/

person /runa/ ~ /xaqi/ ~ /runa/ ~ /nuna/

bird /p’isqu/ ~ /xamatʃi/ ~ /piʃku/, /piʃu/ ~ /piʃqu/

dog /alqu/ ~ /anu/ ~ /aʃku/, /alku/ ~ /aʃqu/, /alqu/, /aʃuti/
louse /usa/ ~ /lap’a/ ~ /usa/ ~ /usa/, /uha/, /uwa/

seed /muru/ ~ /xat’h/a/ ~ /muju/ ~ /muhu/, /muru/, /mulu/

bark /'(satʃ’a) qara/ ~ /quqasi,ɒpʰi/ ~ /jurakara/ ~ /qara/, /qalan/

skin /qara/ ~ /xantʃi lip’itʃi/ ~ /kara/ ~ /qara/, /uta/

blood /jawar/ ~ /wila/ ~ /jawar/ ~ /jawar/, /jajar/

bone /tuʎu/ ~ /tʃ’aka/ ~ /tuʎu/ ~ /tuʎu/

grease /wira/ ~ /lik’i/ ~ /wira/, /wiswin/ ~ /wira/, /wila/

egg /runtu/ ~ /k’awna/ ~ /lulun/ ~ /runtu/, /luntu/, /uru/, /lulu/

tail /tʃupa/ ~ /witʃ’inkʰa/ ~ /tʃupa/ ~ /tʃupa/, /tʃupa/

hair /tʃuktʃa/ ~ /niʃ’uta/ ~ /aktʃa/ ~ /tʃuktʃa/, /aqtʃa/, /aqtsa/

ear /ninri/, /rinri/ ~ /xintʃu/ ~ /rinri/ ~ /rinri/, /linli/

nose /sinqa/ ~ /nasa/ ~ /sinka/ ~ /sinqa/

mouth /simi/ ~ /laka/ ~ /ʃimi/ ~ /simi/, /ʃimi/

tooth /kiru/ ~ /laka tʃ’a/ ~ /kiru/ ~ /kiru/, /kilu/

tongue /qaʎu/ ~ /layʃa/ ~ /kaʎu/ ~ /qaʎu/

foot /tʃaki/ ~ /kaju/ ~ /tʃaki/ ~ /tʃaki/, /tʃaki/

hand /maki/ ~ /ampa/ ~ /maki/ ~ /maki/
belly /wiksa/, /wisa/ ~ /puraka/ ~ /wiksa/ ~ /wiksa/, /pata/

heart /sunqu/ ~ /łuqu/ ~ /junqu/ ~ /junqu(n)/, /pujwa/

drink /ukja-/ ~ /uma-/ ~ /upja-/ ~ /upja-/ 

eat /mikʰu-/ ~ /manq’a-/ ~ /miku-/ ~ /miku-/ 

bite /k⁽ʰ⁾ani-/ ~ /atʃa-/ ~ /kani-/ ~ /kani-/, /ani-/, /amu-/ 

see /riku-/ ~ /upxa-/ ~ /riku-/ ~ /rika-/, /rika-/, /rirqu-/ 

sleep /puɲu-/ ~ /iki-/ ~ /puɲu-/ ~ /puɲu-, /punu-/ 

die /waɲu-/ ~ /xiwa-/ ~ /waɲu-/ ~ /waɲu-, /wanu-, /ajwarpu-, /paːsa-/ 

kill /waɲutʃi-/ ~ /xiwaja-/ ~ /waɲutʃi-/ ~ /waɲutʃi-/, /waɲutsi-/ 

fly /pʰawa-/ ~ /xala-, /χala-, /tʰuqta-/ ~ /pawa-/ ~ /parpaːri-, /pahaːri-, /paːli-/ 

walk /puri-/ ~ /sara-/ ~ /puri-~ /puli-, /puri-/ 

come /hamu-/ ~ /xuta-/ ~ /jamu-/ ~ /jamu-, /ajwamu- 

lie /siri-/ ~ /winku-/ ~ /siri-~ /patsaːku-/ 

sit /tijaku-/ ~ /qunt’asi-/ ~ /tijari-/ ~ /tajku-, /tʃaku-, /tʃunku-, /tunku- 

give /qu-/ ~ /tʃura-/ ~ /ku-/ ~ /qu-/ 

say /ni-/ ~ /sa-~ /ni-~ /ni-/ 

moon /kiʎa/ ~ /pʰaxi-/ ~ /kiʎa/ ~ /kiʎa/
burn /rupʰa/- ~ /pʰitʃʰa/-, /qʰatira/- ~ /rupa/- ~ /lupa/-, /kaɲa-/, /akatʃa/

red /puka/- ~ /tʃupika/- ~ /puka/- ~ /puka/

white /juraq/- ~ /xanq'u/- ~ /jurak/- ~ /julaq/, /utku/

black /jana/- ~ /tʃʻiʃara/- ~ /jana/- ~ /jana/

night /tuta/- ~ /aruma/- ~ /tuta/- ~ /tuta/

full /huntʼa/, /hɪnʰa/- ~ /pʰuqa/- ~ /huntak/, /t(h)unda ~ /hunta/

dry /tʃʼaki/- ~ /wana/- ~ /tʃʻaki/- ~ /tʃaki/, /tsaki/, /ʃupiʃ/

sixty-two tokens; 62% of total corpus

These words are indicative of shared etymologies (and/or borrowing relationships) across all Quechua varieties. The tokens share obvious etymological histories within the Quechuan language family and contrast sharply with their Aymara counterparts in form.

Tokens in this category contain lexical items which share cognacy across Quechua varieties and distinguish from Aymara lexical form. Category 1: Quechua Cognates, with its 62% cognacy rate, is largely telling of the genetic relationship between Quechuan languages. This category represents those words which exhibit characteristics of Quechuan etymology, and do not seem to exhibit a shared etymology with
Aymara. The possibility that some of the words in this category are also imported from a superstratal Quechua variety from the epoch of the Inca Empire, and therefore could be better considered as borrowed forms instead of inherited forms, is not relevant to this project, and so is disregarded in the analysis.

Also notable about this category is that its cognate sets are perfect across all Quechuan languages surveyed—this means that we find cognacy across all of the distinct varieties of Quechua. It was brought to my attention by my advisor that a 62% cognacy rate is strikingly low for languages considered to be closely related. It seems to me that, especially given that Quechua I is considered to be of a completely different branch of the Quechua family tree, 62% perfect cognacy is a formidable quota.

For comparison to other comparative linguistic studies, McMahon, Heggarty, McMahon & Slaska (2005:150) state that “traditional estimates”, such as those of Cerrón-Palomino (2000) and Adelaar (1986) claim between 20% and 30% of shared vocabulary between Quechua and Aymara. As a general overview of the science of lexicostatistics and glottochronology, Starostin (1989:3-4) comments that it is well known that “closely related languages (such as those within the Slavic, Romance, Germanic or Turkic groups — that is those which diverged around one and a half to two thousand
years ago) share from 70 to 80% of items on this list, and language families such as Indo-European which split up five or six thousand years ago have a rate of 25 to 30%.

Once we start to talk about more ancient families such as Uralic or Altaic we find a rate of at most 10 or 20 percent.” We can for the sake of comparison envision this 62% pan-Quechuan cognacy rate somewhere between Starostin’s citations of closely related languages and entire language families that split up five or six thousand years ago, though closer to the former since Proto-Quechua is believed to have ramified between 1,300 and 1,500 years ago. While my findings do not quite conform to traditional lexicostatistical parameters, the exceptionally significant role of borrowing established by the Incan imperial policies of integration, relocation, and the resultant far-reaching acculturation of ethnolinguistic groups in the Andes cannot be discounted from the equation.

In addition to phonological clues, there is an interesting morphological interplay to be observed in the matching dynamic of the token *bark*. In all four languages, the lexical items mean literally “skin”, or “tree skin”, as is also evidenced by comparison to the token *skin*. It is possible that some sort of contact-induced transfer is culpable in this coincidence— it is likely that a calquing of one language’s lexical form took place at some point. We end up with two semantic (and lexical) elements in three of the four
tokens, one of which (/qara/ ~ /kara/ ~ /qara/, /qalan/) exhibits cognacy across all three
of the Quechua varieties. Approached from a morphological standpoint, the words seem
to have been calqued from the original Aymara into the Quechua varieties, or possibly
vice versa.

Category 2: Cuzco Superstratum Matches

feather /pʰuru/ ~ /pʰuju/ ~ /patpa/ ~ /lapla/

path /jan/, /pan/ ~ /tʰaki/ ~ /pan/, /nambi/ ~ /kaminu/

yellow /qʰiʎu/ ~ /qʰiʎu/ ~ /kiʎu/ ~ /tunquʃ/

hot /rupʰa/ ~ /tʃixu/, /xunt’u/ ~ /rupaj/ ~ /akatʃaq/, /akaʃaq/

cold /tʃiri/ ~ /tʰaja/ ~ /tʃiri/ ~ /alalaq/

round /muju/ ~ /muruq’u/, /muju/ ~ /muju/ ~ /ruːɾu/, /(r)ujru/, /ujlu/

six tokens; 6% of total corpus

These tokens are indicative of the more proximal borrowing relationship be-
tween (a) Quechua II language(s) and Aymara or of the closer borrowing and/or genetic
relationship between Quechua II languages. I take the numbers in this category to evi-
dence the more proximal genetic relationship between Quechua II languages (Quechua
II-B or Northern Kichwa and Quechua II-C or Southern Quechua), and possibly also a
stronger borrowing relationship between them. The few tokens that are shared between
Quechua II languages and Aymara offer insight into historical contact-induced lexical
commonalities.\footnote{In the case of \textit{round}, the words I found in the Spanish-Aymara dictionary by Juan Francisco Deza Galindo (1989:257) were /muju/ and /muruq'u/; however, when I checked these lexemes with my Aymara informant, he preferred /muruq'u/, citing that he thought /muju/ “quizás sea quechua”.}

Category 2: Cuzco Superstratum Matches, along with Category 3: Pan-Andean
Matches, represents some of the most important data for this study, since they may
comprise evidence of a contact-induced borrowing (or imposition) relationship. Of Cat-
egory 2: Cuzco Superstratum Matches, only one single token seems to be shared be-
tween Aymara and Southern Quechua \textit{only}; in Category 3: Pan-Andean Matches, there
is a higher rate of matching, at twenty-one total tokens and 21\% of the corpus.

Three important points emerge from these data. The first is that the rates of
matching of Swadesh words between any of the three Quechua varieties and Aymara
are quite low. These include a combination of Category 2: Cuzco Superstratum Matches
and Category 3: Pan-Andean Matches, plus items \textit{leaf}, \textit{horn}, \textit{head}, and \textit{swim} from Cate-
gory 4: Other Patterns and \textit{good} from Category 6: Miscellaneous Items. These tokens
are included in a separate and non-mutually exclusive category dubbed the Quechua-
Aru Category, found below. This category contains 29% of the total corpus.

The second point is that many of those items which seem to be shared by one or both of the Quechua varieties and Aymara are so close in form and pronunciation that they did not undergo some of the sound changes observed in native (or earlier borrowed) lexemes in the language. Take for example the common shapes of Category 3: Pan-Andean Matches tokens such as *sun, fire, woman, fish, or stand* (tokens listed in the category listed below). The sound correspondences between Northern Kichwa and Southern Quechua are nearly perfect: uvular consonants in Southern Quechua (of any phonation type) correspond to velar consonants in Northern Kichwa, as in *knee* //qunqr// ~ //kunguri// (voiced or voiceless depending on the phonological context), and alveolar sibilants in Southern Quechua correspond to post-alveolar sibilants in Northern Kichwa, as in *stand* //siri//- ~ //ʃiri//. The Southern Quechua-Aymara correspondences are exact, however: perfect phonological correspondence due to nearly identical phonological inventories, though radically different phonotactic systems (Stark 1975:211).

The third point is that the data from these two categories suggest that if these matching rates are indeed indicative of contact as opposed to inheritance, which I suspect, the words were borrowed into (or imposed upon) Southern Quechua before the
Spanish invasion and subsequently imported to Northern Kichwa. The politico-historical scenario for said importation is proposed by the fact that a secondary imperial throne was established by the Incan Empire approximately fifty years before the arrival of the Spaniards. I suspect that the shapes of Category 3 tokens are far too similar to propose a borrowing period as remote as that which operated during proto-language times.

Category 3: Pan-Andean Matches

sun /inti/ ~ /inti/ ~ /inti/ ~ /inti/ 

fire /nina/ ~ /nina/ ~ /nina/ ~ /nina/ 

I /nuqa/, /nuqa/ ~ /naja/ ~ /juka/, /juka/ ~ /nuqa/, /nuqa/, /jaqa 

you /qan/, /qam/ ~ /xuma/ ~ /kan/ ~ /qam/ 

this /kaj/ ~ /aka/ ~ /kaj/, /ki/ ~ /kaj/ 

what /ima/ ~ /kuna/ ~ /ima/ ~ /ima/ 

big /hatun/ ~ /hatun/ ~ /hatun/ ~ /hatun/ 

small /hutʃˈuʃ/ ~ /xiskˈa/ ~ /utʃˈiʃa/ ~ /utʃˈuʃa/, /utʃˈuk/, /itʃˈik/, /takʃa/, /akapa/ 

woman /warmi/ ~ /warmi/ ~ /warmi/ ~ /warmi/, /walmi 

fish /tʃaˈwa/ ~ /tʃaˈwa/, /tʃawˈa/ ~ /tʃawˈa/ ~ /tʃawˈa/
root /sapʰi/, /sapi/ ~ /sapʰi/ ~ /sapi/ ~ /matsu/, /watsu/, /matsi/, /watsi/, /ha(q)wa/, /sipi/, /pisi/

eye /nawi/ ~ /najra/ ~ /nawi/ ~ /nawi/, /nawi/

claw /siʎu/ ~ /siʎu/ ~ /ʃiʎu/, /ʃiʎu/ ~ /ʃiʎu/

knee /qunqu/ ~ /qunqu/ ~ /kunguri/ ~ /qunqu(r)i/

neck /kunka/ ~ /kunka/ ~ /kunka/, /kunga/ ~ /kunka/

breasts /ɲuɲu/, /tʃutʃu̯/ ~ /ɲuɲu/ ~ /ɲuɲu/, /tʃutʃu̯/ ~ /ɲuɲu/, /ɲuɲu/, /tʃutʃu̯/, /tʃitʃi/

know /jatʃa-/ ~ /jati-/ ~ /jatʃa-/ ~ /jatʃa-/, /jatʃa-/.

stand /saja-/ ~ /saja-/ ~ /ʃaja-/ ~ /ʃajku-/ ~ /ʃalku-

flesh /ajtʃa/ ~ /ajtʃa/ ~ /ajtʃa/ ~ /ajtʃa/

new /musuq/ ~ /matʃaqa/ ~ /muʃu(k)/ ~ /muʃuq/

name /suti/ ~ /suti/ ~ /ʃuti/ ~ /suti/, /huti/, /ʃuti/

twenty-one tokens; 21% of total corpus

These matches are indicative of expansive and far-reaching shared etymologies and borrowing relationships across Quechuan and Aru languages, or pan-Andeanisms. Tokens in this category exhibit matching across all four surveyed languages. If approached from a perspective of vast borrowing instead of genetic inheritance, this cate-
gory’s data certainly serve as a strong indicator of an intricate and influential borrowing dynamic in the pre-Columbian and even pre-Incan Andes.

Much has been said about shared matches across multiple Andean languages, including Mapudungun, spoken in the south of Chile and Argentina. As noted earlier, Torero (1998:605) has labeled this phenomenon “panamericanismos” in reference to a rather open linguistic “policy” of borrowing in the pre-Columbian Andes, and comments extensively on the shared lexicon in his work (1998:604-605). For more on this, see Mannheim (1991:59). This is consequential for the consideration of this linguistic question within a broader context of socio-history. The theoretical ramifications of this could be significant. Considering that words as basic as name are matches /ʃuti/ ~ /ʃutʃi/ shared between Quechua II-B (Northern Kichwa) and Jaqaru (Hardman 1985:629), a language of the Aru family spoken in the Yauyos Province of the Lima Department of Peru, it certainly raises eyebrows that in languages as geographically remote and genealogically unrelated as Mapudungun, the words /miʃki/ ‘sweet’, /aŋti/ ‘sun’, /tʃaɬwa/ ‘fish’, /katʃu/ ‘grass’ are documented (Hernández Sallés, Ramos Pizarro & Cárcamo Luna 1997). Each of these lexemes is shared with various Quechua varieties and some also with Aymara, and two of them are additionally found in the Swadesh List in this
study. Widespread, frequent, and systemic borrowing was indeed an Andean phenomenon even prior to the European arrival, and this must be taken into account when considering the bigger picture.

Category 4: Other Patterns

- **rain** /para/ ~ /xaʎu/ ~ /tamja/ ~ /tamja/

- **tree** /satʃ'a/ ~ /quqa/ ~ /jura/ ~ /satʃa/, /hatʃa/, /qiru/, /qilu/, /munti/

- **leaf** /rapʰi/, /laqʰi/ ~ /lapʰi/ ~ /panga/ ~ /rapʰai/, /rapʰu/, /matu/, /lapʰa/, /panka/

- **horn** /waqɾa/ ~ /waχɾa/ ~ /katʃu/ ~ /waqɾa/, /waqla/

- **head** /uma/ ~ /p'iqi/ ~ /uma/ ~ /uma/, /piqa/

- **swim** /wajt'a/- ~ /tuju/- ~ /wajta/- ~ /tuj(t)u/-, /arma/-

*six tokens; 6% of total corpus*

These matches are indicative of some other shared etymology or borrowing pattern. The matching patterns represented in this category are any other miscellaneous dynamic considered to be exceptional or rare. These include matching between Northern Kichwa and Central Quechua (*rain*); between Southern Quechua and Central Quechua (*tree*); between Southern Quechua and Aymara and Northern Kichwa and Central
Quechua (*leaf*); between Southern Quechua, Aymara, and Central Quechua (*horn*); between all three Quechua varieties *and* Aymara and Central Quechua (*head*); and finally, between Southern Quechua and Northern Kichwa *and* Aymara and Central Quechua (*swim*). Several of these items, such as *head*, may be subcategorized as exhibiting what I dub a ‘split match’, implying multiple matching patterns within a single lexical item across languages. Such a category has not been organized. These tokens, while their distinctive nature seems to beg explanation, comprise a percentage of the total corpus that I consider to be sufficiently insignificant to discard.

The token *horn*, for instance, unlocks a matching pattern shared between Southern Quechua, Aymara, and Central Quechua, but not Northern Kichwa (a dialect group which is said to share a more recent ancestor with Southern Quechua than with Central Quechua). The shared matching with Aymara is easily explainable given the long duration of contact events with Quechuan languages. There could be a number of motives behind this shared matching pattern, such as a chance non-retention of the form found in the other surveyed languages for this particular lexeme in Northern Kichwa. Since each of the matches in this category is a singular event and does not recur elsewhere in the list, I choose to disregard them.
Category 5: Non-Matches

*long* /karu/ ~ /wiskʰaɾa/ ~ /suni/ ~ /ʃututu/, /ʃutqu/, /hatun/

*liver* /kukupin/ ~ /k’iwtʃa/ ~ /janaʃungu/ ~ /natin/, /natiːu/, /natin/

*green* /q’ümir/ ~ /tʃ’unŋa/ ~ /wajya/ ~ /birdi/

**three tokens; 3% of total corpus**

These words are indicative of recent innovations, different lexical retention patterns, and/or exogenous (non-Quechuan and non-Aru) sources of borrowing among the languages. Tokens in this category show no obvious matching across the four languages surveyed. An example is shown below. I see no reason to assume any semblance of lexical form matching between these tokens.

<table>
<thead>
<tr>
<th>liver</th>
<th>Southern Quechua</th>
<th>/kukupin/</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aymara</td>
<td>/k’iwtʃa/</td>
</tr>
<tr>
<td></td>
<td>Northern Kichwa</td>
<td>/janaʃungu/</td>
</tr>
<tr>
<td></td>
<td>Central Quechua</td>
<td>/natin/, /natiːu/, /natin/</td>
</tr>
</tbody>
</table>
Category 6: Miscellaneous Items

*hear* /ʊjari-/ ~ /ɪstʃu-/ ~ /ʊja-/ ~ /ʊja(li)-/, /wija-/

*good* /aʎin/, /suma/, /kusa/, /waliq/ ~ /suma/, /kʰusa/, /waliki/ ~ /aʎi/, /ali/, /balik/ ~ /aʎi(m)/, /ali/

two tokens; 2% of total corpus

Tokens exhibiting an anomalous or experimentally problematic nature which requires that they be categorizedmiscellaneously and otherwise accounted for. This section includes individual analyses and alternative explanations for each of the two tokens.

This category serves as this study’s “miscellaneous category”. It contains two tokens whose anomalous nature I believe merit external explanation, though they are ultimately discounted.

In the case of *hear*, all of the tokens are unequivocally borrowings from Spanish *oír* and *escuchar* and therefore can be discarded from the data pool. In the case of *good*, I was presented with a particularly puzzling predicament, since there are several words with extremely similar meanings and marginal degrees of discrepancy in their semantic values (another case of “split match”). It turns out, according to my dictionaries and informants, that of the four lexical variants, one occurs in all three Quechua varieties
(/aʎin/ ~ /aʎi/, /ali/ ~ /aʎi(m)/, /ali/), two occur in only Southern Quechua and Aymara (/sumaq/ ~ /suma/ and /kusa/ ~ /kʰusa/), and one occurs in all but Quechua I (/waliq/ ~ /waliki/ ~ /balik/).

The abovementioned categories all form a part of the whole; that is, the totality of the 100 items on the Swadesh 100 List. They constitute a percental piece of the pie and together sum to all tokens represented in this study. The following four categories, the Unconfirmed Matching Category, the Quechua I Divergence Category, the Quechua-Aru Category, and the Complexity Category differ from the previous in that they are neither mutually exclusive from one another nor from Categories 1-6. I have designated them in order to be candid in my evaluation, and also to shed light on certain elements not emphasized in the numbered categories.

The Unconfirmed Matching Category is included in order to admit my own uncertainty in judgment of whether the forms constitute matches. I included these tokens all in numbered categories as well, based on what I suspect to be their statuses.

The Quechua I Divergence Category is included in order to emphasize the great degree of lexical divergence of Central Quechua from all the other languages in this study. Parker’s (1969a:76) remarks align accordingly with this observation: “The QB
[Quechua I] area shows a complex distribution of isoglosses such that the relationships between dialects cannot be adequately represented in a tree diagram alone.” Varieties of Quechua I, as I found in this study, contain lexical forms that are found in none of the other languages surveyed, even if some of the words could be matched with matches across the other languages. This is testament to the incredible diversity found within the Quechua I languages, as well as to the fact that even if there is cognacy with other Quechuan languages in one or more varieties, there are just as many Quechua I varieties in which there is none.

The Quechua-Aru Category is merely a compilation of Swadesh tokens which exhibit matching between a Quechuan and an Aru language. The tokens are collected from three separate categories (Category 2: Cuzco Superstratum Matches, Category 3: Pan-Andean Matches, Category 4: Other Patterns, and Category 6: Miscellaneous Items), and serve as a measure of the general freeness of lexical transfer between major Andean languages.

Lastly, the Complexity Category is another non-mutually exclusive category containing tokens which exhibit complex segments (aspiration or ejectivity) in the Southern Quechua variety.
Unconfirmed Matching Category

know /jatʃa-/ ~ /jati-/ ~ /jatʃa-/ ~ /jatʃa-/ /jatʃa-/

eye /nawi/ ~ /najra/ ~ /nawi/ ~ /nawi/ /nawi/

small /hutʃˈuʃ/ ~ /xisk’a/ ~ /utʃiʃa/ ~ /utʃujə/, /utʃuk/, /itʃik/, /takʃa/, /akapa/

big /hatun/ ~ /xatʃə/ ~ /hatun/ ~ /hatun/

I /nuqa/, /nuqa/ ~ /naja/ ~ /nuka/, /juka/ ~ /nuqa/, /nuqa/, /jaqa/

you /qan/, /qam/ ~ /xuma/ ~ /kan/ ~ /qam/

this /kaj/ ~ /aka/ ~ /kaj/, /ki/ ~ /kaj/

what /ima/ ~ /kuna/ ~ /ima/ ~ /ima/

eight tokens; 8% of total corpus

This category contains eight tokens which seem to exhibit a degree of matching, however cannot be demonstrated to exhibit regular sound correspondence. This is possible, I propose, due to early borrowings between Proto-Quechua and Proto-Aru. The shapes of the words in question are suggestive of early shared lexicon, and some might suggest possibly even vestiges of early shared ancestry. This prospect is not further explored in this paper.
I have identified items in this category as resembling each other to a substantial degree as to guess at their common origins, however lacking sufficient evidence to establish with conviction their historical statuses. The criterion I use to differentiate obvious matches from unconfirmed ones is as follows: the regularly observed sound changes do not manifest in the token. An example of such an unconfirmed matching set can be seen below.

<table>
<thead>
<tr>
<th>small</th>
<th>Southern Quechua</th>
<th>/hutʃˈuʃ/</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aymara</td>
<td>/xisk’a/</td>
<td></td>
</tr>
<tr>
<td>Northern Kichwa</td>
<td>/utʃiʃa/</td>
<td></td>
</tr>
<tr>
<td>Central Quechua</td>
<td>/utʃujʃa/, /utʃuk/, /itʃik/, /takʃa/, /akapa/</td>
<td></td>
</tr>
</tbody>
</table>

The item *small*, additionally assigned to Category 3: Pan-Andean Matches, may exhibit matching across the four languages surveyed, assuming that the rough matching with Aymara /xisk’a/ is indeed the product of an ancient contact event between Proto-Quechua and Proto-Aru. The diversity of lexicon in Quechua I is also too great to refer to this token as simply a perfect Quechua cognacy pattern, hence the token’s as-
ignment to Category 3: Pan-Andean Matches, the Unconfirmed Matching Category, as well as the Quechua I Divergence Category. At first glance, the shapes of the words in this unconfirmed matching set seem quite dissimilar. Upon closer examination, however, we notice in all tokens a word-initial dorsal fricative, a word-medial intervocalic consonant cluster including a sibilant obstruent, and discrepant fates for the final syllable. These form similarities might seem adequate to classify these words as matches. A problem with this analysis arises, however, since Mannheim 2014 identifies the initial /h/ as coming about via sound change regularities (albeit triggered by an external force): prothesis in Southern Quechua as opposed to apheresis in other Quechua varieties.\(^1\)

This certainly casts doubt on the prospect of the Quechua /h/ and the Aymara /x/ matching up across matching sets. Such uncertainties warrant an alternative explanation, and thus are placed in this category. Several of the other words in this category, such as this and eye, contain even more evocative form congruencies that are slightly less puzzling.

Much has been made of the correspondence between Quechua /jatʃa-/ and Aymara /jati-/ (Hardman 1985:632). Historical evidence suggests that at the time such ancient items are assumed to have diffused, these sounds /ʃ/ and /t/ in question (in the

proto-languages) were identical */tʃ/ and */tʃ/. Regarding such assumed sound correspondences from earlier (putatively borrowed) words, McMahon et al. (2005:151) remark: “We are left with precious few truly regular correspondences in different sounds at the level of the proto-languages: certainly not enough to constitute compelling evidence of common origin”. I am inclined to agree with this opinion.

Quechua I Divergence Category

all /tukuj/ ~ /taqpatʃa/ ~ /tukuj/ ~ /ʔapaj/, /ʔapan/, /tʃipjaj/, /tʃipjan/, /tukuj/

many /aʃkʰa/ ~ /walxa/ ~ /atʃka/ ~ /antsaj/, /aʔapa/, /aʔapi/, /kamaʃ/, /atʃga/, /atʃka/

small /hutʃuʃ/ ~ /xisk’a/ ~ /utʃiʃ’a/ ~ /utʃuʃaʃa/ ~ /utʃuk/, /itʃik/, /takʃa/, /akapa/

man /qʰari/ ~ /tʃatʃa/ ~ /kari/ ~ /kari/, /ɾ/nuna/, /uʃqu/

dog /alqu/ ~ /anu/ ~ /aʔku/, /alku/ ~ /aʔqu/, /alqu/, /aʃuti/

skin /qara/ ~ /xantʃi lip’iʃi/ ~ /kara/ ~ /qara/, /uta/

belly /wiksa/, /wisa/ ~ /puraka/ ~ /wiksa/ ~ /wiksa/, /pata/

heart /sunqu/ ~ /uʃqu/ ~ /ʃungu/ ~ /ʃunqu(n)/, /pujwan/

bite /k(ʰ)ani-/ ~ /atʃxa-/ ~ /kani-/ ~ /kani-, /ani-, /amu-

see /riku-/ ~ /uʃxa-/ ~ /riku- ~ /lika-, /rika-, /rirqu-
die /waju-/ ~ /xiwa- ~/waju-/ ~ /wanu-, /ajwarpu-, /pasa-/ 

come /hamu-/ ~ /xuta- ~/jamu- ~ /jamu-, /ajwamu-/ 

lie /siri- ~/winku- ~/siri- ~/patsaku-/ 

sit /tijaku-/ ~ /qunt’asi- ~/tijari- ~/tajku-, /ta:ku-, /tʃunku-, /tunku- 

burn /rupʰa-/ ~ /pʰitʃʰa- ~/qʰatira- ~/rupa- ~/lupa-, /kaɲa-, /akaɲa-/ 

white /juraq- ~/xanqu- ~/jurak- ~/julaq-, /utku/ 

dry /tʃ’aki- ~/wana- ~/tʃaki- ~/tʃaki-, /tsaki-, /ʃupij/ 

root /sapʰi-, /sapi- ~/sapʰi- ~/sapi- ~/matsu-, /watsu-, /matši-, /watsi-, /ha(q)wa-, /sipi-, 

/pisi/ 

tree /satʃ’a- ~/quqa- ~/jura- ~/satʃa-, /hatʃa-, /qiru-, /qilu-, /munti/ 

leaf /rapʰi-, /laqʰi- ~/lapʰi- ~/panga- ~/rapra-, /raprɪ-, /matu-, /lapla-, /panka/ 

swim /wajt’a- ~/tuju- ~/wajta- ~/tuj(t)u-, /arma-/ 

yellow /q’iʃu- ~/q’iʃu- ~/kiʃu- ~/tunquʃ/ 

hot /rupʰa- ~/atʃʰixu-, /xunt’u- ~/rupaj- ~/akatʃaʔ, /akatʃaq/ 

cold /tʃiri- ~/tʰaja- ~/tʃiri- ~/alalaq/ 

round /muju- ~/muruq’u-, /muju- ~/muju- ~/ruːru-, /ruːru-, /r(u)jru-, /ujlu/ 

twenty-five tokens; 25% of total corpus
In addition to this percental breakdown of the Quechuan and Aru lexical tokens,
I have organized (seen above) a discrete category which evidences the vast degree of lexical
divergence of Central Quechuan varieties (Quechua I) from other Quechuan languages. These tokens comprise 25% of the total corpus.

Quechua-Aru Category

sun /inti/ ~ /inti/ ~ /inti/ ~ /inti/

fire /nina/ ~ /nina/ ~ /nina/ ~ /nina/

I /nuqa/, /nuqa/ ~ /naja/ ~ /njuka/, /juka/ ~ /nuqa/, /nuqa/, /jaqa

you /qan/, /qam/ ~ /xuma/ ~ /kan/ ~ /qam/

this /kaj/ ~ /aka/ ~ /kaj/, /ki/ ~ /kaj/

what /ima/ ~ /kuna/ ~ /ima/ ~ /ima/

big /hatun/ ~ /xatʃa/ ~ /hatun/ ~ /hatun/

small /hootʃuj/ ~ /xisk’a/ ~ /utʃjiʃa/ ~ /utʃujʃa/, /utʃuk/, /itʃik/, /tʃʃa/, /akapa/

woman /warmi/ ~ /warmi/ ~ /warmi/ ~ /warmi/, /walmi

fish /tʃaʃwa/ ~ /tʃaʃwa/, /tʃawʃa/ ~ /tʃaʃwa/ ~ /tʃaʃwa/

leaf /rapʰi/, /laqʰi/ ~ /lapʰi/ ~ /panga/ ~ /rapra/, /rapɾi/, /matu/, /lapla/, /panka/
root /sapʰi/, /sapi/ ~ /sapʰi/ ~ /sapi/ ~ /matsu/, /watsu/, /matsi/, /watsi/, /ha(q)wa/, /sipi/, /pisi/

horn /waqra/ ~ /waχra/ ~ /katʃu/ ~ /waqra/, /waqla/

feather /pʰuru/ ~ /pʰuju/ ~ /patpa/ ~ /lapla/

head /uma/ ~ /pʰiqi/ ~ /uma/ ~ /uma/, /piqa/

eye /nawi/ ~ /najra/ ~ /nawi/ ~ /nawi/, /nawi/

claw /siʎu/ ~ /siʎu/ ~ /siʎu/, /ʃiʎu/ ~ /ʃiʎu/ ~ /ʃiʎu/

knee /qunqu/ ~ /qunqu/ ~ /kunguri/ ~ /qunqu(r)i/ ~

neck /kunka/ ~ /kunka/ ~ /kunka/, /kunga/ ~ /kunka/ ~

breasts /nuɲu/, /tʃutʃu/ ~ /nuɲu/ ~ /nuɲu/, /tʃutʃu/ ~ /nuɲu/, /nuɲu/, /tʃutʃu/, /tʃitʃi/

know /jatʃa/- ~ /jati/- ~ /jatʃa/- ~ /jatʃa/- ~ /jatʃa/-

swim /wajt’a/- ~ /tuju/- ~ /wajta/- ~ /tu(j)t’u/-, /arma/-

stand /saja/- ~ /saja/- ~ /ʃaja/- ~ /ʃaju/-, /ʃalku/-

flesh /ajtʃa/- ~ /ajtʃa/- ~ /ajtʃa/- ~ /ajtʃa/-

yellow /q’iʎu/ ~ /q’iʎu/ ~ /kiʎu/ ~ /tunquʃ/

new /musuq/ ~ /matʃaqa/ ~ /muʃu(k)/ ~ /muʃuq/

good /aʎin/, /sumaq/, /kusa/, /waliq/ ~ /suma/, /kʰusa/, /waliki/ ~ /aʎi/, /ali/, /balik/ ~
/aʔi(m)/, /ali/

 round /muju/ ~ /murq’u/, /muju/ ~ /muju/ ~ /ruːru/, /(r)ujru/, /ujlu/

 name /suti/ ~ /suti/ ~ /ʃuti/ ~ /suti/, /huti/, /ʃuti

twenty-nine tokens; 29% of total corpus

The above category contains tokens which co-occur in both Quechuan and Aru languages of any of the varieties surveyed. This figure of 29%, which represents matches from all across the Quechuan and Aru families, persuades me to voice support for the general notion that shared lexical items between these two language families resulted from contact and not from recent common genetic ancestry.

The tokens in this category are collected from three separate categories (Category 2: Cuzco Superstratum Matches, Category 3: Pan-Andean Matches, Category 4: Other Patterns, and Category 6: Miscellaneous Items), and serve as a measure of the general freeness of lexical transfer between major Andean languages.

Adding to the categorical breakdown of the lexical lists, I would now like to turn to the items in the Southern Quechua portion of the Swadesh List that feature aspiration or ejectivity (complexity). I make general remarks on the implications that the distribution of complex phonemes in these lexical items may have for the matching relationship
between languages, and these languages’ borrowing and sound change histories.

Complexity Category

- **cloud** /pʰuju/ ~ /qinaja/  
- **smoke** /qʼuʃni/, /qʼuʃni/ ~ /xiwqʼi/
- **sand** /tʼiju/, /aqu/ ~ /tʃʼaʃa/  
- **ash** /uspʰa/, /uʃpa/ ~ /qʰiʃa/
- **earth** /hɑʃpʼa/ ~ /laqʼa/  
- **many** /aʃkʰa/ ~ /walxa/
- **small** /hutʃʼuʃ/ ~ /xiskʼa/  
- **man** /qʰari/ ~ /tʃatʃʼa/
- **bird** /pʼisqu/ ~ /xamatʃʼi/  
- **tree** /satʃʼa/ ~ /quqa/
- **leaf** /rapʰi/, /laqʰi/ ~ /lapʰi/  
- **root** /sapʰi/, /sapi/ ~ /sapʰi/
- **bark** /satʃʼa/ qara/ ~ /quqasiʃpʼi/  
- **feather** /pʰuru/ ~ /pʰuju/
- **eat** /mikʰu/- ~ /manqʼa/-  
- **bite** /k(ʰ)ani/- ~ /atʃʼa/-
- **swim** /wajtʼa/- ~ /tuju/-  
- **fly** /pʰawa/- ~ /x/χala/-, /tʰuqta/-
- **burn** /rupʰa/- ~ /pʰitʃʼa/-, /qʰatira/-  
- **green** /qʼumir/ ~ /tʃʼuχna/
- **yellow** /qʼiʃu/ ~ /qʼiʃu/  
- **hot** /rupʰa/ ~ /atʃʼixu/, /xuntʼu/
- **full** /huntʼa/, /ʃinpʰa/ ~ /pʰuqa/  
- **dry** /tʃʼaki/ ~ /waʃa/

**twenty-four tokens; 24% of total corpus**

This category contains tokens which exhibit complexity, that is, aspirated or
glottalized segments, in Southern Quechua. Comparing them to their Aymara counterparts, we find a complex segment correspondence rate so low as to write off as negligible: of the twenty-four tokens, only *small, leaf, root, feather,* and *yellow* are obvious matches between the languages. Of these five, four have a correspondence rate between segments: */pʰ/ ~ */pʰ/* in *leaf, root,* and *feather,* and */q'/ ~ */q'/* in *yellow.* It can be said, then, that four tokens exhibiting complexity in their Southern Quechua forms (about 4%) match with Aymara forms. This rate speaks very little to the theory of Aymara → Southern Quechua lexical diffusion insofar as complex obstruents are concerned. A high correspondence rate between complex forms across these two distinct languages could have been suggestive of selective borrowing of such segments from Aymara to Southern Quechua.\(^{18}\)

Recall that demonstration of a certain degree of lexical divergence of Quechua I tokens would make a strong statement as to this variety’s displacement from the high-intensity contact situations that resulted in high lexical matching rates between Southern Quechua and Aymara and the subsequent borrowings into Northern Kichwa. The divergence of Quechua I is represented in the Quechua I Divergence Category, and it can be

\(^{18}\) Statistical analysis of more extensive lexical lists between Aymara and Quechua would yield higher numbers of complex segments and would be more useful in determining their genetic status.
seen in Category 4: Other Patterns, though its influence is limited. It turns out that the tokens which could suggest a lesser degree of contact-induced changes in Quechua I are extremely few. The token *yellow* is an example of such:

\begin{center}
<table>
<thead>
<tr>
<th>Language</th>
<th>Pronunciation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Quechua</td>
<td>/qʰiʎu/</td>
</tr>
<tr>
<td>Aymara</td>
<td>/qʰiʎu/</td>
</tr>
<tr>
<td>Northern Kichwa</td>
<td>/kiʎu/</td>
</tr>
<tr>
<td>Central Quechua</td>
<td>/tunquʃ/</td>
</tr>
</tbody>
</table>
\end{center}

Upon closer examination of the matching sets, we are alerted to several clues that disadvise postulating genetic inheritance of phonemes from a proto-language, thereby also advancing the hypothesis of contact-induced lexical (and phonic) importation. First, and as has been remarked by many linguists prior to this work (Ferrario 1956, Parker 1963, Torero 1964, and Stark 1975), there are many matching forms whose cross-linguistic resemblances are too proximal to classify as reflexes of the same proto-sound, given that some (indeed many) of them seem to have been immune to regular sound changes in the languages’ histories. Since the regularity of sound change as-
sumes that no sounds are inherently “immune” to sound change rules, I must conclude that these are instead recent borrowings.

Second, there is inconsistency even across dialects of the Southern Quechua (Quechua II-C) language in the distribution of complex segments. Where an aspirated segment occurs in parts of Southern Peru, for instance, a glottalized segment may be preferred in Bolivia. For a plethora of examples of sound correspondence inconsistencies in cognate sets between Cuzco and Bolivian Quechua, two varieties which exhibit the sounds that are purported to have been borrowed from Aymara, see Stark 1975.

Third, I find a general lack of consistency in sound correspondences across Quechua and Aymara. Such inconsistencies can be observed in the data of the correspondence set feather. In Southern Quechua, the word is /pʰuru/, while in Aymara, it is /pʰuju/. Again assuming regular sound change, we should expect that every occurrence in Southern Quechua of an alveolar flap in intervocalic position would correspond to an occurrence of a palatal approximant in Aymara. However, it is easy to see that this is not the case, since the matching set for knee yields a very clear matching set of Southern Quechua /qunqu/, Northern Kichwa /kunguri/ and Aymara /qunquri/. By comparing the Southern and Northern Kichwa variants, we might expect that an earlier form of the
Southern Quechua variant also included the word-final /i/, creating an identical phonological context for the Aymara form to contain /j/ where in Quechua there is /ɾ/: SQ /qunquɾ/ Ay */qunquji/ NQ /kunguri/. This is however not the case.

Similarly, between the correspondence sets *big* Southern Quechua /hatun/ ~ Aymara /xatʃ’a/ ~ Northern Kichwa /hatun/ ~ Central Quechua /hatun/ and *name* Southern Quechua /suti/ ~ Aymara /suti/ ~ Northern Kichwa /ʃuti/ ~ Central Quechua /suti/, /ʃuti/, /huti/, we observe inconsistent sound correspondences immediately: /t/ ~ /ʃtʃ'/ ~ /t/ ~ /t/ and /t/ ~ /t/ ~ /t/ ~ /t/. If we assume that Quechua and Aymara ramified from an earlier proto-language which underwent regular sound change to arrive at their current states, we would expect regular correspondences, such that in the phonological context where there is /t/ in Quechua, we would either always find /ʃtʃ'/ in Aymara, as in *big*, or where there is /t/ in Quechua, we would also find /t/ in Aymara, as in *name*. This is also not the case. These discrepancies can be confirmed in greater numbers by checking data from other lexical comparisons outside of the Swadesh List data compilation.

3.5. Contact-induced lexical and phonological transfer

To consider the question of what contact-induced mechanism brought about the
29% matching between Aymara and Quechuan languages (I refer to the Quechua-Aru Category), I present this quote from Winford (2013:46): "Borrowing tends to involve transfer primarily of vocabulary and some kinds of functional elements, while imposition tends to involve transfer of phonological and grammatical elements and structures."

Though very important for understanding the socio-historical scenario which enabled the borrowing/imposition dynamic between the languages, to concern myself with the consequences of grammatical transfer between Quechua and Aymara, regardless of the mechanism(s) underlying it, is beyond the scope of this project. Nonetheless, the essence of the quote has important implications for the particular history that produced the contemporary linguistic situation in the Andes. Both borrowing of vocabulary by L1 Aymara speakers—keeping in mind that Quechua varieties enjoyed prestige associated with the power of the Inca state at this time—as well as imposition of L1 Aymara phonology on Quechua loan words are possible scenarios to consider, in accordance with Winford’s observation.

If we examine an example from the Swadesh 100 List, specifically the Category 4: Other Patterns token horn Southern Quechua /waqra/ ~ Aymara /waχra/ ~ Central Quechua /waqra/, its phonotactics may be quite telling. In this case, it seems that the
matching results from an early borrowing, likely before the initial ramification of Proto-Quechua into Quechua I and Quechua II between 500-700 C.E. (Torero 1998:605), determined by frequency of occurrence in other Quechuan and Aru varieties. Another possibility is that this word was borrowed into Quechua I during the Inca imperial expansionist period in the century prior to Spanish contact, in which case the phonotactic rule still would have manifested within the next century and a half, approximately.

In a related vein, I propose that the syllable coda lenition of $q \rightarrow \chi$ is the consequence of an L1 Aymara speaker imposing his L1 phonology on his L2 Quechua speech. If, say, the Quechua proto-form /waqɾa/ is borrowed by L1 Aymara speakers and contains an “offending” phonological structure, namely the syllable-final /q/, a repair strategy must be employed. This repair strategy is realized via an L1 phonological imposition: the L1 Aymara speakers pronounce SQ /waqɾa/ $\rightarrow$ [waχɾa], in adherence with the Aymara Coda Restriction, a process documented by Ludovico Bertonio as having taken hold already in the early seventeenth century (Landerman 1994:369-371).

This process of syllable-final plosive lenition is common in varieties of Southern Quechua, however does not take place to my knowledge in other varieties farther re-
moved from the Aymara language area. This contact-induced phonological process may have been a relatively recent development in these languages’ histories, a far cry from the proposed early borrowings resulting in the contemporary matching set Southern Quechua /hatun/ ~ Aymara /xatʃa/ ~ Northern Kichwa /hatun/ ~ Central Quechua /hatun/ (as well as from the borrowing that may have resulted in the matching in horn).

3.6. Conclusion and call to investigative action

Foremost, it is worth mentioning that unfortunately the dearth of occurrence of modified stops or affricates in the compiled data prevented me from realizing much analysis about their distribution across the languages. I observe that aspirated and glottalized stops and affricates in Southern Quechua could have come about either 1) by way of borrowing from Aymara in intimate contact and intense bilingual situations, its susceptibility to borrowing owed to phonetic salience— for more on this, see Fallon (2002)— or 2) by way of imposition, for example through Aymara-dominant L2 Quechua speakers. Though I suspect that imposition is culpable in some circumstances for phonological mirroring between the languages (see Section 3.5), the former of these

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19 More research is needed to confirm the frequency and/or degree of syllable-final occlusive lenitions in other varieties of Quechua.
two propositions seems the likelier in the case of complex obstruents.

It has been suggested to me that since Aymara speakers already have aspirated and ejective occlusives in their phonological inventories (and presumably have had them since the existence of Proto-Aru), that the notion of Aymara-dominant L2 Quechua speakers imposing their native phonology on Quechua words in a high-bilingualism situation might be untenable. My own experience with speakers of Quechua and Aymara attests a seemingly arbitrary (and therefore erratic) pattern of imposition of complexity, as when pronouncing an English word. This may be due to hyperadaptation (see Joseph 2009) of these speakers to English aspiration patterns, and confusions between different phonation types due to the instability of the phonemes in the languages (especially Quechua). Moreover, Kang 2011 identifies the concept of *unnecessary repair*, which entails the application of a repair strategy where no illicit structure is present, i.e. in the case of Aymara-dominant speakers’ imposition of complex segments onto L2 Quechua words in a bilingual contact situation. I cannot speak to any degree of regularity in the application of *unnecessary repair*.

I encourage linguists to continue documenting the phonologies and lexicons of Quechuan and Aru languages in hopes of putting to rest the question about shared an-
cestry versus contact-induced lexical similitude between these two language families.

Continued documentation of the many varieties of Ecuadorian Kichwa varieties, specifically Salasaca to non-\textit{mitmaq} resettled populations, is in order. Such research would help us to advance our understanding of the nature of the aspirate reflexes in Ecuadorian varieties, and to understand better the historical underpinnings of Quechuan expansion into modern-day Ecuador.

Certainly one area in which more research is needed is the microdialectology of Southern Peruvian and Bolivian Quechua, the varieties of which share the commonality of containing complex obstruents, differentiating them markedly from other Quechuan languages. This endeavor would serve the field by helping to highlight the phonological changes that have occurred in these dialects, as well as tracing the historical developments of the spread of complex phonemes through these languages’ lexicons.

Study of the productivity of complexity, specifically ejectivity in the use of onomatopoetic/imitative sound symbolic expressions in Quechuan and Aru languages, is called for. I hope to undertake this project myself, and its results very well may garner even more support for Mannheim’s theory of associative lexicon which is said to have furthered the spread of complex segments throughout Southern Quechua.
In conclusion, the quite low percentage of shared lexicon on the Swadesh 100 List between Quechuan languages and Aymara hints at a historical relationship of borrowing and possibly also imposition, at various stages; however not one of a shared proto-language. Further documentation of the lexicon of Kichwa languages of Ecuador is required for more precise placement of varieties within the Quechua family tree, and so is called for by this study. A vast undertaking of research employing the comparative method, assuming regular sound change, taking into account the probability of contact-induced language transfer, including imposition, borrowing, successive borrowing, and even re-borrowing, and possibly most important, profoundly considering the sociolinguistic relations that occasioned these contact-induced changes between Aymara and Quechuan languages in pre-colonial Peru and Bolivia, is in order to finally be able to strike accord on this issue. Linguists are coming to better understand the nature of the Quechua-Aru relationship, and the hour for further inquiry is upon us, such that we may begin filling in the gaps in the Andean puzzle.
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Appendix A: Swadesh 100 List

<table>
<thead>
<tr>
<th>English</th>
<th>Quechua II-C</th>
<th>Aymara</th>
<th>Quechua II-B</th>
<th>Quechua I</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>star</td>
<td>quj’ur</td>
<td>warawara</td>
<td>kuj’ur</td>
<td>qaj’ur, quj’ur</td>
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<tr>
<td>sun</td>
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<td>inti</td>
<td>inti</td>
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<td>nina</td>
<td>nina</td>
<td>nina</td>
<td>3</td>
</tr>
<tr>
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### Appendix B: Categories

#### Category 1: Quechua Cognates

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<tr>
<td>who?</td>
<td>/pi/</td>
<td>~ /kʰiti/ /pi/ /pi(m/n)/</td>
</tr>
<tr>
<td>not</td>
<td>/mana/</td>
<td>~ /xani/- /mana/- /mana(n)/</td>
</tr>
<tr>
<td>all</td>
<td>/tukuj/</td>
<td>~ /taqpatʃa/ /tukuj/ /ʔapaj/ /ʔapan/ /tʃipaj/, /tʃipjan/, /tukuj/</td>
</tr>
<tr>
<td>many</td>
<td>/aʃka/</td>
<td>~ /walxa/ /atʃka/ ~ /antsaj/, /aʔapa/, /aʔapi/, /kamaʃ/, /atʃga/, /atʃka/</td>
</tr>
<tr>
<td>one</td>
<td>/huk/</td>
<td>~ /maja/ /juk/ /s/huk/</td>
</tr>
<tr>
<td>two</td>
<td>/iskaj/</td>
<td>~ /paja/ /iʃkaj/ /iʃki/ ~ /iʃkaj/</td>
</tr>
<tr>
<td>man</td>
<td>/qʰari/</td>
<td>~ /tʃatʃa/ /kari/ /kari/ /ɾ/ˈuna/, /uʔqu/</td>
</tr>
<tr>
<td>person</td>
<td>/runa/</td>
<td>~ /xaqî/ ~ /runa/ ~ /una/</td>
</tr>
<tr>
<td>bird</td>
<td>/pʰisqu/</td>
<td>~ /xamafʃi/ /piʃku/, /piʃu/ ~ /piʃqu/</td>
</tr>
<tr>
<td>dog</td>
<td>/alqu/</td>
<td>~ /anu/ /aʃku/, /alku/ /aʔqu/, /alqu/, /afʃu/</td>
</tr>
<tr>
<td>louse</td>
<td>/usa/</td>
<td>~ /lapʰa/ /usa/ /uha/ /uwa/</td>
</tr>
<tr>
<td>seed</td>
<td>/muru/</td>
<td>~ /xatʰa/ /muju/ /muhu/, /muru/, /mulu/</td>
</tr>
<tr>
<td>bark</td>
<td>/satʃ'a/</td>
<td>~ /quqasiʃp'i/ ~ /jurakara/ ~ /qara/, /qalan/</td>
</tr>
</tbody>
</table>
skin /qara/ ~ /xan[tʃi lɪp'tʃi]/ ~ /kara/ ~ /qara/, /uta/
blood /jawar/ ~ /wila/ ~ /jawar/ ~ /jawar/, /jajar/
bone /tuʌu/ ~ /tʃ'aka/ ~ /tuʌu/ ~ /tuʌu/
grease /wira/ ~ /lik'i/ ~ /wira/, /wiswin/ ~ /wira/, /wila/
egg /runtu/ ~ /k'awna/ ~ /lulu/, /luntu/, /ruru/, /lulu/
tail /tʃ'upa/ ~ /witʃ'inkʰa/ ~ /tʃ'upa/, /tʃ'upa/

/ʃu/ ~ /ni/ ~ /pʰawa/ ~ /tʃu/ ~ /pʰawa/ ~ /pʰawa/
hair /tʃuk'tʃa/ ~ /nik'uta/ ~ /aktʃa/ ~ /tʃuktʃa/, /aqtʃa/, /aqtʃa/
ear /ninri/, /rinri/ ~ /xintʃu/ ~ /rinri/ ~ /rinri/, /linli/
nose /sinqa/ ~ /nasa/ ~ /sinka/ ~ /sinqa/
mouth /simi/ ~ /laka/ ~ /ʃimii/ ~ /simi/, /ʃimii/
tooth /kiru/ ~ /laka tʃ'aka/ ~ /kiru/ ~ /kiru/, /kilu/
tongue /qaʃu/ ~ /laʃra/ ~ /kaʃu/ ~ /qaʃu/
foot /ʃaʃki/ ~ /kaju/ ~ /ʃaʃki/ ~ /ʃaʃki/, /ʃaʃki/
hand /maki/ ~ /ampaɾa ~ /maki/ ~ /maki/
belly /wiksa/, /wisa/ ~ /puraka/ ~ /wiksa/ ~ /wiksa/, /pata/
heart /sunqu/ ~ /ʃuqu/ ~ /ʃuŋu/ ~ /ʃuŋu(n)/, /pujwan/

drink /ʃuʃja/- ~ /uma/- ~ /upja/- ~ /upja/-

eat /mikʰu/- ~ /manq'a/- ~ /miku/- ~ /miku/-
bite /kʰani/- ~ /ʃaʃxa/- ~ /kani/- ~ /kani/-, /ani-/, /amu/-
see /riku/- ~ /ʃuʃxa/- ~ /riku/- ~ /rika/-, /rika/-, /rikqu/-
sleep /puʃnu/- ~ /iki/- ~ /puʃnu/- ~ /puʃnu/, /puʃnu-
die /wəʃu/- ~ /ʃixa/- ~ /wəʃu/- ~ /wəʃu/, /wanu/-, /ajwaru/-, /pa:sə-

kill /waŋutʃi/- ~ /xiwaja/- ~ /waŋutʃi/- ~ /waŋutʃi/-, /waŋutʃi/-, /waŋutʃi/-
fly /pʰaʃa/- ~ /ˈxala/-, /ˈxala-/, /pʰuqta/- ~ /pawa/- ~ /parpaɾi/-, /pahaɾi/-, /pa:li/-
walk /puri/- ~ /sara/- ~ /puri/- ~ /puli/-, /puri/-

come /hamu/- ~ /xuta/- ~ /ʃamu/- ~ /ʃamu/-, /ajwamu/-
lie /siri/- ~ /winku/- ~ /siri/- ~ /patsaʔku/-
sit /tijaku/- ~ /qunt'asi/- ~ /tijari/- ~ /tajku/-, /taːku/-, /tʃunku/-, /tunku/-
give /qu/- ~ /tʃura/- ~ /ku/- ~ /ku/
say /ni/- ~ /sa/- ~ /ni/- ~ /ni/-

moon /kiʃa/- ~ /pʰaʃsi/- ~ /kiʃa/- ~ /kiʃa/
burn /rupʰa/- ~ /pʰitʃʰa/-, /qʰatira/- ~ /rupa/- ~ /lupa/-, /kaŋa/-, /akatʃa/
red /puka/- ~ /tʃupika/- ~ /puka/- ~ /puka/
white /juraq/- ~ /xanq'u/- ~ /jurak/- ~ /julaq/-, /utku/-
black /jana/ ~ /tʃˈiʃa/ ~ /jana/ ~ /jana/
night /tuta/ ~ /aruma/ ~ /tuta/ ~ /tuta/
full /huntˈa/, /ʃinpʰa/ ~ /pʰuqa/ ~ /huntak/, /(h)unda ~ /hunta/
dry /tʃˈaki/ ~ /waŋa/ ~ /tʃaki/ ~ /tʃaki/, /tsaki/, /ʃupij/

(sixty-two tokens; 62% of total corpus)

Category 2: Cuzco Superstratum Matches

feather /pʰuru/ ~ /pʰuju/ ~ /patpa/ ~ /lapla/
path /jan/, /jan/ ~ /tʰaki/ ~ /jan/, /jambi/ ~ /kaminu/
yellow /qʰiʃu/ ~ /qʰiʃu/ ~ /kiʃu/ ~ /tunquʃ/
hot /rupʰa/ ~ /atʃʰixu/, /xuntˈu/ ~ /rupaj/ ~ /akatʃaʃq/, /akaʃaʃq/
cold /tʃiri/ ~ /tʰaja/ ~ /tʃiri/ ~ /alalaq/
round /muju/ ~ /murugˈu/, /muju/ ~ /muju/ ~ /ruːru/, /(r)ujru/, /ujlu/

(six tokens; 6% of total corpus)

Category 3: Pan-Andean Matches

sun /inti/ ~ /inti/ ~ /inti/ ~ /inti/ 
fire /nina/ ~ /nina/ ~ /nina/ ~ /nina/ 
I /nuqa/, /nuqa/ ~ /naja/ ~ /nuka/, /juka/ ~ /nuqa/, /juqa/, /jaqa 
you /qan/, /qam/ ~ /xuma/ ~ /kan/ ~ /qam/ 
this /kaj/ ~ /aka/ ~ /kaj/, /ki/ ~ /kaj/ 
what /ima/ ~ /kuna/ ~ /ima/ ~ /ima/ 
big /hatun/ ~ /katʃa/ ~ /hatun/ ~ /hatun/ 
small /hutʃˈuʃi/ ~ /xiskˈa/ ~ /utʃˈiʃa/, /utʃˈuʃa/, /utʃˈuʃa/, /tʃik/, /tʃaʃa/, /akapa/ 
woman /warmi/ ~ /warmi/ ~ /warmi/ ~ /warmi/, /walmi 
fish /tʃaˈwa/, /tʃaˈwa/, /tʃauˈwa/ ~ /tʃaˈwa/ ~ /tʃaˈwa/ 
root /sapʰi/, /sapi/ ~ /sapʰi/ ~ /sapi/ ~ /matsu/, /watsu/, /matsi/, /watsi/, /ha(q)wa/

101
/sipi/, /pisi/

- eye /nawi/ ~ /najra/ ~ /nawi/ ~ /nawi/, /nawi/
- claw /siʎu/ ~ /siʎu/ ~ /siʎu/, /ʃiʎu/ ~ /ʃiʎu/
- knee /qunqu/ ~ /qunqu/ ~ /kunguri/ ~ /qunqu(r)i/
- neck /kunka/ ~ /kunka/ ~ /kunka/, /kunga/ ~ /kunka/
- breasts /nuɲu/, /tʃuɲu/ ~ /nuɲu/ ~ /nuɲu/, /tʃuɲu/ ~ /nuɲu/, /tʃuɲu/, /ʃɪtʃɪ/
- know /ʃatʃa/- ~ /ʃati/- ~ /ʃatʃa/- ~ /ʃati/- /ʃatʃa/-
- stand /saja/- ~ /saja/- ~ /ʃaja/- ~ /ʃaju/- ~ /ʃaku/-
- flesh /ajtʃa/- ~ /ajtʃa/- ~ /ajtʃa/- ~ /ajtʃa/-
- new /musuq/- ~ /matʃaqa/- ~ /muʃu(k)/ ~ /muʃuq/
- name /suti/- ~ /suti/- ~ /ʃuti/- ~ /suti/-, /huti/, /ʃuti/ (twenty-one tokens; 21% of total corpus)

**Category 4: Other Patterns**

<p>| /para/ ~ / xaŋu/ ~ / tamja/ ~ / tamja/ |
| /satʃa/- ~ / quqa/ ~ / jura/ ~ / satʃa/, / haʃa/, / qiru/, / qilu/, / munti/ |
| /rapʰi/, /laqʰi/ ~ /lapʰi/ ~ / panga/ ~ / rapra/, / rapri/, / matu/, / lapla/, / panka/ |
| /waqʰa/- ~ /waχɾa/- ~ /katʃu/- ~ /waqʰa/, / waqla/ |
| /uma/- ~ / p’iqi/- ~ / uma/- ~ / uma/, / piqa/ |
| /wajt’a/- ~ /tuju/- ~ / wajt’a/- ~ / tu(t)u/- ~ / arma/- (six tokens; 6% of total corpus) |</p>
<table>
<thead>
<tr>
<th>Category 5: Non-Matches</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>long</em> /karu/ ~ /wiskʰa̱a/ ~ /suni/ ~ /ʃutутu/, /ʃutqu/, /hatun/</td>
</tr>
<tr>
<td><em>liver</em> /kukupin/ ~ /kʰiwtʃa/ ~ /janaʃungu/ ~ /patin/, /natiu/, /natin/</td>
</tr>
<tr>
<td><em>green</em> /qʰumir/ ~ /ʃuʃna/ ~ /wajʃa/ ~ /birdi/</td>
</tr>
</tbody>
</table>

(three tokens; 3% of total corpus)

<table>
<thead>
<tr>
<th>Category 6: Miscellaneous Items</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>hear</em> /uʒari/- ~ /istʃa/- ~ /uja/- ~ /uja(li)-, /wija/-</td>
</tr>
<tr>
<td><em>good</em> /aʃin/, /sumaq/, /kusa/, /waliq/ ~ /suma/, /kʰusa/, /waliki/ ~ /aʃi/, /ali/, /balik/ ~ /aʃi(m)/, /ali/</td>
</tr>
</tbody>
</table>

(two tokens; 2% of total corpus)

<table>
<thead>
<tr>
<th>Unconfirmed Matching Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>know</em> /jatʃa/- ~ /jatʃa/- ~ /jatʃa/-, /jatʃa/-</td>
</tr>
<tr>
<td><em>eye</em> /nawi/ ~ /najra/ ~ /nawi/ ~ /nawi/, /nawi/</td>
</tr>
<tr>
<td><em>small</em> /hutʃuʃ/ ~ /xisk’a/ ~ /utʃiʃa/ ~ /utʃuʃa/, /utʃuk/, /itʃik/, /takʃa/, /akapa/</td>
</tr>
<tr>
<td><em>big</em> /hatun/ ~ /xatʃa/ ~ /hatun/ ~ /hatun/</td>
</tr>
<tr>
<td><em>I</em> /nuqa/, /nuqa/ ~ /naja/ ~ /nuka/, /juka/ ~ /nuqa/, /nuqa/, /jaqa/</td>
</tr>
<tr>
<td><em>you</em> /qan/, /qam/ ~ /xuma/ ~ /kan/ ~ /qam/</td>
</tr>
<tr>
<td><em>this</em> /kaj/ ~ /aka/ ~ /kaj/, /ki/ ~ /kaj/</td>
</tr>
<tr>
<td><em>what</em> /ima/ ~ /kuna/ ~ /ima/ ~ /ima/</td>
</tr>
</tbody>
</table>

(eight tokens; 8% of total corpus)
<table>
<thead>
<tr>
<th>Quechua I Divergence Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>all</strong> /tukuj/ ~ /taqpatʃa/ ~ /tukuj/ ~ /kapaj/, /kapan/, /tʃipjaj/, /tʃipjan/, /tukuj/</td>
</tr>
<tr>
<td><strong>many</strong> /aʃkʰa/ ~ /walxa/ ~ /atʃka/ ~ /antsaj/, /aʃapa/, /aʃapi/, /kamaʃ/, /atʃɡa/, /atʃka/</td>
</tr>
<tr>
<td><strong>small</strong> /huʃʃuʃj/ ~ /xiskʰa/ ~ /utʃʃiʃa/ ~ /utʃʃuʃjʃa/, /utʃʃuk/, /itʃik/, /takʃa/, /akapa/</td>
</tr>
<tr>
<td><strong>man</strong> /qʰari/ ~ /tʃatʃa/ ~ /kari/ ~ /kari/, /r/nuna/, /uʃqu/</td>
</tr>
<tr>
<td><strong>dog</strong> /alqu/ ~ /anu/ ~ /aʃku/, /alku/ ~ /aʃqu/, /alqu/, /aʃuti/</td>
</tr>
<tr>
<td><strong>skin</strong> /qara/ ~ /xantʃi lip'ʃʃi/ ~ /kara/ ~ /qara/, /uta/</td>
</tr>
<tr>
<td><strong>belly</strong> /wiksa/, /wisa/ ~ /puraka/ ~ /wiksa/ ~ /wiksa/, /pata/</td>
</tr>
<tr>
<td><strong>heart</strong> /sunqu/ ~ /kuʃuq/ ~ /ʃungu/ ~ /ʃunqu(n)/, /pujwan/</td>
</tr>
<tr>
<td><strong>bite</strong> /kʰani/ ~ /atʃxa/- ~ /kani/- ~ /kani/, /ani/-, /amu/-</td>
</tr>
<tr>
<td><strong>see</strong> /riku/- ~ /upxa/- ~ /riku/- ~ /lika/-, /rika/-, /rirqu/-</td>
</tr>
<tr>
<td><strong>die</strong> /waju/- ~ /xiwa/- ~ /waŋu/- ~ /waŋu-, /wanu-, /ajwarpu-, /pasa/-</td>
</tr>
<tr>
<td><strong>come</strong> /hamu/- ~ /xuʃta/- ~ /ʃamu/- ~ /ʃamun/-, /ajwamu/-</td>
</tr>
<tr>
<td><strong>lie</strong> /siri/- ~ /winku/- ~ /siri/- ~ /patsaaku/-</td>
</tr>
<tr>
<td><strong>sit</strong> /tijaku/- ~ /quntʃasi/- ~ /tijari/- ~ /tajku/-, /taku/-, /tʃjunku/-, /tunku/-</td>
</tr>
<tr>
<td><strong>burn</strong> /rupʰa/- ~ /pʰitʃʰa/-, /qʰatira/- ~ /ruga/- ~ /lupa/-, /kaʃa/-, /akatʃa/</td>
</tr>
<tr>
<td><strong>white</strong> /ʃuraq/- ~ /ʃanq'ʃu/- ~ /ʃurak/- ~ /ʃulaq/-, /utku/-</td>
</tr>
<tr>
<td><strong>dry</strong> /ʃakʰi/- ~ /wana/- ~ /ʃaki/- ~ /ʃaki/, /tsaki/, /ʃupij/</td>
</tr>
<tr>
<td><strong>root</strong> /sapʰi/, /sapi/ ~ /sapʰi/ ~ /sapi/ ~ /matsu/, /watsu/, /matʃi/, /watsi/, /ha(q)wa/, /sipi/, /pisi/</td>
</tr>
<tr>
<td><strong>tree</strong> /satʃa/- ~ /quqa/- ~ /ʃura/- ~ /ʃatʃa/, /hatʃa/, /qiru/, /qilu/, /muntʃi/</td>
</tr>
<tr>
<td><strong>leaf</strong> /rapʰi/, /laʔʰi/- ~ /lapʰi/- ~ /panga/- ~ /rapa/, /rapri/, /matu/, /lapla/, /panka/</td>
</tr>
<tr>
<td><strong>swim</strong> /waʃtə/- ~ /tuʃu/- ~ /waʃta/- ~ /tuj(t)u/-, /arma/-</td>
</tr>
<tr>
<td><strong>yellow</strong> /q'iʃu/- ~ /ʃiʃu/- ~ /kiʃu/- ~ /tunqʃu/-</td>
</tr>
<tr>
<td><strong>hot</strong> /rupʰa/- ~ /atʃʰiʃu/, /xuntʃu/- ~ /rupaj/- ~ /akatʃaq/, /akatʃaʃq/</td>
</tr>
<tr>
<td><strong>cold</strong> /tʃiri/- ~ /tʰaja/- ~ /ʃiri/- ~ /alalac/</td>
</tr>
<tr>
<td><strong>round</strong> /muju/- ~ /murøq'ʃu/, /muʃu/- ~ /muʃu/- ~ /ruʃu/, /ʃuru/, /ʃuru/, /uʃu/-</td>
</tr>
</tbody>
</table>

(twenty-five tokens; 25% of total corpus)
<table>
<thead>
<tr>
<th>Quechua-Aru Category</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>sun</strong> /inti/ ~ /inti/ ~ /inti/ ~ /inti/</td>
</tr>
<tr>
<td><strong>fire</strong> /nina/ ~ /nina/ ~ /nina/ ~ /nina/</td>
</tr>
<tr>
<td>I /nuqa/, /nuqa/ ~ /naja/ ~ /juka/, /juka/ ~ /nuqa/, /jqa</td>
</tr>
<tr>
<td>you /qan/, /qam/ ~ /xuma/ ~ /kan/ ~ /qam/</td>
</tr>
<tr>
<td>this /kaj/ ~ /aka/ ~ /kaj/, /ki/ ~ /kaj/</td>
</tr>
<tr>
<td>what /ima/ ~ /kuna/ ~ /ima/ ~ /ima/</td>
</tr>
<tr>
<td><strong>big</strong> /hatun/ ~ /xatʃa/ ~ /hatun/ ~ /hatun/</td>
</tr>
<tr>
<td><strong>small</strong> /hutʃa/ ~ /xisk'a/ ~ /utʃa/ ~ /utʃa/</td>
</tr>
<tr>
<td><strong>woman</strong> /waɾmi/ ~ /waɾmi/ ~ /waɾmi/ ~ /waɾmi/</td>
</tr>
<tr>
<td><strong>fish</strong> /tʃaɾwa/ ~ /tʃawā/ ~ /tʃawā/ ~ /tʃaɾwa/</td>
</tr>
<tr>
<td><strong>leaf</strong> /ræpʰi/ ~ /laqʰi/ ~ /pæŋa/ ~ /rapʰi/ ~ /rapʰi/ ~ /matu/, /lapla/, /pana/</td>
</tr>
<tr>
<td><strong>root</strong> /sæpʰi/ ~ /sapi/ ~ /sæpʰi/ ~ /sæpʰi/</td>
</tr>
<tr>
<td><strong>horn</strong> /waɾa/ ~ /waɾa/ ~ /kaɾa/ ~ /kaɾa/</td>
</tr>
<tr>
<td><strong>feather</strong> /pʰuɾu/ ~ /pʰuɾu/ ~ /patpa/ ~ /lapa/</td>
</tr>
<tr>
<td><strong>head</strong> /uma/ ~ /pʰiɾu/ ~ /uma/ ~ /uma/, /piɾa/</td>
</tr>
<tr>
<td><strong>eye</strong> /paw/ ~ /najra/ ~ /paw/ ~ /paw/ ~ /nawi/</td>
</tr>
<tr>
<td><strong>claw</strong> /ʃiɾu/ ~ /ʃiɾu/ ~ /ʃiɾu/, /ʃiɾu/ ~ /ʃiɾu/</td>
</tr>
<tr>
<td><strong>knee</strong> /qunquɾi/ ~ /qunquɾi/ ~ /kunquɾi/, /kunquɾi/</td>
</tr>
<tr>
<td><strong>neck</strong> /sajra/ ~ /sajra/ ~ /sajra/ ~ /sajra/</td>
</tr>
<tr>
<td><strong>breasts</strong> /nuɾu/, /tʃuɾu/ ~ /nuru/, /tʃuɾu/ ~ /nuru/, /nuru/, /tʃuɾu/, /tʃɾi/</td>
</tr>
<tr>
<td><strong>know</strong> /ʃatʃa/- ~ /ʃati/- ~ /ʃatʃa/- ~ /ʃatʃa/-</td>
</tr>
<tr>
<td><strong>swim</strong> /waiɾa/- ~ /wiɾa/- ~ /waiɾa/- ~ /waiɾa/-</td>
</tr>
<tr>
<td><strong>stand</strong> /sajra/- ~ /sajra/- ~ /ʃajra/-, /ʃajɾa/-</td>
</tr>
<tr>
<td><strong>flesh</strong> /aɾtʃa/- ~ /aɾtʃa/- ~ /aɾtʃa/- ~ /aɾtʃa/-</td>
</tr>
<tr>
<td><strong>yellow</strong> /qʰiɾu/ ~ /qʰiɾu/ ~ /kiɾu/ ~ /tuɾuʃ/</td>
</tr>
<tr>
<td><strong>new</strong> /musuq/ ~ /matʃaɾa/- ~ /muɾu(k)/ ~ /muɾuʃ/</td>
</tr>
<tr>
<td><strong>good</strong> /aɾiɾu/, /sumarq/, /kusa/, /walɾi/- ~ /suma/, /kʰusa/, /walɾi/- ~ /aɾiɾu/, /ali/, /balɾi/-</td>
</tr>
<tr>
<td><strong>round</strong> /muɾuʃ/- ~ /muɾuʃ/- ~ /muɾu/- ~ /rtɾu/-, /rɾuɾu/-, /uɾu/-</td>
</tr>
<tr>
<td><strong>name</strong> /suti/- ~ /suti/- ~ /ʃuti/-, /ʃuni/, /ʃuni/-, /ʃuni/-</td>
</tr>
</tbody>
</table>

(twenty-nine tokens; 29% of total corpus)
<table>
<thead>
<tr>
<th>Complexity Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>cloud /phuju/ ~ /qinaja/</td>
</tr>
<tr>
<td>sand /t’iju/, /aqu/ ~ /tʃ’aʔa/</td>
</tr>
<tr>
<td>earth /haʔp’a/ ~ /laq’a/</td>
</tr>
<tr>
<td>small /hutʃ’uʃ/ ~ /xisk’a/</td>
</tr>
<tr>
<td>bird /p’isqu/ ~ /xamatʃ’i/</td>
</tr>
<tr>
<td>leaf /rapʰi/, /laqʰi/ ~ /lapʰi/</td>
</tr>
<tr>
<td>bark /satʃ’a/ qara/ ~ /quqasiʔi/</td>
</tr>
<tr>
<td>eat /mikʰu/- ~ /manq’a/-</td>
</tr>
<tr>
<td>swim /wajt’a/- ~ /tuju/-</td>
</tr>
<tr>
<td>burn /rupʰa/- ~ /pʰiʃʰa/-, /qʰatira/-</td>
</tr>
<tr>
<td>yellow /q’iʃu/ ~ /q’iʃu/</td>
</tr>
<tr>
<td>full /hunt’a/, /ʃinpʰa/ ~ /pʰuqa/</td>
</tr>
</tbody>
</table>

(twenty-four tokens; 24% of total corpus)