6 Huari Quechua

This chapter describes the intonation of Huari Quechua. It is separated into three sections. The first section describes the intonational contours observed, and argues that variation exists in the tonal alignment patterns underlying them, of which only a subset makes reference to a regularly determined word stress on the penult, while others only refer to phonological phrase and prosodic word boundaries. Section 6.2 explores the distribution of these alignment variants and relates them quantitatively to aspects of meaning and information structure. Section 6.3 relates the alignment variants with each other and the variation found in the Spanish data via an OT-analysis. Section 6.4 qualitatively explores further aspects of how information structure is cued in interaction between prosody and morphosyntax.

6.1 Description of Huari Quechua tonal contours

In section 3.3.3, it emerged from the discussion on the literature about prosody in Ancash Quechua that it is doubtful whether the existing accounts all describe the same phenomenon of word stress, and that the pitch behaviour described is perhaps more indicative of the behaviour of phrasal tones seeking alignment with prosodic edges. In this section I will provide an analysis of the intonational patterns observed in the Huari Quechua data. I will bring evidence to bear against the assumption that tonal events in this Quechua variety are homogeneously affected by a stress position determined at the word level. Instead, it will be argued that Quechua intonation is based on phrasal tones assigned at the level of the Phonological Phrase (corresponding to the Accentual Phrase in the descriptions of some languages). Three phrasal contours will be identified: a rising, an only-falling, and a rise-falling one (section 6.1.1). Some of the tones forming these contours always seek alignment with the phrase boundary (sections 6.1.3, 6.1.5). The variation in alignment of the others follows two main patterns: alignment with the word boundary (section 6.1.2), and with the word penult (section 6.1.4). There is also a marked pattern only observed on loanwords of Spanish origin (section 6.1.8). Even though the word penult is determined to be regularly metrically prominent (as argued in many existing accounts), crucially, its influence on prosody is found to be small overall and varying depending on the alignment pattern: in the word-boundary variant, it has no influence, while in the word-penult variant it serves as a landmark for tonal alignment but nothing else. This is shown to result in quantifiable alignment differences between phenotypically similar contours of Huari Quechua and Spanish (section 6.1.6). The results in this section overall suggest that Huari

https://doi.org/10.1515/9783111304595-006

Quechua as represented by this data ranks very low on a typology of how much of the prosodic phonology is affected by stress position, as proposed by Hyman (2014). This is further corroborated by the marked (and overall infrequent) behaviour of loanwords from Spanish: the stress position they are sensitive to is treated quite differently by the prosody. I suggest that the observed variability is at least partially responsible for the heterogeneous descriptions found in the existing literature.

The qualitative analysis in this section will treat declaratives, but section 6.2.1 demonstrates that utterance type is not an overly relevant factor influencing contour choice in Huari Quechua, similar to findings on other varieties (cf. Cole 1982; O'Rourke 2005). This is also confirmed in section 6.1.6, where peak alignment in the same contour shows no evidence of differing between utterance types.

6.1.1 Introduction to the rising and falling contours

Most generally speaking, there are two different kinds of phrase-level tonal contours: falling and rising ones. Falling contours minimally include a fall from high, possibly followed by a low stretch, as *(only-)falling contours*. Optionally, the fall is also preceded by a rise and/or a high plateau, in *rising-falling contours*. *Rising contours* minimally consists of a rise, optionally preceded by a low stretch, and optionally followed by a suspended high plateau and/or a further final rise.

(97) AZ23_Conc_Q_0960

segunda	fila-chaw	segundu-chaw	kiru
second	row-LOC	second-LOC	tooth

"in the second row, the second [one is the] tooth"[251]

Both a rising and a rising-falling contour are produced in AZ23_Conc_Q_0960[252] ((97)/Figure 114). The utterance consists of two phrases, *segunda filachaw* and

251 This is an example from *Conc* (cf. section 2.4 for a description). Thus it should be understood as "in the second row (*segunda filachaw*), the card in the second column (*segunduchaw*) is the one with the tooth (*kiru*)".

252 Figures with Quechua examples include five tiers in the textgrid: a tier with an IPA transcription aligned with syllable boundaries (1), a tier separating morphological words in an orthographic transcription and aligned with the word boundaries (2), a tier separating the words into morphemes (3) and another with the English glosses (4), and one giving an approximate English translation (5). The syllabification in tier (1) is based on the Quechua phonotactics described in Parker (1976), according to which both onsets and codas cannot be complex and onsets are preferred over codas (VCVCV will be syllabified as V.CV.CV and not VC.VC.V). The IPA transcription is phonetic and aims to be as faithful as possible, using both the auditive percept and the spectral information provided

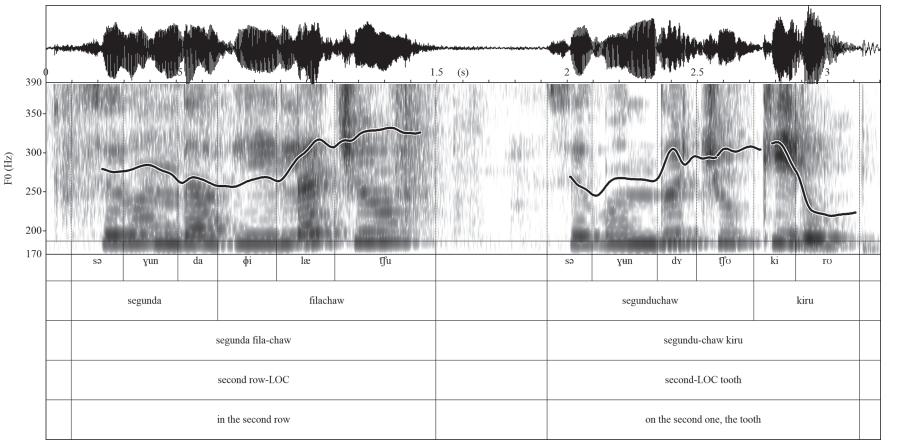


Figure 114: AZ23_Conc_Q_0960[253] (declarative with a rising and a falling contour).

segunduchaw kiru, the first one with a rising contour and the second with a falling one. In the first one, *segunda* is basically flat, then pitch rises on the penultimate

by *praat* as basis. Occasionally, this results in the transcription of additional vowels or consonants (such as epenthetic vowels breaking up consonant clusters, glides between vowel segments, or nasal segments before voiced onsets) that are not represented in the morphological word form. The transcription also shows that many consonants are often subject to processes of lenition or place assimilation, and occasionally to dissimilations; and that especially word- and phrase-final vowels are often realized as centralized, with a breathy quality, or partially or completely unvoiced, with a considerable variability of realization in general. The extent of this varies between speakers. In cases of extreme vowel reduction I have tended to preserve Quechua phonotactics as described above, e.g. transcribing a realization of /hawanchaw/ with a severely reduced final vowel as [ha.wan.t͡ʃu̥], while a transcription approach ignoring any preconceived notion about supposed underlying forms might have chosen [ha.want͡ʃ]. When there was absolutely no trace of a vowel segment, I also sometimes chose a transcription violating the phonotactics. In any case, the spectrogramme and the interval boundaries in the figures allow readers to inspect the relative duration and amount of energy in the vowel segments for themselves. I have not used the length diacritic [:] at all, because it seems there is no principled way of using it here: phonologically long vowels (based on existing descriptions) are not always consistently produced with longer duration than their short counterparts, even in the same utterance. The length of the syllable interval in the figure, compared with the morphological form given in tiers (2) and (3), where long vowels are represented by a repetition of the vowel symbol, provides information about actual temporal realization. I do not think phonologically contrastive vowel length is nonexistent here, just that there is no principled way of using the length diacritic in a phonetic transcription of these data. Parker (1976) describes processes responsible for the shortening of (morphologically) long segments, e.g. one where a syllable that is morphologically CV:C is produced as CVC, because maximal syllables are either CV: or CVC. In the data here, vowels in these positions seem to show the same durational variability as all others.

253 https://osf.io/acp7y/

syllable of the phrase (*la* of *filachaw*) and stays high on the final syllable. In the second one, pitch is flat on the first two syllables, then rises on the penult of the first word *segunduchaw* and stays high until the first syllable/penult of *kiru*, then falls steeply, forming a low stretch on the final syllable. Which contour is realized does not depend on the lexical items involved,[254] as (98)/Figure 115 shows.

(98) LC34_MT_Q_1037 and XQ33_MT_Q_1053
hirka hawa-n-pa
hill below-3-GEN
"below the hill"

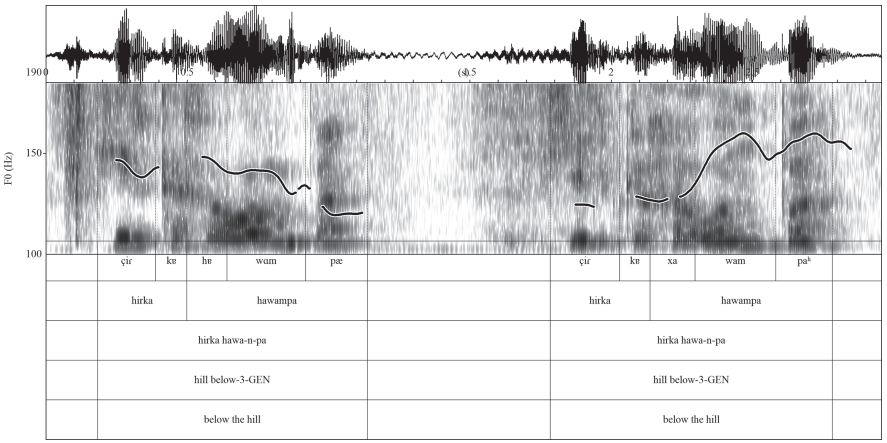


Figure 115: LC34_MT_Q_1037[255] (declarative realized with a falling contour) and XQ33_MT_Q_1053 (confirmation-seeking polar question realized with a rising contour).

Here, two utterances that are lexically and syntactically identical but pragmatically different are realized by two speakers in direct succession, first with a falling and then with a rising contour.[256] The same word *hawanpa* realizes a fall on its penult in the first case and a rise in the second, while no tonal event occurs on *hirka*, which is overall high in the first, and overall low in the second utterance. *Hirka* does not

254 Except to the extent that additonal alignment patterns are optionally available for loanwords from Spanish, for which see section 6.1.8. In the preceding sections, any examples containing Spanish loanwords show intonational behaviour also available to "native" Quechua words, which is their majority behaviour (cf. 6.1.8.3).

255 https://osf.io/mfbse/

256 In a very similar context as the one described for Huari Spanish confirmation-seeking questions, cf. 5.1.2.2.

belong to a different lexical class from *hawa*, e.g. of unaccented vs. accented words, respectively, as might be suggested from the perspective of languages like Japanese or Basque (cf. section 6.1.8.2). This is demonstrated by (99)/Figure 116, where the same lexical item is realized with a rising-falling contour.

(99) XQ33_MT_Q_1213
hatun ka-q hirka-pa
big COP-AG hill-GEN
“the hill that is big”

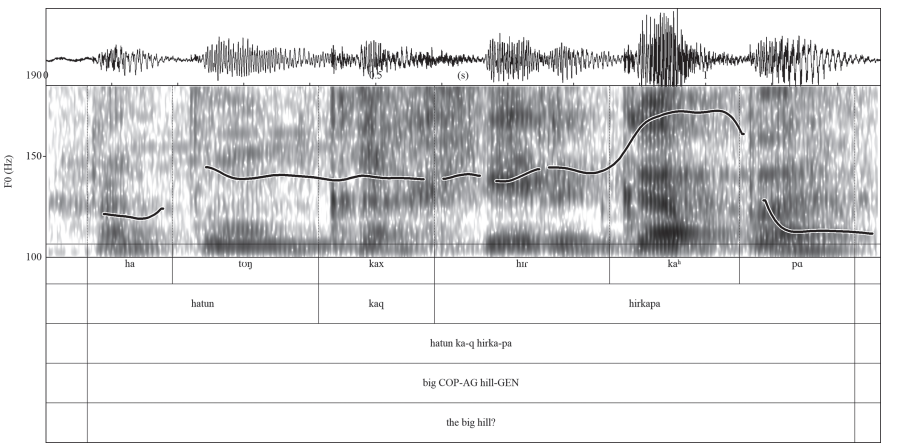


Figure 116: XQ33_MT_Q_1213[257] (confirmation-seeking polar question with falling contour).

No evidence was found for a lexical distinction affecting the type of pitch event that can be realized, apart from when words of Spanish origin are involved, for which see section 6.1.8. Nor does a certain class of suffix such as e.g. the genitive *–pa* here effect the presence or absence of pitch accenting on a word (as is the case in some varieties of Basque, cf. e.g. Elordieta 1998; Hualde 1999; Hualde et al. 2002). That can be seen from (100)/Figure 117, where *qiru-pa* is just as lacking in pitch events as the two instances of *hirka* above, while *waqta-n-pa* does realize a pitch event.

(100) LC34_MT_Q_0095
qiru-pa waqta-n-pa
wood-GEN behind-3-GEN
“behind the wood”

257 https://osf.io/rquxg/

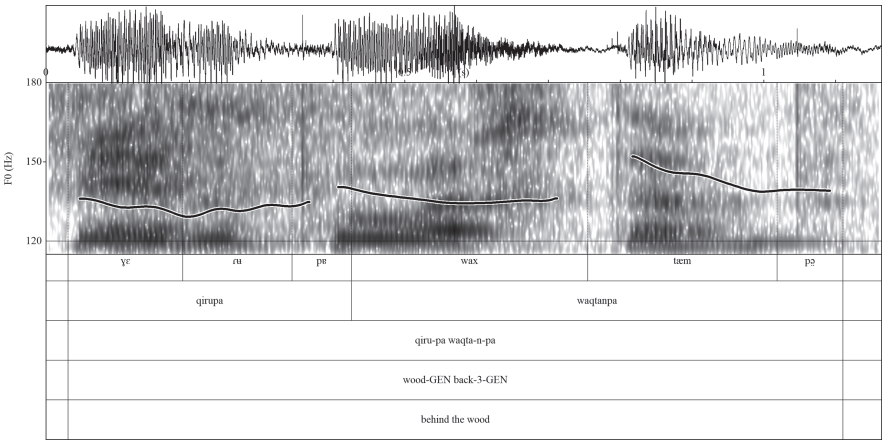


Figure 117: LC34_MT_Q_0095[258] (part of a declarative with falling contour).

That there are no categorical lexical restrictions on which type of word the low or high stretch or the tonal transition can be realized is also valid for the difference between lexical and function words. In XQ33's Conc_Q_0690 ((101)/Figure 118), a rising contour is realized on two nouns, with the rise taking place only on the penult of the second, the spatial noun *hawanchaw* "in its below[259]", and the first noun realized low without any pitch event.

(101) XQ33_Conc_Q_0690
qillay hawa-n-chaw krus
money below-3-LOC cross
"below the money [is] the cross"

258 https://osf.io/y97cx/

259 As can be seen from the gloss in (101), this is analyzed as *hawa-n-chaw* "below-3-LOC", with the 3rd person suffix referring to the preceding noun *qillay* "money", thus "below the money". I label as "spatial nouns" a group Quechua words that behave syntactically just like any noun, but refer to spatial relations (cf. Parker (1976: 87–88)). To give an example, in a possessive construction like *qillay hawa-n-chaw*, marking the possessor additionally (glossed as genitive) is also possible, yielding *qillay-pa hawa-n-chaw* "money-GEN below-3-LOC", with essentially the same meaning. The marking can also be reversed, i.e. *hawa-pa qillay-nin-chaw* "below-GEN money-3-LOC" (with the 3rd person marker in the form *–nin* because of the phonotactic restriction to simple codas), so that the meaning becomes "in the money from below" (e.g. as opposed to money from above). The fact that these spatial nouns regularly take person markers in Quechua is adduced by several authors to account for the frequency of parallel constructions, such as *en su debajo del dinero*, (instead of *debajo del dinero*), which are also attested in abundance in our data, in the Spanish varieties of Quechua-speaking regions (cf. Escobar 2000).

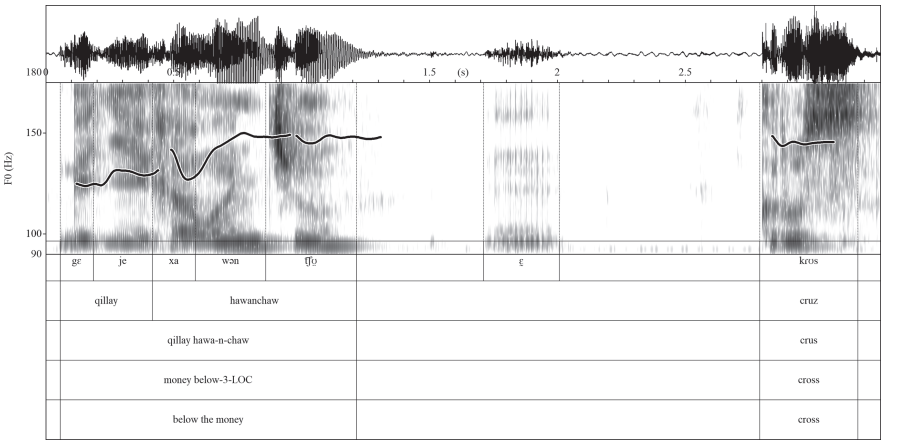


Figure 118: XQ33_Conc_Q_0690[260] (declarative with a rising and a high flat contour).

Examples like TP03_Conc_Q_1372, QF16_Conc_Q_1737, and XU31_MT_Q_1855 ((102)/ Figure 119, (103)/ Figure 120, (104)/Figure 121, respectively) show in turn that even the function words *tsay* and *kay*, the distal and proximal demonstratives, can realize a rising or falling pitch event, at least if they function as pronouns, expandeable by suffixes just like any other noun, instead of determiners.

(102) TP03_Conc_Q_1372
kanan allawka ladu-yki-pa aja tsay-chaw-mi
now right side-2-GEN yes DEM.DIST-LOC-ASS
“now, to your right side, yes, there”

(103) QF16_Conc_Q_1737
arash kay-chaw
lizard DEM.PROX-LOC
“[the] lizard, here”

260 https://osf.io/xe759/

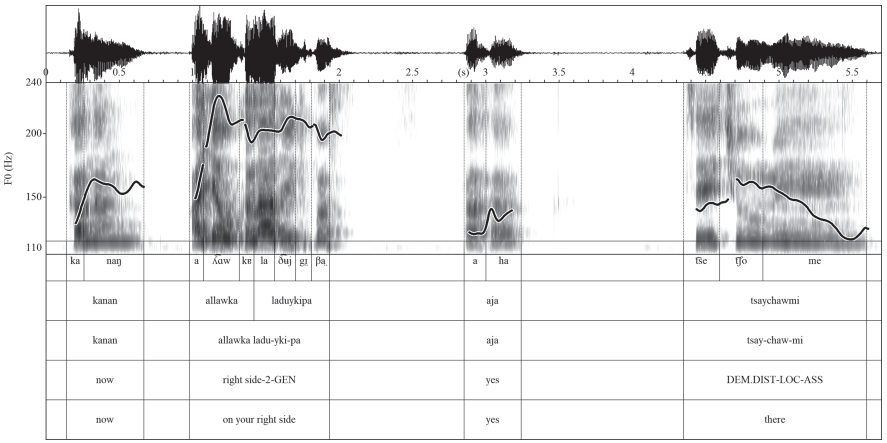


Figure 119: TP03_Conc_Q_1372[261] (declaratives consisting of rising and falling contours).

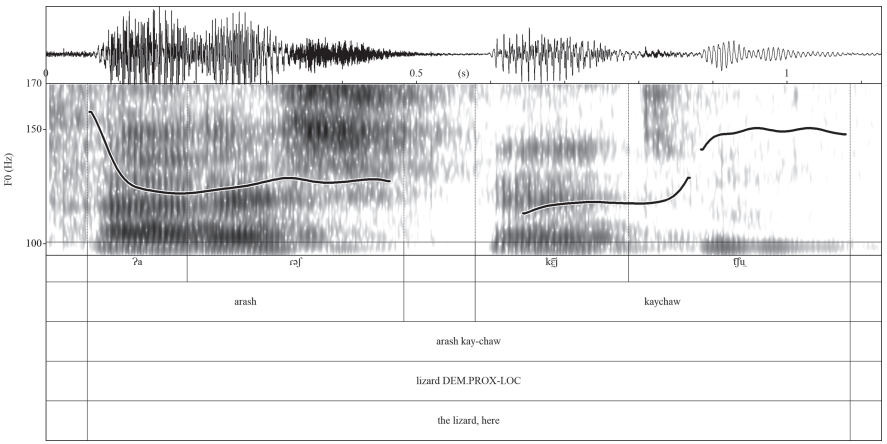


Figure 120: QF16_Conc_Q_1737[262] (declarative consisting of two rising contours).

(104) XU31_MT_Q_1856

tsay-pita	ultu-ta	rikaa-nki	yaku-pita	yarqa-mu-sha-ta
DEM.PROX-ABL	tadpole-OBJ	see-2	water-ABL	leave-CIS-PRTCP-OBJ

“then you see a tadpole coming out of the water”

261 https://osf.io/g3f56/
262 https://osf.io/bruj9/

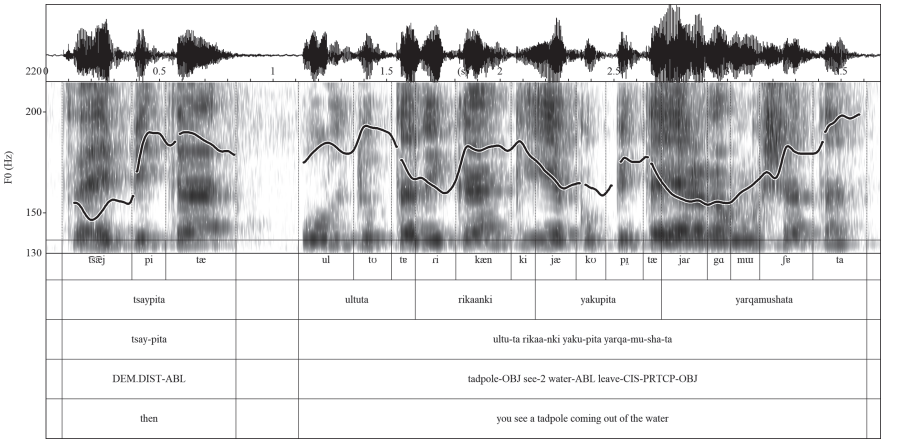


Figure 121: XU31_MT_Q_1855[263] (declarative consisting of five rising contours).

Examples like XQ33_Conc_Q_0531 ((105)/Figure 122), HA30_MT_Q_1241 ((106)/Figure 123), QF16_MT_Q_1348 (0/Figure 124), or HA30_Conc_Q_0211 ((108)/Figure 125) demonstrate that the low stretch following the fall in falling contours is not limited to only the final syllable of the phrase but can in fact encompass one or several full words (although such cases as HA30's MT_Q_1241, where it seems to cover the last 3–4 words, are rare). The fall also does not have to take place in the last word of the phrase.

(105) XQ33_Conc_Q_0531
quena ladu-n-chaw chuqllu-pa aqtsayku-n
flute side-3-LOC corncob-GEN corn.hair-3
"beside the flute is the hair of the corncob"

(106) HA30_MT_Q_1241
tsay naani hawa-n-chaw-na-m huk runa
DEM.DIST path below-3-LOC-DISC-ASS one person
ichira-ykaa-n qillay-ni-n haya-ku-shaa
stand-PROG-3 money-FON-3 carry-MID-PRTCP
"below the path there now a man is standing holding money"

263 https://osf.io/8tybp/

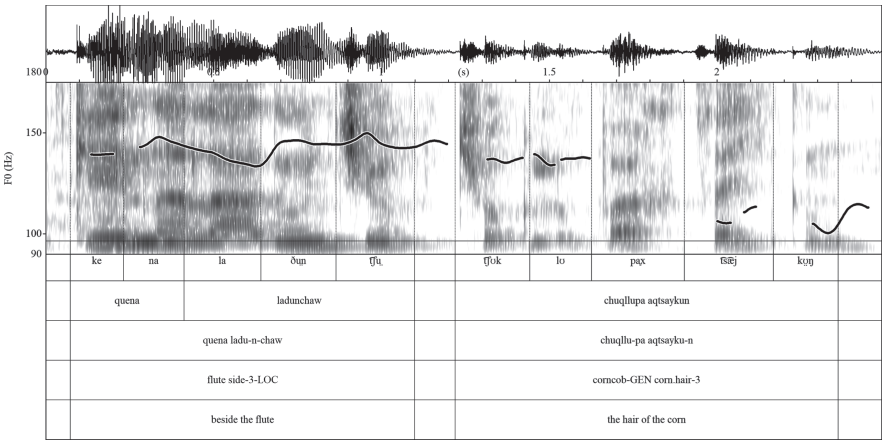


Figure 122: XQ33_Conc_Q_0531[264] (declarative with a rising and a falling contour).

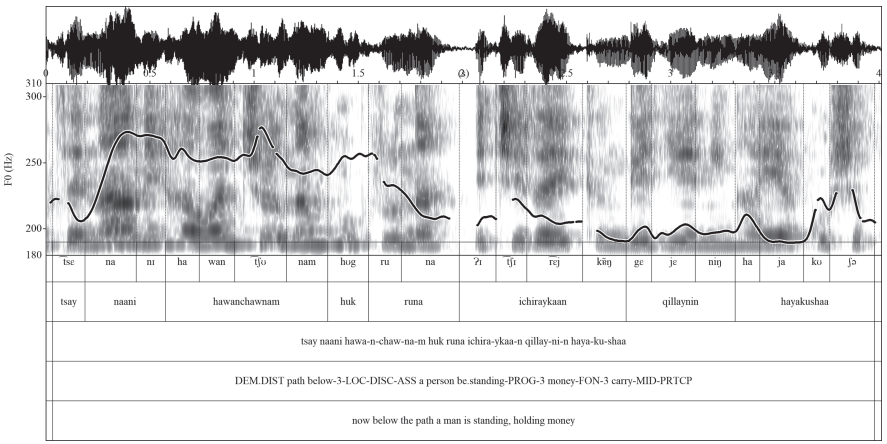


Figure 123: HA30_MT_Q_1241[265] (declarative with a rise-falling contour).

(107) QF16_MT_Q_1348
atuq ka-q-man chaa-tsi-y
fox COP-AG-DEST arrive-CAUS-INF
“let it get to the fox[266]”

264 https://osf.io/ujxny/
265 https://osf.io/dvc76/
266 This utterance clearly has imperative force. Prosodically, this is not expressed (imperatives having no prosodic form distinct from declaratives). Morphologically, this is here (and regularly)

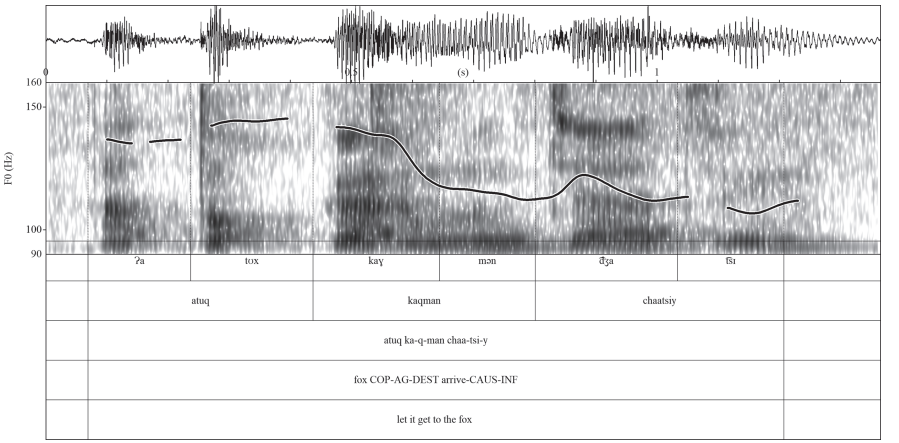


Figure 124: QF16_MT_Q_1348[267] (imperative consisting of a falling contour).

(108) HA30_Conc_Q_0211

washa	kantu-chaw	ukush-mi	ka-ykaa-n
DEM.DIST	edge-LOC	mouse-ASS	COP-PROG-3

"at that edge there is a mouse"

Equally, examples like (110)/Figure 127 (111)/Figure 128 (in the next section) show that the low stretch preceding the rise in contours that have it is not restricted to a single word.

From examples like (98), where the first *hirka hawampa* is uttered by the speaker who has the path on the map in the maptask, and the second by the one without the path, it could be thought that the falling contour corresponds to declaratives, and the rising to (polar) interrogatives. In fact, both types of contours occur on utterances where the context points to a declarative function as well as in those with an interrogative function. (99) already shows that a confirmation-seeking polar question, realized with a rising contour in (98), can also be realized with a

indicated by the morpheme *–y*, which is glossed as –INF, in accordance with the glossing conventions of Bendezú Araujo et al. (2019). This is because it is formally identical to the "infinitive" suffix *–y*. It can't be said whether these infinitive imperative constructions are therefore parallel to the use of infinitive constructions for directive functions in languages such as Spanish (*hablar de otras cosas* "(let's) speak of other things!") or German (*jetzt mal die Klappe halten* "shut your mouth now"), where there are additional other means of marking imperatives. In Quechua, *–y* is the only morpheme for positive imperatives; negative imperatives (vetatives) are formed with the special vetative particle *ama* sentence-initially together with the negation suffix *–tsu* attached to one of the words in the sentence.

267 https://osf.io/wrjpn/

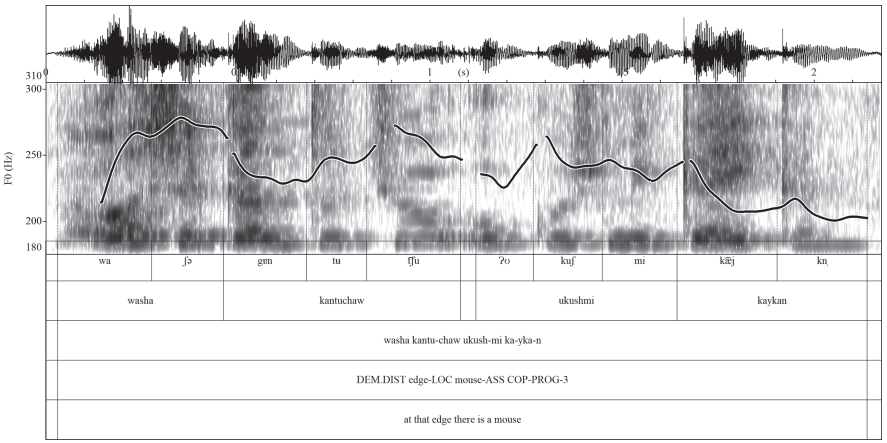


Figure 125: HA30_Conc_Q_0211[268] (declarative with two rising and one falling contours).

falling contour. Section 6.2.1 will delve a little further into the relation between contour type and interrogativity.

This section has shown that no lexical or morphological distinction has a categorical influence on whether a pitch event takes place on a word or not and which form it takes, and that a single tonal contour often encompasses several words, regardless of its shape (rising, falling, or rising-falling). A further general observation is that in many utterances, pitch contours consist of relatively flat and long stretches sometimes extending over more than a single word, whether pitch is high overall (plateau-like realization), or low. The process generating these pitch contours is clearly phrase-based, not word-based. The functional differentiation of the contours will be discussed in detail in section 6.2, where it will be shown that rising contours can broadly be characterized as continuing or incomplete and falling ones as closing or complete (6.2.2). It will also be argued there (6.2.3) that it is the prominence and position of the words in a phrase that determine the location of the low and high stretches in it. In the following sections, I will provide a description of the alignment patterns in these contours regarding possible locations for the rise and fall in multi- and single-word phrases, using examples from the tasks *Conc*, *Maptask* and *Cuento*.

268 https://osf.io/m4ec2/

6.1.2 Alignment of the tonal transition with the word boundary

(109) KP04_Conc_Q_1532

tsay	tikra-nqa-yki	ka-q	tsuqllu
DEM.DIST	turn-NMLZ-2	COP-AG	corn

"the one you turned around [is] corn"[269]

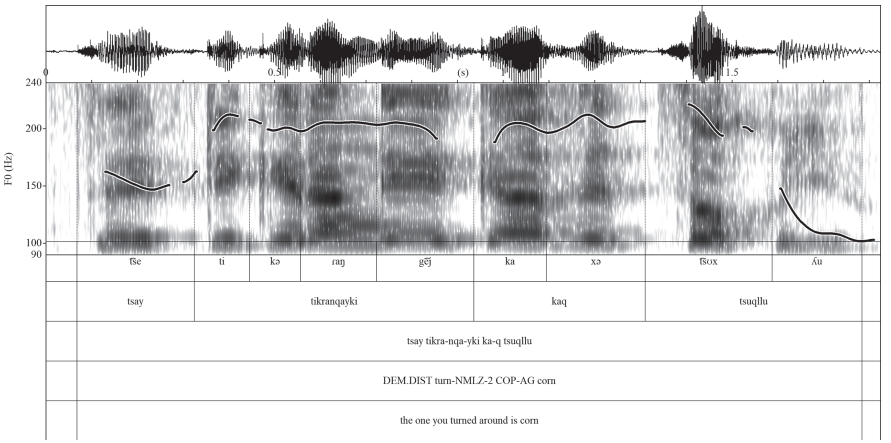


Figure 126: KP04_Conc_Q_1532[270] (declarative consisting of a rise-falling contour).

In KP04's Conc_Q_1532, given in (109) and Figure 126, there is a single large rise-falling contour encompassing the whole utterance, consisting of an initial low stretch, a rise, a high plateau, a fall, and a final low stretch. The initial low stretch is realized on the determiner *tsay*. The largest part of the following increase in pitch height is already accomplished at the beginning of the vowel segment of the initial syllable of the second word *tikranqayki*, with just the last bit of it realized as an actual

269 Note that the verb of being *ka-* is not used in Quechua in the third person present (*ka-n*) when expressing a copular relation. Instead, no verb at all is used. This only holds for the third person present; forms of *ka-* are used for all other persons and tenses. In its third person present form, *ka-* is only used to express existential meaning (*allqu kan* "there is a dog", not "x is a dog"), cf. Parker (1976: 68). The form *ka-q* used here, with the agentive suffix *–q* is not fulfilling a copular function here between *tikranqayki* "what you turn around" and *tsuqllu* "corn", instead it forms part of the complex noun phrase *tsay [[tikranqayki] kaq]*, where *tsay* is a determiner and the contribution of *kaq* has been translated in English with the construction "the one. . .". For further information on *kaq* and other aspects of Huari Quechua syntax and information structure, see Bendezú Araujo (2021).

270 https://osf.io/bgxzj/

rise. Note that the syllable *ti* is neither the penult of the entire phrase nor that of the word. Pitch then basically remains eventlessly high over the course of the two words *tikranqayki kaq* until the initial /penultimate syllable of the final word *tsuqllu*, during which it begins to fall. Again the largest part of the pitch transition takes place over voiceless segments and by the time the vowel segment of the final syllable of the word and the entire utterance is reached, it has decreased substantially and then remains low. This utterance is exemplary for an alignment pattern in which the initial rise (both of the rising-falling and the rising contour) takes place not on a particular syllable in one of the words on which the contour is realized, but at a boundary between those words. I will call this the word boundary pattern. KP04's Conc_Q_1576 ((110)/Figure 127) shows that the initial low stretch can encompass more than one word also in this pattern.

(110) KP04_Conc_Q_1576

tsay	kay	hawa-n	ka-q	wanupakush
DEM.DIST	DEM.PROX	below-3	COP-AG	burial

"that one that's below this [is the] burial"

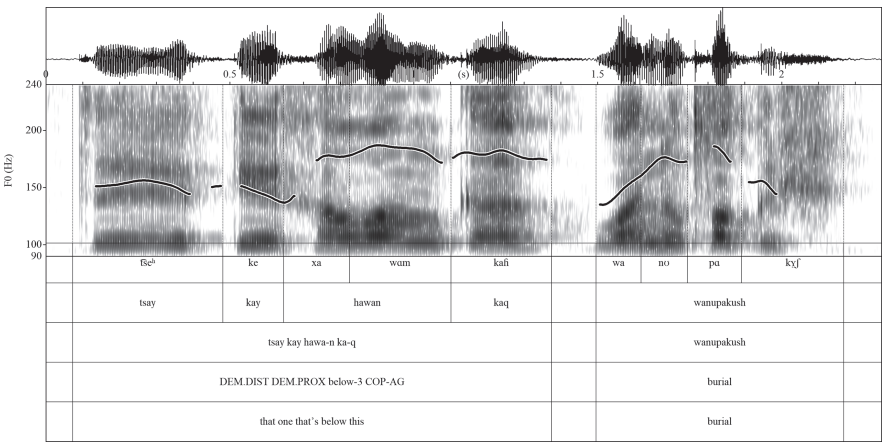


Figure 127: KP04_Conc_Q_1576[271] (declarative with a rising and a rise-falling contour).

There and in LC34's Conc_Q_0110 ((111)/Figure 128), the word boundary pattern occurs on rising contours.

271 https://osf.io/yxzuw/

(111) LC34_Conc_Q_0110

primer	qalla-na-n	ka-q-chaw	ashkash
first	begin-DISC[272]-3	COP-AG-LOC	lamb

“now the one starting the first one is the lamb”

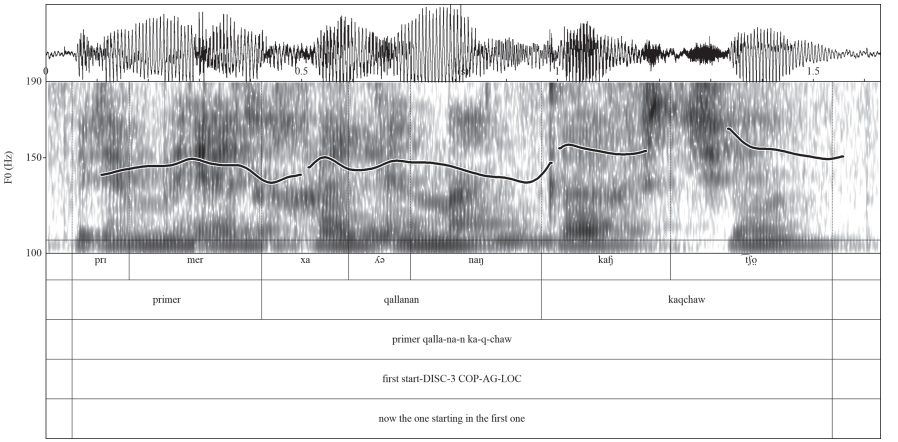


Figure 128: LC34_Conc_Q_0110[273] (part of a declarative with a rising contour).

The fall in falling contours can also be aligned with a word boundary, as Figure 125 above shows. However, often the falling pitch event stretches over both the penult of a word and a word boundary, so that it is difficult to determine which landmark it actually aligns with (cf. Figures 122 and 123 above). The alignment pattern showcased in this section leads to the conclusion that a phonological phrase in the Huari Quechua data can contain several prosodic words. The level of the phrase determines the extent of the pitch contour, and, under this alignment pattern, the boundaries of the prosodic words are the landmarks that tonal alignment refers to. However, this is only one option attested in these data.

272 The suffix *-na* glossed here as DISC(ontinuative) is sometimes used to indicate something like a change of topic, which the translation tries to approximate by the use of “now” as a sentence adverbial. In other cases its use can also be translated by “already” (cf. Parker 1976: 146).
273 https://osf.io/9mbu3/

6.1.3 Alignment with the phrase boundary and phrase-final devoicing

Regarding tonal alignment with the phrase boundary, all contours seen so far show evidence for it in an uncontroversial way: the left-peripheral tones (the first L tone in rising and rising-falling contours, the H tone in only-falling contours) must be aligned with the left edge of the phonological phrase; the right-peripheral tones (the second L tone in only-falling and rising-falling contours, the H tone in rising contours) with the right. Here I'll show that also the point of tonal transition, so to speak the "inner" alignment, refers to the right phrase edge in some of the contours. Potential cases in point are abundant: in utterances with rising contours like (97)/(Figure 114), (101)/(Figure 118), or (103)/Figure 120, the observed pitch movement of a rise taking place on or after the penult of the last word in the phrase could well result from an alignment of both the L and the H tone to the right phrase boundary and tonal crowding ensuring that the L tone only reaches into the penult because the H tone already occupies the rightmost TBU. Similarly, in falling contours, the high pitch extending until the penult of the final word, like in (109)/Figure 126, (110)/Figure 127 (rising-falling), or (112)/Figure 129 (only-falling), with the fall taking place on or after it can be analyzed by the L tone occupying the final TBU in the phrase and the H the preceding one, both seeking to align as rightwards in the phrase as possible.

(112) ZR29_Conc_Q_1661
ya pitu ladu-n-chaw uusha
ok flute side-3-LOC sheep
"ok beside the whistle [is] the sheep"

The obvious alternative analysis is that the H tone in both the rising and falling contours is aligned with the penult of the (final) word in these cases. Under that analysis, the fact that the (phrase-final) penult is roughly where the tonal transition takes place would be because it serves as H tone association or alignment site by virtue of being stressed (**b** in Figure 130), as opposed to because this is what happens when two tones in linear succession seek to be realized as rightmost as possible with the one to the right occupying the rightmost TBU and pushing the other TBU to the left (**a** in Figure 130).

In the next section (6.1.4), evidence will be provided that something like analysis **b** (also applied to rising and only-falling contours) must be right for some of the utterances in the data, whereas in this section I will proceed to show that for others, only **a** can hold.

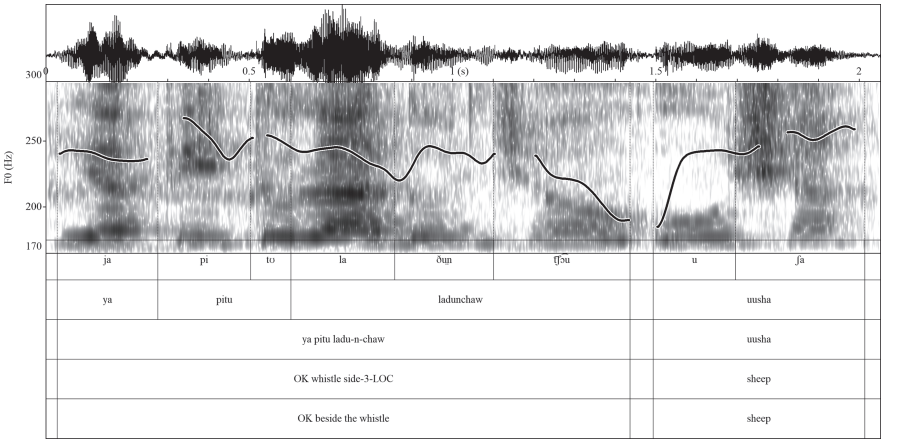


Figure 129: ZR29_Conc_Q_1661[274] (declarative with a falling and a rising contour).

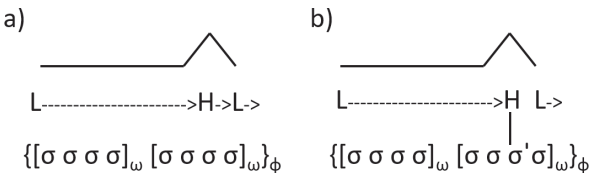


Figure 130: Two possible analyses for schematized rising-falling contours.

In this Quechua variety, vowels in phrase- and especially utterance-final syllables are sometimes devoiced, as well as high vowels following voiceless fricatives or plosives (similar to what Delforge 2011 describes for Cuzco Quechua). When domain-final devoicing takes place, the phrase-final behaviour of the tonal contour is frequently not cut short, but instead occurs earlier, further "to the left". This occurs in TP03_Cuent_Q_1663 ((113)/Figure 131) and OA32_Cuent_Q_1222 ((114)/Figure 132).

274 https://osf.io/8um7v/

(113) TP03_Cuent_Q_1663

maa	cuenta-ri-shayki	huk	cuento-ta
let's.see	tell-ITER-1.SUB>2.OBJ.FUT	one	story-OBJ

cuenta-yaa-maa-nqa-n-ta
tell-PL-1.OBJ-NMLZ-3-OBJ
"let's see, I'm going to tell you a story they told[275] me"

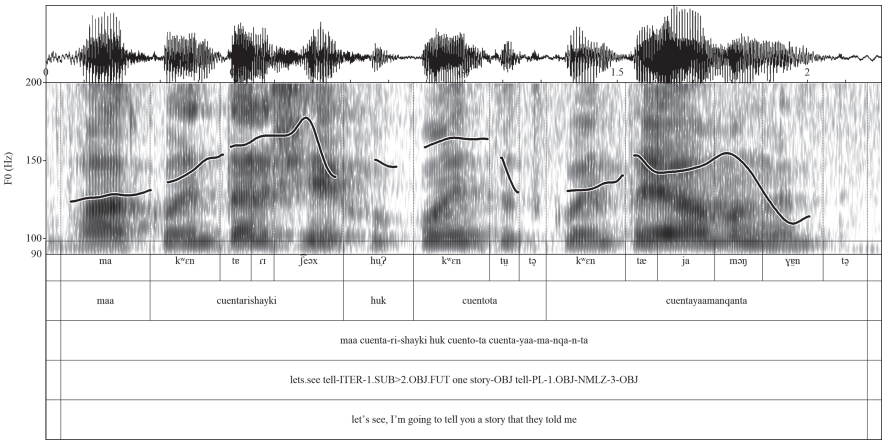


Figure 131: TP03_Cuent_Q_1663[276] (declarative consisting of three falling contours).

(114) OA32_Cuent_Q_1222

tsay	mosca-ta	miku-ski-r-ni-n-qa	imanuy-taa
DEM.DIST	fly-OBJ	eat-ITER-SUBID-FON-3-TOP	how-DETVAR

siente-ku-rqa-n-qa
feel-MID-PST-3-TOP
"when [he] ate the flies, how did [he] feel?"

275 What has been translated as a relative clause here is a tenseless nominalization with *–nqa* (homophonous, but not identical, to the marker of the third person future *–nqa*), usable in both perfective and imperfect contexts. The verb form nominalized with *–nqa* usually does not bear tense markers (cf. Parker 1976: 172).

276 https://osf.io/ka8zq/

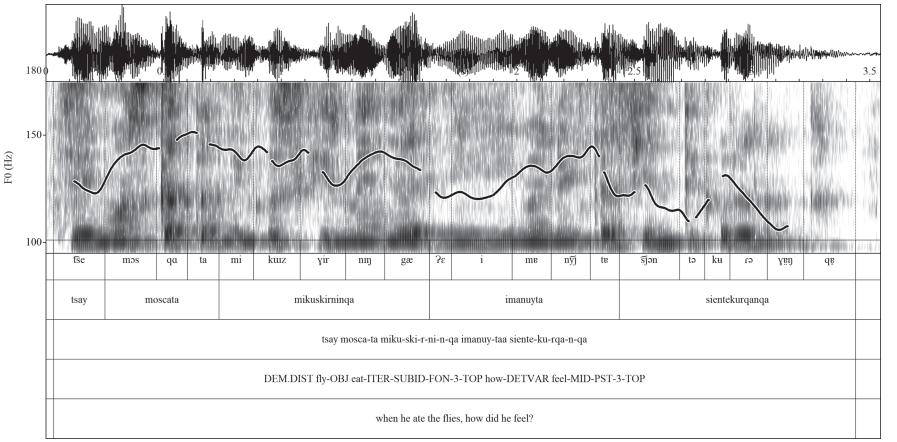


Figure 132: OA32_Cuent_Q_1222[277] (wh-question with two rising and two falling contours).

In TP03_Cuent_Q_1663's *cuentayaamanqanta*, realized as [kʷɛn.tæ.ja.mən.ɣɐ̯n.tə̯], the last vowel (of the object suffix *–ta*) is produced without voicing. Yet there is no pitch peak or end of the plateau on the penult [ɣɐ̯n][278] of the word, with the following fall cut short, as would be expected under an account where a H tone is associated or aligned with a supposedly prominent word penult. Instead, the peak is realized one syllable earlier, "displaced", as it were, onto the antepenult [mən], and followed by a full realization of the fall with a low elbow reached on the penult. Similarly, in OA32_Cuent_Q_1222, *sientekurqanqa*, realized as [sʲən.tə.kʉ.ɾə.ɣɐ̯ŋ.qɐ̯], with an epenthetic schwa inserted in the cluster /rq/, the peak occurs not on the word penult [ɣɐ̯ŋ], but on either [kʉ] or [ɾə], the preceding syllable(s), while it is the elbow of the following fall that is realized on the penult – followed by a (nearly) voiceless final syllable. A third example is QF16_MT_Q_1282 ((115)/Figure 133), a single-word utterance realized with an only-falling contour. The last two syllables are voiceless (the penult realized with very creaky voice, the final syllable completely devoiced), and the fall takes place on the preantepenult of the word, with the antepenult, the last voiced syllable, realized low.

277 https://osf.io/pw2ad/

278 The breathy voice diacritics [̤] here and elsewhere indicate a vowel produced audibly with increased breathy air flow and reduced energy in the formant spectra. As here, a breathy vowel often occurs in a syllable preceding a fully unvoiced one, suggesting that both are due to a gradually increasing domain-final exhalation process.

(115) QF16_MT_Q_1282
hawa-n-pa-taaku
below-3-GEN-NEG
“not below it”

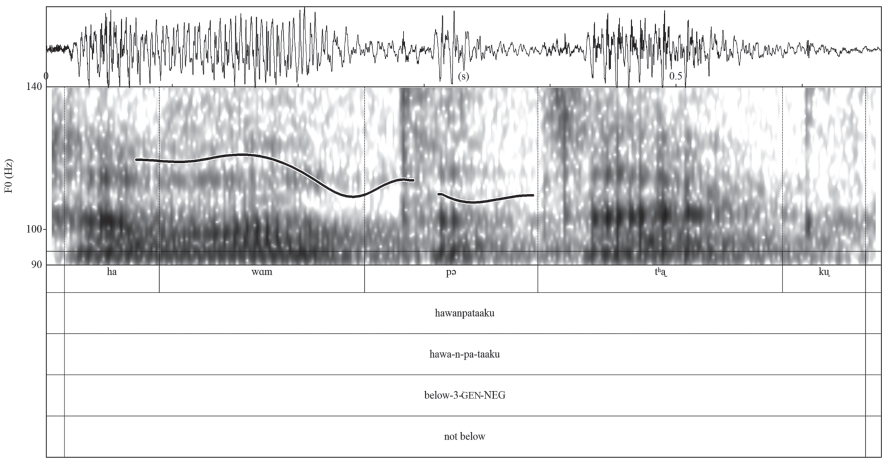


Figure 133: QF16_MT_Q_1282[279] (declarative consisting of a falling contour).

Such “displacement” is unexpected under an account where the penult is stressed at the level of the prosodic word, with the H tone as a post-lexical pitch accent anchored to it. In such a scenario, the final syllable being unvoiced should not affect the anchoring of the H tone to the supposedly prominent penult because the necessary condition for tonal association, namely the status of the penult as stressed, is determined previously to, or at least independently of, the unvoicing. Furthermore, the penult itself as stressed syllable should not be able to be devoiced at all, since deletion and other weakening processes in languages with stress usually target all other material instead of the stressed position. In Huari Spanish, a similar devoicing process occurs in the speech of some speakers, but there, affected pitch movement unambiguously shows the behaviour of pitch accents associated with stressed syllables, i.e. it is either less affected than on unstressed material or the associated pitch movement is deleted instead of displaced. See e.g. the utterance-final part of ZZ24’s ELQUD_ES_26 (Figure 134). There, the utterance-final syllable [kạ̊] of *roca* “rock” is also devoiced, but the preceding pitch peak due to the LH* pitch accent on the stressed syllable [ɾɔ] takes place on that syllable and is not “displaced” to

279 https://osf.io/3c2xa/

the left. On *encima*, the stressed vowel in [sj̥] is devoiced due to the presence of the voiceless fricative.[280] Here it is clearly visible from the remaining pitch contour that the rising movement due to the LH* pitch accent on that syllable is removed, instead of displaced.

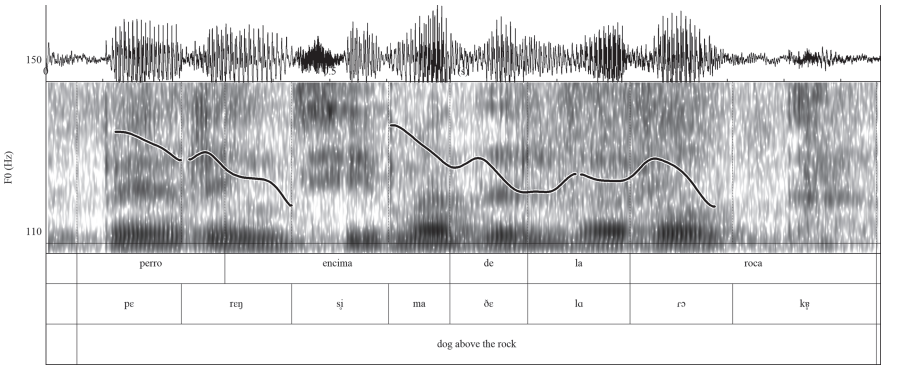


Figure 134: (part of) ZZ24_ELQUD_ES_26[281] (*perro encima de la roca* 'dog above the rock').

The displacement is best explained via an account which makes no reference to a prominent position determined at the word level (**a** in Figure 130), and where instead alignment of tones with TBUs happens concurrently with devoicing: phrasal tones seek alignment on the rightmost available TBUs. Those seem to be vowel nuclei with crowding disallowed. Then, the processes of final devoicing and tone alignment can go in tandem: unvoicing makes a syllable unavailable as a TBU. Consequently, rightmost alignment will then align the two right tones with the penult and the antepenult, respectively. What looks like a "displaced accent" thus simply falls out from that. Whether the unvoicing or the tone assignment happens "first" is hard to determine. However, there are also occasionally some examples like HA30_MT_Q_2044 ((116)/Figure 135), where the peak/end of the plateau and fall take place earlier even though no devoicing happens on the last syllable(s).

280 Deletion of high stressed vowels due to voiceless context does not occur frequently in the Huari Spanish data. In languages without word stress, deletion processes more often affect positions anchoring high tones: in Japanese e.g., syllables with lexical pitch accent (cf. section 3.3.2) are regularly devoiced if they have a high vowel and occur in the appropriate phonological context (Venditti et al. 2008: 480–481).

281 https://osf.io/5sfym/

(116) HA30_MT_Q_2044

y	tsay	pitu-chaw	pitu	hita-raa-ykaa-nqa-n-pita
and	DEM.DIST	whistle-LOC	whistle	throw-ITER-PROG-NMLZ-ABL

“and in that whistle, from where the whistle is lying”

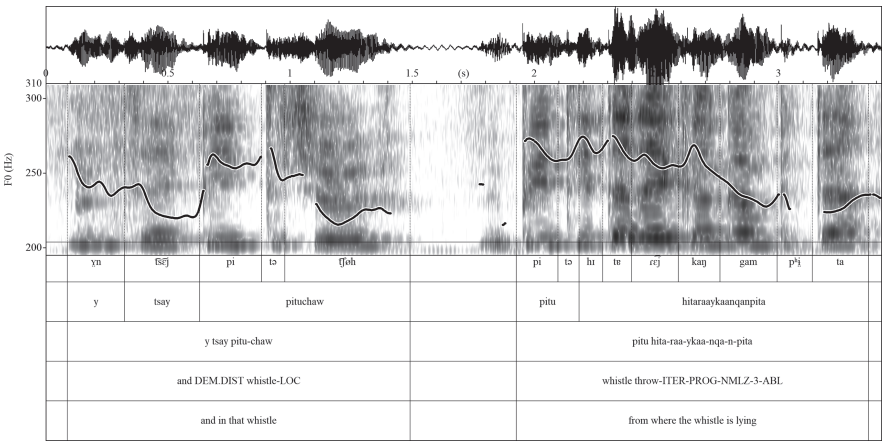


Figure 135: HA30_MT_Q_2044[282] (parts of a declarative with two falling contours).

The second phrase *pitu hitaraaykaanqanpita*, realized as [pi.tə.hɪ.tɐ.ɾɛ̃j.kaŋ.gam.pʰi̤.ta], is realized with an only-falling contour beginning with a high plateau that continues evenly (disregarding consonantal microprosody) until the syllable [kaŋ], on which a fall begins that reaches its low elbow in the next syllable [gam]. Here, [kaŋ] and [gam] are the preantepenultimate and the antepenultimate syllable in the phrase, respectively. A possible reason for this even earlier realization of the fall might be found in the penult, which is almost completely devoiced. It might be that the voicelessness of the penult causes the alignment of the two phrase-final tones to be realized on the two rightmost contiguous TBUs, even though the final syllable is again voiced and produced with considerable energy. An account using the word penult as the prominent position to which the high tone is associated would be at a total loss here.[283] For utterances like the ones shown in this section,

282 https://osf.io/wj9cv/

283 One theoretical alternative would be to assume fixed but varying stress positions for different lexical items, perhaps in a syllable window of some size, as in Spanish. However, this cannot be the case, since on the one hand, variation in final peak alignment occurs even in the same lexical item across different utterances. On the other, as we have seen in these examples, Quechua words can be quite long and morphologically complex, with the amount of information conveyed by one of the longer ones perhaps closer to that of a sentence in a European language than that of a single word.

analysis **a** is clearly the only option. Further evidence against analysis **b** consists in cases where no final vowel devoicing occurs, but where instead a medial vowel is entirely eliminated, leading to resyllabification with the penult itself sometimes reduced. This happens in OA32's MT_Q_2915 ((117)/Figure 136), where *pinkullutam*, produced with a falling contour, is realized as [piŋ.kʊl.tam], with the peak before the fall occurring on [kʊl], which is the penult *after* reduction, but at the cost of completely eliminating the vowel of what would have been the penult without reduction, the syllable /ʎu/ of /pin.ku.ʎu.tam/.

(117) OA32_MT_Q_2915
pinkullu-ta-m rikaa-:
flute-OBJ-ASS see-1
"I see [a] flute"

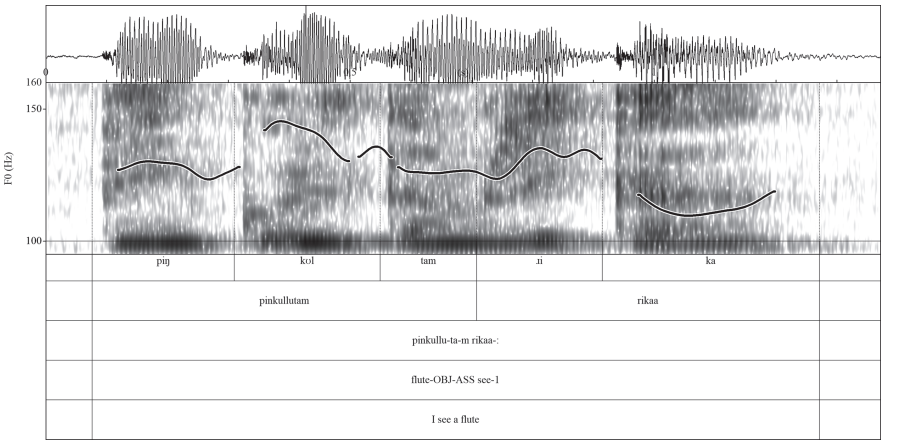


Figure 136: OA32_MT_Q_2915[284] (declarative consisting of two falling contours).

This syllable in this lexical item is not regularly reduced (cf. e.g. the realizations given in Figure 142), but there is no trace of the high back vowel following the

To suggest that one particular instantiation of a given lexical root plus a certain chain of suffixes has a lexically fixed stress on the penult, another on the antepenult and yet another on the preantepenult seems exceedingly implausible, especially given that these word forms are the result of productive formation, and the rules for combining roots and suffixes allow a vast array of possible combinations, so that each individual combination of such length will have quite a low frequency of occurrence, making a lexicalized stress position for each of them improbable. Such a hypothesis has also never been put forth for any Quechua variety.

284 https://osf.io/dj8us/

lateral here at all. This is incompatible with an account of word stress on the penult tweaking all acoustic parameters to cue this prominence, reducing atonic and preserving tonic syllables. Clearly a better hypothesis is that the reduction process is independent of word stress, with the penult just as available to be reduced as other syllables. Tonal alignment also does not make reference to stress and is affected by the segmental chain merely with regards to what qualifies as a TBU.

Applying the difference between the two analyses to rising contours yields an interesting prediction. As Figure 137 shows, under the analysis which only assumes phrase edge-alignment (**a**), the penult of the final word is expected to be low and the rise to occur on or after it, because the H tone only occupies the rightmost TBU. Under an analysis assuming alignment of the H tone with the stressed penult there, it is expected to be high and the rise to begin earlier.

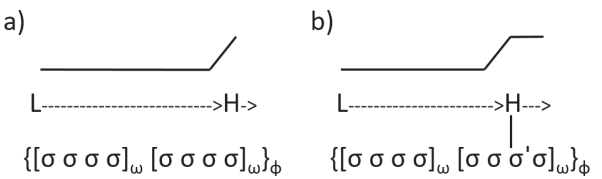


Figure 137: Two possible analyses for schematized rising contours.

This difference is borne out by observation: utterances like (101)/Figure 118 realize a contour clearly more compatible with **b**, with the penult of the phrase-final word *hawanchaw* mostly high already. On the other hand, in utterances like QF16_Conc_Q_1205 ((118)/Figure 138), the penult on the phrase-final word *wayinchaw* is clearly realized with a low stretch, and only the final syllable is high.

(118) QF16_Conc_Q_1205
runa wayi-n-chaw
person house-3-LOC
“a person in their house”

For utterances like Figure 138, analysis **a** is clearly the more adequate option, demonstrating that a subset of the rising contours here exhibits a purely edge-based alignment. Yet as just seen, analysis **b** must also hold for a different subset, in which the (final) word penult is a relevant anchor for tonal alignment. The distinction between these two variants is also upheld when considering phrases realized on individual words (see section 6.1.5). In the next section we will first consider further contours for which analysis **b** is more appropriate.

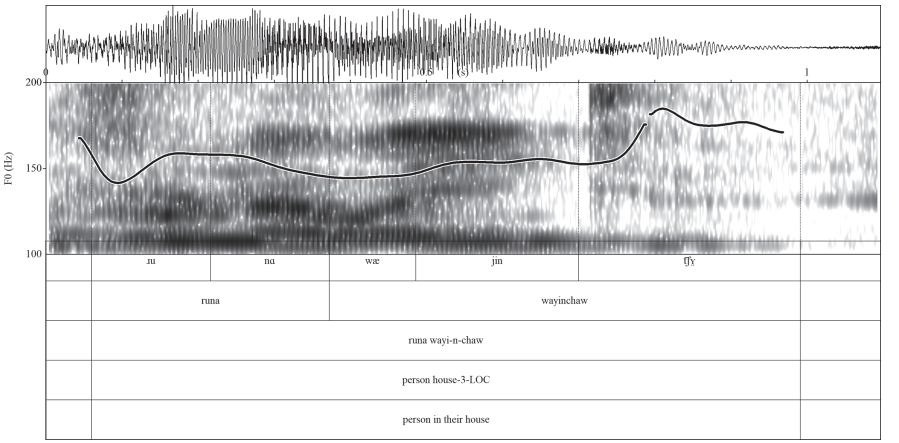


Figure 138: QF16_Conc_Q_1205[285] (two rising contours realized on part of a declarative).

6.1.4 Alignment with the word penult

The utterances discussed in this section, together with the arguments made just above, will present further evidence for the relevance of the penult of an individual word as a position with which the rise or the fall in the rising or falling contours is aligned. This solidifies the observation that in the Huari Quechua data overall, tonal alignment is possible with the edge of the phonological phrase, the edge of the prosodic word, and a regular word stress position. At least two of these alignment patterns are clearly in competition with each other, resulting in variant realiations.

In some utterances the rise in the rising contour occurs on the penult of a pre-final word in a phrase, with the following high plateau extending until the end of the phrase, cf. *aptasha kaykaan* in XU31_Conc_Q_0615 ((119)/Figure 139), or *akakakuna niyaashqa* in XQ33_Cuent_Q_1302, ((120)/Figure 140).

(119) XU31_Conc_Q_0615

runa	bolsa-n	apta-sha	ka-ykaa-n	escoba-pa	ladu-n-chaw
person	bag-3	carry-PRTCP	COP-PROG-3	broom-GEN	side-3-LOC

“a person is carrying a bag, besides the broom”

285 https://osf.io/z7x3s/

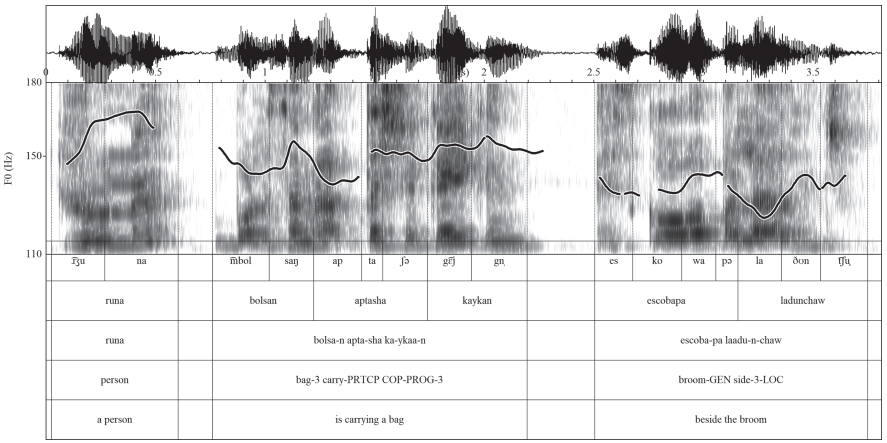


Figure 139: XU31_Conc_Q_0615[286] (declarative consisting of 5 rising contours).

(120) XQ33_Cuent_Q_1302
hampi-ku-q-mi aywa-ykaa-: akaka-kuna ni-yaa-shqa
heal-MID-AG-ASS go-PROG-1 woodpecker-PL say-PL-PST
"'I am going to get myself healed'; [and] the woodpeckers said"

These contours are less frequent than their counterparts where the low stretch extends until the penult of the final word in a phrase.[287] Yet they do occur, and they unambiguously require an analysis in which the word penult is a relevant position for tonal alignment in a phrase. The same can be applied to falling contours with the fall occurring on pre-final words. Some of them, like (108)/Figure 125, realize the fall between two words, using the word boundary as alignment landmark, while others like (107)/ Figure 124 realize it after the penult on a pre-final word. This latter realization is an instance of alignment with the word penult in falling contours, counterparts to the rises just discussed. Note that both phrases realizing the tonal transition on a prefinal word and those realizing it on a final word share the property that only a single tonal transition takes place in the phrase. That is to say, it is only the word penult of one word in the phrase that serves as tonal alignment anchor. It seems logical to assume that this is the word that is most prominent, i.e. only σˈ in ωˈ can serve as alignment anchor, while all other σˈs of mere ωs in ϕ are ignored by tone alignment.

286 https://osf.io/q83es/

287 In section 6.2.3.3, they will be argued to cue a marked metrical structure with prominence on a prefinal word in the phrase.

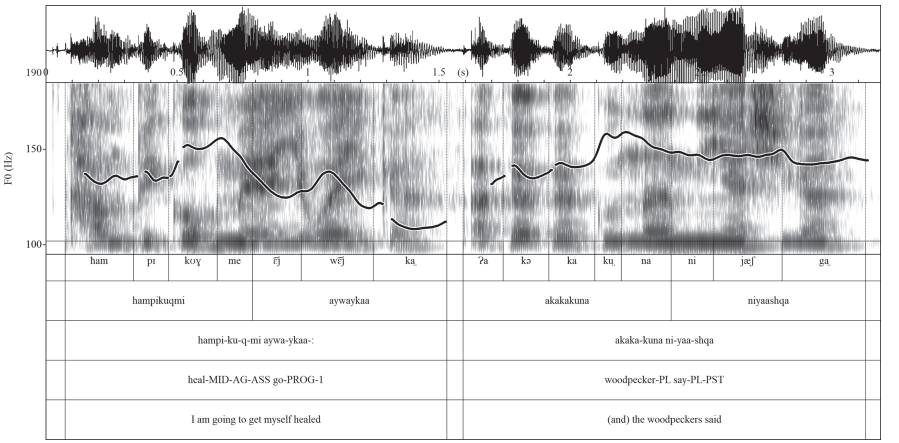


Figure 140: XQ33_Cuent_Q_1302[288] (two declaratives with one rising and one falling, and a rising contour, respectively).

In this context it should be noted that the only observable effect of this word-level prominence is precisely the possibility for anchoring the tonal transition, and nothing else. As Buchholz & Reich (2018) showed, the word penult does not consistently attract higher pitch or longer duration, and several already seen examples demonstrate that vowel quality is also not more peripheral, nor spectral energy necessarily higher in that position either: e.g. Figure 140, where the syllable [kụ] on which the rise takes place is shorter than the surrounding ones and has less spectral energy, or Figure 118 where the vowel of [wən] on which the rise takes place is more central than on surrounding syllables. Thus even in this alignment pattern where the tonal grammar makes reference to the metrical representation, the prominence on the penult is quite abstract. Its effects are certainly quite different from what can be observed in "typical" word stress languages like English, where many more phonological processes cannot be adequately described without making reference to it (cf. Hyman 2014, section 3.3.2). In this respect, Quechua certainly bears more resemblance to Japanese, where vowels bearing a lexical pitch accent are regularly devoiced when they are high (cf. Venditti et al. 2008: 480–481; Beckman 1986). But following Hyman (2014), it would be misleading to typologize Quechua as categorically different, e.g. by labeling it a "pitch-accent", a "stress-less" or an "edge-prominent" language. By adopting a "properties-based typology" (Hyman 2018) interested in whether more fine-grained individual properties are shared or not, the more informative assessment can be made that Huari Quechua

288 https://osf.io/g3x84/

utterances with this alignment pattern share only one out of 8 features with prototypical "stress-accent languages", namely that "[l]exical stress provides the designated terminal elements for the assignment of intonational tones ('pitch-accents')" (Hyman 2014: 58, cf. (10) in 3.3.2). Even this does not hold for utterances where tones seek alignment only with phrase or word boundaries. There is thus evidence for different variants in the intonational grammar available to the speakers providing the Huari Quechua data here. They differ precisely with regards to whether the information about a prominent location at the word level is relevant to their description or not. Just as Huari Spanish, the Huari Quechua data does not behave uniformly with respect to this typology.

We have now seen evidence that in a multi-word phrase, there can be three different kinds of landmarks serving as anchoring points for tonal transitions: the phrase-peripheral domain boundaries (in all variants), a phrase-internal boundary of the next lower domain, the prosodic word (in one alignment variant), and a regular prominent position, the penult of the strongest prosodic word in the phrase (in another alignment variant). Between the alignment variants, there is no reason to assume a differing tonal sequence or inventory going beyond LH for rising, HL for only-falling, and LHL for rising-falling contours. What differs between them is only where the transitions take place.

6.1.5 Contours on single-word phrases

In this section, the different intonational patterns as attested on individually phrased words will be discussed. Individually phrased here means that they were surrounded by (short) silent breaks on both sides and exhibited a recognizable complete tonal movement. That is not to say that individually phrased words are always surrounded by breaks, quite to the contrary. In section 6.2.3, only the presence of a recognizable tonal contour will be taken as sufficient evidence of phrasing, but in order to firmly establish this, the break criterion was used here to avoid ambiguities (in section 6.1.6 it is also used for operationalization).

Figures 141–146 provide examples of individually phrased Quechua words of increasing length, from two syllables (Figure 141), over three syllables (Figure 142) and four syllables (Figure 143 for rises and Figure 144 falls) to five or more syllables (Figure 145 for rises and Figure 146 for falls). The selection is somewhat shaped by necessity especially in the range of five syllables and more: those words are rarer than shorter ones, and individually phrased words by themselves are infrequent. Nevertheless, I believe they represent the range of attested intonational variation in the corpora, with the exception of the optional patterns particular to Spanish loanwords (see section 6.1.8). The following observations can be made.

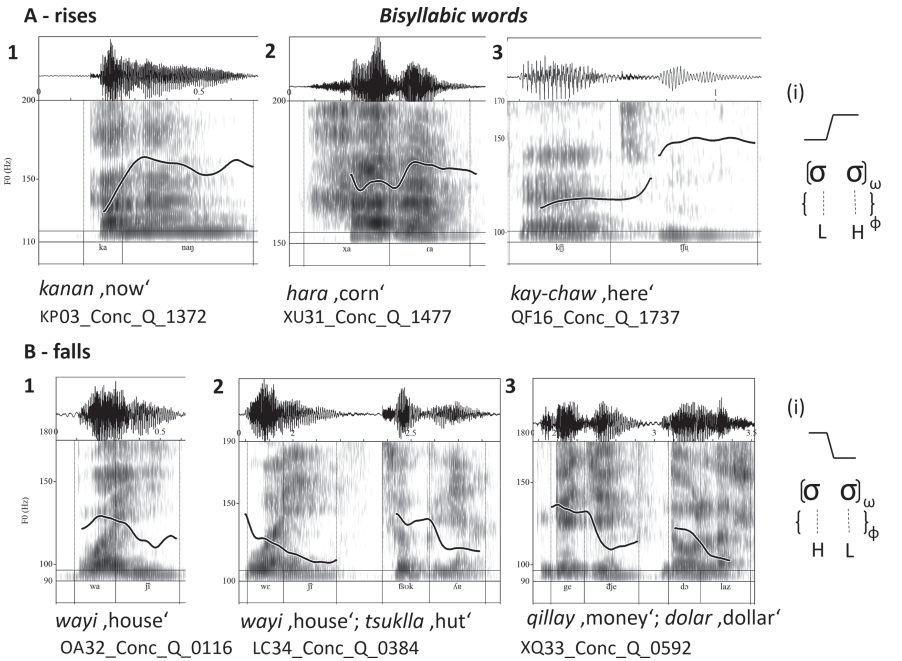


Figure 141: Individually phrased bisyllabic Quechua words. Row A 1–3:[289] words with a rising contour. Row B 1–3:[290] words with a falling contour. A (i) and B (i) are schematized tonal representations of bisyllabic rising and falling phrases, respectively.

Variability increases with syllable count: in phrases consisting of bisyllabic words, all rising contours consist of an L tone aligned with the first syllable and an H tone aligned with the second one and all falls are their mirror image in this respect, with the penult high and the final syllable low. This fact is reflected in there being only two schematic tonal representations, one for rises (A(i)) and one for falls (B(i)), for words of this size in Figure 141. This suggests that tonal alignment with phrase edges trumps alignment with the word penult under pressure of crowding; otherwise, we could expect to see high penults/initial syllables in some of the rising contours. It also suggests that rising-falling contours are not separately identifiable in phrases of this length. More variation is introduced beginning with phrases consisting of trisyllabic words. There are now two patterns for rises and falls each: in rising contours, the difference consists in whether the rise takes place before or after the penult, with

289 A1 https://osf.io/yuztx/; A2 https://osf.io/jb68t/; A3 https://osf.io/zx4dp/
290 B1 https://osf.io/uks6e/; B2 https://osf.io/f4ycp/; B3 https://osf.io/2z5wq/

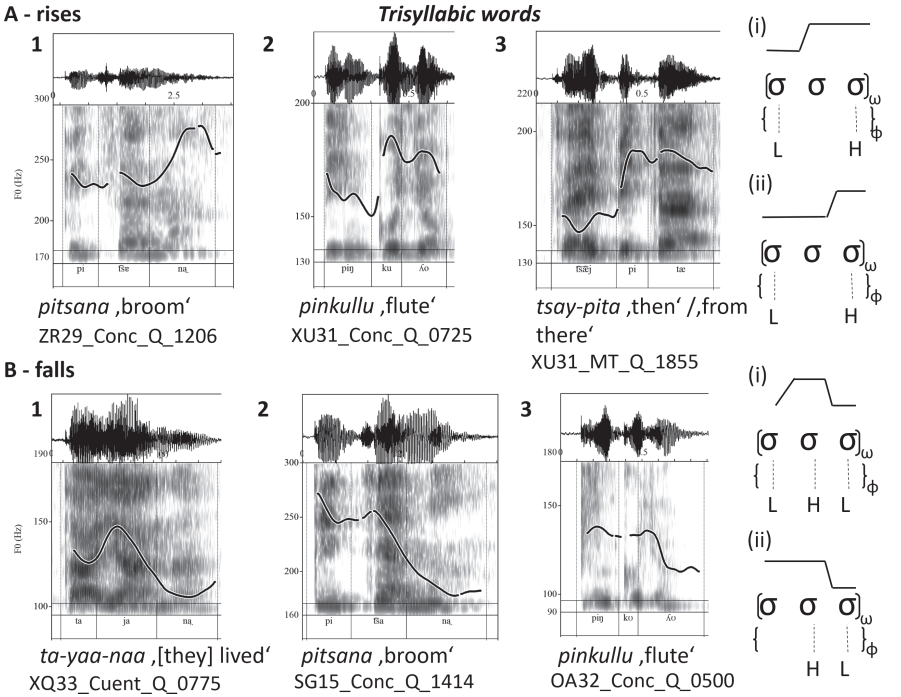


Figure 142: Individually phrased trisyllabic Quechua words. Row A 1–3: words with a rising contour, A1[291] with the rise only on the final syllable (schematic representation in A(ii)), A2–3 with the rise on the penult and maintained height on final syllable (schematic representation in A(i)). A1–2 are monomorphemic, A3 is bimorphemic. Row B 1–3: words with a falling contour, B1[292] with the initial syllable low and a rise to the penult (schematic representation in B (i)), B2–3 with both initial syllable and penult at a high level (schematic representation in B (ii)). B1 consists of three morphemes, B2–3 are monomorphemic.

the final syllable being always high and the penult thus varying between high or low, in parallel to what was observed in multi-word phrases. Pattern A(i) in Figure 142, with the penult high, is the more frequent one in the corpora considered here. In falling contours, the difference consists in that between rising-falling contours, where the contours start low, realizing a rise before the fall (B(i)), and only-falling contours, which already begin high (B(ii)). In both patterns, the penult is high and the final syllable low. The only-falling contour seems to be somewhat more frequent than the rise-falling contour for individually phrased trisyllabic words.[293] With an

291 A1 https://osf.io/cqr9m/; A2 https://osf.io/u9ntz/; A3 https://osf.io/f98ph/
292 B1 https://osf.io/fsd43/; B2 https://osf.io/atdur/; B3 https://osf.io/cjf3s/
293 This relative frequency is reversed in phrases with more syllables, cf. section 6.2.3.2.

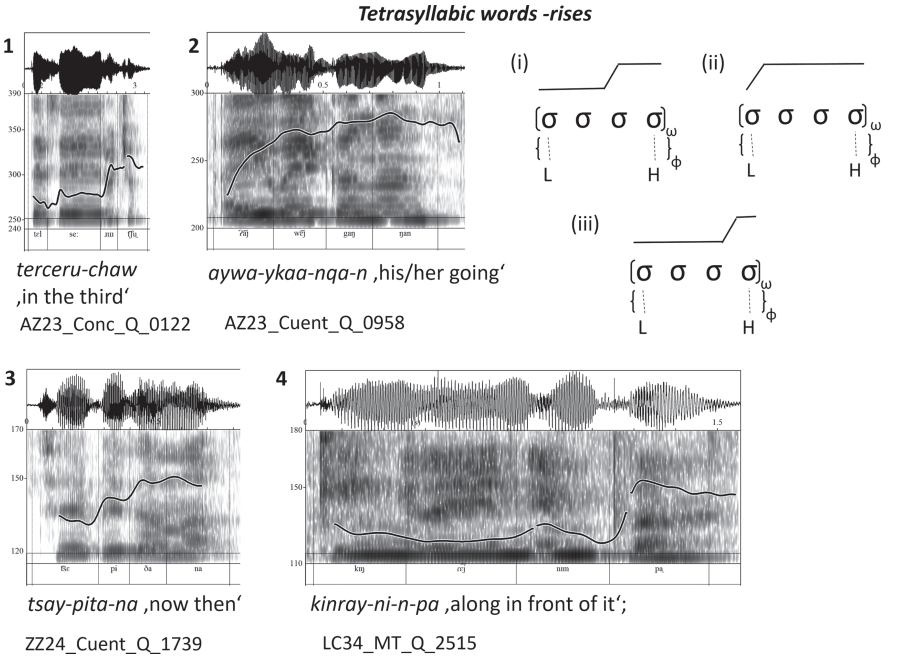


Figure 143: Individually phrased tetrasyllabic Quechua words realized with a rising contour.[294] 1: word beginning with a low stretch, with a rise and peak in the penult followed by high plateau maintained in the final syllable (schematic representation in (i)); 2: word beginning low, with most of the rise taking place already in the initial syllable, high plateau maintained until the end of the word/phrase (schematic representation in (ii)); 4: word beginning with a low stretch, with a rise and peak only in the final syllable (schematic representation in (iii)); 3: word where the rise begins already in the antepenult and continues into the final syllable (intermediate between all three representations). All words are multimorphemic.[295]

additional syllable, yet a further pattern each for the rises and the falls is attested. In individually phrased words of 4 syllables with a rising contour, there is now also a pattern in which (most of) the rise already takes place in the first syllable, and the rest of the word is realized with a high plateau ((ii) in Figure 143). There also seem to be intermediate realizations, with the rise taking place over several syllables. It was harder to find good examples of this early-rising pattern than for the other patterns. For the falling contours, there is also a third pattern, splitting the rise-falls in two: in the first, the initial low stretch extends over the first two syllables, so that only the penult is high ((i) in Figure 144), while in the second, the rise occurs already

294 1 https://osf.io/cn9aj/; 2 https://osf.io/4bkp8/; 3 https://osf.io/cnw9x/; 4 https://osf.io/c4d2b/
295 There are only very few if any Quechua words with roots longer than three syllables.

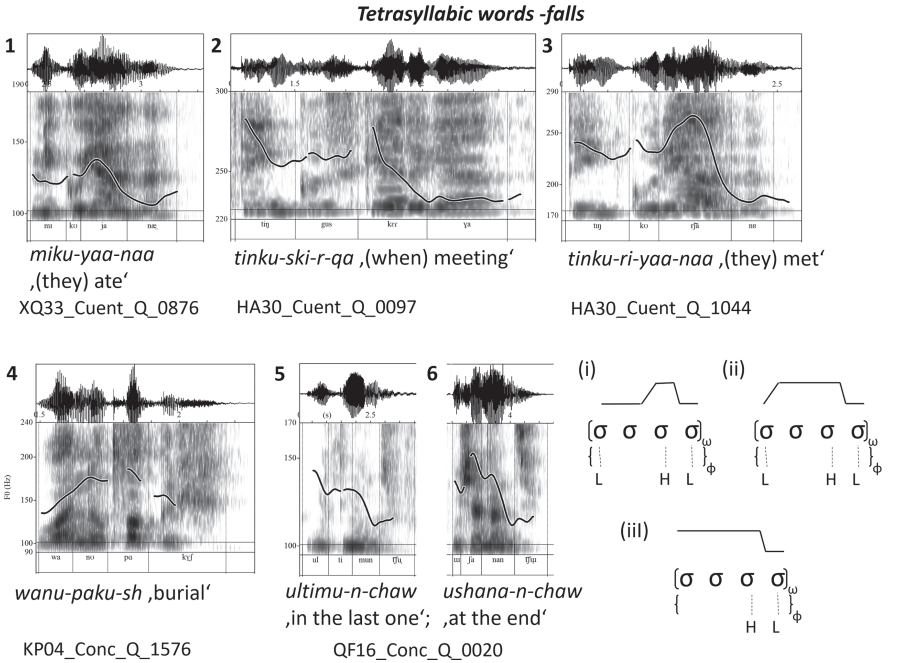


Figure 144: Individually phrased tetrasyllabic Quechua words realized with a falling contour with time-aligned syllabic transcription.[296] 1 and 3:[297] words beginning with a low stretch, with a rise and peak in the penult followed by a fall to the final syllable (schematic representation in (i)); 4 and possibly 6: words beginning low, with a rise reaching its peak already in the antepenult, plateau maintained until the end of the penult, fall to the final syllable (schematic representation in (ii)); 2 and 5: words beginning with a high plateau, fall beginning in penult and falling to final syllable (schematic representation in (iii)). All words are multimorphemic.[298]

296 1 https://osf.io/8kjng/; 2 https://osf.io/h3rjy/; 3 https://osf.io/ugahr/; 4 https://osf.io/s6mtg/; 5 & 6 https://osf.io/v9epg/

297 Analyzing /ri.ja:/ as monosyllabic [r͡ja] with a complex onset in *tinkuriyaanaa*, which is clearly most faithful to the actual realization, goes against Quechua phonotactics described in Parker (1976: 55–56). If analyzed faithfully to the phonotactics as described, the word would be pentasyllabic.

298 With differing degrees of transparency. *Wanupakush* (also *wanupakusha*) is used in our data to refer to an image depicting a coffin surrounded by mourners, for which the same speakers use *entierro* ‘burial’ or *funeral* ‘funeral’ in Spanish. It is probably best analyzed as *wanupaku-sh* (die-UNSPEC-PRTCP), containing the poorly understood *–paku*, itself possibly derived from –pU-kU, a combination which “is often understood as indicative of a commercial or professional activity, that is to say that the subject is beneficiary of an action directed at other persons” (Parker 1976: 119, my translation). It also possibly indicates an aspect of involuntariness in an action, with Carranza Romero (2003: 149) giving the meaning of the infitival verb form *wanupakuy* as “morírsele sin que pueda hacerse nada” [to die on someone without being able

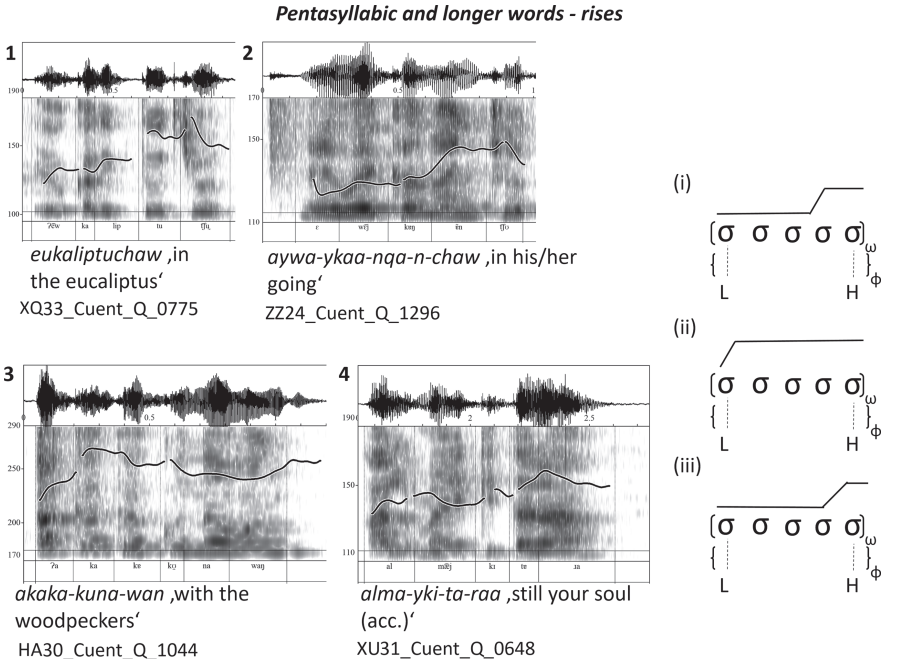


Figure 145: Individually phrased pentasyllabic and longer Quechua words realized with a rising contour.[299] 1 and 2: words beginning with a low stretch, with a rise starting just before and peaking in the penult followed by a high plateau maintained in the final syllable (schematic representation in (i)); 3: word beginning low, with most of the rise taking place already in the initial syllable, high plateau maintained until the end of the word/phrase (schematic representation in (ii)); 4: word beginning with a low stretch, with a rise in the penult and peak only in the final syllable (schematic representation in (iii)). All words are multimorphemic.

to do something] and “morírsele, ser responsable de la muerte de un animal o persona” [to die on someone, to be responsible for the death of an animal or person], but that of *ishpa-paku-y* (urinate-UNSPEC-INF) as “to urinate on oneself”, *tushu-paku-y* (dance-UNSPEC-INF) as “to dance expecting thanks or payment” and *miku-paku-y* (eat-UNSPEC-INF) as “to eat at someone’s disadvantage”, i.e. to scrounge (all my translations). All of this points at a complex valency change meaning, whose precise workings remain unclear. The change from base verb meaning to derived verb meaning does not seem to be transparently the same between different verbs, indicating historical changes leading to lexicalization. It is unclear how productive this morpheme is. There is a further semantic stretch from the given meanings of the derived verb *wanu-paku-* to the attested meaning ‘burial’ after the addition of the participle *–sh* (also *–sha* or *–shqa*). In comparison, all the other words in Figure 144 are transparent results of productive morphology. I have not found any indication that morphological composition has an influence on intonation in the data here.

299 1 https://osf.io/fe78n/; 2 https://osf.io/rqj7e/; 3 https://osf.io/t98v2/; 4 https://osf.io/8d4jt/

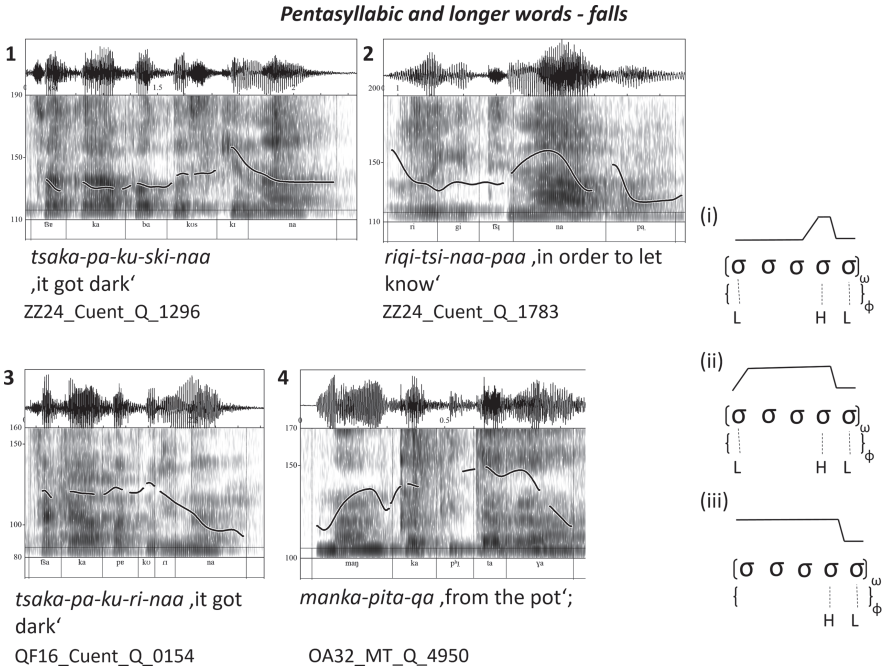


Figure 146: Individually phrased pentasyllabic and longer Quechua words realized with a falling contour.[300] 1 and 2: words beginning with a low stretch, with a rise in or before and a peak in the penult followed by a fall to the final syllable (schematic representation in (i)); 4: word beginning low, with a substantial part of the rise taking place already in the initial syllable, high plateau maintained until the end of or after the penult, fall to the final syllable (schematic representation in (ii)); 3: word beginning with a high plateau, fall beginning in penult and falling to final syllable (schematic representation in (iii)). All words are multimorphemic.

on the initial syllable, creating a high plateau-like realization on both penult and antepenult before the final fall ((ii) in Figure 144). Both patterns can be said to "continue" the trisyllabic rise-fall to equal degree, each preserving only parts of it. The plateau-forming rise-fall pattern seems to be less frequent than the other two. These three patterns persist also in individually phrased words of five or more syllables (Figures 145, 146), where some intermediate realizations are also found. The up to three variant patterns can be separated according to whether they need to make reference to the word penult as prominent position or not: of the three rising patterns, only the one which starts low and then rises so that both penult and final syllable are high ((i) in Figures 143 and 145) needs to make reference to such a position. Of the three falling patterns, none actually do in single-word phrases, because

300 1 https://osf.io/qxm84/; 2 https://osf.io/asqex/; 3 https://osf.io/ga634/; 4 https://osf.io/efqnp/

rightmost alignment of the two right tones will also always generate the attested contours. Since alignment with the word penult is clearly an active pattern in the data overall (cf. previous section), it can be assumed that it underlies some of the contours on single-word phrases as well, leaving them ambiguous.

Despite the variability, all attested patterns can be modeled using only three tonal configurations: LH for the rising contour, and LHL and HL for two falling contours, the rise-falling and only-falling contour, respectively. Comparing phrases of individual words with those composed of several ones reveals that there are no pitch events that pertain specifically to the level of individual words such as pitch accents – effectively, phrases consisting of several words behave as if they consisted of very long single words, except that they have the additional option of anchoring the tonal event of a rise or fall with one of the boundaries between the individual words they are composed of. Increasing the number of words per phrase does not increase the number of tones or pitch events, just the number of possible locations at which the tonal transitions may take place. This confirms the more specific pitch-based criterion for phrasing: only sequences on which either of these contours is fully realized should be taken to realize complete phonological phrases.

Schematic tonal representations for a few utterances that were previously discussed (see (121)-(125)) are here provided to illustrate the insights gained so far. They use square brackets for the delimitation of phonological phrases (PhPs), which are taken to be the units at which tones are assigned, just as in Huari Spanish. The assumption here is that rising contours consist of an LH tone sequence, only-falling contours of an HL tone sequence and rising-falling contours of an LHL sequence. The leftmost tone always minimally occupies the leftmost TBU. There is also a phrase-final H tone, which minimally occupies the rightmost TBU. The rightmost tone always minimally occupies the rightmost TBU. In rising-falling contours, this leaves the H tone in between these two peripheral tones, exhibiting varying alignment according to the patterns described. All tones seek to satisfy multiple alignment constraints in opposing directions, symbolized via dashed arrows. This creates the observed low and high stretches. Their interaction, discussed in section 6.3, creates the attested differences in the location of the tonal transition. Only where a word boundary occurs medially within a phonological phrase, a subscripted right bracket $]_{\omega}$ is inserted. A penult is marked with an accent mark (') and a line connects it with the H tone in the tonal tier only in the case that the information of that syllable being prominent is necessary to determine the shape of the contour. In accordance with the argumentation in section 6.1.3, this is the case when analysis **b** from Figures 130 or 137 is more appropriate than analysis **a**, also e.g. when the penult is already high in rising contours realized on more than two syllables. At this point, the analysis can remain agnostic regarding whether the H tone associates in these positions, since only alignment is necessary to generate

the observed contour shapes. When the vowel of a syllable is unvoiced it is shaded in grey and cannot serve as TBU (cf. (122)). The details of constraint interaction generating these contours will be dealt with in the OT-analysis (section 6.3). The main point here is to show that using these contour variants produced entirely from tones assigned at the phonological phrase level, a sufficient tonal representation of the types of utterances encountered so far can be produced, leaving issues of information structural- or syntax-dependent phrasing aside. In particular, nothing indicates the need for potential higher-level (=IP) boundary tones: both falling and rising contours appear utterance-finally as well as medially without any difference in their shape apart from tone height. Utterance-final tonal movements, whether high or low, often have greater local excursion than medial ones. IP-final tones thus seem to only ever be copies of the final tone in the final PhP, likely obviating the need for such higher-level tones and possibly also non-recursive instantiations of higher prosodic levels here.

(121) XU31_MT_Q_1856 (cf. (104) and Figure 121)
[t͡sæ͡j ˈpi tæ]$_{PhP}$ [ul tʊ tɐ]$_{PhP}$ [ɾi ˈkæn ki]$_{PhP}$ [jæ kʊ ˈpɪ tæ]$_{PhP}$ [jaɹ ga muɯ ˈʃɐ ta]$_{PhP}$
L <-----H L H L L <----H L---> <-----H L----------> <--- H

(122) TP03_Cuent_Q_1663 (cf. (113) and Figure 131)
[ma$_{ɭω}$ kwɛn tɐ ɾɪ ʃe͡ə͡x]$_{PhP}$ [huʔ$_{ɭω}$ kwɛn tʉ tə̧]$_{PhP}$ [kwɛn tæ ja məŋ ɣɐn tə̧]$_{PhP}$
L----------> H L L H L L----------> H L

(123) XQ33_Cuent_Q_1302 (cf. (120) and Figure 140)
[ɦam pɪ ˈkʊɣ me]$_{PhP}$ [ɛ͡j wɛ͡j ka]$_{PhP}$ [ʔa kə ka ˈku na$_{ɭω}$ ni jæʃ ga]$_{PhP}$
L----> <-----H L H L L --------> <----------H

(124) KP04_Conc_Q_1576 (cf. (110) and Figure 127)
[t͡seʰ$_{ɭω}$ ke$_{ɭω}$ xa wɑm$_{ɭω}$ kaɦ]$_{PhP}$ [wa nʊ pɑ kʏʃ]$_{PhP}$
L-------> <----------H L <---H L

(125) HA30_Conc_Q_0211 (cf. (108) and Figure 125)
[wa ʃə]$_{PhP}$ [gɐn ˈtʉ t͡ʃu]$_{PhP}$ [ʔʊ kuʃ mi$_{ɭω}$ kæ͡j kɳ]$_{PhP}$
L H L <-----H L <-----H <--------L

6.1.6 Peak alignment in rise-falling contours in Huari Quechua and Spanish

In this section,[301] I provide quantitative results on peak alignment in similar-looking contours, the rise-falling contour of Quechua and pitch accents on paroxytone words followed by a low boundary tone in Spanish. In Huari Quechua, when the peak occurs phrase-finally, it is sometimes realized within the penult of the last word (cf. Figure 148), and sometimes later, in the final syllable (cf. Figure 147),[302] even on the same lexical item. In contrast, in Huari Spanish, pitch accent peaks nearly always align within the stressed syllable (cf. section 5.1.1.2, also Figure 149). We saw that some Quechua contours are ambiguous between two analyses, one in which tones are only aligned with prosodic edges, and another where the H tone is aligned with the word penult. The latter analysis is apt for cases in which the peak here is aligned within the penult, but it can hardly account for those where it is aligned in the final syllable. I made the assumption that in the Quechua data overall, (at least) these two variant alignment patterns are both active. The main question of this section is whether this holds up under quantified measurements via a comparison to the Spanish data. If the results show that it does, this confirms the suggestion that the H tone in the Quechua contours, unlike the H of the Spanish LH* pitch accent, is not always aligned or associated with the word penult, but instead sometimes aligned with the right edge of the phonological phrase (cf. the discussions in sections 3.3.3, 6.1.3).

The data considered here come from the *Quien* corpus, which was not used in the preceding sections mainly based on data from the *Conc, Cuento,* and *Maptask* corpora. For all utterances from Quechua and Spanish *Quien*, word and syllable boundaries were annotated and labelled manually in *praat*. A script (cf. Appendix C) was written to extract labels and durational measurements from these annotations, and to create pitch objects from which f0 measurements were extracted. Each pitch object created was inspected manually and perturbances due to consontal microprosody were removed so that they would not influence the results. Only polysyllabic words were included in the analysis. Words were excluded when they were fragmentary, insufficiently voiced, or when the overall pitch range within the last two syllables did not exceed 7 Hz.[303] Table 20 gives the number of words remaining after this first process of elimination.

301 Parts of the analysis in this section was presented as a poster at Pape 21 (Buchholz 2021b).

302 Occasionally it is even realized in the antepenultimate or preantepenultimate, as seen in Figure 131 and Figure 132, but these cases are not considered here. Their existence is however in itself an argument for the lack of a strict H tone alignment with the putatively stressed word penult in the Quechua data.

303 See note 98 in section 5.1.1.2 for why this threshold was chosen.

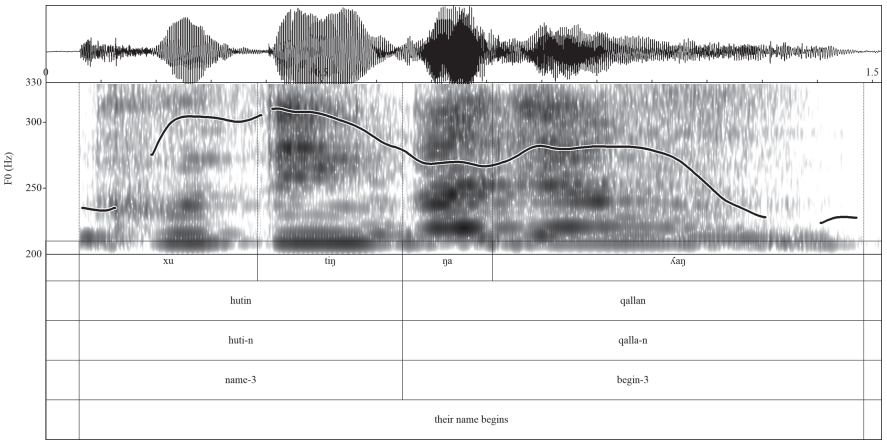


Figure 147: MS27_Quien_Q_0477[304] (part of a declarative).

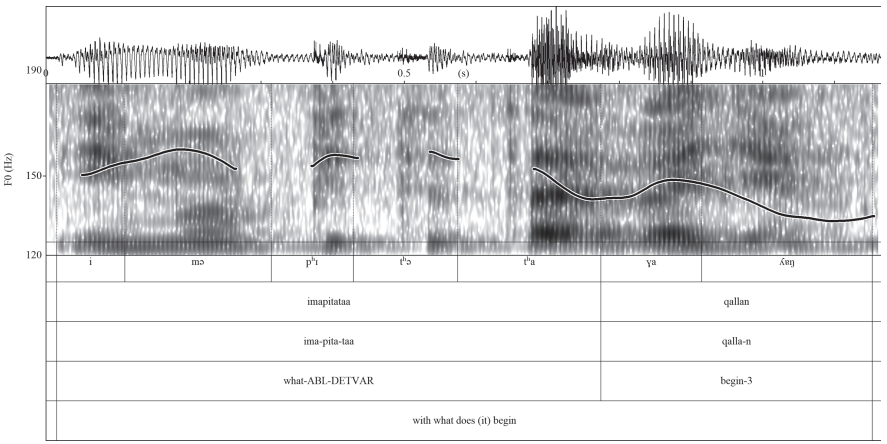


Figure 148: CJ35_Quien_Q_1351[305] (wh-question).

To operationalize only rising-falling contours for the analysis here, only words were considered whose f0 maximum position within the final two syllables preceded the f0 minimum position, i.e. which had an overall negative slope within the last two words. This was considered appropriate because after inspection of the data, complex pitch movements with more than one relevant peak within the last two syllables and final low pitch were not found, as in the majority of the Huari Quechua

304 https://osf.io/mxd5q/
305 https://osf.io/veh3q/

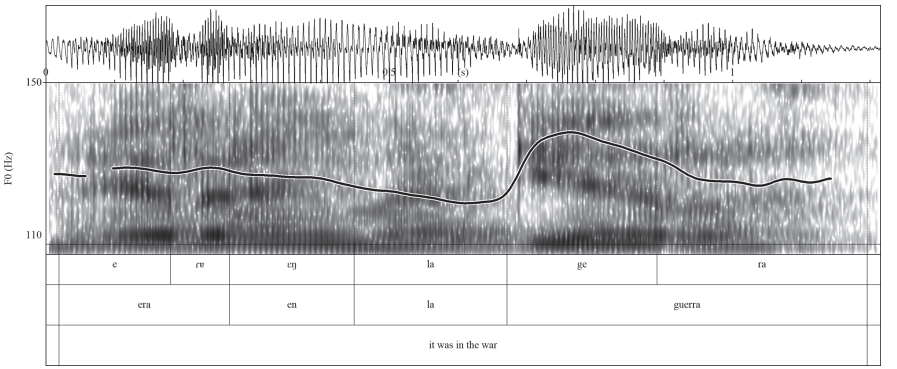


Figure 149: ZZ24_Quien_ES_0851[306] (declarative).

and Spanish data. This leaves 254 Quechua words, 143 paroxytone Spanish words, and 35 oxytone Spanish words. Proparoxytones were excluded because of their low number.

Table 20: Words from Quechua and Spanish *Quien* sorted according to length.

word length	***Quechua***	***Spanish***		
		proparoxytone	***paroxytone***	***oxytone***
2 syllables	124 (34.7%)	–	143 (56.8%)	63 (85.1%)
3 syllables	122 (34.2%)	2 (100%)	77 (30.6%)	9 (12.2%)
4 syllables	80 (22.4%)	–	29 (11.5%)	2 (2.7%)
5 syllables	21 (5.9%)	–	3 (1.2%)	–
6 syllables	9 (2.52%)	–	–	–
7 syllables	1 (0.3%)	–	–	–
Total	**357**	**2**	**252**	**74**
number of syllables	1100	6	630	161

Figure 150 visualizes the distribution of the f0 maximum position values in the final two syllables for Quechua words and Spanish paroxytone and oxytone words. The combined violin- and boxplot shows that in Spanish paroxytones, the great majority of peaks is located in the word penult, while a substantially larger portion of them is located in the final syllable in Spanish oxytones. For Quechua words, the distribution is broadest, with the majority of the values within the penult, but a number of them reaching also far into the final syllable.

306 https://osf.io/r56wf/

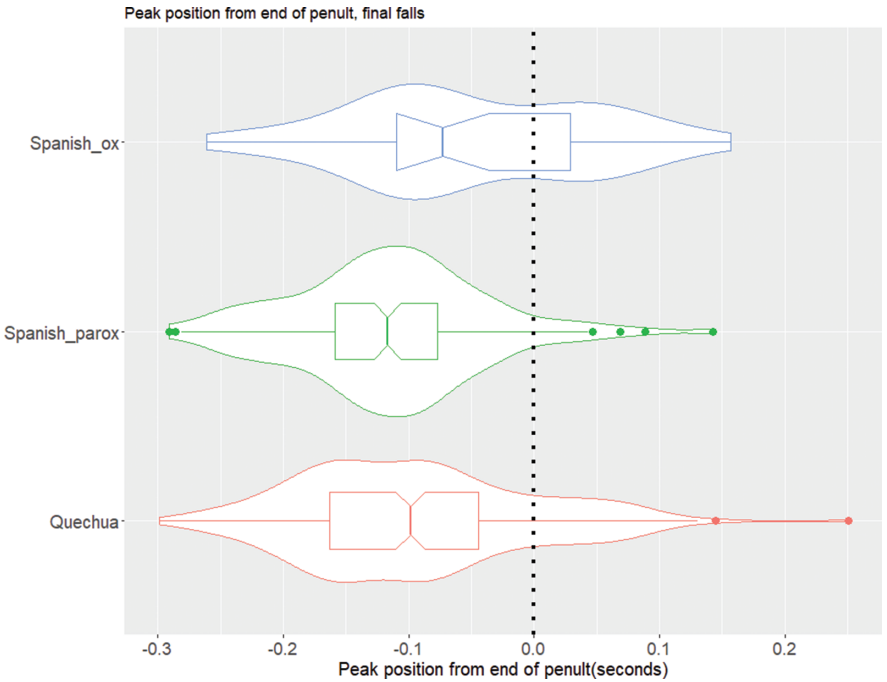


Figure 150: Final peak position in the Quechua and Spanish *Quien* words with a fall in the final two syllables. Combined violin- and boxplot for Spanish paroxytone, Spanish oxytone, and Quechua words.

The barplot in Figure 151 gives the share of peaks that are located within the penult (green) and the final syllable (red) for the three groups. For Spanish paroxytones, in 9 out of 143 words (6.3%) the f0 maximum is located in the final syllable, for Spanish oxytones it is 13 out of 35 (37.1%), and for Quechua words it is 41 out of 254 (16.5%). That only a minority of the peaks in Spanish oxytones occurs in the final syllable is perhaps surprising given the observations on peak placement in the Spanish chapter.

Most relevant here is the difference between Quechua and Spanish paroxytones given that Quechua words are also putatively stressed on the penult. A X^2-Test on the Quechua and Spanish paroxytone data yields a significant result ($X^2(1)=7.19$, $p=0.007$), suggesting that the observed difference in peak location is indeed associated with the difference between Spanish paroxytone and Quechua words. However, a further differentiation of the data is necessary. Since the aim is to especially to compare the similar-appearing phrase-final contours between Quechua and paroxytone Spanish, the words were differentiated further accord-

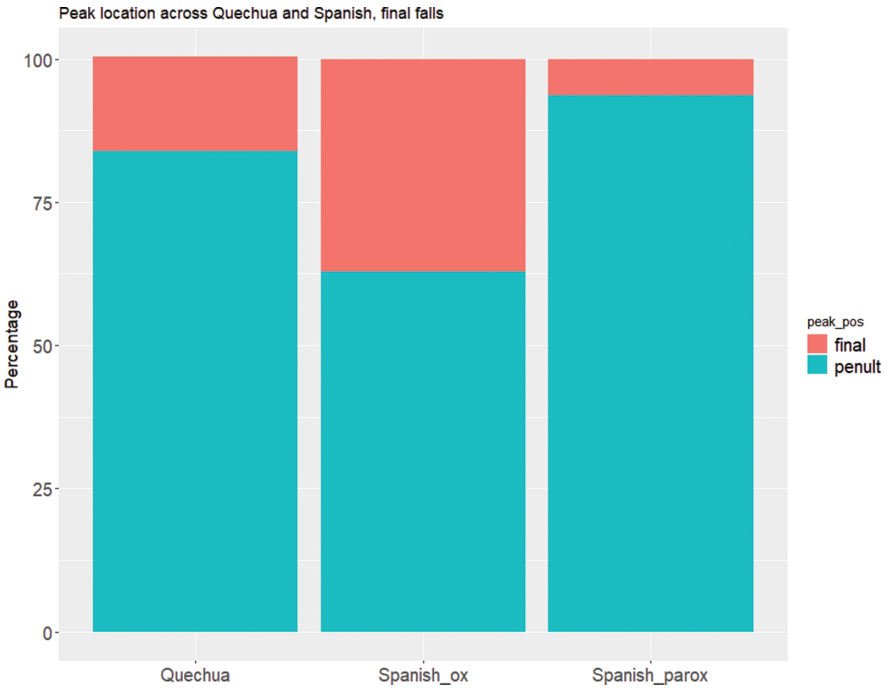


Figure 151: Final peak position in the Quechua and Spanish *Quien* words with a fall in the final two syllables. Barplot showing location of peak in either penult of final syllable in Spanish paroxytone, Spanish oxytone, and Quechua words.

ing to whether they were phrase-final or not, operationalized by whether they were followed by a pause or not.[307]

The left combined violin- and boxplot in Figure 152 gives the peak position values for Quechua and paroxytone Spanish for phrase-final and non-phrase-final words separately. The distributions appear to be somewhat different, with the medians located further towards the final syllable in the nonfinal words, but with the final Quechua words still showing the broadest distributional range. Linear regression models were used to further explore this. The goal was to find a model which best predicts the position of the f0 maximum in the final two syllables in phrase-final

307 Pauses as indicators of phrase boundaries are somewhat problematic, as is pointed out occasionally throughout this work. They were chosen because they are easy to detect automatically and in order not to base the phrase boundary criterion on final pitch movement when it is the aim of the analysis to say something about final pitch movement. Separated into phrase-final and non-phrase-final words, the counts for Quechua are 113 (phrase-final), 142 (non-phrase-final); for paroxytone Spanish 56 (phrase-final), 87 (non-phrase-final).

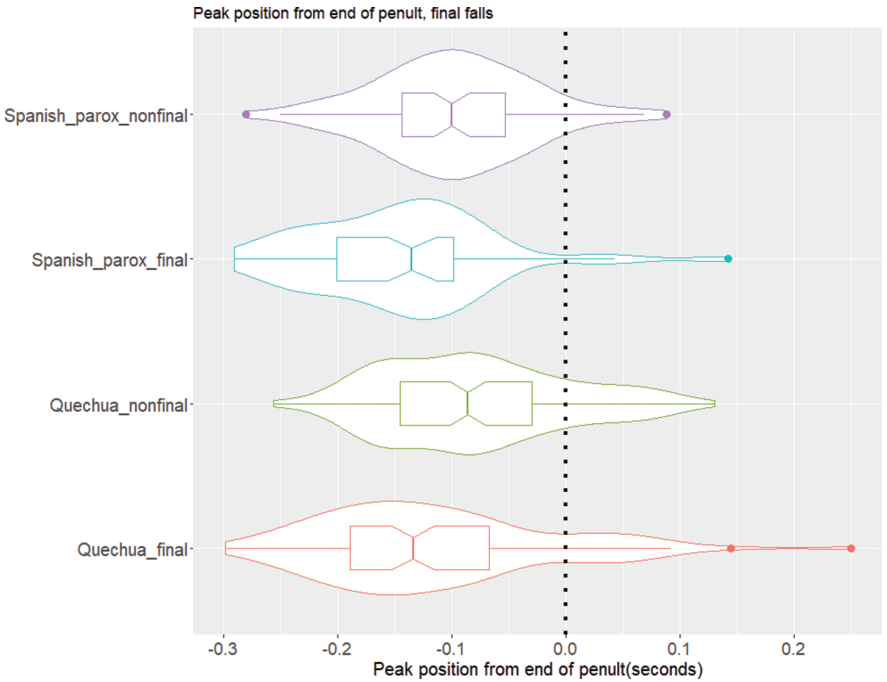


Figure 152: Final peak position in the Quechua and Spanish *Quien* words with a fall in the final two syllables. Combined violin- and boxplot for Spanish paroxytone and Quechua words in final vs. non-final position in the phrase.

words with a final fall. The predictor variables were *length of the penult*, *length of the final syllable*, and *position of the minimum* f0 value within the final two syllables. The dependent variable of the f0 maximum position could in itself be measured in three different ways: from the beginning of the penult, from its end, and from the end of the final syllable. Combinations of predictor variables and measurement reference points represent potential alignment scenarios. For the Spanish paroxytone words, the best model (R^2=0.76) turned out to be one in which the f0 maximum position was measured from the end of the final syllable with the predictor variable of the *length of the final syllable*.[308] The model results effectively mean that the final peak is on average located within the penult, at a fixed position relative to its end. This holds to a similar extent for words in phrase-final and non-phrase-final position, explaining 69–76% of the variance in the data. Following the discussion in section 3.5, this can be taken as evidence that the tone responsible for it, the H of the LH*

308 These are the model results for paroxytone Spanish words with a final fall in phrase-final position measuring from the end of the final syllable:

pitch accent, is associated with the stressed penult in paroxytones, as expected for Spanish. For Quechua, the same model applied to phrase-final words does not yield good results, explaining only about 30% of the variance (R^2=0.29). Instead, the most promising models use either all three predictor variables to predict peak position from the end of the final syllable,[309] or the *length of the penult* and the *position of*

	estimate β	st. error β	t-value	p-value
intercept	0.16	0.02	7.56	<0.001 ***
length of the final syllable	0.95	0.07	13.1	<0.001 ***
F(1, 54)=171.6, p <0.001				
R^2= 0.76				

Another model using both the length of the final syllable and that of the penult as predictors reached a slightly better adjusted R^2 of 0.77, but with a diminished F(2, 53) of 94.16. Because model fit always slightly increases with more predictors and because the results of the simple model are easier to interpret, I discuss only those.

The results of the same simple model applied to non-phrase-final words are as follows:

	estimate β	st. error β	t-value	p-value
intercept	0.11	0.01	8.02	<0.001 ***
length of the final syllable	0.93	0.06	13.7	<0.001 ***
F(1, 85)=189.8, p <0.001				
R^2= 0.69				

309 The model results for Quechua words with a final fall in phrase-final position using all three predictors and measuring from the end of the final syllable are:

	estimate β	st. error β	t-value	p-value
intercept	0.01	0.03	0.3	0.76
length of the penult	0.77	0.11	7.14	<0.001 ***
length of the final syllable	0.67	0.07	9.4	<0.001 ***
position of the minimum	0.29	0.1	2.8	0.007 **
F(3, 109)=43.28, p < 0.001				
Adj. R^2=0.53				

Because there are some outliers in the Quechua data that cannot be excluded on reasonable grounds, a robust regression model using *rlm* was also fitted. It slightly changes the standard errors compared to the standard regression but leaves all predictor variables significant. Because my main aim here is to compare the Quechua data with that of the Spanish paroxytones, I'm sticking with the normal regression results for better comparison. The position of the minimum in the model is measured from the same position as the maximum. The minimum position values themselves are represented moderately well with models that either take the length of the penult and of the final syllable as predictors (adj. R^2=0.58), measuring from the beginning of the penult, or only the length of the final syllable, measuring from the end of the penult (R^2=0.57), compatible with the idea that the minimum is the realization of an L tone seeking proximity to the phrase boundary.

the f0 minimum in the final two syllables to predict it from the end of the penult.[310] The amount of variance in the data they explain only amounts to 53%, more than 20% less than for the Spanish paroxytones. Their results are also more difficult to interpret. What they broadly amount to is the statement that the peak position in the final two syllables in Quechua is somehow influenced by their duration, but even that still leaves a lot of variation. The same models also fare worse when applied to words not in phrase-final position.[311] Crucially, the characteristic of the Spanish paroxytones that they realize the peak at a relative distance to some landmark within the penult, which is well captured by the model for those data, does not seem to hold well for the Quechua data that show a much broader range of variation, confirming the impression from the individual inspection of examples. This absence of an identifiable landmark within the final two syllables that the peaks in Quechua are on the whole orientated relative to suggests that there is more than one tonal alignment pattern underlying the data here, at least one of which does not refer to the putatively stressed penult (or that tonal alignment is in general much more variable).

310 The model results for Quechua words with a final fall in phrase-final position using *length of the penult* and *f0 minimum position*, measuring from the end of the penult, are:

	estimate β	st. error β	t-value	p-value
Intercept	0.02	0.03	0.9	0.35
length of penult	–0.86	0.1	–8.6	<0.001 ***
position of the minimum	0.27	0.06	4.74	<0.001 ***
$F(2, 110)=64.36$, $p < 0.001$				
Adj. $R^2=0.53$				

311 These are the results for the same models applied to Quechua words in non-phrase-final position:

	estimate β	st. error β	t-value	p-value
from the end of the final syllable				
intercept	0.01	0.03	0.3	0.77
length of the penult	0.57	0.11	5.01	<0.001 ***
length of the final syllable	0.72	0.08	8.49	<0.001 ***
position of the minimum	0.38	0.11	3.55	<0.001 ***
$F(3, 138)=43.6$, $p < 0.001$				
Adj. $R^2=0.48$				
from the end of the penult				
Intercept	–0.03	0.02	–1.27	0.21
length of penult	–0.52	0.11	–4.83	<0.001 ***
position of the minimum	0.33	0.07	4.43	<0.001 ***
$F(2, 139)=22.55$, $p < 0.001$				
Adj. $R^2=0.23$				

We explore one further possible caveat. Huari Quechua has contrastive vowel length. This raises the possibility that differences in syllable structure might influence peak placement in the Quechua data.[312] Table 21 gives the structure of the final syllable (light or heavy) compared to the location of the f0 maximum in the final two syllables (in the penult or the final syllable) in all Quechua words with a final fall and only in those that are phrase-final. There are two options for which syllables could be counted as heavy: only those with a long vowel, or also those with a consonantal coda (both have been suggested in the literature). For none of the options did X^2-tests produce significant results,[313] suggesting that heavy final syllables, whether only long or also closed, are not simply associated with a peak in the final syllable instead of the penult.

Table 21: Distribution of peak location in the final two syllables against syllable structure of the final syllable in Quechua words with a final fall.

only syllables with long vowels counted as heavy			***closed syllables and those with long vowels counted as heavy***		
Words with a final fall in both final and non-final position					
Final syllable	Peak location		Final syllable	Peak location	
	penult	final		penult	final
light (CV, CVC)	188	34	light (CV)	132	23
heavy **(CV:)**	26	7	heavy **(CV: & CVC)**	82	18
Words with a final fall in phrase-final position					
	penult	final		penult	final
light (CV, CVC)	94	15	light (CV)	69	10
heavy **(CV:)**	2	2	heavy **(CV: & CVC)**	27	7

However, if the syllable structure of both final syllables (penult and final syllable) is considered in tandem, an observable effect emerges. Figure 153 shows that the distribution of final peaks in phrase-final Quechua words with a final fall reaches far further into the final syllable in words with a "right-heavy" final syllable structure, i.e. where the penult is light, but the final syllable is heavy ((C)VC or (C)V:), than in

312 This would be expected under Stewart (1984)'s account of Conchucos Quechua stress, and under Parker (1976)'s account of the stress system of some Ancash Quechua varieties. In contrast, Hintz (2006) claims that South Conchucos Quechua stress is not sensitive to quantity. Cf. the discussion in section 3.3.3.

313 In the case of phrase-final words with only syllables with long vowels counted as heavy, the expected counts in two cells were <5, rendering the X^2-result unreliable. To remedy this, a Fisher's exact test, which does not have that problem (Field et al. 2012: 816), was also executed on the counts. It also did not produce a significant result.

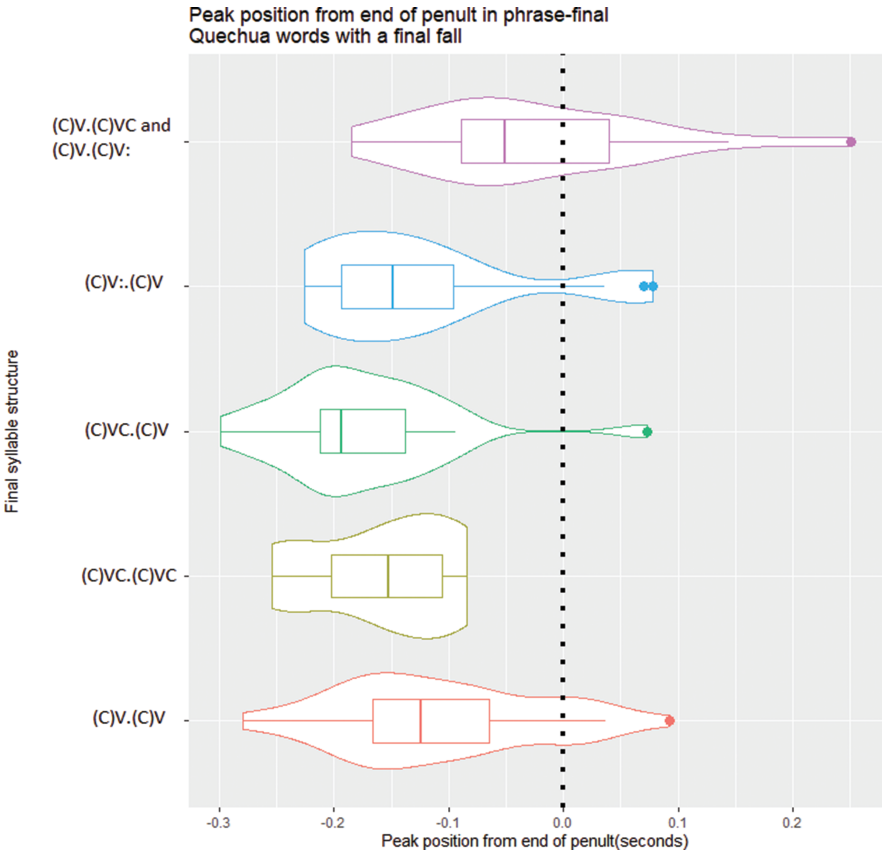


Figure 153: Final peak position in phrase-final Quechua *Quien* words with a fall in the final two syllables, sorted according to syllable structure of the final two syllables.

words with other final syllable structures. In a regression model, this effect is significant,[314] but it does not obtain with words that are not phrase-final. This is some

314 There are the model results:

	estimate β	st. error β	t-value	p-value
intercept (=(C)V.(C)V)	−0.11	0.01	−7.39	<0.001 ***
heavy.heavy	−0.05	0.03	−1.86	0.06
(C)VC.(C)V	−0.07	0.02	−2.87	0.005 **
(C)V:.(C)V	−0.01	0.02	−0.54	0.59
light.heavy	0.08	0.02	3.4	<0.001 ***
F(4, 108)=9.35, p <0.001				
Adj. R^2= 0.23				

indication that the *relative* syllable weight between the two final syllables at the end of a phrase has an effect on peak position. The model only explains about 23% of the variation (adj. R^2=0.23), however, so that this can only be part of the story, perhaps describing only one alignment variant active in the sample. If the categorical predictor variable of final syllable structure is replaced with the continuous predictor variable of the difference in duration between penult and final syllable, a similar effect is observed and such a model actually explains a greater share of the variation (adj. R^2=0.38).[315] This means that peaks move further rightwards relative to the boundary between the final two syllables the more the length difference between them tilts in favour of the final syllable. Plausibly, some of this is due to a complex effect of syllable structure,[316] but more than that it suggests that the peak simply seeks to be not too far away from the right phrase boundary. Still, more than half of the variation remains unexplained in this way.

For some languages, it has been found that early and late peak alignment in very similar-looking rising-falling contours differentiates between declaratives and

---

They indicate that right-heavy final syllable structures move the final peak significantly to the right.

The counts for the groups are: 35 ((C)V.(C)V); 11 ((C)VC.(C)VC); 25 ((C)VC.(C)V); 19 ((C)V:.(C)V); 19 ((C)V.(C)VC); 3 ((C)V.(C)V:); 1 ((C)VC.(C)V:). The categories (C)VC.(C)V: and (C)VC.(C)VC were grouped together as "heavy.heavy", and (C)V.(C)V: together with (C)V.(C)VC as "light.heavy" because of the low counts. A robust model using *rlm* was also fitted, with the same groups making significant contributions. Applying the model to non-phrase-final words did not yield significant results.

315 These are the model results:

	estimate β	st. error β	t-value	p-value
intercept	−0.14	0.01	−17.54	<0.001 ***
length difference between penult and final syllable	−0.46	0.06	−8.23	<0.001 ***
F(1, 111)=67.69, p <0.001				
R^2= 0.38				

The predictor variable was calculated by subtracting the length of the final syllable from the length of the penult, i.e. positive values indicate a relatively longer penult, and negative values a relatively longer final syllable. The same model applied to non-phrase-final words only has an R^2 of 0.14 (F(1, 140)=23.29, p<0.001).

316 The effect of syllable structure should not simply be dismissed because it also has traces in Huari Spanish. In the audio stimuli for Spanish *Cuento*, the oxytone *colibrí* "hummingbird" occurred. For some speakers, this was a new lexical item, because they use *picaflor* instead. When they reproduced it in the retelling, they produced it variably as [koli'brin] or [kule'briŋ], with a closed final syllable. This could suggest an unmarked preference for oxytones with a heavy final syllable. The effect is subtle, however, since it does not occur with oxytones with light final syllables the speakers have lexicalized, such as *maní* "peanut".

polar questions, with the peak in polar questions aligning later than in declaratives e.g. in Neapolitan Italian (D'Imperio & House 1997) and Tashlhiyt Berber (Roettger 2017, cf. Roettger 2017: 68 for a discussion of further cases). Because the data here come from both declaratives and questions, the difference in peak alignment could be related to that. However, no significant difference could be found in peak alignment between declaratives and polar questions,[317] excluding the possibility that this difference in utterance type is responsible for the observed variation in the Quechua data.

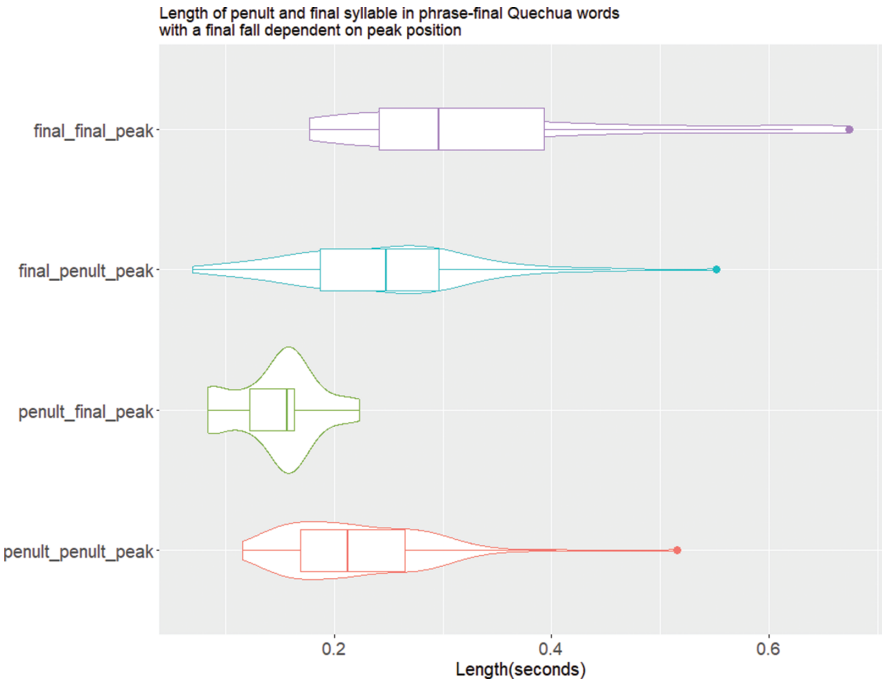


Figure 154: Length of the final two syllables in Quechua phrase-final words with a final fall sorted according to whether the peak is realized on the penult or the final syllable. "final_final_peak" means "final syllables in words with the peak on the final syllable", "final_penult_peak" means "final syllables in words with the peak on the penult", and so on. The peak is located on the penult in 96 words, and in 17 on the final syllable.

317 Wilcoxon rank-sum tests were executed on the difference in peak position between phrase-final words in declaratives and all other utterance types (neutral polar questions, biased polar questions, wh-questions) and on that between all types of polar questions vs other utterance types (declaratives and wh-questions), measuring peak position from the beginning and end of the penult, and from the end of the final syllable. No results were significant.

Finally, Roettger (2017: 47, 144) suggests that it is an indication for the association of a H tone if the syllable on which it is realized is longer than one on which it isn't realized, a process called "phonetic enhancement" (cf. section 3.5.3). Figure 154 shows the length of the penult and the final syllable, respectively, in phrase-final Quechua words with a final fall, sorted according to whether the f0 maximum in the last two syllables is located in the penult or the final syllable. It shows clearly that syllable length increases on average when the peak is located on that syllable. This holds for both the penult and the final syllable, and is independent of the fact that the final syllable is longer than the penult on average (final lengthening). The effect obtains for all Quechua words, not just phrase-final ones, and it is statistically significant.[318] The observed enhancement effect for Quechua words refers to syllable length depending on peak position, which is not the same as stress-induced lengthening.[319] For the putatively stressed word penult in Huari Quechua, Buchholz & Reich (2018) showed that it is not longer on average than surrounding syllables. Word stress position should not differ between individual instantiations of the same lexical item in the same prosodic context. Yet peak alignment does differ between individual instantiations of the same lexical item in final position here, as the comparison between examples like Figures 147 and 148 shows. Thus, the effect of lengthening according to peak position here is independent of stress. Most of the results in this section do not in fact particularly support an account whereby the H tone associates with the penult because it is (putatively) stressed. However, following Roettger (2017), the observed lengthening effect means that the H tone responsible for the peak does associate with the TBU on which it is realized. This would suggest that in the Quechua rising-falling contours observed here, at least some of the H tones associate, but not with a specific landmark within either of the two final syllables, and the property of stress is not relevant to this association. The phonetic enhancement effect together with the earlier observed effect that relatively longer or heavier syllables in the final two-syllable window seem to attract peak placement could also explain a puzzling finding in Buchholz & Reich (2018: 153–155): there it was found (based on other data than here) that CVC penults are *longer* than surrounding syllables to a higher degree than CVC syllables in other positions, while CV penults are *shorter* than surrounding syllables to a higher degree than CV syllables in other positions. This might be, at least partially, because the CVC penults

318 A Wilcoxon rank-sum test on the length of the penult depending on final peak positions for phrase-final words with a final fall yielded a highly significant result ($W=1350$, $p<0.001$); for the length of the final syllable the result is significant ($W=520$, $p=0.017$).

319 This is observed in the Spanish data: penults in phrase-final and non-phrase-final paroxytones are significantly longer than in oxytones, according to a Wilcoxon rank-sum test ($W=4206$, $p<0.001$); final syllables in oxytones longer than in paroxytones ($W=11628$, $p=0.001$).

are slightly biased[320] for bearing the H tone and realizing the peak, making them correspondingly even longer than other CVC syllables, while CV penults are slightly biased against bearing the H tone and realizing the peak, resulting in them being somewhat shorter on average than other CV syllables.

Overall, the results confirm the proposal that in part of the Quechua data, an alignment pattern is active in which tones do not associate with a putatively stressed syllable, but instead seek alignment with the edge of the phrase. In particular, peak alignment behaviour seems markedly different from that of Spanish words with a superficially similar rising-falling pitch contour, where it is uncontroversially due to association with a stressed syllable and alignment to a landmark relative to that syllable. It also seems likely that peak position in Quechua is affected by variable temporal constraints within the last two syllables, possibly influenced by syllable structure. The H tone responsible for the Quechua contour likely associates with the TBU on which it is realized at least in a subset of the cases. That so much variability has been found confirms the suggestion that there are several alignment patterns active in the data, each contributing to the varied overall picture. In section 6.3.1, I will show that the Quechua rising-falling contour under discussion is indeed generated from more than one of the alignment constraint rankings which are independently motivated there.

6.1.7 Extent of the phonological phrase and mapping to other categories

Before moving on to the discussion of loanwords from Spanish, I want to make a short excursion exploring the extent of the phonological phrase and its mapping to the categories of word and utterance via two singular examples. First, KP04_MT_Q_0393 (Figure 155), with context (126). At 36.5, KP04 gives the information that the path in the map leads above the tree. After a pause, TP03 answers with an acknowledgement token (38.5). The delay in answering seems to be interpreted by KP04 as indicating less than full understanding,[321] because he repeats his previous

320 Assuming equal distribution of syllable types in all positions, a CVC penult is equally likely (p = 1/3) to be followed by a final syllable that is CV, CV:, or CVC. In 1/3 of those cases, when it is followed by a CV final syllable, it is even more likely to attract the peak than the penult is anyway, according to the results in Figure 153. For CV penults, it is the other way around. Therefore, statistically, CVC penults are slightly biased to attract the peak, while CV penults are relatively biased against it.

321 See Kendrick & Torreira (2015); Bögels et al. (2015) on how delays in responding to various conversational actions are associated in with an increased likelihood for the response being dispreferred from the perspective of the recipient, i.e. in this case, incomplete understanding or agreement.

utterance at 39.3 as a request for confirmation.[322] That it is understood as such is clear from TP03's rapid response of three repeated acknowledgement tokens. KP04's repetition, the confirmation-seeking request (Figure 155), is realized as a rise-falling contour with word boundary alignment. A low stretch on the first word *hacha* is followed by a high tone on the initial syllable of *hananpa*. The high tone is maintained into *nan*, but then falls to reach a low target on the final syllable, from which it then rises again towards the end of the phrase. Clearly, there must be at least an additional H tone after the LHL of the rise-falling contour, aligned with the right edge of the phrase. This is the only example in the Huari Quechua data in which such an additional tone clearly occurs,[323] an intonational *hapax legomenon* to my knowledge.

(126) TP03 & KP04_MT_Q_0365 – 0409[324] (context for Figure 155)

time (seconds)	KP04 (*with the path on the map*)	TP03 (*without the path on the map*)
36.5	(L H--------L) hacha hana-n-pa tree above-3-GEN *above the tree*	
37.2	*(1.2)*	
38.5		(H L) mhm ya
39.3	**(L H L H)** **hacha hana-n-pa** tree above-3-GEN *above the tree*	
40.4		(H L) ya ya ya

That this additional tone is there is not only unexpected from the findings about Huari Quechua phrasal contours so far, but also from the point of view of tone distribution to TBUs. Above we saw that the rising-falling contour is never realized on bisyllabic single-word phrases, and that the "displacement" of the H tone to the penultimate voiced syllable of the phrase is also explained well by tonal crowding.

322 The confirmation KP04 seeks is that TP03 has understood so that they can move on to the next landmark; not a confirmation that the information is correct (KP04 provides the path information here, not TP03).

323 Another potential case occurs in the same *Maptask* later at 278.9, but contains several voiceless stretches and is therefore difficult to assess.

324 https://osf.io/etny4/

Yet here, at least three tones are aligned on the two syllables *nan.pa*. Morphologically, *pa* is not long (i.e. possibly bimoraic), according to Parker (1976: 84). Aside from this tonal crowding problem, three explanations for the exceptional realization with four tones are possible here. The first is that this is the only token in the corpus of a rise-fall-rise contour, which is simply so rare that it's not encountered elsewhere. That is certainly not impossible, if this contour is associated with a particularly marked pragmatic context condition. However, there are plenty of confirmation-seeking questions occurring under comparable context conditions in the Quechua data, and they do not realize this contour.

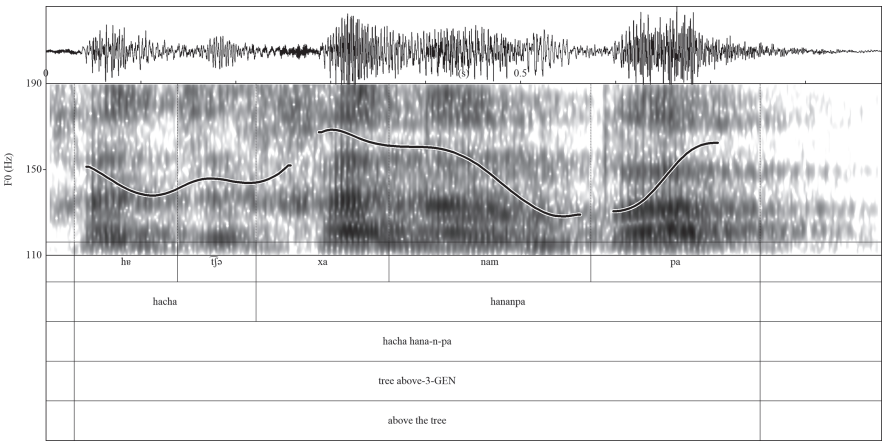


Figure 155: KP04_MT_Q_0393[325] (confirmation-seeking question consisting of a falling contour plus final rise).

The second is that this is a case of adding boundary tone movement from Spanish to an otherwise Quechua utterance. If this were a readily available option to the speakers, we might expect to see it more frequently, but it is equally not impossible. The third explanation is that the contour normally realized on the utterance-final particle *aw*, is here realized on *–pa*, with the segmental material of *aw* fully assimilated to it. This is appealing because *aw* often occurs in confirmation-seeking and other biased questions. Utterance-initially, it means "yes" (Parker 1976: 35), but utterance-finally it is used like a question tag in other languages, e.g. Spanish *no* or *verdad*. From the observation of other examples it appears that this utterance-final *aw*, if realized in its own phrase, always realizes that phrase with a rising contour. This explanation entails that this utterance, consisting of a single word, is realized with two phonological phrases,

325 https://osf.io/zmbpk/

one with a rise-falling, and an additional one with a rising contour. This might seem outlandish, but Igarashi (2014: 466–467) makes the argument that this also occasionally occurs in Japanese, when more than one Accentual Phrase (AP) is realized on a single *morphological* word.[326] This is not tantamount to saying that the *prosodic* word is larger than the phonological phrase here, just that a phrase is not always as large or larger than a *morphological* word (or a word plus segmentally assimilated particle). That remarkable gaps can exist between the extent of morphological word(s) and of a phrase is also evident from another example, AZ23_Cuent_Q_0717 ((127)/Figure 156). AZ23 is telling about a speaker change between the two characters in the *Cuento* story.

(127) AZ23_Cuent_Q_0717

hampi-pa	ni-n	ni-pti-n-qa	runa-qa	ni-n
heal-BEN	say-3	say-SUBDIFF-3-TOP	person-TOP	say-3

"'for healing', he said / when this is said, the man says"

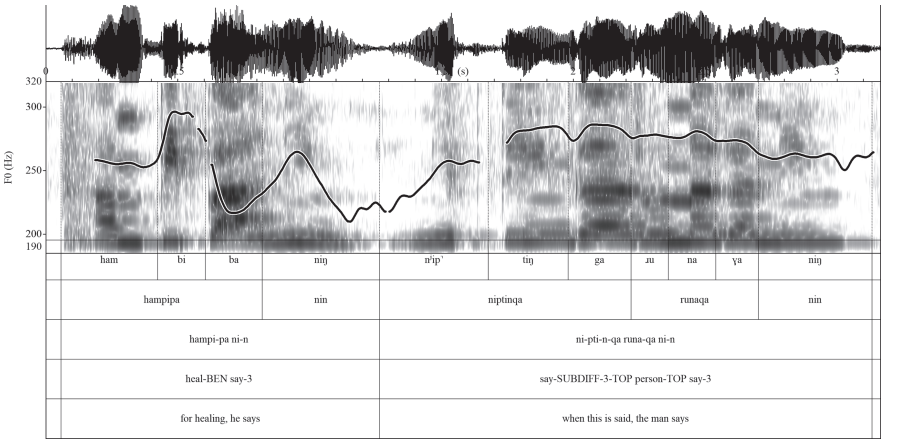


Figure 156: AZ23_Cuent_Q_0717[327] (two declaratives, consisting of two rise-falling and one rising contour, respectively).

326 For French, where the non-isomorphy between lexical words and APs is uncontroversial, Jun & Fougeron (2002: 159–160) report that more than the expected number (one initial, one final) of accentual rises can occur on a single very long word (they use *anticonstitutionellement* „unconstitutionally"). They conclude that APs can exceptionally have more rises than the expected initial and final one, but arguably a more principled analysis might be to assume, given that non-isomorphy between morphological words and APs is established in the other direction (1 AP containing >1 word), that here more than one AP maps onto a single word. Since the additional rises show a tendency to occur near morphological boundaries, such an analysis would also preserve the delimitative character of the AP pitch movements.

327 https://osf.io/z4re9/

At the beginning, *hampipa* is part of the direct speech of one of the protagonists. It is phrased separately with a rise-falling contour, followed by the verb of saying in the third person *ni-n*, which is also realized with a rise-falling contour. It realizes at least two (HL) or possibly three (LHL) tones on an at most bimoraic syllable. Phrasing here separates the content of the direct speech from the quotative verb, and that again from the subsequent utterance *niptinqa runaqa nin*, which is realized as a single rising phrase on three morphological words. It announces a speaker switch (achieved by the subordinating marker under subject change *–pti*, cf. Parker 1976: 143–144), and establishes the referential frame under which the following utterance, giving the content of the other protagonist's speech, is to be understood. The entire second utterance is thus contextually an introduction to the following one (note the topic marker *–qa* on both the verb *niptin-qa* and the noun *runa-qa*) and the proposition asserted by it is suspended and incomplete.[328]. That is likely why it is realized with a rise and without any of its components individually phrased (cf. the findings in sections 6.2.2 and 6.4). Here a single phonological phrase thus realizes one monosyllabic word, *nin* (possibly trespassing against otherwise active constraints on tonal crowding), on the one hand, and an entire utterance consisting of three polysyllabic words, on the other. The mapping between morphological words and phonological phrases is thus clearly far from predetermined and certainly malleable in order to conform to constraints imposed by contextual meaning. The case represented by the first example, with more than one phrase possibly realized on one word, is less frequent than that represented by the second, where the non-isomorphism goes in the other direction. But given that the latter possibility is a fact, the former should not be dismissed out of hand. Mapping more than one phonological phrase to a single long morphological word might also go some way in explaining the very heterogeneously reported secondary "stresses" in Quechua varieties (e.g. Parker 1976: 57–60; Adelaar 1977: 43–46; Stewart 1984; Hintz 2006; O'Rourke & Swanson 2013; cf. also the overview in Hintz 2006: 482–483). In the following, we will not fully resolve the questions posed by these two examples. I will at times return to the discussion of tonal crowding and whether it can be explained by assuming a moraic structure. In the next section, we will move on to marked intonational patterns that are restricted to loanwords from Spanish.

328 Weber (1989: 15) takes the verb of saying *ni-* to take sentential complements.

6.1.8 Marked tonal alignment on Spanish loanwords

This section presents two exceptional intonational patterns. They only occur on lexical items that are etymologically of Spanish origin,[329] and they crucially deviate from the characterizations given for the previous tonal alignment patterns. The frequency of their usage also varies considerably between the speakers in our corpora. We have already encountered several examples containting words of Spanish origin, where they do not behave any differently from words of Quechua origin. In contrast, the first of the loanword patterns covered in this section is characterized by the tonal transition, i.e. the rise or the fall, not occuring in one of the positions already established (phrase boundary, word boundary, or word penult), but instead as determined by the location of the stressed syllable in the corresponding Spanish word. That is to say, while the alignment pattern with the word penult makes reference to a fully regularly determined prominent position, this pattern requires a lexically specified word stress position, but otherwise exhibits the same contours. In the second loanword pattern discussed here, the tonal transition familiar from the Quechua contours occurs where expected from one of the three established patterns, but in addition, a separate local pitch event takes place at the location of the stressed syllable in the Spanish word. I will call the first of these the "inherited" loanword pattern, because it seems somewhat exotic when viewed from the perspective of the rest of the prosodic system, formed by the demands of a quite different system (paying much more attention to a structure like stress), like an oddity inherited from a traveling grandparent. The second pattern with the additional pitch event I call the "grafted" pattern, because the lonely localized pitch event appears not quite to fit in with the rest of the intonation, like a branch from a eucalyptus grafted on to a fir. Spanish-origin words in a Quechua utterance do not obligatorily require one of the marked loanword prosodic patterns. Using these patterns seems at best one of several options available to the Huari speakers. In the last part of this section (6.1.8.3), the distribution of the intonational patterns for Spanish-origin words in some of the corpora will be investigated. In the next section I will first give a more detailed description.

6.1.8.1 Description of the patterns

In AZ23's MT_Q_1158 ((128)/Figure 157), *abejakunapa* is realized on the one hand with a rising contour finally, with pitch reaching a high plateau in the penult [na]

329 I use "Spanish loanword" as a shorthand to refer to this group of words, but this section will show that their behaviour is far from homogenous.

and extending to the final syllable [pa].[330] Yet the syllable [be], stressed in the Spanish *abeja*, realizes a substantial first rise, followed by a gentle fall. Note that it is also realized with more duration and energy than most other open syllables in this utterance. This is an instance of the mnemonically labelled "grafted" pattern, where a local pitch event takes place on the location of the Spanish stressed syllable in addition to the "normal" tonal make-up of the phrase.

(128) AZ23_MT_Q_1158

tsay-pita	*abeja*[331]-kuna-pa	hana-n-pa	*escoba*-man	chaa-nki
DEM.DIST-ABL	bee-PL-GEN	above-3-GEN	broom-DEST	arrive-2

"from there along above the bees you get to the broom"

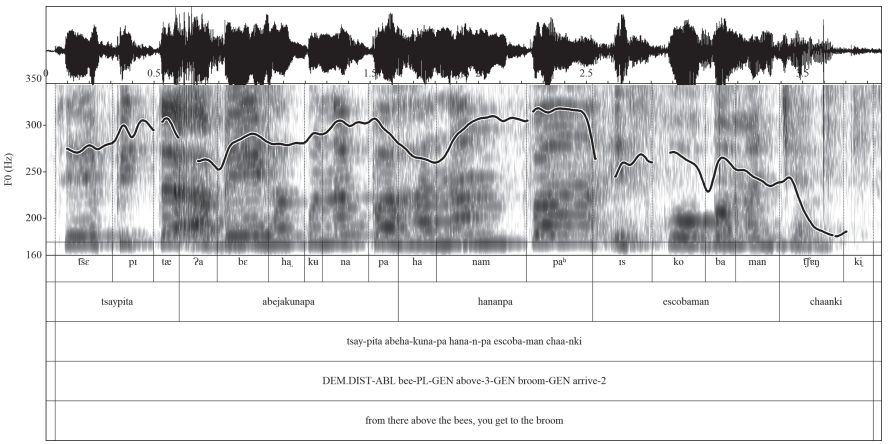


Figure 157: AZ23_MT_Q_1158[332] (declarative consisting of three rising and two falling contours).

330 I analyse the contour on *abejakunapa* as rising because I assume that the incipient fall on the final [pa] is due to the upcoming initial L of the phrase realized on *hananpa* and not because of a final L of the phrase realized on *abejakunapa*, which would make it a falling contour. This is because pitch only reaches the low elbow in [ha] instead of [pa]. However, the transition between *hananpa* and *escobaman* shows that supposedly the same underlying tones can also result in a much less ambiguous phonetic realization. To a certain extent, such analyses will always leave some space for interpretation and must also take recourse to external considerations like the hypothesis that rising contours signal continuation and falling ones finality (cf. section 6.2.2), making this here more likely to be a rising contour. The circularity in this argumentation can probably not be entirely avoided.

331 Lexical items or stems originating historically from Spanish in the examples in this section are italicized.

332 https://osf.io/9u4s6/

Compare this on the one hand with *escobaman* in the same utterance, which does not seem to pay much attention to the Spanish stress position at all, as far as can be made out, and on the other with the realizations of *terceruchaw* in OZ14_Conc_Q_0331 (see (129)/Figure 158) or *primeruchaw* in QZ13_Conc_Q_1516 ((130)/Figure 159): both of these are produced with a rising contour, with the rise taking place not on the phrase penult or the initial syllable, but at the location of the stress in the Spanish word, i.e. the antepenultimate, [se] and [me] respectively.

(129) OZ14_Conc_Q_0331
segundu *fila*-chaw *terceru*-chaw chuqllu
second row-LOC third-LOC corncob
"in the second row, the third one is the corncob"

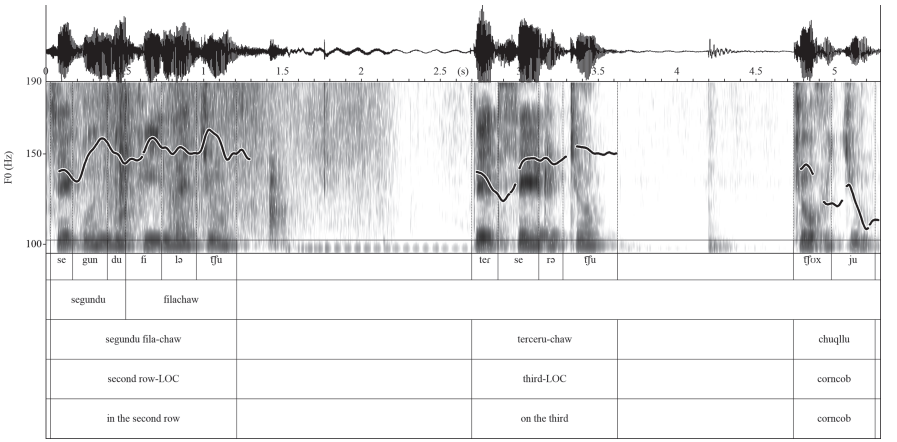


Figure 158: OZ14_Conc_Q_0331[333] (declarative with three rising and one falling contours).

(130) QZ13_Conc_Q_1516
tercera *fila* *primeru*-chaw *riku* runa
third row first-LOC rich person
"in the first one the third row [is] the rich person"

333 https://osf.io/e2b4y/

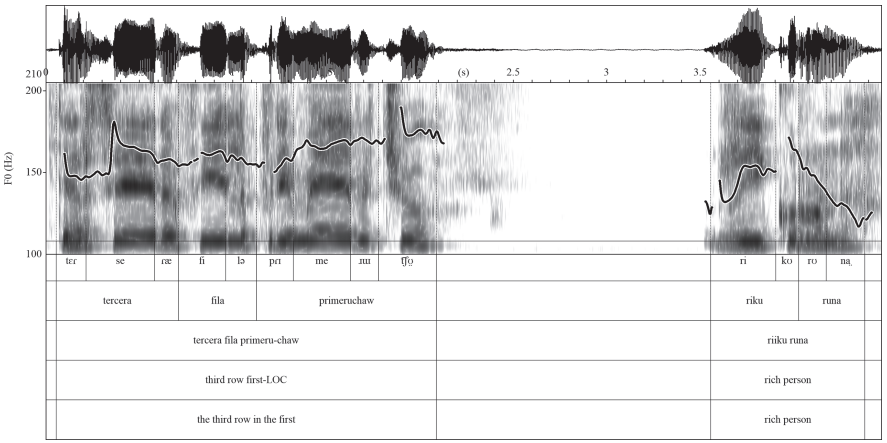


Figure 159: QZ13_Conc_Q_1516[334] (declarative with two rising and one falling contours).

These are instances of the "inherited" pattern, where the Spanish stress determines the location of the tonal transition in the phrase contour, but does not produce an additional tonal event. The "inherited" pattern isn't always identifiable unambiguously: in both utterances, the first word, *segundu* and *tercera*, respectively, looks like it might also follow this pattern, with elevated pitch and more duration on the Spanish stressed syllable, followed by a fall. However, this might also be an instance of the rise-falling contour with one of the previously seen alignment patterns.[335] Similar considerations pertain to many bi- and trisyllabic words of Spanish origin in the data. It is noteworthy that only very few cases were found where the "inherited" pattern is unambiguously realized in a falling contour. This might suggest that the rise on Spanish accented syllables is part of what is emulated in the inherited pattern, not just the abstract property of accentedness.

The following two utterances, OZ14_Conc_Q_0013 and XU31_MT_Q_2837 ((131)/Figure 160 and (132)/Figure 161, respectively), are further examples for the forms words with an "inherited" or "grafted" accent can take.

(131) OZ14_Conc_Q_0013
segundu *fila*-chaw *primeru*-chaw
second row-LOC first-LOC
"in the second row, in the first one"

334 https://osf.io/3ejw9/

335 It is an open question whether in a bilingual community such superficially similar forms are distinguishable at the level of phonological representation in all cases. Their convergence is discussed in section 7.4.

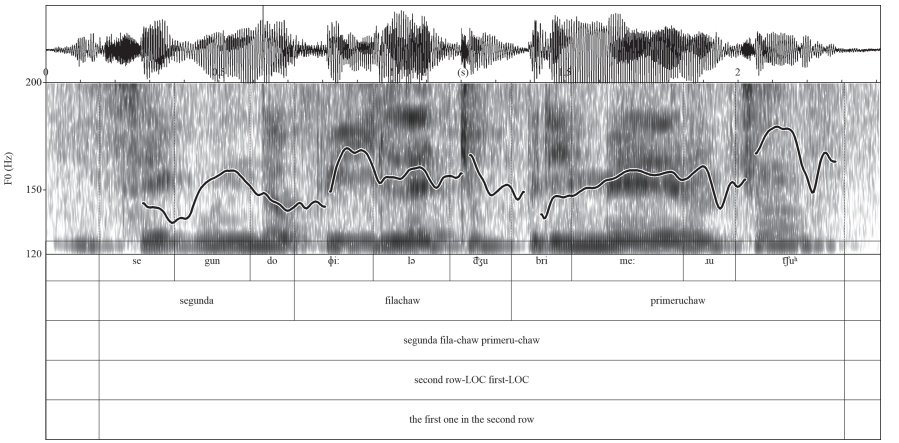


Figure 160: OZ14_Conc_Q_0013[336] (part of a declarative consisting of three phrases).

(132) XU31_MT_Q_2837
manka *ladu*-n-chaw atuq tsay *frenti*-n-chaw-raa-mi
pot side-3-LOC fox DEM.DIST front-3-LOC-CONT-ASS
ka-ykaa-n *murcielagu*
COP-PROG-3 bat
"next to the pot, still before the fox, there is the bat"

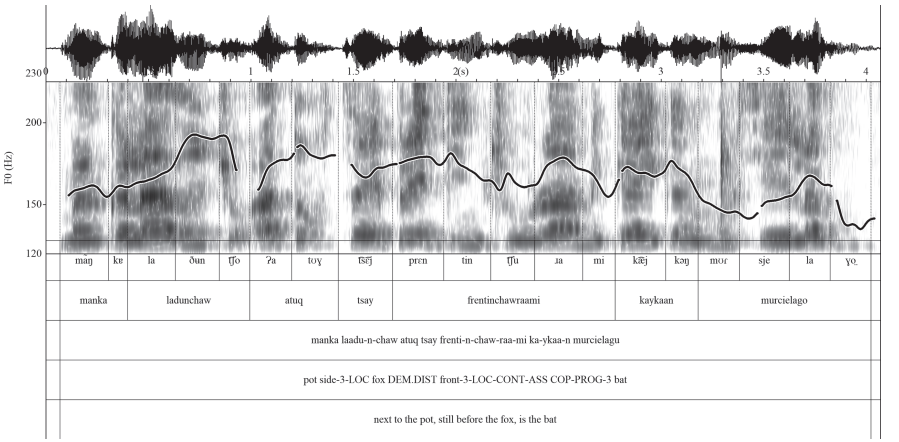


Figure 161: XU31_MT_Q_2837[337] (declarative with 4 rising and one falling contours).

336 https://osf.io/judpy/
337 https://osf.io/qbuk3/

In OZ14_Conc_Q_0013 (Figure 160), the pitch movement on *filachaw* takes place almost completely on the first syllable that would be stressed in the Spanish *fila*, while in *primeruchaw*, the rise on the Spanish stressed syllable [me] is less steep, but a further phrase-final rise can be identified much more unambiguously. In XU31_MT_Q_2837 (Figure 161), different lexical items, even though all of Spanish origin, can be seen to display a different prosodic behaviour within the same utterance: on *manka ladunchaw*, the rise ignores the Spanish stressed position [la] and realizes the rise instead on the phrase penult, [ðʉn]. On *tsay frentinchawraami*, instead, the Spanish stressed syllable [prɛn] is elevated, and pitch falls after it again to then produce a second rise-fall pertaining to the phrase-final tones, in an instance of the "grafted" pattern. On *murcielago*, again, it is the phrase or word penult that attracts the rise, while the Spanish stressed position [sje] is ignored. In section 6.1.8.3 we will see that forms derived from Spanish *lado* are almost never realized with an "inherited" or "grafted" pattern, while for *murcielago*, there is much more variation in the speech of speaker XU31. This indicates that the use of the marked loanword patterns is both lexicalized and speaker-dependent. In most of the words seen here, the Spanish stressed syllable, if it is open, is produced longer relative to other open syllables in its surroundings, no matter whether it is realized with the marked loanword patterns or as part of a phrase realized with one of the previously discussed patterns. This stands in contrast to what was observed about the penult in Quechua-origin words, which is not usually longer independent of peak position, but is coherent with similar duration behaviour in the Huari Spanish data (cf. section 6.1.6). This observation is relevant because it might be related to the following analytical challenge: in rising contours on bisyllabic words of Quechua origin (cf. Figure 141), the first syllable was seen to be usually almost fully low and only the second high, with the transition between them taking place "between" the syllables, especially when voiceless segments intervene between the two nuclei. This has been assumed to be due to constraints against tonal crowding overruling any which align the H tone with the penult (but cf. section 6.1.7). In several phrase-initial bisyllabic words of Spanish origin, on the other hand, a substantial part of the rise takes place clearly already on the first syllable, suggesting that this might be a "grafted" pitch accent and that its faithful realization is unimpeded even by the constraint against tonal crowding. One example for this was the contour realized on *riku* in (130)/Figure 159. Further ones occur on *nubi* in OZ14_MT_Q_1964 ((133)/Figure 162) and *bolsan* in XU31_MT_Q_1081 ((134)/Figure 163).

(133) OZ14_MT_Q_1964
nubi *trenu*-kuna-wan ka-ykaa-n
cloud thunder-PL-INST COP-PROG-3
"there is a cloud with thunder"

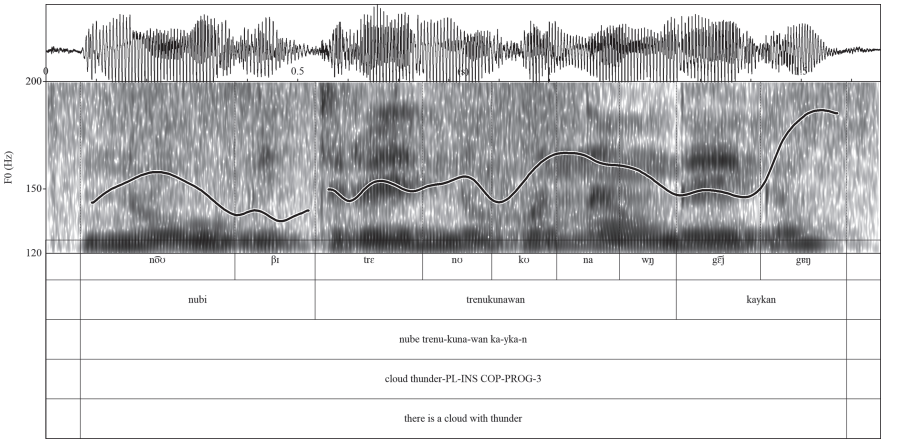


Figure 162: OZ14_MT_Q_1964[338] (declarative with a falling and two rising contours).

(134) XU31_MT_Q_1081
bolsa-n apta-ku-shqa
bag-3 grab-MED-PRTCP
"grabbing a bag"

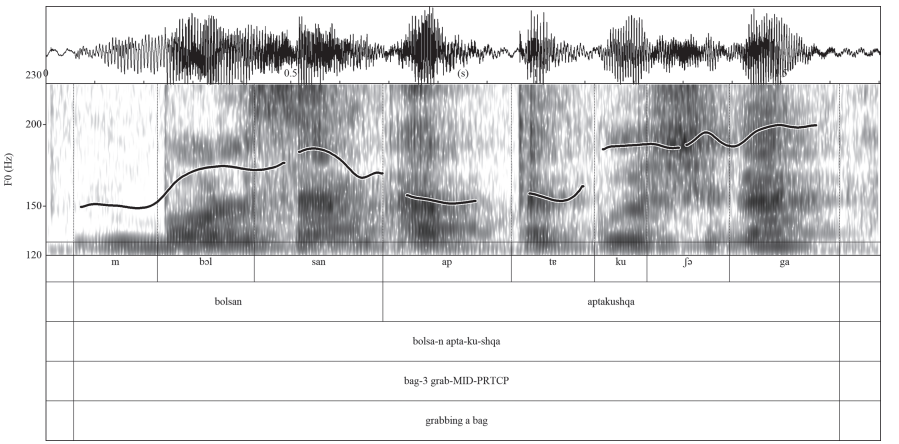


Figure 163: XU31_MT_Q_1081[339] (part of declarative consisting of two rising contours).

338 https://osf.io/rcqxa/
339 https://osf.io/fr2py/

Nubi in Figure 162, in addition to the pronounced rise fully taking place on the initial syllable, also lengthens that syllable considerably, and the vowel is in fact realized as a diphthong [o͡ʊ]. In Figure 163, the vowel in the first syllable of *bolsan* is not lengthened like that and the syllable is not actually longer than the others. This is possibly because a CV:C syllable would go against Quechua syllable structure, with CV: or CVC being maximal, and potential CV:C syllables usually reduced to CVC (Parker 1976: 56). However, the syllable here is preceded by a substantial period of nasalized phonation (segmented separately in the syllable tier in Figure 163 and transcribed with <m>), resulting in the auditive impression that the initial voiced obstruent is strongly prenasalized, yielding [mbɔlsan]. Such phonetic prenasalization, called "nasal leak", occurs frequently in voiced obstruents in phrase-initial position in languages where voiced obstruents are characterized by having negative voice onset time. It is one possible solution to the articulatory problem of having to build up subglottal pressure to maintain voicing long enough for it to be recognizable while at the same time being forced to release the labial closure due to increasing supraglottal pressure, the other being devoicing of initial voiced obstruents (cf. Solé 2012, 2014). It might be considerable that here, this articulatory phenomenon is actually exploited to enable the realization encountered in Figure 163, where the nasal segment serves as carrier for the initial low tone, like an auxiliary TBU, so that the high tone can be realized on the syllable bearing the accent in Spanish and the constraint against crowding is not violated. The nasal would then be epenthetic and tone-bearing. More controlled studies will have to be done to confirm or disconfirm such a hypothesis, but assuming the account is adequate, it points towards moras, not syllables being TBUs here. The stressed syllables in Spanish loanwords could then be bimoraic (cf. Buchholz & Reich 2017 for a similar account of a rhythmic phenomenon in Huari Spanish), and this would be reflected in their preferential realization as lengthened, diphthongized, or, where that isn't possible, with the insertion of an epenthetic sonorant segment like the prenasal. The prohibition of tonal crowding should then refer to the mora as TBU, and we should expect to see similar effects in Quechua-origin words with phonologically long vowels. However, this prediction does not always hold: e.g. in Figure 136, the word *rikaa*, with a phonologically and phonetically long final vowel, realizes the falling contour with the penult high, and all of the final syllable low. On the other hand, in Figure 129, the rise on *uusha* is realized on the first syllable containing the long vowel, parallel to the examples with Spanish loanwords above, although that syllable is not actually longer than others in the same utterance. Recall also from section 6.1.6 that in some of the utterances with falling contours, the longer the final syllable relative to the penult, the further to the right the peak is realized. Taken together, this is at least some evidence for tonal placement being sensitive to the length of the sonorant segments involved. Note that the evidence also suggests

that phonological or morphological length by itself often seems not enough for a syllable to exhibit behaviour indicative of it containing two TBUs. It must instead be actually phonetically long relative to other syllables, or diphthongized, or otherwise enhanced. It is quite likely that the observed variability is again indicative of several underlying patterns. Further research is needed to come to a more definitive conclusion, especially since the tonal crowding account with syllables as TBUs has proven very useful elsewhere in the analysis.

6.1.8.2 A typological comparison

Loanword prosody is still a somewhat underresearched branch of loanword phonology. Nevertheless, several studies have compared various cases and produced initial typologies (e.g. Kubozono 2006; Kang 2010; Davis et al. 2012). Davis et al. (2012) document case studies varying both source and target language along the traditional classification of "stress", "tone", and "pitch accent" language and present an initial taxonomy sorting them along three binary parametres: 1), whether features of the source language play a role for the assignment of loanword prosody in the target language ([+/-SL] in their shorthand); 2), whether loanword prosody makes use of rules or constraints specific to loanwords and not occuring elsewhere in the target language ([+/-sp-loan]); and 3), whether the prosodic pattern in the adapted words is determined by segmental or suprasegmental features ([+/-pros])[340] (cf. Davis et al. 2012: 15). They also note further differences in loanword adaptation strategies: loanwords may recreate prosodic properties of the source word using the means of the

340 At first sight it might look as if there must be overlap between the parametres, especially between 1) and 3); however, they need not be dependent on each other: loanwords in Japanese are nearly universally accented following a rule first formulated by McCawley (1968): accent falls on the antepenultimate mora. According to Kubozono (2006), the same rule, reformulated in terms of a trochaic moraic foot and final syllable extrametricality (and thus of course effectively identical to the Latin Stress Rule, cf. Hayes 1995) is also valid for the majority of accented Japanese words and compounds. Because loanwords are assigned accent uniformly according to this rule, independent of source language and where stress might lie in the source language, Davis et al. (2012: 25–26) class loanword prosody in Japanese as being independent from source language prosody with regard to parametre 1), and because the rule assigning accent is quantity-sensitive, they class it as being determined by suprasegmental rather than segmental features with regard to parametre 3). An objection might be that if accent placement is determined by quantity, a feature of the source language, namely the syllable structure of the loanword, does play a role. However, this turns out to not be the case: taking *sandwich* → *san.do.ítt.chi* (μμ.μ.μμ.μ) as an illustration (cf. Kubozono 2006: 1141), because Japanese has such a restricted syllable structure, source language syllable structure is completely broken up, and only this segmentally refitted version of the loanword then undergoes accentuation, counting syllables not existing at all in the source language (the final syllable here) in the assignment process.

target language on a syllable-by-syllable basis (as happens with English loanwords in Hong Kong Cantonese, cf. Davis et al. 2012: 20–21), or they may recreate an overall tonal melody for words that is frequent in the source language but absent in the target language and generalize it to all loanwords from that source language, thus leveling differences between accent positions present in the source language (Japanese loanwords in Taiwanese Southern Min, cf. Davis et al. 2012: 22–23). They also state that a language may base its loanword prosody on phonetic properties of the source words, as in the case of English loanwords in Lhasa Tibetan: English words beginning with a voiced obstruents are realized with an L tone on the first syllable of the loanword (*bottle* → *po to ra* [L.H.H]), but words beginning with a voiceless obstruent receive an H tone on the first syllable (*police* → *pu li su* [H.H.H]; the initial syllable of the word being the only place where there is a possible specification of tone being either H or L, all other syllables always being H), ignoring the stress position in the source word and also leveling the voicing distinction segmentally, which does not exist in Tibetan. Their interpretation is that this is due to the well-known articulatory property of voiceless obstruents of raising pitch in the following vowel (cf. Hombert et al. 1979; Hanson 2009; Kirby & Ladd 2016; Ladd & Schmid 2018), so that the initial high tone preserves as much of the phonetic properties of the source word as possible given the system of the target language (cf. Davis et al. 2012: 19–20).

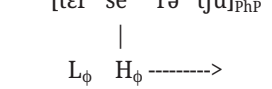
Applying this taxonomy to the Spanish loanwords in Quechua, with regards to 1), both the "inherited" and the "grafted" pattern clearly pay attention to prosodic features of the source language, namely the acoustic prominence of the Spanish stressed syllable as realized by tonal movement and duration. They treat it differently though: in the "inherited" pattern, what happens on the Spanish stressed syllable is somehow equated to the rise taking place in the rising contour, with the rise then produced on a syllable where it would not normally appear. In the "grafted" pattern, what happens on the Spanish stressed syllable is treated as something separate from the phrasal intonation of Quechua, but it is still emulated prosodically, as an additional pitch event localized to that syllable. In cases where the Spanish loanword is not realized with either the "inherited" or "grafted" pattern but treated like any other word, the Spanish stressed syllable is at least still produced with longer duration if it is open. Thus, the source language prosody always plays a role, but it can surface in two different ways tonally or just via duration ([+SL]). With regards to 2), the "inherited" and "grafted" patterns clearly constitute prosody specific to loanwords, since both require an irregular lexical specification of a prominent position. This specification is lexicalized, since it can cause the pitch event on the Spanish stressed syllable to appear on syllable positions in Quechua words that are outside the Spanish three-syllable window. The "grafted" pattern additionally has a tonal specification that is unique to these words. In those cases where words of Spanish origin are not realized with the "inherited" or "grafted" pattern,

no loanword-specific prosody is employed, because long vowels are a regular feature in Quechua. However, the option for a loanword-specific prosody exists and is frequently employed, so overall we may classify our case as [+ sp-loan]. With regards to 3), it is clear that it is suprasegmental and not segmental features which determine the resulting prosody of these loanwords, thus [+pros]. The property of accentedness itself may be taken as that which effects the special prosody of these loanword, since the speakers are all bilingual, we rarely find any "wrong" stress placement when they speak Spanish, and they can therefore be safely assumed to have robust knowledge about stress positions in their Spanish lexicon. Yet the fact that the "inherited" pattern seems to come up mostly in rising contours, and that pitch movement and duration are not equally distributed in the production of these words as loanwords in Quechua seems to indicate that the speakers take the phonetic correlate of this accentedness not to be an inevitable property of the lexical word form – which is also reflected in their usage when speaking Spanish.

In sum, it is certainly possible to apply Davis et al's (2012) taxonomy to our case. However, in the data here, several realizational varieties for these loanwords can be found, some of which would require variant classifications according to the taxonomy.

The loanword intonational patterns can be characterized in relation to the ones seen before. The tonal alignment patterns make reference to different prosodic landmarks, to the phrase-peripheral domain boundaries, to a phrase-internal boundary of the next lower domain, the prosodic word, and to the word penult of the strongest word in the phrase, a regularly determined prominent position independent of the lexical identity and morphological makeup of the words involved. To this, only in words of Spanish origin, the loanwords patterns add a lexicalized and thus not fully regular prominent position, the stress position "inherited" from the Spanish word (e.g. (135), with the Spanish stressed syllable marked with an asterisk).

(135) "Inherited" accent on a Spanish-origin word (from OZ14_Conc_Q_0331, cf. (129)/Figure 158)



The "grafted" pattern even produces a pitch accent at this position that is additional to the phrase tones. In other words, while the "inherited" pattern affects the alignment of the phonological phrase tones of Quechua in providing a unique lexically specified position the H tone is attracted to, the "grafted" version causes pitch accent tones to be additionally assigned for that position. In this sense, the "grafted" pattern is in theory not an alternative to any of the patterns described

before, but an addition, as it can possibly occur together with any of them. The additional pitch accent of the "grafted" pattern can here be analyzed as LH* in ToBI-notation, because it seems to be characterized by a rise with a peak on the accented syllable. This is plausible in light of the findings from chapter 5 on Spanish, where this pitch accent was found to be the only regular pitch accent on stressed syllables in a variety of contexts. Because many of the words with a "grafted" accent (e.g. *abejakunapa* in Figure 157 or *frentinchawraami* in Figure 161) clearly exhibit a fall or return to low after this LH* accent on the Spanish stressed syllable, which then extends until the rise pertaining to the end of the phrase, another L tone should be assumed there. The easiest way to account for this is by assuming that alignment rankings for the LH* tones are as in the Spanish "main" variant (cf. section 5.3.2.1), and that their alignment ranking dominates that of all the Quechua phrasal tones, so that they are all realized sequentially following the pitch accent tones. Then, the dip following the LH* peak is due to the presence of the L tone that is otherwise initial in Quechua phrases. For this, the LH* tones must be specified as different from the phrasal tones so that different constraints can apply to them. Since the tones in both Spanish and Quechua are assigned at the level of the PhP, the differential specification might have to make reference to the two different languages. That would in fact capture the notion that these accents are somehow intrusive.[341]

(136) "Grafted" pattern on a Spanish-origin word (from XU31_MT_Q_2837, cf. (132)/Figure 161) with LH* pitch accent and two different sets of tones

[t͡sɛ̝̈j]$_{\omega}$ prɛn* tin t͡ʃu ɹa mi]$_{PhP}$

L_S H_S L_ϕ-----> H_ϕ L_ϕ

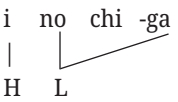
Using biological metaphors like "inherited" and "grafted" evokes images of cross-breeding, and of the admixture of elements from different pedigrees that do not really fit well together because they belong to different "systems". At first glance, this seems apt in the situation at hand, where two "language systems" are so obviously in contact with each other and where we as linguists can so easily discern the "foreign" provenance of loanwords in the speech of these speakers because we are well-acquainted with the historiography of the two languages in question that treats them as separate for the majority of their documented and projected existence. However,

341 Considering that intonational contours can be lexicalized on individual lexical items when occurring sufficiently often under similar context conditions (Calhoun & Schweitzer 2012; Schweitzer 2012; Schweitzer et al. 2015), another possibility might be that the Spanish pitch accent tones have become part of the lexicalized representation. Then the alignment could refer to these "lexicalized" tones vs those assigned by the PhP.

it is worthwhile to switch perspectives here and to consider the phenomenon from a typological viewpoint. From the view of languages like (Northern varieties of) Basque (Elordieta 1998; Hualde 1999; Hualde et al. 2002), Tokyo Japanese (Pierrehumbert & Beckman 1988; Kubozono 2008; Kawahara 2015), or Turkish (Levi 2005; Kamali 2011), having a subset of the lexicon, so-called accented words, with prosodic specifications *in addition* to the ones valid for all other, unaccented, words or phrases, is par for the course. To demonstrate: in (Tokyo) Japanese, accent manifests as a H tone on the accented mora followed by an L tone on the following one, i.e. a fall that has been analyzed as H*L in Japanese versions of ToBI (J-ToBI, cf. Venditti 2005). AP-initially,[342] there is a rise with an L tone on the initial and a H tone on the following mora. If the lexical accent is initial, it supersedes the AP-initial rise (cf. (137)a). A mora left unspecified for tone by either of these mechanisms receives the tone from the rightmost specified mora (variously analyzed as tonal spreading, copying or interpolation, cf. Kawahara 2015: 449–450 and the works cited there). These mechanisms fully determine the tonal shape of all Japanese words at the word- and AP-level (cf. for trisyllabic words + an unaccented suffix in one AP[343] (137)a-d). Accented words need an additional lexical specification (location of the accent) that unaccented words are lacking, but behave the same otherwise. Accent position is almost exclusively cued by pitch; duration is not a good cue for it and also signals lexical contrasts non-culminatively (cf. Beckman 1986; Kubozono 2015 amongst others).

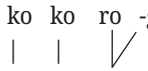
(137) Tokyo Japanese (adapted from Kawahara 2015: 448–452)

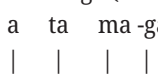
a. ínochi-ga (city-NOM) (initial accent)

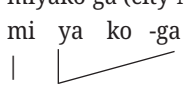


342 In all the works on Japanese, Basque and Turkish cited in this section, an Accentual Phrase (AP) or Phonological Phrase (PhP) is assumed to be the minimal prosodic unit at which tones are assigned and where accent is culminative. This manifests e.g. in the analysis for Japanese in that only one accented word can occur in an AP, optionally with additional unaccented words. It should be kept in mind that the phrase-initial (and/or phrase-final, in Turkish and Quechua) tones properly belong to the phrase, and not to the word, as the pitch accent does. So in an AP with two unaccented words, like *yamada-ga uta-tte-ru* (Yamada-NOM sing-PROG-COP "Yamada is singing"), there is only one phrase-initial rise on the first word, and the second word is realized just as a high plateau, without further pitch events (cf. Venditti et al. 2008: 459). Adjusting for their specific prosody, this holds also for Basque and Turkish. Since APs frequently map to a single word, the regular phrase-final or –initial tones have often been interpreted as a regular lexical accent, e.g. in traditional descriptions of Turkish (cf. Féry 2017).

343 Higher-level prosodic units can add further tones leading to interactions with those given in an actual utterance.

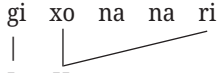
b. kokóro-ga (heart-NOM) (penultimate accent)


c. atamá-ga (head-NOM) (final accent)


d. miyako-ga (city-NOM) (unaccented)


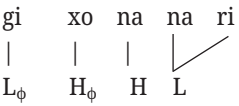
Northern Biscayan Basque has a surprisingly similar system:[344] words are divided into accented and unaccented ones, the accent always takes the form of a fall after the accented syllable (H*L) and is free to occur on any syllable in the word except for the final one in most cases, there is a word-initial rise, and tones spread across unspecified syllables (leftwards from the accented syllable, according to Hualde 1999: 950). In a position that is not directly preverbal (the focal position according to Hualde et al. 2002, in which unaccented words also receive a falling H*L accent in final position), accented words boast both a surface pitch event and a word-level tonal specification (the position of the accent) in addition to the ones found on unaccented ones (cf. (138)a-c; as in Japanese, higher-level tones will interact with the AP-level ones). Duration is also not a good cue for accent position, according to Hualde & Beristain (2018), although it is not used to mark lexical contrasts.

(138) Northern Biscayan Basque (adapted from Hualde 1999; Hualde et al. 2002)

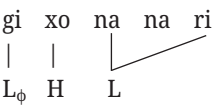
a. gixon-an-ari (man-GEN.SG-DAT.SG „to the one of the man“) (unaccented)


344 Basque prosody is described as varying enormously despite the geographically limited area where it is spoken. Hualde et al. (2002: 548–549) profess a belief that prosodic differences can be delineated and spatially contained by establishing isoglosses, but also hint gently at the insight that the dialectological enterprise of pinning down the prosodic features of Basque both geographically and typologically must needs make use of idealization.

b. gixon-án-ari (man-GEN.SG-DAT.PL „to the ones of the man“)
(antepenultimate accent[345])



c. gixón-an-ari (man-GEN.PL-DAT.SG „to the one of the men”)
(preantepenultimate accent)



According to Levi (2005); Kamali (2011), Turkish also shares the distinction between accented and unaccented words and the accent in accented words is a fall with an H tone on the accented syllable followed by an L tone (analyzable as H*L). AP-initially it does not have a rise but an L tone, and APs in prenuclear position[346] have a final H tone. This has traditionally been taken to be a regular oxytone accent on those words that are classed as unaccented in Levi (2005) and Kamali (2011), cf. Göksel & Kerslake 2005). Thus in prenuclear position, accented words also require an additional lexical specification in comparison to unaccented ones and add a tonal specification and an additional pitch event to the phrase in comparison to a phrase made up only of unaccented words (cf. (139)a-d). In nuclear position, APs are realized with an initial and final low tone. This manifests as a low plateau followed by a final fall in APs with an unaccented word and accented words are differentiated from unaccented ones in that they realize this fall earlier, after the accented syllable which is sometimes preceded by a compressed rise (cf. Kamali 2011: 74–77). Duration is not a reliable cue for accent position and is also not lexically contrastive (cf. Levi 2005).

345 This variety of Basque has “preaccenting” suffixes (Hualde 1999): suffixes that cause the preceding syllable to be accented. Preaccenting often distinguishes plural suffixes from segmentally identical singular ones.

346 The literature on Turkish splits IPs up into a prenuclear, nuclear, and postnuclear part, based on an interplay of syntactic, prosodic and information structural criteria (cf. Féry 2017: 251–253). Here it is only relevant that the right edge tone of APs differs with position: in prenuclear position, it is H_ϕ, in (post)nuclear position it is L_ϕ.

(139) a. Turkish (adapted from Göksel & Kerslake 2005; Kamali 2011)
okuldá-ymış-lar (school-EVID-PL, “apparently they are/were at school”, preantepenultimate accent on an AP in prenuclear position[347])

o	kul	da	y	mış	lar
		|	|		|
L_ϕ		H	L		H_ϕ

b. limónlu-ya (Limonlu-DAT “to Limonlu”, antepenultimate accent on an AP in prenuclear position)

li	mon	lu	ya
|	|	|	|
L_ϕ	H	L	H_ϕ

c. bunal-an-lar-ı (get.overheated-REL-PL-ACC “those that get overheated”, no accent on an AP in prenuclear position)

bu	na	lan	la	rı
|				|
L_ϕ				H_ϕ

d. yöndlendir-íyor (forward-IMPERF “s/he forwards”, penultimate accent on an AP in nuclear[348] position)

yön	len	dir	i	yor
|		|	|	
L_ϕ		H	L_ϕ	

These languages as well as others[349] make a regular distinction between unaccented and accented words, with accented words a minority in the lexicon. The

347 Turkish is also usually analyzed as having a class of preaccenting suffixes. The evidential copular suffix *–(y)mIş* (capitalized vowels indicate a vowel subject to harmony) is such a suffix. The imperfective *–(Í)yor* causes the accent to fall on its first syllable, as indicated by the orthographic accent. In a chain of suffixes, the leftmost preaccenting one determines accent position (cf. Göksel & Kerslake 2005: 29–33).

348 I have not found any information on what happens when a word in prenuclear position is accented on the penult: the L of the H*L pitch accent and the phrasal H_ϕ would then possibly compete to occupy the only remaining rightmost TBU. Because of this lack of information, use a penult-accented word in nuclear position as example here. In that position, the right-edge phrase tone of the AP is L_ϕ, and no such potential conflict ensues.

349 For example, Swedish and some of the Germanic varieties in the South Low Franconian and Central Franconian tone accent area, following the privative analyses by Riad (1998) for Swedish, Gussenhoven (2000a, 2000b) for Roermund and Gussenhoven & van der Vliet (1999) for Venlo Dutch, Peters (2008) for Hasselt Dutch. Cf. also Féry 2017: 194–200 for a discussion. Modern Hebrew also differentiates three noun classes according to stress position: words with final stress that always shifts to the final syllable when suffixes are added, words with penultimate stress that shifts in this way, and words with a lexically determined stress position that does not shift under

difference in type frequency between the groups is also reflected in terms of structural markedness: "accented" words are more marked in that they require further specifications than "unaccented" ones. That is also true in Huari Quechua, when comparing the loanword patterns with the others: the "inherited" and "grafted" patterns require a further tonal specification at the word level (a lexicalized accent position), and in the "grafted" pattern this also translates to additional tones and an additional pitch event. In this light, despite knowing about the historical origins of the "Spanish" words, we should not be averse to considering this particular variation as simply one prosodic option (or two closely related options) available for a subset of the lexical items the speakers have at their disposal. As the discussion on loanword prosody has shown, despite variation in their realization it is clear that the loanwords are not produced just as if the speakers were speaking Spanish. Phonological phrases that contain them form a particular prosodic subtype in Quechua sharing attributes both with phrases with only "native" words and with Spanish stressed words. It makes sense to call these words an "accented" class in Quechua.

The distinction between accented and unaccented words also seems to interact in a non-trivial way with loanword phonology in other languages: according to Kubozono (2008: 167), only 29% of native Japanese words are accented, but 93% of loanwords[350] are. In a similar vein, Davis et al. (2012: 14) attest that the marked or accented class of Modern Hebrew words, which is smallest among native words but to which most loanwords belong, is a modern innovation. They suspect, based on Zuckermann (2003), that it might have come into existence through the large share of vocabulary from Germanic and Slavic languages the modern language has adopted. In Turkish, unaccented words form the majority of native word stems, but most loanwords are accented (Göksel & Kerslake 2005: 26–27). In the Basque case, Hualde (1993, 1999: 984) even argues that the present Western Basque accentuation system (including Northern Biscayan) arose from a historical development in which a system that originally had no word accent changed to the present distinction between accented and unaccented words due to the large-scale adoption of accented loanwords from Latin and Romance languages. If that is correct, the

suffixation. The last type is seen as marked, because it requires further constraints in addition to those acting on the first two classes (cf. Bat-El 2005; Davis et al. 2012). Becker (2003: 45–46) calls the first two classes 'unaccented' and the third 'accented'. Loanwords from languages with lexical stress such as Germanic or Slavic languages or Arabic usually preserve their stress position and are of the last class, which has by far the fewest members among native words and might even have only been formed under the influence of those languages (Davis et al. 2012: 17; Zuckermann 2003). Hebrew is not usually analysed as a "pitch accent" language.

350 From languages other than various historical stages and varieties of Chinese, the so-called Sino-Japanese words, that form a large and integral part of the modern Japanese lexicon. In them, the share of accented words is 49% (Kubozono (2008: 167)).

beginning stages of this process could probably be imagined as a scenario quite similar to the Quechua situation described here. Basque also shows a remarkable prosodic variety across the different regions where it is spoken, despite occupying a relatively small geographical area. Besides the pitch accenting system described for Northern Biscayan, there are also varieties without a distinction between accented and unaccented words, some with a fixed penultimate accent position and some where there is more than one accent shape (a rising one besides the falling one, cf. Hualde & Beristain 2018). This is also not wholly unfamiliar from our ongoing discussion on Quechua, except that here we find a similar breadth of variation in a corpus made up only of the speech of speakers hailing from and residing in basically the same locality, the town of Huari and its environs. This suggests that the space of possibilities in both cases has similar dimensions. Other interesting parallels to the three languages here briefly discussed are that in Huari Quechua as well as in Japanese, Basque and Turkish (to a lesser degree), tones tend to copy (or spread) across tonally unspecified syllables, leading to plateaux and low stretches, and that duration is not a good cue for marking accent position (apart from in the words of Spanish origin in our data). This set of languages is however also separated by some properties (cf. also Ito 2002 for a prosodic comparison of Basque and Japanese): in Huari Quechua and Japanese, duration is employed in lexical contrasts, but not in Basque and Turkish. In Quechua and Turkish, phrase-initial L tones occur, while in Japanese and Basque there are initial rises (LH_{ϕ}). While Japanese, Basque and Turkish all have a lexical accent that has been analyzed as H*L, the pitch accent identified in the "grafted" pattern is LH*, like the most frequent pitch accent in Huari Spanish. The Quechua "grafted" pattern is similar to phrases with accented words in Turkish in that it forms a pitch accent in addition to the tone(s) at the right edge of the phonological phrase, while the "inherited" pattern is more similar to the Basque case, where it is the same phrase tones that appear at the right edge of phrases (only if they are in focus position in Basque), and not additional ones, that are employed to mark the accented position in phrases with accented words. Turkish and Huari Quechua also share the property of having two options for the rightmost phrase-level tone, H_{ϕ} and L_{ϕ}, differentiated by whether the AP occurs in prenuclear of nuclear position in Turkish and distinguishing the rising from the falling contour in Quechua.

So far, we have only compared AP/PhP- and word-level prosody here. At higher levels of prosodic structure, further points of commonality and separation can be added: e.g., while Kamali (2011: 86–87) argues that in Turkish there is only a single higher-level boundary tone, H%, which is optional (but cf. Göksel & Kerslake 2005: 35–39 for a differing account), Japanese has an array of complex higher-level tones (L%, H%, HL%, HLH%) called "boundary prosodic movements" (BPM; Igarashi et al. 2013; Igarashi 2015, cf. also Venditti et al. 2008: 471–476). They encode pragmatic

contrasts. In Huari Quechua so far, there is no evidence for additional higher-level tones. However, this should be taken as a preliminary finding: as Venditti et al. (2008: 472–473) point out, the full inventory of BPMs in Japanese has until recently been overlooked (including by Pierrehumbert & Beckman 1988), and this is not least because some of them are exceedingly rare: in a corpus of more than 178,000 phrases, the two least frequent BPMs, HL% and HLH%, only occurred 419 (0.2%) and 14 (0.008%) times. Their distribution is also extremely dependent on genre and context. That makes it not unlikely that they aren't present, or haven't been recognized, in our Huari Quechua sample (cf. the singular example of KP04_MT_Q_0393 in section 6.1.7). Northern Biscayan Basque and Turkish assign phrase accents based on a mixture of prosodic and syntactic conditions: in Turkish, all APs in prenuclear position receive a final rise (H- in Kamali 2011); in Northern Biscayan Basque, even unaccented words receive a final pitch movement that is identical in form to the falling accent when they are the last word in a phrase that is in focus position, i.e. directly preceding the verb, according to Hualde et al. (2002: 549–550). A purely prosodic version of this condition, where only the strongest word in the phonological phrase has what could be called an accent in a completely regular position, is quite a close-fitting description of the Quechua pattern seeking alignment with the word penult.

Discussions of the prosody of Japanese, Basque, and Turkish often group them together under the label of "pitch-accent languages" because of their several shared properties (cf. Féry 2017). Should Huari Quechua now be added to this group as a further member, based on the number of intriguing similarities we have encountered? Despite these similarities, it should be kept in mind that in our data, different prosodic variants of both Spanish and Quechua assume prosodic configurations that each on their own resemble what has been described as quite diverse prosodic "types" in the literature. In the next section we will see that the same speaker may produce the same lexical item of Spanish origin in the same conversation one time with an "inherited" accent, another with a "grafted" one, and yet another with one of the three patterns that would also be used on phrases composed only of words of Quechua origin. To the extent that Quechua prosody is similar to that of the three other "pitch accent" languages, this would then be more valid for the first two instances than for the third one, while phrases produced with an exclusively edge-oriented alignment pattern would perhaps more closely resemble French or Korean. Thus I would hesitate to say that simply because we can analyze the prosodic behaviour of these Spanish-origin words in parallel to the distinction between unaccented and accented words in other languages, it is reasonable to classify Quechua as belonging to a prosodic "prototype" like the T-type pitch accent languages proposed in Hualde et al. (2002). In addition, we simply do not know very much about the tonal properties of very many languages, so that creating pro-

totypes because two or three languages whose prosody we have studied a little more seem to show parallels in some analyses might be premature. The theoretical cast of the analysis itself is also crucial: Igarashi (2015: 561) points out that French has been described both as having an accent-based prosody (e.g. by Post 2002) and an edge-based prosody (e.g. by Jun & Fougeron 2000, 2002), which are elsewhere seen as representing two different prosodic types. On the other, the idea of prosodic types themselves seems difficult to maintain: Hyman (2006) argues that the exponents of "pitch accent languages" are too heterogeneous for it to be a useful type, and Beckman & Venditti (2010) expand this assessment also to "tone languages" and "stress languages" after detailed case studies, voicing the suspicion "that the appearance of prototypes comes from looking too closely at just one or two of the functions in which tone participates, as well as from being thoroughly immersed in the consensus assumptions of specialists in just one or two Sprachbund regions" (Beckman & Venditti 2010: 642). Hyman (2014) essentially concurs by proposing property-based (instead of type-based) typological comparison.

Perhaps the problem in assigning types lies more in assuming that they are valid for whole "languages" rather than in the observation itself that certain properties seem to cluster and form recurring patterns. It would then be a much more interesting question to ask what it is about these properties that makes it likely or preferable for them to occur together in some system, independent of whether this system is a historical language or just one possible variant besides others in the repertoire of an individual. In the following we will look at the loanword patterns from a quantitative perspective, in order to see how they vary by speaker, token and type of discourse.

6.1.8.3 Distribution of the loanword patterns across speakers and lexical items

To conclude the section on loanword patterns we'll look at the occurrence of pitch movements determined by the Spanish stress position in a subset of the corpora, the seven *Conc*s and *Maptask*s. The purpose here is not to provide a comprehensive quantification of their frequency of occurrence but to demonstrate that pitch movements determined by the Spanish stress position vary in our corpus at least along the following dimensions: according to speaker and according to lexical item; possibly also according to conversation type. In the following two tables, the occurrence of Spanish-origin word tokens is given and their frequency relative to all word tokens. Their realization is classified as either without pitch movement due to the Spanish stress position (i.e., like any other Quechua word), with pitch movement due to the Spanish stress position (i.e. grouping the "inherited" and "grafted" patterns together), or as indeterminable. The counts are separated by speaker for the two sets of corpora of *Conc* (Table 22) and *Maptask* (Table 23). The definition of

"word" here used is that of the Quechua morphological word: any stem together with its suffixes. Words were classed as indeterminable if either there was no or not enough pitch movement in the phrase overall to classify it, or if what was found could be interpreted to represent one of the Quechua alignment patterns just as much as tonal alignment relative to the Spanish stressed syllable with no way of telling them apart (e.g. a rising contour on an individually phrased trisyllabic word where the tonal transition takes place on the penult and the penult also corresponds to the stressed syllable in the Spanish word). The counts here are thus necessarily the result of some interpretation, but they broadly indicate differing strategies between speakers.

Table 22: Prosodic patterns on Spanish-origin word tokens in the seven Quechua *Conc* corpora. The counts in the last column exclude word tokens classed as "indeterminable".

Speaker	Corpus (length in seconds)	Total number of words by that speaker					Ratio number of Spanish-origin words /all words	Ratio loanword pattern words / Spanish-origin words (without "indeterminable")
		Spanish-origin words				Total		
		No pitch movement due to Spanish stressed syllable	Pitch movement due to Spanish stressed syllable	Indeterminable	Total			
OZ14	Conc	2	9	5	16	31	0.52	0.56
QZ13	(180.7)	12	9	11	32	48	0.67	0.28
QF16	Conc	4	0	3	7	48	0.15	0
SG15	(218.8)	1	7	8	16	79	0.20	0.44
TP03	Conc	2	0	1	3	39	0.08	0
KP04	(172)	4	0	3	7	70	0.10	0
AZ23	Conc	33	2	11	46	70	0.66	0.04
ZZ24	(222)	8	1	2	11	20	0.55	0.09
XU31	Conc	6	1	1	8	40	0.2	0.13
OA32	(192.3)	8	1	0	9	64	0.14	0.11
ZR29	Conc	6	0	5	11	36	0.31	0
HA30	(300.2)	7	3	0	10	117	0.09	0.3
XQ33	Conc	3	0	3	6	29	0.21	0
LC34	(193.6)	3	0	2	5	36	0.14	0

Table 23: Prosodic patterns on Spanish-origin word tokens in the seven Quechua *Maptask* corpora. The counts in the last column exclude word tokens classed as "indeterminable".

Speaker	Corpus (length in seconds)	Total number of words by that speaker: Spanish-origin words: *No* pitch movement due to Spanish stressed syllable	Pitch movement due to Spanish stressed syllable	Indeterminable	Total	Total	Ratio number of Spanish-origin words / all words	Ratio "inherited" accents / Spanish-origin words (without "indeterminable")
OZ14	MT	7	10	8	25	151	0.17	0.4
QZ13	(234.2)	2	3	5	10	80	0.13	0.3
QF16	MT	7	2	2	11	103	0.11	0.18
SG15	(148.4)	1	0	0	1	11	0.09	0
TP03	MT	5	1	8	14	198	0.07	0.07
KP04	(303)	17	8	14	39	301	0.13	0.21
AZ23	MT	11	2	2	15	95	0.16	0.13
ZZ24	(176)	2	2	1	5	50	0.10	0.4
XU31	MT	57	16	4	77	622	0.12	0.21
OA32	(777.6)	12	5	5	22	181	0.12	0.23
ZR29	MT	2	0	1	3	34	0.09	0
HA30	(262.8)	16	4	17	37	205	0.18	0.11
XQ33	MT	1	0	1	2	103	0.02	0
LC34	(328)	11	3	12	26	266	0.10	0.12

Some speakers (OZ14, QZ13, SG15) tend to realize a substantially higher number of the Spanish-origin word tokens they produce with pitch movement on the Spanish stressed syllable than others (AZ23, TP03, ZR29, XQ33), while the rest seems to be in-between. However, we also see that the counts differ according to the corpus type (*Conc* or *Maptask*). Two factors must be noted related to the nature of the experimental tasks: firstly, the proportion of Spanish-origin word tokens that are produced also varies by speaker and corpus type, thus varying the number of opportunities at which either alignment pattern could be produced. Although the central objects in both tasks were the same and controlled for by the experimenters, speakers were still free in their choice of name for these objects and of all other lexical items they used in the task. Secondly, speakers speak more or less, not only by individual preference, but also because of the constraints of the task: in the

Maptasks, it is usually the speaker with the path already drawn on the map who will speak more. In *Conc*, it depends on the course of the game: if a speaker begins the game who happens to memorize all or nearly all of the locations of the objects correctly, they will speak much more than the other speaker, yet if their game is more balanced, so their speaking portions will tend to be. Table 24 gives the counts for each speaker individually, but pools the data from both corpora together, somewhat correcting for these two factors.

Table 24: Ratios (in %) of Spanish-origin words against all words, and of pitch movement classified as due or not due to the Spanish stressed syllable, or indeterminable, on Spanish-origin word tokens, across both *Conc* and *Maptask* taken together.

Speaker	Corpus	Ratio Spanish-origin words / all words (%)	Pitch movement due to Spanish stressed syllable / Spanish-origin words (%)	No Pitch movement due to Spanish stressed syllable / Spanish-origin words (%)	Indet. (%)
OZ14	MT+ Conc	22.5	46.3	22	31.7
QZ13	MT+ Conc	32.8	28.6	33.3	38.1
QF16	MT+ Conc	11.9	11.1	61.1	27.8
SG15	MT+ Conc	18.9	41.2	11.8	47.1
TP03	MT+ Conc	7.2	5.9	41.2	52.9
KP04	MT+ Conc	12.4	17.4	45.7	37
AZ23	MT+ Conc	37	6.6	72.1	21.3
ZZ24	MT+ Conc	22.9	18.8	62.5	18.8
XU31	MT+ Conc	12.8	20	74.1	5.9
OA32	MT+ Conc	12.7	19.4	64.5	16.1
ZR29	MT+ Conc	20	0	57.1	42.9
HA30	MT+ Conc	14.6	14.9	48.9	36.2

Table 24 (continued)

Speaker	Corpus	Ratio Spanish-origin words / all words (%)	Pitch movement due to Spanish stressed syllable / Spanish-origin words (%)	No Pitch movement due to Spanish stressed syllable / Spanish-origin words (%)	Indet. (%)
XQ33	MT+ Conc	6.1	0	50	50
LC34	MT+ Conc	10.3	9.7	45.2	45.2
Avg.	MT+ Conc	17.2	17	49.2	33.8

Table 24 allows us to make a better judgment about differences between comparable[351] speakers. The most general conclusion is that no speaker produces all or even more than half of their Spanish-origin words identifiably with one of the loanword patterns (but keep in mind the sizeable number of tokens classed as indeterminable), but probably also no speaker (with sufficient data) is entirely incapable of it. Apart from that, reliable conclusions about genuine individual differences with regards to their loanword-prosodic preference can only be drawn for some speakers: e.g. speaker AZ23 has a ratio of Spanish-origin word tokens that is comparatively high and also roughly approximate to that of speakers OZ14 and QZ13. All three of them also produce a decent absolute number of tokens. Yet, her ratio of loanword pattern realizations is the lowest of all speakers with sufficient data, while OZ14 and QZ13's are among the highest, with almost 40% difference between AZ23 and OZ14. This is also not due to differences in lexical choice. The pairs of OZ14 and QZ13, and AZ23 and ZZ24, respectively, follow very similar strategies in their *Conc* tasks: they describe the locations of the object cards in the game with reference to the rows and columns that are laid out on on the table. Other speaker pairs instead prefer to describe the locations via relative reference to other cards (e.g. *tsaypa hanan kaq* "the one above that one", KP04_Conc_Q_0225), or to the border of the grid (e.g. *washa kantu-chaw* "at the edge over there", HA30_Conc_Q_0212). OZ14, QZ13, AZ23 and ZZ24 all refer to the rows and columns by numbers using

351 Comparable are those that produce enough words overall, with an approximately similar ratio of Spanish-origin words. The extremely low ratios of loanword pattern realizations by XQ33 and TP03 should e.g. be taken with some caution, because they use Spanish-origin words themselves quite infrequently, and the low and high ratios by ZR29 and SG15, respectively, because they both produce comparatively few words overall.

the Spanish ordinal numerals (*primer/o/a, segund/o/a, tercer/o/a*) as lexical stems.[352] Table 25 lists the Spanish-origin word types these speakers use in *Conc* together with their token occurrence. The majority of Spanish-origin word tokens in their two *Conc* corpora belongs to four lexical item types, *fila* 'row', and the three first ordinal numbers, *primer(@)*[353] 'first', *segund@* 'second', and *tercer(@)* 'third' (cf. rows with grey background in the table).

Table 25: Spanish-origin lexical item types with their word forms and token number of occurrence in the Quechua *Conc* corpora of QZ13 & OZ14 and AZ23 & ZZ24, respectively, according to speaker.[354]

lexical item	word form	QZ13	OZ14	AZ23	ZZ24	all
ahí 'there'	ahí	–	–	1	–	1
faltar 'to lack'	falta *lack.3S.PRES.IND*[352]	–	–	1	–	1
	falta-n *lack-3*	–	–	1	–	1
fila 'row'	fila	2	–	–	–	2
	fila-chaw *row-LOC*	8	5	13	3	29
cajón 'box'	kahun-chaw *box-LOC*	–	–	1	–	1
lado 'side'	ladu-n *side-3*	1	–	–	–	1
	laa-ni-n-chaw *side-FON-3-LOC*	–	1	–	–	1
primer-(@) 'first'	primer	2	–	3	1	6
	primer@	1	1	2	1	5
	primer@-chaw *first-LOC*	1	2	5	2	10
ric@ 'rich'	riiku	1	–	–	–	1
segund@ 'second'	segund@	5	2	3	1	11
	segund@-chaw *second-LOC*	2	1	4	1	8
tercer-(@) 'third'	tercer	2	–	1	–	3
	tercer@	1	2	5	1	9
	tercer@-chaw *third-LOC*	5	2	5	1	13

352 Some of the other speaker pairs also refer to the rows and columns, but use relative location terms for differentiation (*punta* 'front', *waqta* 'back') or the Quechua numerals (*huk* 'one', *ishkay* 'two', *kimsa* 'three') that do not seem to have special ordinal forms (e.g. *kimsa fila-chaw* 'in the third row' and *kimsa allqu* 'three dogs').

353 The "@" here stands in for a vowel segment that could be either *–a* or *–o*, the Spanish gender desinences. When the speakers produce these in a Quechua utterance, they do not pay much attention to gender agreement, if applicable. There are also occasional cases of gender mismatch in Spanish, e.g. *segund**o** fil**a*** (OZ14_Conc_ES_1785). This has been noted in the speech of Quechua-Spanish bilinguals before (Escobar 2000, 2011). These segments often have a centralized vowel quality, also when the tonal transition takes place on them.

354 Spanish-origin morphological glosses (verb endings) are given in italics and underlined, Quechua-origin morphology as well as all stem glosses are given in italics only.

Table 25 (continued)

lexical item	word form	QZ13	OZ14	AZ23	ZZ24	all
últim@ ‘last’	ultim@-chaw *last-LOC*	1	–	–	–	1
ver ‘to see’	vistes *see.2S.INDEF.IND*	–	–	1	–	1
all		32	16	46	11	105

(140) AZ23_Conc_0122
primer fila-chaw *terceru*-chaw *primer fila*-chaw *terceru*-chaw pitu
first row-LOC third-LOC first row-LOC third-LOC whistle
“in the third one in the first row, in the third one in the first row [is] the whistle”

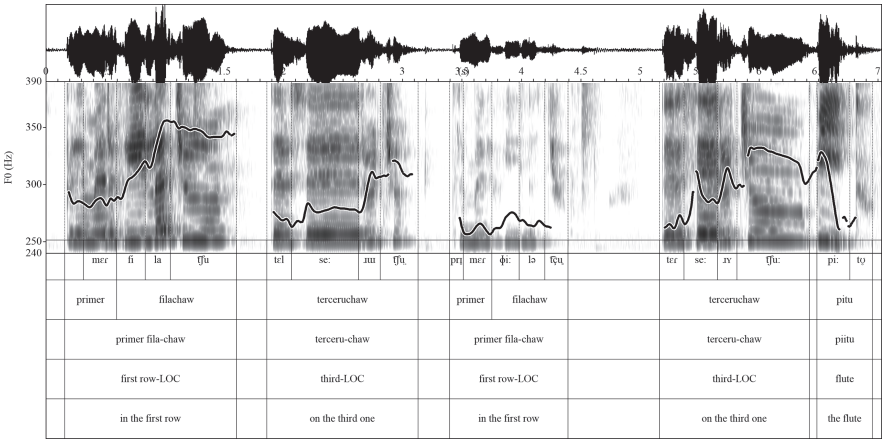


Figure 164: AZ23_Conc_Q_0122[355] (declarative with four rising and one falling contours).

This section has already seen a number of examples from QZ13 and OZ14’s *Conc* with loanword pattern realizations on these words. For comparison, see AZ23_Conc_0122 ((140)/Figure 164), where almost all of these lexical items appear in phrases without the Spanish stressed position as locus of pitch movement. Instead, they exhibit Quechua phrasal accentuation. Just like words of Quechua origin, Spanish-origin words like *primer* can be realized as part of the initial low stretch without any pitch events, frequently if they are in a modifying position. Thus even on nearly identical lexical items in the same task, there are individual speaker differences (between AZ23 on the one side and QZ13 and OZ14 on the other) with

355 https://osf.io/g6qux/

regards to the use of loanword prosody. Conversely, the importance of lexical identity can also be shown fairly unequivocally, in that the same speakers under the same context conditions can treat different lexical items of Spanish origin very differently prosodically. This is seen when comparing the realizations of forms of *lado* 'side' with those of *murciélago* 'bat' in the Quechua *Maptask* and *Conc* corpora by speakers XU31 and OA32. Fortunately, those two speakers, upon encountering the conflicting section in their maps, patiently began the game anew several times, determined to iron out the kinks in their interaction by simply redoing everything again and retracing their steps. This has resulted in a *Maptask* of nearly 13 minutes of continuous conversation, with similar but varying utterances containing always the same set of lexical items. One of the objects causing a conflict in their maps was the bat, so it is quite often referred to. In addition, both speakers seem to have incidentally forgotten the Quechua word for 'bat', *tsiqtsi* (or only one of them forgot and the other followed him in that usage), so they use forms of *murciélago* throughout this long map task. In most other corpora by other speakers, *tsiqtsi* is used to refer to a bat, and its occurrence in their *Cuento* shows that *tsiqtsi* is also in XU31's and OA32's lexicon. *Murciélago* in their map task thus is probably something of an ad hoc-substitute for *tsiqtsi* via access to the multilingual lexicon available to the speakers. Morphosyntactically, it is used in the corpus like any other noun, suffixed with Quechua nominal morphology. *Murciélago* is a fortunate case also in that it is proparoxytonic in Spanish, so that even if it is phrased as a an individual word without suffixes in Quechua, accentuation on the Spanish stressed syllable /sje/ can be differentiated from a phrase-final rise beginning on the penult. On the other side, forms of *lado* are used by nearly every speaker at least once in their Quechua data. Etymologically "native" words for 'side' are found in one dictionary, like *awi* or *niq* (cf. Carranza Romero 2003: 40, 140), but in another, actually older one, *laadu* is the only entry with the meaning 'side' (Parker & Chavez Reyes 1976: 260). In our data as well, only forms of *lado* are used. There is also a shortened form, *laa*, but speakers use both with the same meaning[356] in the same task, and both forms can be and are suffixed with Quechua nominal morphology. Note that even though *lado*

356 Though perhaps not with the same morphosyntax: in this very small corpus, XU31 uses *laa* exclusively following either the demonstrative *kay* or the locative nouns *hana* 'above' and *hawa* 'below', while *lado* is used everywhere else (see Table 26). This might suggest that *kay laa*, *hana laa* and *hawa laa*, as well as perhaps others involving basic directions, have become fused lexical expressions for him with the meaning 'this side', 'upper side', and 'lower side', respectively. However, OA32, while using it only twice overall, produces *laa* once following *manka* 'pot' in *manka laa-n-chaw* (pot side-3-LOC) 'beside the pot', which is far less plausible as a lexicalized expression. For both it is the case that while a noun preceding a form of *lado* (as well as other location nouns) may optionally be suffixed with the genitive *–pa* in a construction marking relative reference / possession of the form *X(-pa) ladu-n(-suffix)* (X-(GEN) side-3(-suffix)) '()X's side', such as *manka-pa*

seems to have a much more comprehensive history as a loanword in Quechua than *murciélago*, it is of course also an active item in the Spanish lexicon of these bilingual speakers, and stressed 'correctly' when used in Spanish by them. However, it can be assumed that *lado*, both in their Spanish and in their Quechua, will have a much higher frequency in the daily usage of these speakers than either *murciélago* or *tsiqtsi*.

Table 26: Token counts for word form types of *murciélago*, *lado, escoba,* and *abeja* in the Quechua *Conc* and *Maptask* corpora of the speaker pair XU31 and OA32 according to prosodic pattern.

speaker	token word form	"inherited" pattern	"grafted" pattern	no pitch movement due to Spanish stress	indeterminable	all
murciélago (in Conc *and* Maptask*)*						
XU31	murcielagu	1	6	1	–	8
	murcielagu-ta *bat-OBJ*	–	1	–	–	1
	murcielagu-qa *bat-TOP*	–	–	1	–	1
	murcielagu-pa *bat-GEN*	–	1	–	–	1
	all	*1*	*8*	*2*	–	*11*
OA32	murcielagu	1	–	2	1	4
	murcielagu-ta *bat-OBJ*	–	1	1	–	2
	murcielagu-m *bat-ASS*	–	1	–	1	2
	murcielagu-man *bat-DEST*	–	1	–	–	1
	all	*1*	*3*	*3*	*2*	*9*
both		***2***	***11***	***5***	***2***	***20***
lado (in Conc *and* Maptask*)*						
XU31	ladu-n *side-3*	–	–	1	–	1
	ladu-n-chaw *side-3-LOC*	1	–	7	–	7
	ladu-n-chaw-mi *side-3-LOC-ASS*	–	–	5	–	5
	ladu-n-pa *side-3-GEN*	–	–	13	–	13
	ladu-n-pa-m *side-3-GEN-ASS*	–	–	2	–	2
	ladu-n-pita *side-3-ABL*	–	–	1	–	1
	laa-ni-n-chaw *side-FON-3-LOC*	–	–	5	–	5
	laa-ni-n-chaw-mi *side-FON-3-LOC-ASS*	–	–	1	–	1

ladu-n 'the pot's side', the dependent-marking with *–pa* does not seem to occur when the possessor is followed by *laa* instead of *lado*, which might suggest affix status for *laa*.

Table 26 (continued)

speaker	token word form	"inherited" pattern	"grafted" pattern	no pitch movement due to Spanish stress	indeterminable	all
	laa-ni-n-chaw-raa-mi *side-FON-3-LOC-CONT-ASS*	–	–	1	–	1
	laa-ni-n-pa *side-FON-3-GEN*	–	–	3	–	3
	laa-ni-n-pa-mi *side-FON-3-GEN-ASS*	–	–	1	–	1
	li-n-pa-mi *side-3-GEN-ASS*	–	–	1	–	1
	all	*1*	–	*41*	–	*42*
OA32	ladu	1	–	–	–	1
	ladu-n *side-3*	–	–	1	–	1
	ladu-n-chaw *side-3-LOC*	–	–	8	–	8
	laa-n-chaw *side-3-LOC*	–	–	1	–	1
	laa-ni-n-chaw *side-FON-3-LOC*	–	–	1	–	1
	all	*1*	–	*11*	–	*12*
both		***2***	–	***62***	–	***64***
escoba (in Conc *and* Maptask*)*						
XU31	escoba-man *broom-DEST*	–	–	3	–	3
	escoba-pa *broom-GEN*	–	–	1	–	1
	all	–	–	*4*	–	*4*
OA32	escoba-pa *broom-GEN*	–	–	*1*	–	*1*
both		–	–	***5***	–	***5***
abeja (in Conc *and* Maptask*)*						
XU31	abeja-kuna *bee-PL*	–	2	–	–	2
	abeja-ta *bee-OBJ*	–	–	1	–	1
	all	–	*2*	*1*	–	*3*
OA32	abeja-kuna *bee-PL*	*1*	–	–	–	*1*
both		***1***	***2***	***1***	–	***4***

Table 26 gives the counts for word form types of *murciélago* and *lado* in the Quechua *Conc* and *Maptask* corpora by XU31 and OA32, sorted according to the prosodic pattern realized on them. While overall counts differ of course, there is a very clear trend: phrases containing word forms of *murciélago* (usually produced with a high back vowel in the last segment) are realized with one of the patterns sensitive to the Spanish stress position more than half of the time (13/20 times = 65%) here. Phrases containing forms of *lado* almost never are (2/64 times = 0.03%). This is pretty solid evidence that even with the same speakers in the same task, lexical identity is a

relevant factor for the prosody of Spanish-origin words in Quechua. Relating this to their history sketched above, the obvious hypothesis seems to be that with increasing integration into the Quechua lexicon, the marked prosodic patterns sensitive to Spanish stress become less frequent and the prosody thus more regular. The table also includes counts for realizations of forms of *escoba* and *abeja*, with the former never being produced with a pattern sensitive to Spanish stress, and the latter three out of four times. While the absolute numbers here are far too low to draw any definite conclusions, this suggests that the difference in prosodic realization is not specific to *murciélago* and *lado*, but is instead more generally influenced by lexical identity. It is perhaps noteworthy that most of the other speakers use *pitsana* in Quechua for 'broom', but no speaker in the data refers to bees with any other word than *abeja*. Other speakers, including even AZ23 with her overall low preference for the loanword pattern, also produce the "grafted" pattern on it ((128)/ Figure 157). This seems to contradict the hypothesis of increasing prosodic regularization concomitant with lexical integration of loanwords, but perhaps *abeja* is simply infrequent overall. More subtle factors are clearly at play here than just the two we have been able to nail down, speaker preference and lexical identity. I leave a more in-depth exploration of them for further research.

In conclusion, the tonal alignment patterns showing sensitivity to the "inherited" lexical stress position in Spanish-origin words is a marked but not infrequent and presumably stable prosodic option for bilingual Huari Quechua speakers. Its frequency of realization has been shown to vary between speakers and individual lexical items. Typologically, it seems to occupy a kind of niche in that the lexical alternation between words specified for an irregular accent position and those that lack this specification in a language otherwise employing tones mostly for the optimization of phonological/accentual phrases finds its counterpart in several unrelated languages across the world, whose prosodic systems in other aspects also display similarities to what we have found for Quechua to greater or lesser extent. Any language that shows this phenomenon straddles a typological feature boundary: it both has and hasn't a lexically specified accent position for words which attracts tones realizing a pitch accent.

6.2 Phrasing and relation to meaning-based categories

Until now, attested Huari Quechua prosodic patterns corpus have been categorized only according to characteristics necessary for their prosodic definition. An important further aspect is the relation to meaning-based categories and the signalling of differential information structure. This section will explore this issue based on a sub-corpus of 415 utterances from 1 *Maptask* (TP03&KP04), 1 *Cuento* (AZ23&ZZ24), and 7

Conc (TP03&KP04, QZ13&OZ14, SG15&QF16, AZ23&ZZ24, ZR29&HA30, XU31&OA32, XQ33&LC34) tasks. These constitute nearly all the utterances produced in these corpora; excluded were only a small number because of very quiet (whisper-like) speech, too much background noise, or an abundance of hesitations and false starts. The utterances were analyzed and broadly annotated by hand according to their morphosyntax, information structure (explicit or likely implicit QUD, focus-background division and information status of referents (given/new)), and intonation. In terms of intonation, this meant annotating tonal contours according to the patterns established in the previous sections and how they mapped onto words. All together, this provides insight into what information structural and syntactic configurations pattern frequently with which contours, and thus what factors might contribute to contour choice whether a contour is realized across one or several words (phrasing). In turn, this will allow us to form hypotheses about prosodic and metrical structure and its mapping to words in Quechua. The sub-corpus is quite heterogeneous, comprising data from 14 speakers engaging in three different communicative tasks in spontaneous speech. To give one example, overall only 120 of these 415 utterances contain verbs,[357] while the other 295 are made up only of nouns (and a few adverbs and particles). However, of those 120, 98 stem from the two *Maptask* and *Cuento* corpora, leaving only 22 for the seven *Conc* corpora. This is because largely, conver-

357 A variety of Quechua suffixes allow conversion between the two main word classes, verbs and nouns, so that the resulting word form can then take suffixes exclusive to the resulting word class. Accordingly, a word form having undergone conversion to a noun from a verb (eligible to take nominal suffixes and behave syntactically like a noun, e.g. being argument to some predicate) is counted as a noun, and vice versa. This is not a central issue here, but there are quite complex cases where verbs with filled argument slots are nominalized and serve then again as arguments in higher-order predicates, such as in (i).

(i) ZZ24_Cuent_Q_1825
huqta chuspi-ta wañu-tsi-nqa-n-pa alma-n-ta qara-sha
six fly-OBJ die-CAUS-NMLZ-3-GEN soul-3-OBJ give-PRTCP
“[he] gave [him] the souls of the six flies he had killed”

Here, *huqta chuspita* is the direct object to the predicate *wañutsinqanpa*, which is nominalized by *–nqa* and the possessive modifier (indicated by the genitive *-pa*) to *almanta*, in turn the direct object of the main verb *qarasha*, whose subject and indirect object are both null and only provided by context. Translating this as a relative clause with the six flies as the head noun in English seems natural, but it is the nominalized verb form which is the head in the Quechua sentence (evidenced by the genitive which indicates the relation between the souls and those they belonged to). This structure cannot be faithfully rendered in English. An approximation would be something like “he gave the souls of those he had killed (the six flies)”, with the object of the subordinate verb in parentheses and an additional pronominal relative head. What is nominalized here is not just the verb *wañutsi-*, but the entire clause *huqta chuspita wañutsi-*. Such cases make it clear that “nominalization” in Quechua is perhaps a misnomer, or at least a rather complex issue. Cf. also Lefebvre & Muysken (1988).

sational moves in *Conc* are of the broad form "[noun phrase denoting a location] is [noun phrase denoting an object]", with the copula in the third person present tense not realized. This heterogeneity, in itself interesting, makes it difficult to draw certain generalizations from the entire dataset. In the following we will look at correlational patterns taken from subsets of the data that are within themselves comparable to a degree, and also explore further sources of variation existing between the corpora.

6.2.1 Brief excursion: The question of (polar) questions

In this section, I will briefly discuss and exclude the possibility that the rising contour is used exclusively or even mainly to signal questions, in particular polar questions. Wh-questions are not any more often realized with a fall than declaratives, as far as could be determined. They do not show any noticeable differences to them intonationally. Note that the wh-word in most cases is phrased on its own with a (rising-) falling contour (cf. Figures 132, 148, 165).

(141) CJ35_Quien_Q_0163

imanir-taa	gerra-qa	ka-sh	imanir-taa	pelya-ykaa-yaa-nqa
why-DETVAR	war-TOP	COP-PRTCP	why-DETVAR	fight-PROG-PL-3.FUT

"why was there a war? why would they be fighting?"

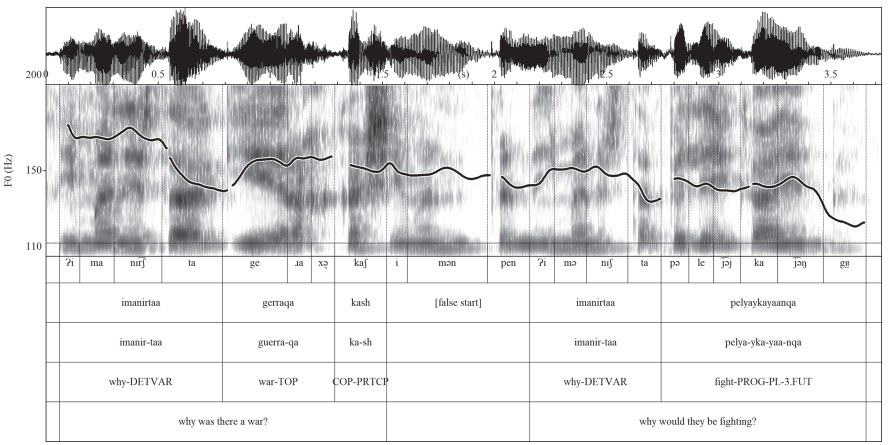


Figure 165: CJ35_Quien_Q_0163[358] (two wh-questions).

358 https://osf.io/wq9s5/

Regarding rising contours in polar questions, I investigate their occurrence using data from the *Quien* task, which was also used in section 6.1.6. It was originally intended to elicit questions in particular. Morphology and particles play a role for polar questions in Huari Quechua: the morpheme *–ku* is often associated with polar questions and can attach to any word in a sentence; if *–ku* is present in a sentence, the evidentials *–m(i)/-sh(i)/-ch(i)* cannot be (Parker 1976: 148–149). It also occurs in alternative questions (cf. Figure 166): both alternatives are here marked with *–ku*, optionally the Spanish *o* 'or' is also inserted between them. The first alternative in them is realized with a rising contour, and the second with a falling one that often seems downstepped in pitch level.

(142) CJ35_Quien_Q_0349
ruku-na-ku hoobin-lla-raq-ku tsay runa-qa
old-DISC-Q young-LIM-CONT-Q DEM.DIST person-TOP
"is the person old already or still young?"

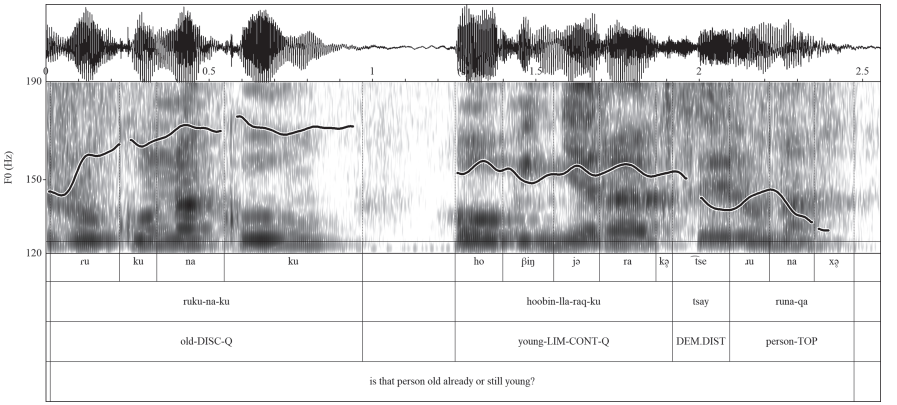


Figure 166: CJ35_Quien_Q_0349[359] (alternative question).

(143) XQ33_Quien_Q_0059
aqtsa-sapa-ku ka-shqa
hair-AUGM-Q COP-PRTCP
"did s/he have a lot of hair?"

359 https://osf.io/kh29b/

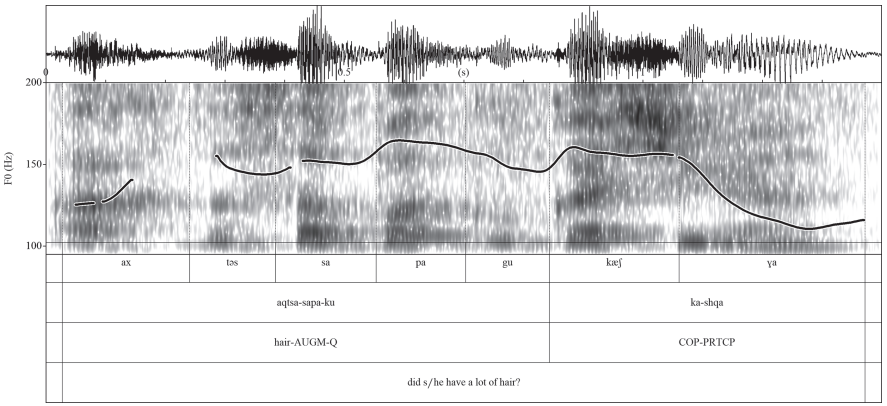


Figure 167: XQ33_Quien_Q_0059[360] (neutral polar question with *-ku*).

Also relevant for questions is the particle *aw*, which when used sentence-initially means "yes", but in our corpus is more often used utterance-finally as a question tag (cf. also section 6.1.7). Table 27 gives counts for occurrences of polar questions in *Quien*, separated by type of question. Figure 167 gives an example for a neutral polar question. "Neutral" polar questions mean those where the speaker is inquiring for a truth value on a proposition introduced by the root sentence, when no prior knowledge regarding either outcome can be assumed for the speaker or to be present in the common ground (here based on discourse context observation, cf. Farkas & Bruce 2010: 94–95; Dayal 2016: 4). "Biased" are all manner of polar questions with an epistemic bias in the context, accessible to the speaker either because of a previous utterance or via inference from the common ground, e.g. types of clarification questions and confirmation-seeking questions (cf. Farkas & Bruce 2010; Łupkowski & Ginzburg 2016). The category was here chosen to be fairly broad. The table compares both types of question against the presence of *–ku* and *aw*, and the realization with a rising contour on the main utterance and separately on *aw*. The counts in the table broadly confirm findings reported by Cole (1982) and O'Rourke (2005) on other varieties of Quechua that polar questions are not in general realized as rises. However, they also offer interesting qualifications of that general result. It seems that in particular, neutral polar questions without *–ku* are prone to being realized with a rising contour, while both *–ku* and a biased question make a rising realization less likely (cf. Muntendam 2017 for similar findings on this association in Southern varieties of Quechua).

360 https://osf.io/unpge/

Table 27: Occurrences of polar questions in the *Quien* corpus, ordered by type of question, coocurrence with the suffix *–ku*, utterance-final use of particle *aw*, and utterance-final realization with a rise or fall.

Type of polar question	*-ku*		with *aw*	final rise on main utterance		rise on *aw*
				yes	no	
Neutral	+	13	0	3	10	--
	–	10	0	10	0	--
Biased	+	4	3	1	3	0
	–	13	3	2	11	2
Both	+	17	3	4	13	0
	–	23	3	12	11	2
Total	40		6	16	24	2

Regarding *aw*, its use seems restricted to biased questions, supporting the hypothesis based also on observing it throughout the Huari Quechua data that it serves as a question tag for confirmation-seeking questions, with a similar meaning to Spanish tags *no*, *verdad*, or *eh*, German *oder*, or English *innit* or *huh*. Inspection of individual examples reveals that when *aw* is integrated into the preceding phrase, it is usually not realized as a rise (but recall Figure 155 from section 6.1.7), but if it is produced in a separate phrase, that phrase is always realized with a rising contour. Individual examples like (144) suggest that *aw* and the realization with a rise further differentiate within biased questions.

(144) SG15_QF16_Cuento_Q_1233–1382 (context for Figures 168 and 169)[361]

time (seconds)	SG15	QF16
123.3		ima-taq tsay runa ka-rqa-n what-DETVAR DEM.DIST person COP-PST-3 *what was that man*
124.6		**hampikuq aw** healer yes a healer, right
125.4	hampikuq healer *a healer*	

361 https://osf.io/tay7p/

126.1		hampikuq runa healer person *a healer*
127.0		y naani-qa and path-TOP *and what about the path*
128.6		karu-tsura ka-ra-n o far-CONJ COP-PST-3 or *was it rather far, or*
129.7	karu-sh ka-naa far-REP COP-PST.REP *it was far (it is said)*	
130.6		karu far *far*
131.0	mh-[mh]	
131.2		[y] mirkapa-ta ima-ta-taa apa-naa and provisions-OBJ what-OBJ-DETVAR bring-PST.REP *and what did he bring as food*
133.0	(3.3)	
136.3	**mirkapa-ta apa-sha** provisions-OBJ bring-PRTCP *he brought food*	
137.6		aha *yes*

(144) is an excerpt from *Cuento* by SG15 and QF16. QF16, a school teacher, has just told the story to SG15 for the first time. Instead of waiting for her to re-tell it by herself, he asks her a number of questions to elicit the main points of the story. At 123.3, he asks her what kind of man the protagonist was, and at 124.6 suggests an answer himself, *hampikuq aw* "a healer, right?" (Figure 168). This is clearly a question with the highest possible confirmation bias, as he himself just told her the story about which he is asking her now, i.e. he is both asking the question and has the epistemic authority to decide whether the proposition is true or not. This is produced with a falling contour on the main part of the question, and a sharp rise on *aw*, typical for this use of *aw* when phrased separately.

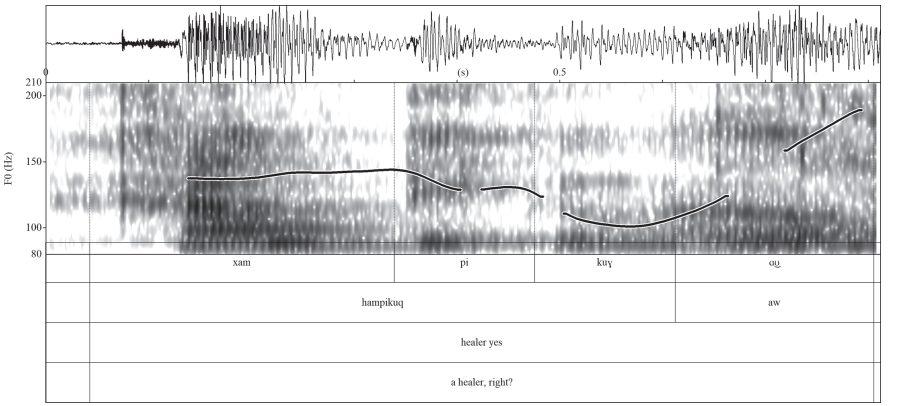


Figure 168: QF16_Cuento_Q_1246[362] (confirmation-seeking polar question with *aw*).

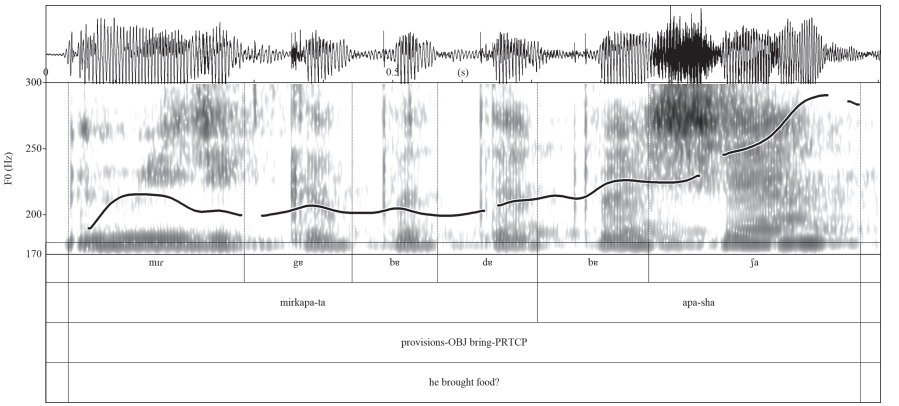


Figure 169: SG15_Cuento_Q_1363[363] (clarification-seeking polar question).

Later, at 131.2, QF16 asks what kind of food the healer had taken as provision on his journey. SG15 responds at 136.3 with the polar question *mirkapata apasha* "he brought food?" (Figure 169). This is also a question biased towards confirmation (that is clear from QF16's response via confirmation token at 137.6), but it is also very different: in terms of epistemics, SG15 has no authority to decide whether the proposition she has asked about is true. The information she asks for she has just received in the form of a presupposition in QF16's preceding wh-question and she asks the person who is its source about the presupposition, whether she is correct

362 https://osf.io/9fw5u/
363 https://osf.io/hrxyq/

in assuming that the presupposed proposition should be entered into CG. The two utterances are also different in terms of their relative positions in the discourse (cf. Farkas & Bruce 2010): QF16's question at 124.6 is a provocation (an elaboration on the directly preceding turn, which is also a provocation), while SG15's question at 136.3 is a response to another question. More specifically, it is a clarification request for intended content, one of several types of such query responses according to the typologies proposed in Ginzburg (2012: 148–155); Łupkowski & Ginzburg (2016). Formally, it is also different, in that it is realized without *aw*, and with a rise on the question itself not strictly aligned to just one syllable. From the Huari Quechua corpus known to me, it seems that *aw* as a tag never occurs in contexts such as the one of SG15's question, with a strong epistemic imbalance and as part of a clarification request asking about a proposition formulated as a presupposition but received as new information.[364] Such clarification requests are also rarely realized with *–ku* or without a rise, in contrast to neutral polar questions, which show *–ku* with falling intonation in nearly half the cases.

The connection between epistemic bias, the position of a turn in the discourse as provocation or response, whether a question targets at-issue or non-at-issue material of a preceding move, the presence of *–ku* and *aw*, and the prosodic realization of polar questions should be a promising field for further research to uncover whether any more restrictive correspondence actually exists and which semantic factors are really relevant. Here however, the findings from Table 27 must suffice to indicate that polar questions are not always associated with rises. The converse is

364 If that is true it would suggest that questions with *aw* as tag are similar in meaning to some English/German/Spanish tag questions which would also not be felicitous in such a context: the a-responses with tag in (i) that seem infelicitous when the proposition they ask about has been entered (as a presupposition) into CG by the provocation, presumably because they express a kind of inference based on available unconflicting information and are thus odd when the information they represent as inferred has in fact just been given. In contrast, other forms of biased questions are felicitous in such contexts: the b- and c-responses, that seem to express some kind of inconsistency of the proposition presupposed by the provocation with previous information, with the degree of this "incredulity"/ "counterexpectation" arguably even stronger in the c-responses.

(i) **A:** What did she bring as food for the journey? / Was hat sie für Proviant mitgenommen? / ¿Qué llevó de fiambre?
   a. **B:** She brought food, #right/#didn't she? Sie hat Proviant mitgenommen, #oder? / ¿Llevó (algo de) fiambre, #no/#verdad?
   b. **B:** So she brought food? / Also hat sie Proviant mitgenommen? / ¿Entonces llevó fiambre?
   c. **B:** She brought food, did she now? / Hat sie jetzt Proviant mitgenommen? /¿Así que llevó fiambre?

also not true, as both previously seen examples and the results in the next sections show that rising contours on phrases and utterances in the *Conc, Maptask,* and *Cuento* corpora – overwhelmingly declaratives – are very frequent. Their distribution is instead governed by other factors.

6.2.2 Moves with rising and falling contours in Conc

This section investigates how rising and falling contours are distributed across the *Conc* corpora (cf. the description in section 2.4). Following the entire discourse in *Conc* allows for keeping track of the information status and level of activation of the individual referents represented by the pictures and their locations quite well. As mentioned above in 6.2, conversational moves realized in *Conc* in Quechua very often consist of a specification of a location at which speakers believe that a depicted item is, or a specification about the item that they believe to be at that location. Logically, and permitted by the relatively free word order of Quechua, we would expect the sequential realization of such conversational moves to form a coherent guessing sequence to follow one of two patterns: a) *Location – Item*, or b) *Item – Location*, where Item and Location stand for simple or complex expressions encoding the item and the location, respectively. Sometimes both of these components together are produced as one utterance, but often a move, especially one specifying the location, will consist of several parts that are all individual utterances, and sometimes there are simply longer silent breaks between the utterances realizing the component moves, so that there is no one-to-one correspondence between moves and utterances.[365]

365 As working definition for "utterance", I take a very simple temporally and phonetically oriented one: a chunk of speech which a speaker produces in one go, without larger breaks or hesitations in between. Thus an utterance defined this way may or may not perfectly overlap with a conversational move, defined via criteria of discourse meaning, or a sentence, defined via syntactic criteria. It also does not necessarily have to be coterminous with an IP or other larger phonological unit, e.g. if it is an aborted or interrupted utterance, although I assume an utterance that is succesfully produced as planned by the speaker to contain one or integer multiples of one IP (by definition of what an IP is). It is also separable into smaller chunks – phrases – according to prosodic criteria.

(145) KP04_Conc_Q_0634–0658[366] (example conversational move sequence pattern a)

time				
63.4	(L	H ---------->)		*location-specifying move*
	tsay	punta-yki	ka-q-lla-chaw	
	DEM.DIST	front-2	COP-AG-LIM-LOC	
	the one in front of you			
64.5	(L H)			*(confirm)*
	aha			
65.0	(H)	(L H L)		*item-specifying move*
	tsay	wanupakush		
	DEM.DIST	burial		
	that's the burial			

one conversational move sequence matching an item to a location

(145) is an example for such a conversational move sequence following pattern a), specifying first the location and then the item found at that location (the image on the card when turned around). At 63.4, the speaker begins the sequence by naming the location in one utterance realized in a single rising phrase. He then confirms at 64.5, after the game master has moved his hand towards the correct card, and at 65.0 he names the item he believes to be shown on the card at that location using a rise-falling contour on the phrase realizing the item and concluding the sequence. Here it is still counted as one sequence if a speaker specifies the location using several utterances, or if they follow the first utterance naming the item by additional ones giving a further description of it. For the purposes of counting, I also take additional utterances specifying the location after the item has been named (if the game master has not yet reached the intended card) but before the card has been turned around as belonging to the same sequence following pattern a).

366 https://osf.io/rnq5y/

(146) OA32_Conc_Q_1198–1213 (example conversational move sequence pattern b)[367]

time			
119.8	(L H L)		*one conversational move sequence matching an object to its location*
	pinkullu		*item-specifying move*
	flute		
	the flute		
121.3	((L) H)	(L H L)	*location-specifying move*
	tsuku-pa	ladu-n-chaw	
	hut-GEN	side-3-LOC	
	beside the hut		

(146) is an example for a conversational move sequence following pattern b). The speaker first names the item with a rise-falling contour (in 119.8), and then specifies its location with an utterance consisting of first a rising and then a rise-falling phrase (in 121.3). For this pattern, further utterances referring to the same item, occurring after the move specifying the location but before the card has been turned around, are also counted as belonging to the same move sequence.

Table 28 shows the number of move sequences in the seven Quechua *Conc* corpora separated by speaker pairs and according to the sequential pattern they follow. 12 item cards were used in each game. The diverging numbers of move sequences between speaker pairs reflects the varying number of false guesses.

Table 28: Number of conversational move sequences in seven Quechua *Conc* corpora.

	move sequences overall[368]	**order Loc-Obj (pattern a)**	**order Obj-Loc (pattern b)**	**not applicable**[369]
TP03 & KP04	17	16	1	0
SG15 & QF16	17	12	5	0
QZ13 & OZ14	15	15	0	0
AZ23 & ZZ24	16	16	0	0
XU31 & OA32	18	0	17	1

367 https://osf.io/5j46n/

368 Counted here are only move sequences with which a guess about a location and an item at that location was made, not moves peripheral to the game, such as questions, banter between the speakers, etc. Those only make up a very small part of the spoken content of any of the *Conc* corpora and are ignored here.

369 One move consisted of the speaker only saying the name of the item, at the moment when all other cards had been solved already, so that no sequence exists.

Table 28 (continued)

	move sequences overall	order Loc-Obj (pattern a)	order Obj-Loc (pattern b)	not applicable
ZR29 & HA30	21	20	1	0
XQ33 & LC34	12	12	0	0
All	116	91	24	1

As seen from Table 28, overall, sequential pattern a) occurs with much greater frequency than pattern b). However, this is also a matter of speaker (pair) preference: only the speaker pairs SG15 & QF16 and XU31 & OA32 use pattern b) more than once, XU31 & OA32 never using pattern a), which is preferred by all other speaker pairs.[370] That the patterning correlates so well with speaker pairs might point to these patterns reflecting at least partially two different available *strategies* for reducing the context set (cf. Roberts 2012b). That is to say, if the task of the game is modeled as attempting to answer the super-QUD "What item is in which location?", then one strategy is to find answers to sub-QUDs that are formed using the elements of the set of possible locations as fixed variables imposing a referential restriction (= topics, Kuno 1982; Roberts 2011), and to ask for the corresponding items as open variables; and the other works the other way around, forming sub-QUDs with the items as fixed variables and asking for their corresponding locations. A reason for the preference of pattern a) over b) by most of the pairs might be that the setup of the game actually induces a bias for this, because with the cards lying face down on the table, the positions themselves (such as "the first card in the third row") are already established and unchangeable, while it is the identities of the cards *at* these positions which are in doubt. Furthermore, the locations are continuously present in the extralinguistic context, while the items' names have to be actively recalled by the speakers. In other words, the locations can be seen as more active relative to the cards' identities, and thus would lend themselves to be linguistically realized as given and topical material, i.e. signaling a QUD structure which asks for the identities of the items using the elements of the set of locations as anchors (= topics; assuming that information is packaged in the somewhat iconic order old-new / theme-rheme in Quechua (cf. Weber 1989: 427, who argues this for the related Huallaga variety of Quechua I). Additionally, naming an item for the first time before the card has been turned around can be seen as making a separate additional discourse commitment (in the sense of Farkas & Bruce 2010) from when

370 In Spanish *Conc* the speakers also broadly follow these preference patterns, with XU31 & OA32 preferring pattern b) over pattern a), while the other speaker pairs mostly follow pattern a).

a location is first named: because the set of items is not constantly available for inspection (the cards are turned upside down on the game table), naming an item makes a commitment to that item actually being a member of the set (i.e., remembering its presence correctly from before). A speaker can be just as wrong about this as about the separate discourse commitment that is made when relating an item to a location. Following pattern b) means making this discourse commitment initially as an existential presupposition, separately from the assertion that relates the item to the location. In pattern a) on the other hand, whatever cues might be used to mark this assertion (e.g. falling intonation, morphological marking, or word order) can conceivably be marked once on the last element in the sequence (= the expression denoting the item) and be understood to apply to both discourse commitments made. Note however that also in pattern a) the location is normally at least specified in each utterance anew; there is usually no topic continuity from a previous utterance. This can have a reflex in the utterance form, as argued in section 6.4.3. In this view, it would probably make sense for speaker pairs to collaboratively follow one or the other strategy, because this allows for more economic signaling, and perhaps also for exploiting deviations from the established pattern in order to signal a marked information structure. Hypotheses along these lines well be explored further below, but for now note that the only speaker pair where the majority pattern is not the one established by the first speaker's first move is SG15 & QF16, who are probably the two speakers least acquainted with each other from outside of the experiments.[371]

Table 29 relates conversational moves to intonation by counting all utterances belonging to a move sequence matching a location to an item, separated according to the corpus, whether they are part of a location- or item-specifying move and whether they are rising or falling. For the purposes of this table, utterances consisting of several phrases (with an identifiable pitch movement on each) were counted as rising or falling if the last phrase was rising or falling. If a single utterance realized both a location-specifying and an item-specifying move, the decision before the analysis was to evaluate the two moves separately if there was a clear phrase boundary separating the expressions in the utterance along that line. As it turned out, this was nearly always unambiguously the case, i.e. there was always an identifiable phrase boundary at the boundary between an item-specifying and a location-specifying move, evidence in itself that the division between these types of moves is reflected in the prosodic realization. Thus this table counts rising or

371 While the other pairs are all either siblings or friends of a similar age who volunteered as pairs for our experiments, QF16 and SG15 are a school teacher and a cook who did not know each other well before paired for the experiment, each having volunteered individually.

falling *moves*, under the assumption that the final phrase in an utterance signaling such a move has priority. Further below, we will also look at the composition of utterances into phrases and their prosodic contours.[372]

Table 29: All moves that are part of a guessing sequence in the seven Quechua *Conc* corpora, separated according to whether they specify a location or an item, and whether they are realized finally rising or falling.

	loc rise	loc fall	loc indet.[373]	obj rise	obj fall	obj indet.	*all*	total loc	total obj	% rises loc	% falls loc	% rises Obj	% falls Obj
TP03 & KP04	14	3	2	2	17	0	38	19	19	73.7	15.8	10.3	89.5
SG15 & QF16	13	12	2	2	13	1	43	27	16	48.2	44.4	12.5	81.3
QZ13 & OZ14	22	4	0	1	15	0	42	26	16	84.6	15.4	6.3	93.8
AZ23 & ZZ24	31	1	2	2	16	1	53	34	19	91.2	2.9	10.5	84.2
XU31 & OA32	3	23	5	8	11	2	52	31	21	9.7	74.2	38.1	52.4
ZR29 & HA30	6	19	2	12	12	1	52	27	25	22.2	70.4	48	48
XQ33 & LC34	13	0	0	0	12	2	27	13	14	100	0	0	85.7
All	102	62	13	27	96	7	307	177	130	57.6	35	20.8	73.9

Broadly speaking, location-specifying moves have a majority tendency to be rising (57.6 %), while item-specifying moves have a stronger tendency to be falling (73.9 %). Because this tendency is so much stronger for item-specifying moves, falls are slightly more frequent than rises overall (158 vs 129, or 51.5% vs 42%), even though location-specifying moves are more frequent than item-specifying ones (177 vs 130, or 57.7% vs 42.4%). One reason why there is no stronger correlation between rises and location moves on the one hand, and falls and item moves on the other, could be that there are speaker pairs who preferentially produce pattern b), and that actually rises occur at a non-final position in the sequence and falls at a final one, independent of the move type. That would mean that rising contours are effectively

372 See section 6.4.3 for a more in-depth look at the *Conc* moves by one speaker pair, ZR29 & HA30.
373 Moves were classed as „indeterminable“ when they were realized either totally flat, with no discernible pitch movement that could be related to the contours established, or when large parts were voiceless. The indeterminables make up the missing percent to 100 in the last four columns in the table.

instances of what has been called "continuation rises" for many languages (cf. Chen 2007: 108; cf. Beckman et al. 2002; Aguilar et al. 2009; Estebas Vilaplana & Prieto 2010 for the use with regards to Spanish), i.e. final rises or high pitch signalling that the current topic is to be continued or that the speaker intends to maintain the turn. The cross-linguistic tendency for this has been hypothesized to result from the fact that pitch will tend to be higher at the beginning of an utterance due to heightened subglottal pressure because air is typically inhaled before speaking. Thus the expected values initial high pitch and final low pitch are supposed to signal a new topic and finality, respectively, while conversely, initial low and final high pitch, are cues signaling continuation (cf. the 'production code' hypothesis in Gussenhoven 2002a: 51–52, 2004: 89–90). The prediction would be that rising contours occur on location moves and falls on item moves for speakers following pattern a), and vice versa for speakers following pattern b). Four of the seven speaker pairs following pattern a), TP03 & KP04, QZ13 & OZ14, AZ23 & ZZ24, and XQ33 & LC34, bear out this prediction, suggesting that the association of rising contours with continuation and falling contours with finality is generally correct. However, the data from the other pairs suggests a more complex picture. On the one hand, the speaker pair ZR29 & HA30, who also nearly exclusively follow pattern a) (cf. Table 28), nonetheless realize 70.4 % of their location moves with falls, and about half (48%) of their item moves with rises. With these two speakers, circumstantial knowledge suggests that the high number of rising item moves might be due to uncertainty or perhaps more accurately the overt signaling of uncertainty due to the adoption of a social stance for whose outward construction that is seen as desirable.[374] XU31 & OA32 present another case. These two exclusively follow pattern b), and as expected from that, the great majority (74.2 %) of their location moves are falling, but the item moves

374 The two speakers were both 19 years old at the time of recording and seemed to the experimenters to present an outwards social identity that aims at attributes such as "cuteness", "non-threatening femininity", "fun", "making an effort to not seem overly scholarly ambitious". They frequently giggled during the course of the experiment, palatalized their speech somewhat, and gave statements to the effect that they didn't know how to proceed but then showed themselves to do very well after only little encouragement. This perception is of course filtered through the lens of the experimenters' own expectation with regards to presentation of gender as shaped by their experiences of persons with similar stylistic behavioural choices and their own sociocultural upbringing, which is not the same as that of the speakers. Thus there might be misperceptions inherent in this assessment due to these divergent cultural expectations, and any evaluation of another's internal motives for outwards behaviour is of course necessarily conjecture. With these caveats, it seemed to the experimenters that what was projected by these two speakers was uncertainty. In Spanish, they also regularly realize the item move with a final rise in their *Conc* (again despite usually guessing right), supporting the hypothesis that this rather expresses a speaker-specific stylistic choice or stance than an attitude towards each individual proposition.

also fall more than half of the time (52.4 %). At the beginning of the task, both speakers introduce the items with falling contours, but after the sixth completed guessing sequence, XU31 begins to introduce them with a rising contour, while OA32 keeps realizing falling item moves until the end of the task. This can be considered in different ways: realizing a sequence only with falling moves (as OA32 does) can be interpreted as simply not signaling the coherence of the sequence as a whole. With an initial item move realized with a fall, OA32 signals only that the utterance or the move ends, but remains equivocal about its position in a larger sequence. In QUD terms, he thus does not signal that his assertion is a partial answer to a super-QUD like WHICH ITEM IS WHERE?, but merely that it answers WHICH ITEM? (specifying which is a separate commitment, as argued above). Given that it is known to all participants that realizing only an item move is not a sufficient communication in the terms of the game, OA32 does not run a great risk of having the turn taken from him or being misunderstood. Realizing the item moves with falls is therefore cost-reducing (in terms of articulatory effort and lack of commitment to forward planning) for the speaker and only a little cost-increasing for the hearer. Another not necessarily rivaling explanation is that falling contours are more likely to be understood as signaling an assertion. Because of the game's induced bias with regards to information status of the two sets of referents, as proposed above, there is some incentive to signal the additional discourse commitment about the identity of one of the items pictured on the cards as an assertion: this is the more strongly contested set of referents and specifying a member of it has higher informational value. As mentioned above, naming one of them requires correct memory retrieval both about their identity (WHICH ITEMS ARE IN THE SET?) and their position (THE ITEM IS WHERE?), while specifying the location only requires the latter; realizing falling intonation on the initial item move would then signal this discourse commitment clearly. Somewhat paradoxically, this might also go some length to explain the "uncertain" rises on item moves by ZR29&HA30, and why they do not occur on the location moves: the speakers might not want to commit to making the inherently stronger assertion about both item identity and location with confidence, but risk less by signaling certainty about just the location at which they think an item is. OA32 and initially XU31 as well then could be seen to follow one of two strategies which pattern b) forces a speaker to choose between: signaling both discourse commitments separately, while XU31 from sequence six onwards chooses instead to forgo this in exchange for highlighting the coherent nature of the entire move sequence. A third attempt at explanation could be a purely phonological one: OA32 uses "continuation rises" only *within*, but not *between* utterances, thus optimizing the prosodic unit "utterance". I do not propose that either of these explanations is true at the exclusion of the others. In any case, such a claim could not reasonably be made on the basis of the evidence available here. Instead, I would suggest that

these are constraints (from different linguistic domains) that all act on the prosodic realization of a move, and that the heterogeneity in observable outcomes between speakers indicates both their violability and that they can be differently weighted.

In sum, the evidence considered here suggests that rising contours are most broadly associated with something describable as "openness" or "incompleteness". This includes intention to continue a turn or a topic, an indication that a coherent unit has not yet reached its end, or the absence of a discourse commitment (interpretable as uncertainty, which presumably also lends itself to the use in some question types). Falling contours, conversely, are associated broadly with "finality" or "completeness", which encompasses closing a turn or a topic, or the presence of a discourse commitment (also interpretable as certainty). The contour forms are clearly not very strictly tied to any of these individual meanings, with only distributional tendencies discernible and context used for specification. Specifically, as seen, despite lacking commitment to the truth of a proposition, questions are regularly formed with falling contours, and speaker attitude also seems to have some leeway in selecting which meaning a contour can be used to cue in a given context.

6.2.3 Distribution of contours in nominal sequences

The preceding section looked at the distribution of rising and falling contours across larger units, i.e. conversational moves and the utterances they are realized by. This is evidence for phrasing and a functional differentiation between rises and falls at a high level of prosodic structure. In the following, we will focus on phrasing within single utterances, specifically in sequences composed of nominal elements.

6.2.3.1 Noun phrases and other nominal sequences

This section takes a closer look at how contours are distributed within utterances and the conclusions this leads to about (default) prominence differences between several words in a sequence. The subset of data used here is that of all noun sequences in the nine sub-corpora (seven *Concs*, one *Maptask* and one *Cuento*) consisting of at least two nominal forms realized together without breaks and that could form a single nominal constituent (noun phrase) together syntactically. Whether they do form a noun phrase is only in doubt for a smaller subset, those consisting of a demonstrative (*kay* / *tsay*) or a bare noun, plus another noun. The demonstratives can be used both adnominally/attributively, and pronominally. Their form does not distinguish between these uses, just as with the English or Spanish demonstrative forms *this/that* or *este/ese*. If the demonstrative is adnominal and attributive, it forms a constituent with the noun as head, modifying the noun ((147)a). The same sequence of words can

be a copular phrase, with the copula omitted in the 3rd person singular present, if the demonstrative is used as a pronoun. The demonstrative and the noun each form their own noun phrase then ((147)b). The same ambiguity exists for combinations of a bare (unsuffixed) noun plus another noun either unmarked for case or for locative case (*-chaw*), since a bare noun can either modify the following noun ((148)a, cf. (149)a) or also stand with it in a copular relation ((148)b).

(147) ambiguous use of demonstratives
  a. adnominal/attributive use (cf. (114)/Figure 132)
     [kay/tsay wanupakush]$_{NP}$
     DEM.PROX/DIST burial
     "this/that burial"
  b. pronominal use (cf. (145)/Figure 170)
     [kay/tsay]$_{NP}$ [wanupakush]$_{NP}$
     DEM.PROX/DIST burial
     "this/that is [the/a] burial"

(148) ambiguous N_1-N_2 combinations
  a. N_1 as modifier of N_2
     [manka chawpi-chaw-mi]$_{NP}$
     pot middle-LOC-ASS
     "in the middle of the pot"
  b. N_1 as copular subject
     [manka]$_{NP}$ [chawpi-chaw-mi]$_{NP}$
     pot middle-LOC-ASS
     "the pot [is] in the middle"

In the data considered here, context nearly always distinguishes between these uses and the annotation made use of that information. If used attributively, the demonstratives are ususally realized as part of the initial low stretch of a contour, phrased together with the noun they modify (cf. (110)/Figure 127, (106)/Figure 123, (114)/Figure 132). Yet if a demonstrative has the function of pronominal subject in a copular sentence, it can also be phrased separately, perhaps because it is then often also a topic, e.g. in (145)/Figure 170. The need to cue the syntactic or information structure interacts with the constraint against tonal crowding here: there is only a high tonal target realized on *tsay*, but the subsequent low target makes it clear that a new phrase begins with *wanupakush*. Thus it seems that phrasing can disambiguate structure. All other instances of nominal sequences considered here I take to form a nominal constituent, of varying length and complexity. Some examples (not just from *Conc*) are given in (149):

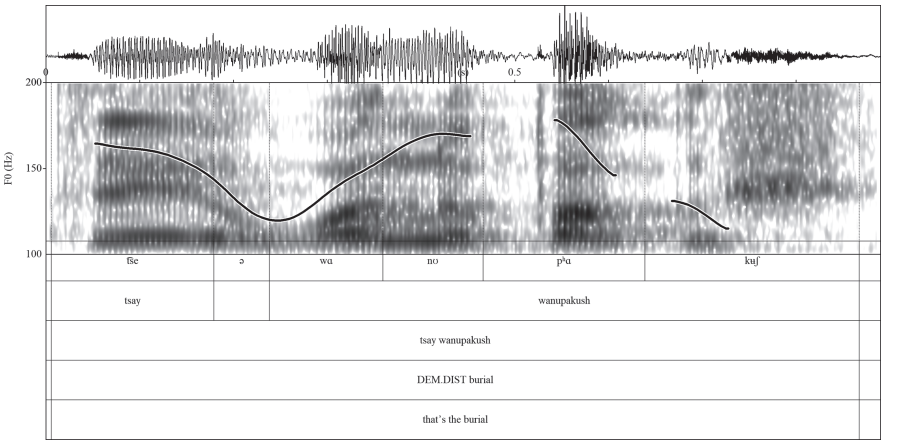


Figure 170: KP04_Conc_Q_0650[375] (declarative; copular sentence with pronominal subject realized as two phrases).

(149) Examples of nominal constituents in the Quechua corpora

a. ZZ24_Cuent_Q_1783
hacha hampi-ta
plant medicine-OBJ
"plant medicine"

b. XQ33_Conc_Q_0543
chuqllu-pa aqtsallku-n
corn-GEN corn.hair-3
"corn hair"

c. QZ13_Conc_Q_1358
runa wahi
person house
"person [and] house"

d. OA32_Conc_Q_1832
runa-wan wayi
person-INST house
"person with/and house"

375 https://osf.io/wsb8y/

e. LC34_Conc_Q_1249
runa hawa-n-chaw
person below-3-LOC
“below the person”

f. KP04_MT_Q_0703
pinkullu-pa hana-n-pa
flute-GEN above-3-GEN
“above the flute”

g. SG15_Conc_Q_0510
kay laa ka-q-chaw
DEM.PROX side COP-AG-LOC
“the one on this side”

h. XQ33_Conc_Q_1427
runa wayi-n-man aywa-ykaa-q ladu-n-chaw
person house-3-DEST go-PROG-AG side-3-LOC
“beside the person going into the house”

i. ZZ24_Cuent_Q_1825
huqta chuspi-ta wañu-tsi-nqa-n-pa alma-n-ta
six fly-OBJ die-CAUS-NMLZ-3-GEN soul-3-OBJ
“the souls of the six flies he had killed”

The examples demonstrate that what are counted here as a nominal constituents are rather varied: (149)a, c and e are examples of binominal phrases denoting a single entity where N1 modifies what kind of N2 it is, a conjunct of N1 and N2 in a coordination, and a location where N1 specifies relative to what object N2 is to be interpreted, respectively; all without internal morphological marking but with external (head-)marking in the cases of (149)a and e. (149)b, d, and f denote the same kind of semantic relations, but with internal marking (on N1) to specify the relation between N1 and N2. (149)g is an example for what might perhaps best be translated via a headless relative copular clause, or one using the pronominal dummy “one” in English: the demonstrative *kay* modifies *laa* ‘side’, which acts as subject of the copula *ka-*, marked with the agentive nominalizer *–q* and the locative to yield a single NP with the meaning “the one that is on this side”.[376] (149)h and i showcase particularly complex examples involving relativization (cf. note 355 for a discussion of ZZ24_Cuent_Q_1825). Since this is not a work on syntax, this short exposition must suffice to point out the variety of nominal constituents here treated more or less uniformly. In what follows, I will occasionally make reference to the internal

376 For an in-depth discussion of the uses of the nominalized copula, see Bendezú Araujo (2021).

variety of these noun phrases when it seems to affect prosody, but it can't be done full justice here. One unifying characteristic is that they are all right-headed, both syntactically and semantically, or can be analyzed thus without problems ((149)c and d are actually ambiguous in this regard but could well be right-headed). In fact, only very few constructions could not securely be analyzed as right-headed. They always involve either the instrumental/comitative marker *–wan*, such as (150), the morpheme *–yuq*, marking the possession of an entity denoted by a noun which *–yuq* is attached to as an attribute of another entity (151), and in one case a postnominal locative modification (152), in all the nominal constituents treated here. This general tendency for right-headedness will be relevant for the following analysis.

(150) ZZ24_MT_Q_1635 (cf. Figure 171)
runa ushqu ñawi-wan
person cat eye-INST
"person with cat eyes"

(151) AZ23_Conc_Q_0057
achillku chuqllu-n-yuq
corn.hair corn-3-POSS
"corn hair with its corn"

(152) AZ23_Conc_Q_1734
aya kahun-chaw
corpse box-LOC
"corpse in a box"

6.2.3.2 Distribution of tonal patterns and alignment variant preferences

This section only treats sequences consisting of nominal elements. This is done to somewhat reduce the heterogeneity of the data and improve its comparability when quantified. As will be seen in section 6.4, the broad results of this section can be extended to phrases with verbs, but verbs also introduce further interesting complications that would be confounding factors here. The subset of nominal sequences considered consists of 487 words. Morphologically, their word forms are made up of 1225 syllables, for an average syllable count of 2.52 syllables per word. However, in their actual realizations, there were several (especially but not always word-final) cases of vowel devoicing and/or deletion and also some cases of consonant assimilation or deletion, sometimes severely altering the resulting word forms so that a different syllabification seemed more appropriate. A revised syllable count aiming to account for these reduction phenomena comes to 1179 syllables, or

an average word length of 2.42 syllables per word. In the following, syllable counts will be given with a slash between the morphological syllables first and the actually realized ones second. Of the 487 words, 30 were produced either almost completely flat or with such substantial voiceless stretches that no confident assessment of their tonal behaviour could be made. The remaining 457 words were produced in what was analyzed as 292 separate phrases (see below for criteria), yielding a ratio of 1.57 words and 3.95 / 3.82 syllables per phrase. This compares well with similar ratios given for French and Seoul Korean in Jun & Fougeron (2000: 217, 2002: 150), where 2.3–2.6 words / 1.2 content words and 3.5–3.9 syllables per Accentual Phrase were counted for French, and 1.2 content words and 3.2 syllables for Seoul Korean, based on reading tasks. Compared with French, Quechua probably has fewer function word types, since a lot of the functions they are used for in French are fulfilled by suffixes. However, those words that can be counted as separate function words do occur with high token frequency. Refining the comparison, all instances of the demonstratives *kay* and *tsay*, nominalized forms of the copula *ka-* (mostly *ka-q* and *ka-ykaa-q*), and the numeral *huk* 'one', occasionally used similarly to an indefinite marker, were counted as function words, even if suffixed.[377] All other occurring words are content words. Nominalized tokens of *ka-* occur 36 times, *kay* 19, *tsay* 30 and *huk* 5 times, for 90 function words out of 487 in total. Out of those, 5 tokens were realized in phrases that were discounted because of flat or otherwise indeterminable realization. Applying these changes yields a content word ratio per phrase of (457−85)/292 = 1.27, rather similar to those given for French or Korean.[378] This would suggest that what has here been counted as a phonological phrase is similar in its extent to what has been identified as an Accentual Phrase (AP) in those languages. However, Igarashi (2014) makes the case for Japanese that dialects differ in whether an AP is allowed to include more than one word or not. Thus, APs would not have to include the same average number of words across different languages.

377 These are function words semantically, because they have more of a grammatical function than a lexical meaning. However, morphosyntactically they are nouns and verbs like any word belonging to those classes: the demonstratives *kay* and *tsay* and the numeral *huk* can be followed by all nominal suffixes, and the possibility that they modify another noun by being placed in front of it without any suffixes is also available for semantically richer, more content-like nouns as well (cf. (149)a), although there are probably restrictions on such a use. The verb of being *ka-* likewise takes the same verbal suffixes and has the same morphosyntactic behaviour as any other verb, except that it is normally unrealized in the third person present when serving a copular function (not when it functions as a verb of existence or location). Looking at actual usage, the counts here suggest that these "function words" take up a sizeable share of token frequencies, and my impression is also that the five word forms given here will occur without suffixes, as monosyllables, more often than "content" words.

378 Cf. also the ratio of 1.12 content words per pitch accent for Huari Spanish in section 5.1.1.2.

The criteria used to group a stretch of Quechua speech into phrases were the following: in general, a phrase had to conform to one of the tonal contour shapes established in section 6.1. That is to say, with the exception of phrases including localized pitch accents on stress positions in words of Spanish origin (the "grafted" pattern), a phrase consists of exactly one high tone, possibly forming a plateau-like realization but not discontinuously so, either preceded by a low tone (rising pattern), or followed by it (only-falling pattern), or both followed and preceded by one (rise-falling pattern). Such a pattern had to be produced in a continuous, fluent fashion in order to be counted. Word sequences were excluded when they were completely flat or the pitch signal was too discontinuous, e.g. because of longer hesitations, or because of devoicing of phonologically voiced segments, but not just because of the presence of unvoiced consonants, if the overall pattern could still be recognized with some confidence. Since the data are semi-spontaneous, and Huari Quechua has few voiced consonants, stronger exclusion criteria would have been too restrictive. Within the three main categories of rises, only-falls and rise-falls, phrases were further distinguished according to the position of the tonal transition(s): in the case of the rises and only-falls, whether it (the rise or the fall, respectively) took place at the final internal word boundary in the phrase, a prefinal word boundary, the penult of the final, or a prefinal word, or another syllabic position in the final word or a prefinal word, for six subcategories each. The defining criterion for the location of the transition was the boundary of the high tonal target, i.e. the left boundary in the case of rises, and the right boundary in the case of falls. Thus the position of a tonal transition was classified according to where the local pitch maximum was determined to be located within the context of a rise or fall. This was done by visual and auditory inspection of the annotated utterance in *praat*. In the case of the rise-falls, both the rise and the fall could in principle take place at either a final or prefinal word boundary, or at the penult or another syllabic position in either a prefinal or the final word. Here I refer only to phrase-internal boundaries as word boundaries, so "the final word boundary" is that between the penultimate and the final word, and a "prefinal word boundary" is a boundary between any two words inside the phrase not involving the final word. Out of all the possible combinations, the following eleven subcategories were initially formed to class the phrases:

(153) Alignment subcategories of the rise-falling contours
- a) with the rise taking place at the final word boundary and the fall in the penult of the final word,
- b) with the rise taking place at a prefinal word boundary . . . and the fall at the final word boundary,
- c) . . .and the fall in the penult of the final word,

d) . . .and the fall later in the penult of a prefinal word,
e) with the rise taking place in the penult of a prefinal word . . .and the fall at the final word boundary,
f) . . .and the fall in the penult of the final word
g) . . .and the fall in the penult of a later prefinal word,
h) both the rise and the fall on the last two syllables of the final word,
i) both the rise and the fall on the last two syllables of a prefinal word,
j) another combination in which the high stretch covers most of the final word,
k) another combination in which the high stretch does not cover most of the final word.

It turned out that combinations (153) c), d), f), and j) do not occur in the corpus, which is why they are not listed in Table 32 below. Combination e) possibly occurred once, but that token is ambiguous between the rise taking place on the penult and at the initial word boundary of the prefinal word, because that word is bisyllabic. It has therefore been counted as an instance of combination b), and e) also does not occur in the table. Combinations h) and i) lump the syllabic positions of penult and final syllable together. This was done in order to reduce the number of combinations, and because we have seen that final peak alignment varies between these two positions in this contour (cf. section 6.1.6).

In this manner, using breaks only as additional boundary cues, it was possible to manually delimit and classify nearly all phrases unambiguously. Occasionally, it was difficult to decide whether several words in succession formed one or more phrases, with pitch movement possibly attributable to phrase tones on some or all of the words, but scaled much larger on the final one. Those cases had to be decided between constituting phrasal tonal movement or just random fluctuation. They were individually decided based on whether the prefinal movement was audibly percebtible, whether each identifiable tonal target plausibly corresponded to one of the assumed underlying tones of a phrase, how the scale of the prefinal movement compared relative to the final movement given the speaker's range, and whether it surpassed a threshold of 7 Hz difference. An example of such a case is Figure 171 (cf. (150)): on the two prefinal words *runa* and *ushqu*, rising pitch movements have a range from local minimum in the first syllable to local maximum in the second at 136–146 Hz and 133–142 Hz, respectively. These ranges are clearly smaller than that on the final word, with 134–159 Hz from minimum to maximum. Here the the prefinal rises could be audibly perceived (although weakly), and not only three peaks, but also three low tonal targets, could be made out, corresponding to a sequence LH LH LH of three rising contours. Therefore, this example was

counted as consisting of three rising phrases, even though the pitch difference on the first two words is only just above the 7 Hz threshold.

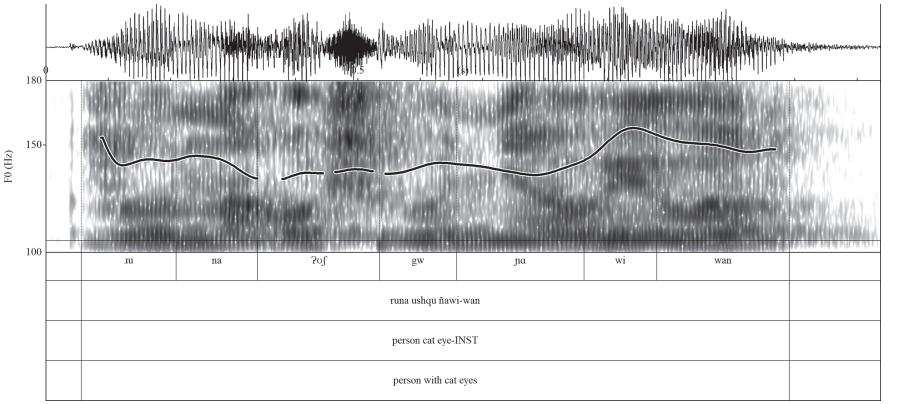


Figure 171: ZZ24_Cuent_Q_1635.[379]

In doubt, the tendency in such cases was to decide them in favour of a grouping involving more phrases rather than fewer.[380] Another ambiguous situation for analysis arose whenever a word with a rising contour on a syllabic position was directly followed by another word with an only-falling contour on a syllabic position. This could possibly also be counted as a single phrase with a rise-falling contour. Recall section 6.2.2 where in similar cases, when counting those as two separate units, location moves could nearly always be separated from item moves. Here, unless the pitch transition between the two words was completely smooth and there was absolutely no interruption whatsoever, this was counted as constituting a phrase break, instead of one rise-fall phrase, which contributes to why subcategory (153) f) has no counts.

Using these analytical criteria, the dataset was found to contain the following distribution of phrases, in rising (Table 30), only-falling (Table 31), and rising-falling (Table 32) contours.

379 https://osf.io/4aqbd/

380 In section 6.4, it will be argued that such phrases with systematic scaling differences form larger prosodic units together.

Table 30: Rising contour patterns in the Quechua nominal sequences subset, in all phrases (rows 2–4) and in phrases containing more than one word (rows 5–7).

	tonal transition location	final word boundary	prefinal word boundary	final penult	prefinal penult	final other syllable	prefinal other syllable	total
all phrases	**counts**	**26**	**8**	**63**	**12**	**40**	**4**	**153**
	% of all rises	17	5.2	41.2	7.8	26.1	2.6	100
	% of all phrases	8.9	2.7	21.6	4.1	13.7	1.4	52.4
phrases of >1 words	**counts**	**26**	**8**	**28**	**12**	**12**	**4**	**90**
	% of all >1-word rises	28.9	8.9	31.1	13.3	13.3	4.4	100
	% of all >1-word phrases	17.2	5.3	18.5	8	8	2.7	59.6

Table 31: Only-falling contour patterns in the Quechua nominal sequences subset, in all phrases (rows 2–4) and in phrases containing more than one word (rows 5–7).

	tonal transition location	final word boundary	prefinal word boundary	final penult	prefinal penult	final other syllable	prefinal other syllable	total
all phrases	**counts**	**4**	**1**	**33**	**0**	**12**	**1**[381]	**51**
	% of all only-falls	7.8	2	64.7	0	23.5	2	100
	% of all phrases	1.4	0.3	11.3	0	4.1	0.3	17.5
phrases of >1 words	**counts**	**4**	**1**	**9**	**0**	**5**	**1**	**20**
	% of all >1-word only-falls	20	5	45	0	25	5	100
	% of all >1-word phrases	2.7	0.7	6	0	3.3	0.7	13.3

381 This single count comes from a case with "inherited" pattern on the Spanish word *último* "the last".

In the rising contours, three of the four tokens in the least frequent category, with the rise taking place on a syllable other than the penult in a prefinal word (column 8 in Table 30), are cases of "inherited" patterns on oxytonic Spanish loanwords, with the Spanish stress position causing the rise to take place on the final syllable of the prefinal word. In the fourth token, the rise takes place gradually over the whole word, which seems to be an infrequent phonetic variant. Hence a contour with the rise in a prefinal word taking place on a syllable other than the penult seems unavailable without a lexically specified prominent syllable like in the Spanish loanwords (cf. the OT-analysis in section 6.3.2). In the rise-falling contours, no tokens were found where the rise took place at a word boundary, but the fall at a syllabic position, or vice versa, except for combination a), where the rise takes place at the final phrase-internal word boundary and the fall on the penult of the final word. This latter combination is a special case deriving from phrase-final tonal crowding (cf. the OT-analysis in section 6.3.1).

Table 32: Rising-falling contour patterns in the Quechua nominal sequences subset, in all phrases (rows 2–4) and in phrases containing more than one word (rows 5–7).

	tonal transition locations (cf. (153))	a)	b)	g)	h)	i)	k)	total
all phrases	**counts**	**12**	**6**	**2**	**56**	**8**	**4**	**88**
	percent of all rise-falls	13.6	6.8	2.3	63.6	9.1	4.6	100
	percent of all phrases	4.1	2.1	0.7	19.2	2.7	1.4	30.1
phrases of >1 words	**counts**	**12**	**6**	**2**	**10**	**8**	**3**	**41**
	percent of all >1-word rise-falls	29.3	14.6	4.9	24.4	19.5	7.3	100
	percent of all >1-word phrases	8	4	1.3	6.6	5.3	2	27.2

A first result from all three tables taken together is that rises are slightly more frequent (n = 153; 52.4%) than only-falls and rise-falls taken together (n = 139; 47.6%), but rises and falls broadly each make up about half of all tokens. Recall that in section 6.2.2, falling *moves* turned out to be in the majority, i.e. final phrases in individual moves. That rising *phrases* are relatively more frequent at this lower level of observation here is compatible with the hypothesis that they cue incompleteness, with moves in which the final phrase is falling also preferentially containing rising phrases prefinally. Secondly, patterns making use of a word boundary as tonal transition points are in a minority (34 tokens/22.22% of rises, 5 tokens/9.8% of only-falls, 18 tokens/20.45% (categories a) and b)) of rise-falls) compared to those using a syllabic position, overall. However, these counts include many phrases con-

sisting of only a single word, where word boundaries cannot be the tonal transition locus by definition. In multi-word phrases (lines 5–7 each of Tables 30–32), patterns making reference to a word boundary make up a more sizable share, namely 37.8% of rises, 25% of only-falls and 43.9% of rise-falls. Yet while they are certainly a relevant variant for multi-word phrases, word boundary-patterns are also clearly not in complementary distribution with patterns making reference to a syllabic position, with the former used in multi-word phrases, and the latter only for single-word phrases. Instead, patterns making reference to a syllabic position are the majority variant in all phrases.

Table 33: Distribution of phrase patterns across the nominal sequences subset Quechua, ordered according to subcorpus, phrase type (rising, only-falling, rise-falling), tonal transition location (all (=syllabic position + word boundary) vs word boundary), and phrase length (all vs. only multi-word phrases).

		Rises	*of which* **wb**	*Only-falls*	*of which* **wb**	*Rise-falls*	*of which* **wb**	**Total**	**% wb** *rises*	**% wb** *only-falls*	**% wb** *rise-falls*	**% wb all**
all phrases	*TP03&KP04 MT*	30	4	15	1	20	8	65	13.3	6.7	40	20
	TP03&KP04 Conc	17	10	1	0	7	4	25	58.8	0	57.1	56
	SG15&QF16 Conc	9	1	7	1	7	0	23	11.1	14.3	0	8.7
	QZ13&OZ14 Conc	16	2	3	1	7	0	26	12.5	33.3	0	11.5
	XU31&OA32 Conc	13	0	4	0	12	0	29	0	0	0	0
	ZR29&HA30 Conc	12	5	14	2	8	0	34	41.7	14.3	0	20.6
	XQ33&LC34 Conc	16	5	2	0	0	0	18	31.3	0	--	27.8
	AZ23&ZZ24 Conc	18	5	2	0	7	0	27	27.8	0	0	18.5
	AZ23&ZZ24 Cuent	22	2	3	0	20	1	45	9.1	0	5	6.7

Table 33 (continued)

		Rises	*of which* **wb**	*Only-falls*	*of which* **wb**	*Rise-falls*	*of which* **wb**	**Total**	**% wb** *rises*	**% wb** *only-falls*	**% wb** *rise-falls*	**% wb all**
only multi-word phrases (>1 word)	*TP03&KP04 MT*	11	4	7	1	15	8	33	36.4	14.3	53.3	39.4
	TP03&KP04 Conc	13	10	0	0	6	4	19	76.9	--	66.7	73.7
	SG15&QF16 Conc	7	1	2	1	5	0	14	14.3	50	0	14.3
	QZ13&OZ14 Conc	9	2	2	1	1	0	12	22.2	50	0	25
	XU31&OA32 Conc	4	0	3	0	3	0	10	0	0	0	0
	ZR29&HA30 Conc	8	5	5	2	6	0	19	62.5	40	0	36.8
	XQ33&LC34 Conc	12	5	0	0	0	0	12	41.7	--	--	41.7
	AZ23&ZZ24 Conc	16	5	1	0	0	0	17	31.3	0	--	29.4
	AZ23&ZZ24 Cuent	10	2	0	0	5	1	15	20	--	20	20

Individual speaker preference also seems to play a role in the variation between word boundary and syllabic position as tonal alignment anchor: speaker pair XU31 & OA32 do not produce word-boundary-aligned phrases at all in the 26 nominal phrases of their *Conc* corpus, and speaker pair AZ23 & ZZ24 produce only 7 word boundary-aligned phrases in the 72 nominal phrases of their *Conc* and *Cuento* corpora together, or 9.7%. On the other end, TP03 & KP04 produce 29 (including 11 of the 12 tokens of pattern a) of the rise-fall phrases overall) of them in the 90 nominal phrases (52 of them multi-word) of their *Conc* and *MT* corpora together, amounting to 32.2% of all their phrases, and 55.8% of their multi-word phrases. Table 33 shows that this difference persists also if only the *Conc* corpora are compared, suggesting that an explanation in terms of different functions is less likely. I also could not find evidence that the distinction between locating the tonal transition at a word boundary or a syllabic position is functional in a careful qualitative investigation of all the Huari Quechua data in their contexts. The most likely

hypothesis is therefore that the difference is one of individual speaker preference, i.e. a prosodic feature that is socioindexically meaningful, part of a speaker's style.

6.2.3.3 Phrasal prominence and relation to information structure and information status

This section investigates a feature of multi-word phrases that does seem to serve a functional purpose. The argument here is based on the assumption from metrical phonology that metrically assigned relative prominence extends to all levels of the prosodic structure, at each level (n) marking exactly one (the head) of the subordinate metrical constituents contained within it at the level below (n-1) as strong (s), and all others as weak (w, cf. section 3.3.1). I argue that this metrical structure also exists in Huari Quechua, and that the location of the high tone and the stretch (plateau) extended from it cue prominence at the phrase level.[382] I follow Ladd (2008: 223, 252), Calhoun (2010b), Jun (2014b), Féry (2017) in assuming that there is a default or unmarked prominence pattern, specific to languages and constructions,[383] which determines the location of the strong position in a phrase. This default prominence is compatible with a range of contexts, specifically at least those contexts where the focus domain as determined from the QUD is as broad as the phrase itself. Such an unmarked default is argued to be crucial for assigning a prominence structure based on expectation even in the (relative) absence of phonetic cues (Ladd 2008: 257–259, 271; Calhoun 2010b). My hypothesis is that in the subset of the Quechua data investigated here, on nominal sequences also syntactically right-headed in the majority, default prominence in a phrase is right-

382 It is usually assumed that high pitch, as the result of high tones, is more prominent than low pitch resulting from low tones, ceteris paribus. This has been shown in perception experiments and is part of the predictions of the Effort Code (Gussenhoven 2002a: 50, 2004: 85). Note that pitch height here is relational, never absolute, and relative pitch excursion size is therefore the most important cue to prominence. The Effort Code is based on the association of pitch movement with articulatory effort, so that passages with more pitch variation are perceived as more effortful, and in turn as more prominent. That is why I assume that in the rising and only-falling contours it is the word on which the tonal transition takes place that is most prominent (at the same time, the Effort Code also predicts rising contours to be more prominent than falling ones). Note however that language-specific assocations of pitch and information structure can sometimes go against this general trend: In Akan, Kügler & Genzel (2012) found that corrective focus is associated with relatively *lower* pitch.

383 It seems that languages can differ both in where main prominence falls within the same type of construction, and in whether it changes across constructions in the same language. In polar questions, English places prominence on the final lexical noun and on the verb only if no noun is available, while Russian always places it on the verb. In Russian, statements differ from polar questions in that main prominence goes instead to the final lexical noun (cf. Ladd 2008: 224–225).

most (as in Spanish and many other languages, cf. Ladd 2008: 252),[384] the last word being strong (s), and the others weak (w). The findings in this section will also shed light on whether for the data here, a similarly indirect and probabilistic relationship between prosodic cues, metrical structure and information structure can be assumed as the discussion in section 3.7.3 has suggested holds for different varieties of Spanish as well as Cuzco Quechua.

The assumption of phrasal prominence and of the relation between high tones and prominence is used here to generalize across the various identified phrasal contours. For the nominal sequences subset of the data, I assume that the relation between contours and metrical structures is the following, with phrasal prominence either final (on the final word in the phrase) or prefinal (on a prefinal word):

– *In rising contours*: those contours with the rising tonal transition either at the final boundary between words, or on a syllabic position in the final word cue final prominence. All others cue prefinal prominence.
– *In rising-falling contours*: those contours with the rising tonal transition taking place either at the final word boundary or at a syllabic position within the final word, i.e. where the high tone or plateau is entirely within the final word, cue final prominence. Contours where the final word is entirely excluded from the high plateau cue prefinal prominence. Those where a plateau begins before the final word but extends into it are counted as indetermined.
– *In only-falling contours*: only those with the falling tonal transition in the penult or the final syllable of the final word cue final prominence, all others cue prefinal prominence.

384 But not all, such as Japanese (cf. Jun 1993, 2005b; Venditti et al. 1996; Venditti et al. 2008). Venditti et al. (2008: 466, 477, 480–481) are at pains to emphasize that there is no structural or surface equivalent to a „nuclear“ or „sentence accent“ in Japanese; pitch accent tones are only assigned lexically and never postlexically. Prominence relationships or focus are signaled by pitch range expansion and compression and phrasing only. Mostly the same applies to (Seoul) Korean, except that no lexical accents exist either. However, it is still the case that culminative tonal marking at the default phrase edge is compatible both with a constituent positioned at that edge being narrowly at-issue and a QUD as broad as the phrase (Venditti et al. 2008: 481), just as in Spanish or English, except that the default phrase edge is to the left in Japanese, instead of the right. It seems plausible to take this edge-inversion as an effect of the inversion in the default metrical relation (s-w instead of w-s) between constituents, and thus to say that the differences only lie in the cues and this basic direction in the metrical structure, which nonetheless underlies all four languages, as Ladd (2008: 278–279) does. Note that this account of Japanese focus marking has been put in question by Ishihara (2011, 2016, 2017), who suggests that metrical structure in Japanese does not observe culminativity, and that phrasing is instead determined by syntax.

In addition, when a noun sequence is realized on several phrases, the entire sequence is counted as cueing final prominence only if the phrases are all rising or rise-falling and the final one clearly has the largest pitch span (meaning that sequences like (150), with a pitch contour as seen in Figure 171, will be counted as having final prominence). This implies that I take such phrases (PhPs) to form a larger unit together (either an IP or a recursively iterated larger PhP), in which the same default prominence relation (w-s) holds. If the phrases are of the same type but the final one does not have the largest pitch expansion, the sequence is counted as cueing prefinal prominence. All other combinations of phrases in a sequence are counted as indetermined.

Classing the nominal sequences dataset in this way means taking as basic unit not an individual phrase but an individual sequence (often but not always corresponding to a syntactic noun phrase). This was done in order to be able to say something about the relationship of words in a sequence where words are individually phrased. The absolute counts are thus different from the ones in Tables 30–33.

Table 34 gives counts for the prominence patterns (final, prefinal, indetermined) per nominal sequence classed according to information structure within the noun sequence. The information structural annotation the classification is based on was done on the entire Quechua dataset. That is to say, even though only the nominal sequences are considered here, for each corpus the entire discourse was analyzed and the annotation for the nominal sequences results from this. The nominal sequences were categorised according to which information structural function they most likely played based on an analysis of the discourse context, using the QUD model of discourse as well as the context model of Farkas & Bruce (2010) as analytical guidance, as laid out in section 3.7. The categories are thus explicitly not based on formal criteria like morphosyntactic or prosodic form. Such a contextual analysis has its limits, because an implicit QUD cannot always be determined exactly in actual conversation. When context did not allow for a precise determination of the implicit QUD in order e.g. to decide between a more or less narrow focus domain, the implicit QUD making less contextual assumptions (i.e. in general a broader focus) was chosen. The categories in the table are to be understood in the following: **Broad focus** means that the context was judged to most likely imply an (implicit, rarely explicit) QUD that does not impose a focus-background division within the nominal sequence itself, while the sequence as a whole is at-issue with respect to the current QUD. **Topic (broad)** also means that the context was judged to most likely imply an (implicit, rarely explicit) QUD that does not impose a focus-background division within the nominal sequence. Here however, the sequence as a whole is not at-issue with respect to the current QUD (i.e., backgrounded), but instead topical, i.e. it serves as a referential or predicational anchor or restriction for the current at-issue material relating it to the

discourse progression via relevance. **Topic-comm** means that the context made it plausible to infer a division within the nominal sequence in terms of at-issueness, such that the earlier part[385] is a topic (backgrounded with respect to the current QUD but establishing a relation of relevance with regards to a preceding QUD) and the later at-issue with respect to the current QUD. Those cases where context allowed to decide ambiguous noun sequences as copular (cf. (147), (148)) make up the majority of this category, with the reasoning that the possibility to freely omit subjects in Quechua if they are already active in the discourse (pro-drop) conversely makes it likely for them to be topical if not omitted (cf. Lambrecht 1994: 137). **Prefinal focus (narrow)** also means that context made it plausible to infer a division within the nominal sequence in terms of at-issueness, such that a prefinal constituent could be taken to be at-issue, with the domain of at-issueness minimally excluding the final word. **Final focus (narrow)** is the complement to prefinal focus (narrow), in that the domain of at-issueness here could be understood to cover minimally the final word and to exclude at least one prefinal word. **Prefinal focus (corr)** and **Final focus (corr)** cover the same context-inferred separations of the nominal sequence as prefinal (narrow) and final (narrow), respectively, except that it was also possible to make out a salient alternative, uttered in the preceding context, to which the focal constituent is a correction (i.e. as a divergent answer to the same QUD).

Table 34: Prominence patterns in the noun sequences dataset of Quechua according to information structure relation within the noun sequences.

		information structure within the noun sequence							
		broad focus	topic (broad)	topic-comm	prefinal focus (narrow)	final focus (narrow)	prefinal focus (corr)	final focus (corr)	total
prominence	final	50	39	1	5	9	0	1	105
	prefinal	19	7	1	16	0	1	0	44
	indeterminate	40	22	8	2	1	0	0	73
	total	109	68	10	23	10	1	1	222

Table 35 classes the same data according to the information status profile of the nouns in the sequence. The categories used in the table are informed mainly by the classification in Baumann & Riester (2012), who themselves incorporate insights

385 Categories do not specify the location between which words in a sequence the division takes place, only the order. The 487 words occurred in 222 nominal sequences consisting of at least 2 and on average 2.19 words.

Table 35: Prominence patterns in the noun sequences dataset of Quechua according to information status (givenness/newness) within the noun sequences.

		Information status within the noun sequence				
		all new	**all given**	**given-new**	**new-given**	**total**
prominence	final	40	33	20	12	105
	prefinal	28	6	3	7	44
	indeterminate	41	10	19	3	73
	total	109	49	42	22	222

from several preceding works, such as Chafe (1976, 1994); Gundel et al. (1993); Prince (1981, 1992). However, several distinctions made in those works have here been classed on either side of a binary division, given or new. This was done as an adaptation to the type of data as well as in order to reduce the number of categories to a manageable size, so that the main question regarding a relationship between prominence and information status within the nominal sequence could be investigated. The categories were created using the following annotation schemes: if a referent occurred for the first time in the discourse (the respective task corpus), the referring expression it was denoted by was annotated as new; if it occurred repeatedly, as given. This corresponds mostly to the concept of referential givenness of Baumann & Riester (2012), but disregards the several more fine-grained distinctions they make within the broader category of referential givenness. In *Conc* and *MT*, the "new" here corresponds most closely to their *r-unused-known* ("discourse-new item which is generally known", Baumann & Riester 2012: 138), or *r-environment* (discourse-new items that refer to "visible objects in the communicative environment which are not available in the speech setting by default", cf. 139), because the participants were able to familiarize themselves with all the referents (the figures on the cards) before playing (*Conc*) or had their images in front of them (*MT*) during the game. In *Cuento*, what is "new" here can occasionally also be their *r-new* ("specific or existential indefinite introducing a new referent", Baumann & Riester 2012: 138), with the difference that there is no formal marker on nouns for definiteness in Quechua. Annotating only according to referential givenness means that if two expressions are not coreferential, an expression that is formally partially the same as another having occurred earlier will not be counted as given (e.g. *kantu-chaw* in first *hana kantuchaw* "at the upper border" and later *washa kantuchaw* "at the border over there"). Referential givenness is only applicable to referring expressions: often a nominal sequence in the data, if it consists of only one NP such as *hana kantuchaw*, is referentially given or new only as a whole, since only the noun together with its modification denotes a single identifiable referent in the discourse. The two components *hana* and *kantuchaw* do not refer to sepa-

rate referents individually.[386] So far, this leaves out another aspect of givenness, called lexical givenness in Baumann & Riester (2012). Lexical givenness refers not to referents but only to expressions, even individual lexical items. An expression is lexically new if it occurs for the first time, and given if it, a synonym, a hypernym, or a holonym occurred previously in the discourse. There is a difference in temporal restriction from the treatment of referential givenness implemented by Baumann & Riester (2012: 144–145) and first postulated by van Deemter (1994): referring expressions are retained for a shorter while than their referents, and can thus become "new" again. An annotation according to lexical givenness allows us to annotate a givenness difference even within a nominal sequence that forms a single referring expression: thus, *kantuchaw* in *washa kantuchaw* is (lexically) given if *hana kantuchaw* occurred a short enough distance before. The distance chosen here was 5 utterances, which is similar to the 5 intonation phrases chosen by Baumann & Riester (2012), or else 25 seconds. Lexical givenness enters the data in Table 35 only as *difference* in givenness *within* a nominal sequence; i.e. some NPs that denote new referents might be partially made up of expressions that are given, like *kantuchaw* in *washa kantuchaw* in the situation just described. This is then counted as **new-given** (column 5 in Table 35). If the opposite order obtains (e.g., *washa* is lexically given because of a recent previous occurrence of *washa ladu* and then the referentially new NP *washa kantuchaw* is introduced), it is classed as **given-new** (column 4). The opposite situation, where a given referent is partially expressed via lexically new expressions, would have been treated in the same way but did not occur. In cases where lexical and referential givenness were completely opposed, a decision would have had to be made regarding which type of givenness would have been given precedence.[387] However, this did not happen on the data

386 Note that Quechua here works differently from the languages Baumann & Riester (2012) base their work on: they state that referential givenness can only apply at the level of the DP, which is formally different from an NP in languages like English or German. Quechua has no formal marking in this respect. On its own, *kantuchaw* or just *kantu* can be a full referring expression if context allows only a single interpretation (e.g. there just being one border) and no overt specifier such as *hana* is necessary. An analysis might assume that such a noun then has a covert specifier and is hence a DP, but this could only be argued from the broader context, i.e. when it allowed us to deduce the specificity of *kantu* in such a case. The DP assumption thus has to be argued somewhat circularly. The point is that languages that like Quechua lack formal markers for definiteness and related nominal categories suggest that the relation between information status and nominal syntax is less clear-cut ("only DPs can be referring expressions") than it would seem from the perspective of languages that do have them.

387 When a given referent is wholly expressed via lexically new expressions, Baumann & Riester (2012: 146, 150) hypothesize but cannot demonstrate, using their German corpus study, that referential givenness should trump lexical newness insofar as the resulting expression should still be

considered here. Modifying demonstratives and nominalized forms of the copula were annotated according to the referential givenness of the whole expression (cf. Baumann & Riester 2012: 143–144).

One of the main findings in the two tables is that phrases with final prominence are overall in the majority, making up nearly half (47.3%) of all observations. This in itself is some evidence that final prominence is indeed a kind of default at the level of the phrase, at least if we accept the assumed relation between high tone position and prominence that is the basis of the prominence classification here. The prevalence of this prominence pattern is also relevant if we recall the pattern called phrase accentuation in the analysis of the Spanish data (cf. section 5.1.3.1). The phrase accentuation of Spanish has also been shown to cue final prominence. In terms of contour shape, it is very similar to a rise-fall contour of Quechua in which the high tone is aligned with a syllabic position in the final word (column h in Table 32, accounting for about a quarter of rising-falling contours on multi-word phrases). Equally, falling contours with prefinal prominence seem not only to resemble contours with postfocal deaccentuation in Spanish, but to also serve somewhat similar functions if the findings here are correct. My aim here is not to argue for one being the origin of the other, but to point out the structural and

---

deaccented. The opposite case is also unclear. Baumann & Riester (2012: 147, 150) hypothesize that new referents expressed by given lexical items should also be deaccented, but again their German data does not confirm this. An example in van Deemter (1994: 5) is interesting in this regard:

(i) Clinton visited many towns; when he finally arrived in Clinton, he was late.

Here, the first "Clinton" refers to the former US president and the second to a town of the same name. In this case, despite the lexical givenness of the expression "Clinton", its second occurrence is thought to be obligatorily accented (van Deemter 1994: 5). This stands in contrast to an example from Büring (2007: 448):

(ii) A: Why do you study Italian?
B: I'm married to an Italian.

In (ii), the second occurrence of "Italian" is thought to be deaccented because of its lexical givenness. While van Deemter (1994: 5) takes the accent on the second "Clinton" to be due to the difference in denotation between the two Clintons but also suggests that focus or contrast might play a role, Baumann & Riester (2012: 136, footnote 13) propose that the information of there being a town called Clinton has a degree of "extra newness", overriding lexical givenness here. They provide a further example:

(iii) Clinton shares his name with a town; when he finally arRIVED in Clinton, he was late.

Here, the second occurrence is thought not to be accented anymore. All of this seems to indicate that referential newness can actually overrule lexical givenness on occasion, contra the hypothesis by Baumann & Riester (2012).

realizational similarities. It seems plausible that the bilingual speakers here take recourse to a core of cueing strategies available to them independent of the language they speak as part of the repertoire of their speech community (which does not preclude their also being typologically frequent), and which they further adapt according to other more divergent structural requirements.

For the counts in both tables, χ^2-tests were done to check against the null hypothesis that rows (prominence location) and columns (information structure / status) are independent of each other. Fisher's exact tests were also done because the expected values in some cells in both tables were low enough to affect the reliability of the χ^2-test (some were below 5, none were below 1; cf. Field et al. 2012: 816). For Table 34 (information structure), the two single counts for "final (corr)" and "prefinal (corr)" were reassigned to "final (narrow)" and "prefinal (narrow)". The results of the χ^2-test (χ^2= 63.557, df = 8, p = $9.3x10^{-11}$) and Fisher's exact test (two-sided, p = $4.49x10^{-9}$) are both highly significant. For Table 35 (information status), the results of χ^2-test (χ^2 = 22.804, df = 6, p = 0.00086) and Fisher's exact test (two-sided, p = 0.0006) are also both highly significant. This suggests that columns and rows in both tables are not independent of each other, i.e. that both information structure and information status as annotated are associated with the position of prominence in the data. The adjusted standardized residuals for each cell reveal that only some counts contribute to the overall significance. For information structure, among them are the counts for final prominence under narrow final focus (10 counts including one from final (corr); z = 2.972, p < 0.01) and those for the inverse case, prefinal prominence under narrow prefinal at-issueness (17 counts including one from prefinal (corr); z = 6.638, p < 0.001, note that the expected value for this cell is just below 5 at 4.76, so the p-value is probably not fully reliable). This indicates that these respective information structural conditions both associate with the two different prominence patterns more frequently than expected under the null hypothesis of independence.

Table 36: Adjusted standardized residuals from the χ^2-test of independence for prominence position according to information structure (cf. Table 34, the "corr" counts are here integrated into the "narrow" counts). Exclamation mark indicates a cell where the expected value is <5; *, **, and *** indicate a p-value of <0.05, <0.01, and <0.001, respectively.

	focus (broad)	**topic (broad)**	**topic-comm**	**prefinal (narrow)**	**final (narrow)**
final prominence	–0.418	1.994*	–2.417! *	–2.750**	2.972**
prefinal prominence	–0.877	–2.366*	–0.797!	6.638 (!) ***	–1.691!
indeterminate	1.188	–0.112	3.246!**	–2.711**	–1.723 !

Of the complementary conditions final prominence under narrow pre-final at-issueness ($z = -2.75$, $p < 0.01$) and prefinal prominence under narrow final at-issueness ($z = -1.691$, $p > 0.05$), both with negative z-scores, only the former reaches significance, while the latter rather narrowly misses it (also with an expected value of only 2.2). Overall, this is some evidence for the position of a constituent being narrowly at-issue being reflected in the position of prominence, as expected: narrow final at-issueness associates positively with final prominence and narrow pre-final at-issueness positively associates with pre-final prominence (with the caveat of the expected values here being just below 5) as well as negatively with final prominence. The counts do not fully allow us to conclude that narrow final at-issueness also associates negatively with prefinal prominence, although they point in this direction. In the case of broad topics, but not of broad focus, there is a positive association with final prominence ($z = 1.994$, $p< 0.05$) and a negative one with prefinal prominence ($z = -2.366$, $p < 0.05$). This is at least some evidence in the expected direction, namely that a broad information structure on the noun sequence (no internal division) associates with final prominence.

Table 37: Adjusted standardized residuals from the χ^2-test of independence for prominence position according to information status (cf.Table 35). Exclamation mark indicates a cell where the expected value is <5; *, **, and *** indicate a p-value of <0.05, <0.01, and <0.001, respectively.

	all new	all given	given-new	new-given
final prominence	–3.107 **	3.184 **	0.046	0.717
prefinal prominence	2.154 *	–1.507	–2.289 *	1.487 !
indeterminate	1.474	–2.106 *	1.893	–2.025 *

In the case of information status (Table 37), an unexpected result is that nominal sequences classed as completely new are significantly negatively associated with final prominence ($z = -3.107$, $p < 0.01$) and positively associated with prefinal prominence ($z = 2.154$, $p < 0.05$). Somewhat more expected is that being completely given is significantly positively associated with having final prominence ($z = 3.184$, $p < 0.01$), and that a sequence with a given-new partition is negatively associated with prefinal prominence ($z = -2.289$, $p < 0.05$). The latter two results might be taken as some evidence that prominence is final by default, i.e. if nothing else intervenes, and that relative newness in the sequence attracts prominence. For the surprising result about the all-new sequences, recall that the annotation used a threshold of 5 utterances or 25 seconds distance (adapted from a similar threshold in Baumann & Riester 2012) between two mentions of a word for it to be once again classed as lexically new instead of given. This means that some instances of noun phrases like *primera fila-chaw* "in the first row" in *Conc* were counted as all-new because

the last mention of *fila* was beyond this limit. However, it is quite plausible that in particular such frequent words that were essential to how some of the speakers played the *Conc* game were actually active for longer, possibly having a kind of "default" givenness status in this task. This suggests that the threshold for re-classing an expression as lexically new after it had previously already been given should probably be set at a further distance than the one proposed in Baumann & Riester (2012), at least for such types of rather repetitive conversational tasks. It might also be worth considering in further resarch whether different lexical items can be taken to have different thresholds of this kind, depending on how central they are to the type of conversational task at hand. The following will shortly explore further possible factors.

A partial explanation for the ambiguous findings regarding prosodic cues related to information status overall might be found when looking at individual examples. Once again, a difference seems to exist between speaker pairs in terms of their preferred strategy. Section 6.1.8.3 showed that the speaker pairs AZ23 & ZZ24, on the one hand, and QZ13 & OZ14, on the other, occupy opposite ends of a spectrum with regards to how they treat Spanish-origin words. This could be demonstrated particularly well because they both played *Conc* describing card locations by referring to them via a kind of grid coordinate, made up of an ordinal number of Spanish origin plus a form of the Spanish-origin *fila* 'row' to specify the row, and then another instance of an ordinal number plus the locative *–chaw* to specify the column. In realizing these elements they also differ regarding the prosodic treatment of information status and/or structure. Over the course of their *Conc* game, the four speakers all uttered the sequence *x fila(-chaw)* several times (OZ14 5, QZ13 10, AZ23 13, ZZ24 3 times), where x stands for one of the Spanish ordinal numbers from one to three. Forms of *fila* were mostly (but not always, see above) lexically given because of their frequent occurrence, while the preceding ordinals *primer(a)/segund@/tercer(a)* were mostly lexically new, or, if they had recently occurred already, also given. In any case, given that these four speakers always began the specification of a location at which they wanted to guess the identity of an object with such an instance of *x fila(chaw)*, in the context of how speakers played the game, the ordinal number *x* is the more informative part of the phrase, since *fila(chaw)* was highly expectable both from its position as immediate follower of the ordinal number (the only other attested option for following an ordinal number in these corpora is the locative suffix) and as part of the initial phrase for each new location-specifying move, since the specification of the column by numeral+*chaw* always followed after the row specification. In the information structural annotation, these phrases were uniformly annotated as beingly broadly at-issue, because assuming a more specific implicit QUD like In which row and column is which item? instead of the broader Where is which item? depends exactly on the task-spe-

cific information status of items like *fila*, which is in question here. However, it should be clear that in terms of both information status and structure, as well as regarding plausible assumptions about how speaker and hearer here expected the discourse to evolve given the absolute regularity of these sequences,[388] the immediate contexts for these utterances in both corpora (QZ13 & OZ14 and AZ23 & ZZ24) are as similar as could be. With that in mind, it is remarkable that the two pairs realize these phrases in quite distinct fashion. QZ13 & OZ14 realize them either with two pitch peaks ("grafted" pattern) on the two Spanish stressed syllables (in the numeral and the form of *fila*), plus a rise towards the end of the final syllable, or with just a rise or rise-fall on the Spanish stressed syllable of the numeral, with *filachaw* without its own pitch event ("inherited" pattern), i.e. in the latter case with a pattern counted as cueing prefinal main prominence (see Figures 158–160 above). AZ23 & ZZ24, on the other hand, most often realize them with a rise that takes place on the penult of the second word, *filachaw*, or at the word boundary between the first and second word, i.e. with a pattern counted as cueing final prominence (see Figures 114 and 164 above). QZ13 & OZ14's realizations might be taken as evidence that they interpret the context as calling for narrow prefinal focus. Their realization with prefinal prominence could also mean that prosody in their case is sensitive to the relative givenness of *filachaw* compared to the preceding numeral. In turn that would suggest that AZ23 & ZZ24's realization are *not* sensitive to it. Thus QZ13 & OZ14, who in terms of paying heed to Spanish stress positions are more "Spanish-like" in their Quechua prosody, here behave less "Spanish-like", as relative givenness is generally thought not to be cued in Spanish (cf. Cruttenden 2006; Hualde 2002; Hualde & Colina 2014). Conversely, AZ23 & ZZ24, who pay little heed to Spanish stress positions, would here be more "Spanish-like" in their insensitivity to relative givenness. Whatever explanation actually holds, it seems clear that under nearly identical context conditions, these two speaker pairs choose two systematically different prosodic realization strategies.

Another aspect worth exploring is the treatment of forms of the nominalized copula (*ka-q-*). Wether this is also a matter individual preferences or something else is not obvious here. In modifying prenominal position, both *ka-q* and the demonstratives *kay* and *tsay* are almost never the location of the tonal transition, i.e. they are either uniformly low or high, and many word boundary rises occur at the word boundary after one of these modifiers.[389] On the other hand,

388 Cf. Calhoun 2010a; Turnbull et al. 2015 on language-specific relations of predictability and consequent informativity to prosodic prominence, and Clopper et al. 2018 for indications that "predictability" might not be a unified phenomenon.

389 The only case where a prenominal *ka-q* is not part of the initial low or high stretch is KP04_Conc_0324, *kay kaq ladu kantu-chaw* "at the border that is at this side", where *kay kaq ladu* is

with *kaq* in postnominal position as the last word in a phrase (more frequent than its occurrence as prenominal modifier), some of the speakers (TP03, KP04, QF16, SG15, ZR29), do not realize the final phrasal tonal transition on forms of *ka-q*. They realize the final rise or fall on the preceding content noun, so that the resulting phrase is counted here as cueing prefinal prominence (18 instances in total, see Figures 116, 126, 127 above for examples). Of those, 14 tokens are in sequences classed as all-new, because of the referential newness of the entire sequence. Other speakers (OA32, LC34), however, do realize the final movement on forms of *kaq* or at its initial word boundary (8 instances in total, see Figure 128 for an example). Of those, only 5 are in sequences classed as all-new. This is not a clear-cut difference between speakers because KP04, SG15 and LC34 also each realize *ka-q* in the respective other way at least once. The contexts in which *ka-q* occurs are also much more heterogeneous than is the case with *x fila(-chaw)*. In all, only five *ka-q*-final sequences in the whole corpus are classed as all-given, in contrast to 24 classed as all-new (of which 14 have prefinal prominence, 5 final prominence and 5 are indeterminate). This could suggest that the function of *ka-q* is somehow related to introducing new referents, see Bendezú Araujo (2021) for more on its meaning. That *kaq*-final sequences with pre-final prominence are so much more often new rather than given, together with the described tendency by a majority of speakers to not extend the phrasal high tone to it, goes some further way in explaining why all-new sequences are associated with prefinal prominence. The behaviour of *ka-q* and the demonstratives seems to indicate that a lexical factor is also involved in determining which part of a phrase the high tone is realized on, possibly also subject to individual variation.

The foregoing discussion suggests that in the data summarized in Tables 34–37, speaker-and likely also task-specific strategies interacting with lexical factors are hidden. If the behaviour of each individual speaker were observed on more data, individually regular strategies for the cueing of prominence and its relation to information status and information structure would likely emerge. This task is left to future research.

Overall, the results in this section support the hypothesis that the relation between prosodic cues, metrical structre, and information structure in Huari Quechua is quite as indirect and distributional as discussed in section 3.7.3 for Spanish and Cuzco Quechua. They also support the hypothesis that the high portion of phrasal contours is associated with prominence, and that that promi-

realized in a rise-fall phrase, with both the tonal transitions, the initial rise and the final fall, taking place at the initial and final word boundary of *kaq*, respectively. The elevated pitch on *kaq* is also clearly audible. I have no explanation for why this is the case.

nence profile of a phrase provides cues to its information structure and the information status of the elements it is composed of. In the next section, this main finding will be used for the OT-analysis of the Huari Quechua contours. Section 6.4 will then look at individual examples in context, expanding the discussion to sequences containing verbs, and use findings from this section as guide for the analysis of how information structure relates to prosody in those examples.

The entire analysis in this section has involved several steps of somewhat subjective interpretation in the annotation process. I think that the approach is still justified, since it allows for some exploratory generalizations despite the spontaneous nature of the data. Hopefully, they can also serve as basis for the better formulation of testable hypotheses in future research.

6.3 OT-Analysis

In this section, the tonal alignment patterns will be translated into OT constraints and thereby related to each other as well as to Huari Spanish intonation, providing the second half of the answer to question (36)b, the first half of which was given in section 5.3. I will derive constraint rankings generating all attested phrasal contours and alignment variants. Beginning with the rise-falling contours (6.3.1), it will be established that alignment with the word boundary (cf. section 6.1.2) and alignment with the word penult (cf. section 6.1.4) require different rankings, thus constituting a word boundary-pattern and a word penult-pattern, respectively, while alignment with the phrase boundary (cf. section 6.1.3) occurs in both of them to different degrees. The variation in alignment of the final peak in the phrase between the penultimate and final syllable (cf. section 6.1.6) will be shown to naturally arise from the constraint rankings for the word boundary- and the word penult-patterns. The rising and the only-falling contours will be covered in sections 6.3.2 and 6.3.3, and the "inherited" and "grafted" patterns in 6.3.4. The rankings moving from the word boundary-variant via the word penult-variant to the loanword variants describe a progression from a purely edge-oriented prosody to one where prominent syllabic positions become successively more integrated, the opposite direction of the one in which we progressed in the Spanish OT analysis (section 5.3). This is one of the points of connection to the Spanish analysis, but not the only one. We already saw that certain contours exist in both Huari Spanish and Quechua. Up to a certain point, they can be interchangeably generated by several different constraint rankings. Thus the tonal grammar of the speaker community can be shown to have both language-specific peripheries and a common central space.

Starting with assumptions, I assume that a metrical relation between words in a phonological phrase exists which makes exactly one word more prominent

than the others (cf. section 3.3.1). I also assume that as a default, it is the rightmost word that is strongest in the metrical representation. Default here means what is to be understood or expected in the absence of signaling to the contrary (cf. Calhoun 2010). Such a representation is ambiguous with regards to information structure, as it might indicate an answer to a broad QUD or one in which only the rightmost element is at-issue (cf. sections 3.7.3, 6.2.3.3). See section 6.2.3.3 for evidence and a more detailed argumentation. I assume that the location of the high tone in a contour cues prominence, in the following way (cf. section 6.2.3.3):

In rising contours: the most prominent word in the phrase is cued by the rising tonal transition taking place on a syllabic position on that word or at the left boundary of that word. That is to say, if the rise takes place on the initial of two words in a phrase, and the final word is realized with a high plateau, then the initial word is taken to have higher prominence. But if it occurs at the word boundary between them or anywhere on the final word, the final word has the higher prominence.

In rise-falling contours: the most prominent word in the phrase is again cued by the rising tonal transition taking place on a syllabic position on that word or at the left boundary of that word. That is to say, in a 3-word phrase where the rise takes place at the left boundary of the middle word and the fall takes place on its penult, the middle word is taken to be prominent. If the rise takes place at the left boundary of the final word and the fall on its penult, the final word it taken to be prominent. The analysis here omits phrases where the rise takes place at the beginning of or within one word and the fall on a later one. As the findings in section 6.2.3.2 indicate, they are very infrequent variants (category g) in Table 32, 2 tokens) and could also consist of a rising phrase plus a falling one.

In only-falling contours: the most prominent word is that inside or at the right word boundary of which the fall occurs.

Regarding which forms are actually attested, I use the counts given in Tables 30–33 from section 6.2.3.2. For the input forms of Quechua, I assume the penult to be marked as the prominent syllable in a word (consisting of a stem plus suffixes) underlyingly, but this only has an effect in the ranking for the word penult-pattern, showing that the Quechua tonal grammar pays varying attention to stress in the sense of the typology by Hyman (2014). Strictly speaking, if a speaker produced only utterances in the word boundary-variant, there would be no grounds to assume the presence of a prominent position at the word level in their grammar at all. However, in our data, no speaker is consistent in this (cf. section 6.2.3.2). I therefore take the penult to be prominent, but this prominence is solely expressed by serving as an alignment anchor in the word penult-variant. I assume the three contours, the rising-falling, the rising, and the only-falling one, to be different in their tonal input. The rising-falling contour is assumed to have the input tonal sequence $L_{\phi Lt}$, H, $L_{\phi Rt}$; the rising contour $L_{\phi Lt}$, H; and the only-falling contour H, $L_{\phi Rt}$.

For reasons of space, the analysis will use only phrases containing two words. It easily extends to phrases of only one word because in those cases "internal" alignment is outranked by alignment with the phrase edges, and what would have to be considered for longer phrases will be remarked on individually. The following are the alignment constraints[390] to build the varying rankings from (all either taken or slightly adapted from Gussenhoven 2000a, 2004):

(154) ALIGN ($L_{\phi Rt}$, Rt_{ϕ}) align the right L tone with the right edge of the phonological phrase

(155) ALIGN ($L_{\phi Lt}$, Lt_{ϕ}) align the left L tone with the left edge of the phonological phrase

(156) ALIGN (H, Rt_{ϕ}) align the H tone with the right edge of the phonological phrase

(157) ALIGN (H, Lt_{ϕ}) align the H tone with the left edge of the phonological phrase

(157) ALIGN (H, Lt_{ω}) align the (left edge of the) H tone with the left edge of a prosodic word[391]

(159) ALIGN (H, $Lt_{\omega'}$) align the (left edge of the) H tone with the left edge of the strongest prosodic word in PhP

(160) ALIGN (H, $Rt_{\omega'}$) align the (right edge of the) H tone with the right edge of the strongest prosodic word in PhP

(161) ALIGN (H, σ', Rt): align the right edge of H with the right edge of a stressed syllable

(162) ALIGN (H, σ', Lt): align the left edge of H with the left edge of a stressed syllable

These constraints are automatically in competition with each other. Their competition will generate both the observed long low stretches and high plateaux and the

390 The constraints used for the Quechua analysis were mostly already introduced in the Spanish OT-analysis (section 5.3). I repeat them here for convenience.

391 The complementary constraint aligning the H with the right edge of the prosodic word was not found to have an effect in any of the contours.

tonal transitions between them. In order for them to be able to do this, we furthermore need three high-ranked faithfulness constraints ranked above all of them.

(163) LINEARITY: the sequence of tones in the output is the same as in the input

(164) MAXIO(T): every tone in the input has a correspondent in the output

(165) NOCROWD: a TBU has only one tone

The TBU is assumed to be the syllable here. The puzzle about cases where more than one tone occupies a single syllable (cf. the discussions in sections 6.1.7 and 6.1.8.1) will be mostly left aside. We would need further systematic data to really decide this point. In principle, an interesting solution might be that deciding between moras and syllables as TBU is an additional variable choice for speakers. In both cases, NOCROWD would be kept high-ranked. Another observed effect of tonal organization under temporal constraints is already integrated in the ranking here: NOCROWD is ranked above all alignment constraints, necessary for the "displacement" effect observed in section 6.1.3, but underneath MAXIO(T), so that when a phonological phrase is mapped onto a monosyllabic word, the tones will be realized despite crowding. However, since there are also attested cases where tones are clearly truncated because of crowding, this is likely not the whole story. Recall that Huari Spanish also shows variability in tonal realization under temporal constraints (section 5.3.3).

Regarding association constraints, the findings on phonetic enhancement in section 6.1.6 suggest that the H tone at least in the rising-falling contours associates some of the time, but not that the stressed penult always associates with a tone (so that $\sigma' \leftarrow$ T is never active, unlike in Spanish, cf. 5.3.2). For such cases, three association constraints are needed:

(166) H → TBU: the H tone is associated with a TBU

(167) $(\sigma')_{\omega'} \leftarrow$ T: associate a tone with the stressed syllable of the metrically strong prosodic word in a phonological phrase

(168) NOASSOC: TBUs are not associated with tones

Their ranking must be H → TBU >> NOASSOC >> $(\sigma')_{\omega'} \leftarrow$ T to conform to the observations. H → TBU and NOASSOC likely have overlapping distributions (Boersma & Hayes 2001), so that sometimes, the H tone fails to associate, because not every syllable on which the peak is realized is longer than adjacent syllables. In the

loanword patterns, $(\sigma')_{\omega'} \leftarrow$ T is then also promoted above NoAssoc, because of the observed lengthening of Spanish stressed syllables in them. These association constraints do not interfere with the alignment constraints generating the different contour variants discussed in the following, so they are not given in the rankings.

6.3.1 Rise-falling contours

The progression through the analysis of the variants begins with the rising-falling contours. Since they include one more tone than the other two contours, their analysis establishes the basic mechanisms that can then be adapted to the analysis of the bitonal contours (sections 6.3.2 and 6.3.3).

6.3.1.1 Word boundary-variant

In all the constraint rankings here, the three faithfulness constraints are ranked above the alignment constraints. For rise-falls, the highest-ranked alignment constraints, Align ($L_{\phi Rt}$, Rt_{ϕ}) and Align ($L_{\phi Lt}$, Lt_{ϕ}), establish the initial and final L tone as initial and final phrasal boundary tones, respectively. They are followed by the constraints aligning the H tone with the boundaries of the prominent prosodic word, Align (H, $Lt_{\omega'}$) and Align (H, $Rt_{\omega'}$). Their ranking ensures that in this variant, a high plateau-like realization will form on that word. The relative ranking of Align ($L_{\phi Rt}$, Lt_{ϕ}) >> Align (H, Rt_{ϕ}) below them ensures that in phrases in which a prefinal word is prominent, a low stretch will form on all words following the prominent word. Align (H, Lt_{ω}) >> Align ($L_{\phi Lt}$, Rt_{ϕ}), the next constraints in the ranking, are relevant for phrases with more than two words, which are not treated in the tables here: their ranking results in the plateau-like realization extending further to the left of the prominent word, either up to the first internal word boundary, as attested e.g. in Figure 126, or to another prefinal one, as e.g. in Figure 127.[392] The three constraints below have no influence in this ranking, their relative ranking results from how they are ranked in the other variants. That I leave them ranked relative to each other at all is because I want to change as little as possible between the variant rankings.

392 How the difference between these two could be captured is not covered here. Note that in both examples, the initial low stretch extends across the demonstratives, and the plateau begins with the first content word.

(169) Alignment constraint ranking for the word-boundary variant (with multiple alignment of the H tone) of Quechua (rise-falls)
LINEARITY, MAXIO(T), NOCROWD >> ALIGN ($L_{\phi Rt}$, Rt_{ϕ}) >> ALIGN ($L_{\phi Lt}$, Lt_{ϕ}) >> ALIGN (H, $Lt_{\omega'}$) >> ALIGN (H, $Rt_{\omega'}$) >> ALIGN ($L_{\phi Rt}$, Lt_{ϕ}) >> ALIGN (H, Rt_{ϕ}) >> ALIGN (H, Lt_{ω}) >> ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) >> ALIGN (H, Lt_{ϕ}) >> ALIGN (H, σ', Lt) >> ALIGN (H, σ', Rt)

The low ranking of the syllabic alignment constraints (161) and (162) means that the word-boundary pattern does not make reference to a syllabic position at all. This is because section 6.2.3.2 established that rise-fall phrases are unattested that combine a rise taking place at a syllabic position within a word with a fall taking place at a boundary between the words, or vice versa, except for the case where the rise takes place at the boundary preceding the final word, and the fall taking place on that word's penult or final syllable ((153)a), cf. Table 32). This seeming exception results from the same ranking: the fact that the fall at the right edge of the H tone in rise-falling contours often aligns with the penult of the final word, even if the rise at its left edge aligns with the preceding word boundary, simply falls out from the high-ranking constraint aligning the L tone with the right edge of the phrase, ALIGN ($L_{\phi Rt}$, Rt_{ϕ}), in combination with NOCROWD (cf. winning candidate **a** in Table 38 and the left contour in Figure 135 for an example). In individually-phrased words, any of the variant rankings ((169), (170), (173)) will result in at least the penult (plus possibly preceding syllables) being high for the same reason, as attested (cf. section 6.1.5). Bisyllabic individually-phrased words are a special case, because they don't ever seem to realize a tritonal contour. Solving this is not trivial. In principle, I would like to propose that an OCP-constraint is active and ranked above the alignment constraints, but below NOCROWD. This would ensure that the rising-falling contour on such phrases is always realized bitonally with H and $L_{\phi Rt}$, because even though the alignment of $L_{\phi Lt}$ is ranked higher than that of H, the high-ranking OCP-constraint will prevent candidates in which H is not realized, and the ranking of ALIGN ($L_{\phi Rt}$, Rt_{ϕ}) over ALIGN ($L_{\phi Lt}$, Lt_{ϕ}) ones in which $L_{\phi Rt}$ is not realized. However, MAXIO(T), which has to be ranked above NOCROWD as pointed out above because of observed bitonal contours on monosyllabic phrases, would prevent any effects of the OCP constraint. Recall from section 5.3.3 that Cho & Flemming (2015) found continuously variable tonal reduction under continuously variable time constraints (increased speech rate) in Korean, but categorical tonal deletion of the second L in APs with less than four syllables (normally with an LHLH contour). This seems comparable to our case of bisyllabic phrases: one of the tones of the tritonal contour is categorically not realized. That the deleted tone is not the H is likely truly due to an OCP-effect as described, but we have to assume that the deletion occurs prior to the step when the alignment constraints take effect (Kiparsky 2015), since for them

MaxIO(T) must be high-ranking, so that its interaction with NoCrowd produces the other observed continuous crowding and compression phenomena. While something like this must be going on, truly solving this puzzle must be a task for the future. This is yet another case showcasing the complexities of phenomena surrounding tonal crowding, truncation and deletion, and their categorical vs. continuous expression.

Returning to the main discussion, the same ranking (169) also produces attested rise-falling contour variants when the initial word is prominent in the phrase, with the parallel displacement of the H tone by one TBU away from the left word boundary, now due to the high-ranking Align ($L_{\phi Lt}$, Lt_{ϕ}) ensuring that the phrase-initial TBU is occupied by the L tone (cf. winning candidate **d)** in Table 39, exemplified on individually-phrased words in Figures 144 and 146). In the tableaux, brackets mark the extent of the prosodic words, curly brackets the phrase. Accents mark the strongest element within its domain (syllable within prosodic word and prosodic word within phonological phrase). Dashed lines signify alignment of a tone with a syllable, dashed arrows indicate multiple alignment. Black dots are tonal targets.

Table 38: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-boundary variant *with* multiple H tone alignment of a *rise-falling* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the *final word prominent* in the phrase.

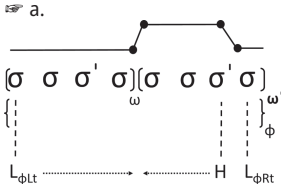
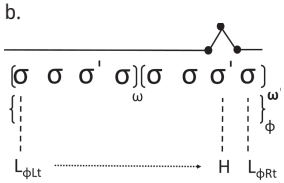
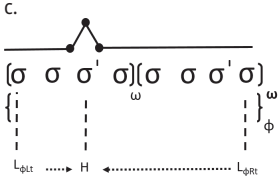
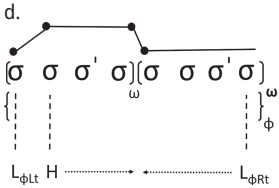
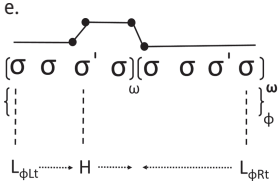
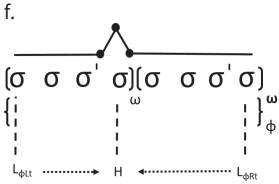
[(σσ'σ)$_{\omega}$ (σσ'σ)$_{\omega}$']$_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	**Align ($L_{\phi Rt}$, Rt_{ϕ})**	**Align ($L_{\phi Lt}$, Lt_{ϕ})**	**Align (H, Lt_{ω})**	**Align (H, Rt_{ω})**	**Align ($L_{\phi Rt}$, Lt_{ϕ})**	**Align (H, Rt_{ϕ})**	**Align (H, Lt_{ω})**	**Align ($L_{\phi Lt}$, Rt_{ϕ})**	**Align (H, Lt_{ϕ})**	**Align (H, σ', Lt)**	**Align (H, σ', Rt)**
☞ a. 				*	**7***	*		****	****	**	
b. 			****!**	*	**7***	*	**	**	**6***		

Table 38 (continued)

$[(\sigma\sigma'\sigma)_{\omega}\ (\sigma\sigma'\sigma)_{\omega}']_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	ALIGN ($L_{\phi Rt}$, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Lt_{ϕ})	ALIGN (H, $Lt_{\omega'}$)	ALIGN (H, $Rt_{\omega'}$)	ALIGN ($L_{\phi Rt}$, Lt_{ϕ})	ALIGN (H, Rt_{ϕ})	ALIGN (H, Lt_{ω})	ALIGN ($L_{\phi Lt}$, Rt_{ϕ})	ALIGN (H, Lt_{ϕ})	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)
c. 			**!	5*	***	5*	**	6*	**		
d. 			***!	****	****	****	*	7*	*	*	*
e. 			**!	****	****	****	**	6*	**		*
f. 			*!	****	****	****	*	5*	***	*	*

Even for the attested phrase pattern where both the rise and fall only take place at the end of the phrase (e.g. Figures 132, 175), instead of the rise ocurring already at the beginning of the final word, no reference needs to be made to any syllabic position within a word, as winning candidate **b)** in Table 40 shows. The only difference between the rankings (169) and (170) is that in (170), the constraints ALIGN (H, $Lt_{\omega'}$) and ALIGN (H, Lt_{ω}), high- and mid-ranking, respectively, in (169), have been downranked, effectively preventing the H tone from also aligning leftwards and creating a plateau. Note that the constraint ALIGN (H, $Rt_{\omega'}$), seeking to align the H tone with the right edge of the prominent word, is still active in (170).

Table 39: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-boundary variant *with* multiple H tone alignment of a *rise-falling* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the *prefinal word prominent* in the phrase.

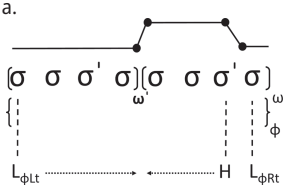
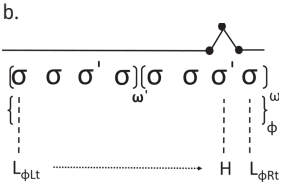
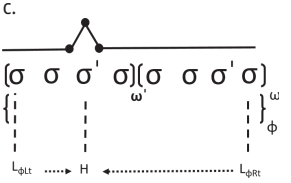
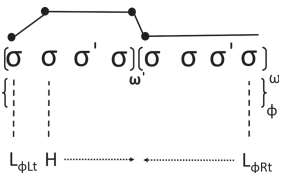
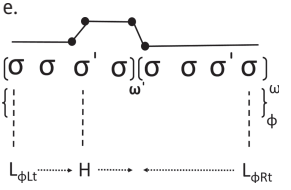
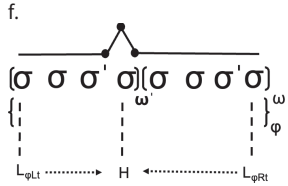
$[(\sigma\sigma'\sigma)_{\omega}{}' (\sigma\sigma'\sigma)_{\omega}]_{\phi}$ $L_{\phi Lt}$ H $L_{\phi Rt}$	ALIGN ($L_{\phi Rt}$, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Lt_{ϕ})	ALIGN (H, Lt_{ω})	ALIGN (H, Rt_{ω})	ALIGN ($L_{\phi Rt}$, Lt_{ϕ})	ALIGN (H, Rt_{ϕ})	ALIGN (H, Lt_{ω})	ALIGN ($L_{\phi Lt}$, Rt_{ϕ})	ALIGN (H, Ltϕ)	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)
a. 			****!	***	**7***	*		****	****	**	
b. 			**6*!**	***	**7***	*	**	**	**6***		
c. 			**!**	*	***	**5***	**	**6***	**		
☞ d. 			*		****	****	*	**7***	*	*	*
e. 			**!**		****	****	**	**6***	**		*

Table 39 (continued)

$[(\sigma\sigma'\sigma)_{\omega}{}' (\sigma\sigma'\sigma)_{\omega}]_{\phi}$ $L_{\phi Lt}$ H $L_{\phi Rt}$	ALIGN ($L_{\phi Rt}$, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Lt_{ϕ})	ALIGN (H, $Lt_{\omega'}$)	ALIGN (H, $Rt_{\omega'}$)	ALIGN ($L_{\phi Rt}$, Lt_{ϕ})	ALIGN (H, Rt_{ϕ})	ALIGN (H, Lt_{ω})	ALIGN ($L_{\phi Lt}$, Rt_{ϕ})	ALIGN (H, Ltϕ)	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)
f. 			***!		****	****	*	5*	***	*	*

ALIGN (H, $Rt_{\omega'}$) here prevents ALIGN ($L_{\phi Rt}$, Lt_{ϕ}) from pushing further to the left, thus enabling ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) to push rightwards and create the observed low stretch, even though it is lower-ranked than ALIGN ($L_{\phi Rt}$, Lt_{ϕ}). This ranking without reference to a stressed penult must exist, because the "displaced" pitch peaks (cf. section 6.1.3) cannot be generated from a ranking in which tones align with the word penult. Thus this must be one of the rankings that create a phrase-final rise-falling contour in Quechua. A similar contour is generated with pitch accents and boundary tones in Huari Spanish (section 5.3.2), and it is also generated in the word penult-pattern (cf. section 6.3.1.2).

(170) Alignment constraint ranking for the word-boundary variant (without multiple alignment of the H tone) of Quechua, rise-falls (changes from (169) in bold)
LINEARITY, MAXIO(T), NOCROWD >> ALIGN ($L_{\phi Rt}$, Rt_{ϕ}) >> ALIGN ($L_{\phi Lt}$, Lt_{ϕ}) >> ALIGN (H, $Rt_{\omega'}$) >> ALIGN ($L_{\phi Rt}$, Lt_{ϕ}) >> ALIGN (H, Rt_{ϕ}) >> ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) >> ALIGN (H, Lt_{ϕ}) >> ALIGN (H, σ', Lt) >> ALIGN (H, σ', Rt) >> **ALIGN (H, $Lt_{\omega'}$)** >> **ALIGN (H, Lt_{ω})**

That ALIGN (H, $Rt_{\omega'}$) is still ranked so high has consequences that only emerge when a prefinal word instead of the final one is prominent in the phrase. Table 32 in section 6.2.3.2 counts 8 tokens where both the rise and the fall take place on either the penult or the final syllable of a prefinal word. Looking at these examples individually, the majority realize the high tone on either of these syllabic positions, but not both. That is to say, in one variant the rise takes place at the left edge of the penult, and the fall at its right edge, while in the other, the rise takes place at the left edge of the final syllable and the fall at its right edge, which is also the word

Table 40: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-boundary variant *without* multiple H tone alignment of a *rise-falling* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the *final word prominent* in the phrase.

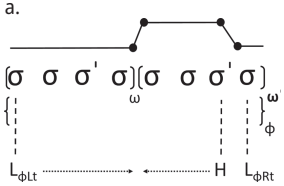
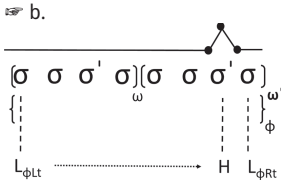
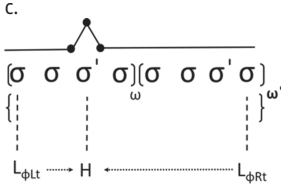
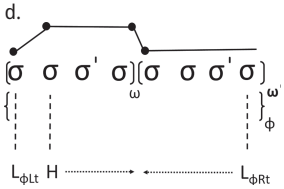
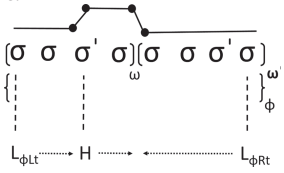
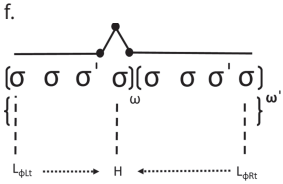
$[(\sigma\sigma'\sigma)_{\omega}\ (\sigma\sigma'\sigma)_{\omega'}]_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	Align ($L_{\phi Rt}$, Rt_{ϕ})	Align ($L_{\phi Lt}$, Lt_{ϕ})	Align (H, $Rt_{\omega'}$)	Align ($L_{\phi Rt}$, Lt_{ϕ})	Align (H, Rt_{ϕ})	Align ($L_{\phi Lt}$, Rt_{ϕ})	Align (H, Lt_{ϕ})	Align (H, σ', Lt)	Align (H, σ', Rt)	Align (H, $Lt_{\omega'}$)	Align (H, Lt_{ω})
a. 			*	**7***	*	****!	****	**			
☞ b. 			*	**7***	*	**	**6***			**	**
c. 			**5*!**	***	**5***	**6***	**			**	**
d. 			****!	****	****	**7***	*	*	*	*	*
e. 			****!	****	****	**6***	**		*	**	**

Table 40 (continued)

$[(\sigma\sigma'\sigma)_\omega\ (\sigma\sigma'\sigma)_{\omega'}]_\phi$ $L_{\phi Lt}HL_{\phi Rt}$	ALIGN ($L_{\phi Rt}$, Rt_ϕ)	ALIGN ($L_{\phi Lt}$, Lt_ϕ)	ALIGN (H, $Rt_{\omega'}$)	ALIGN ($L_{\phi Rt}$, Lt_ϕ)	ALIGN (H, Rt_ϕ)	ALIGN ($L_{\phi Lt}$, Rt_ϕ)	ALIGN (H, Lt_ϕ)	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)	ALIGN (H, $Lt_{\omega'}$)	ALIGN (H, Lt_ω)
f. 			****!	****	****	5*	***	*	*	*	*

boundary. As an example of the latter variant, see TP03_Conc_Q_0917 (Figure 172), as an example of the former, HA30_Conc_Q_2398 (Figure 173).

(171) TP03_Conc_Q_0917
hatun runa
big person
"big person"

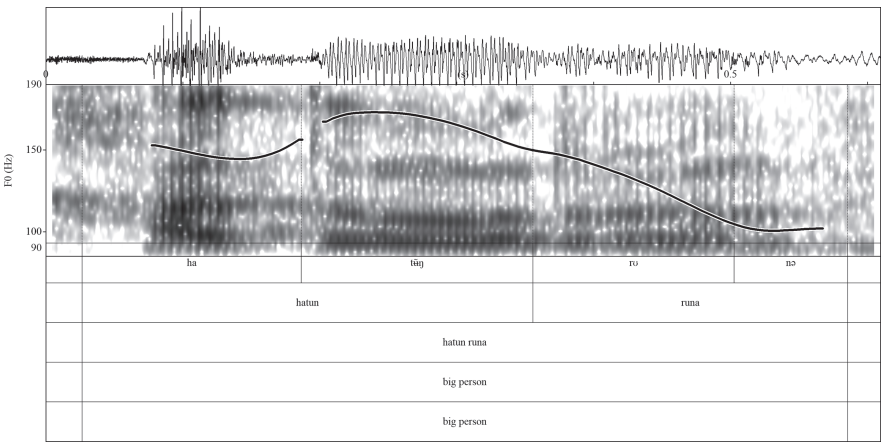


Figure 172: TP03_Conc_Q_0917[393] (part of a declarative with a rise-falling contour).

393 https://osf.io/8nvrq/

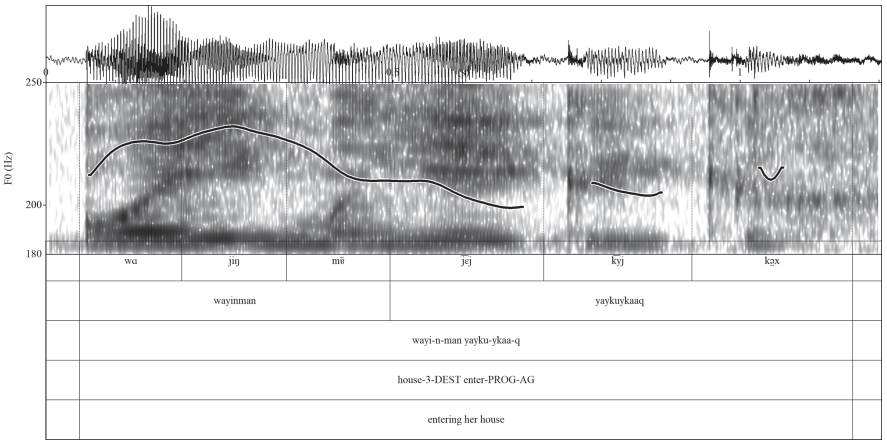


Figure 173: HA30_Conc_Q_2398[394] (part of a declarative with a rise-falling contour).

(172) HA30_Conc_Q_2398
wayi-n-man yayku-ykaa-q
house-3-DEST enter-PROG-AG
“entering her house”

The variant produced by TP03 is what the ranking (170) predicts when applied to a phrase in which a prefinal word is prominent: ALIGN (H, Rt_{ω}) makes sure that the H tone occupies the final syllable position in the prominent prefinal word, but ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) is unimpeded in its effort to push the phrase-initial L tone as far right as possible until it hits upon the H tone occupying the final syllable and causing the H tone to be restricted to only that TBU (cf. winning candidate **f)** in Table 41). In particular, the stressed penult does not attract the H tone and is instead realized as part of the low stretch produced by ALIGN ($L_{\phi Lt}$, Rt_{ϕ}). The fact that this variant is attested corroborates the validity and plausibility of ranking (170) for both finally-prominent and non-finally-prominent rise-falling phrases without multiple H alignment. The rising contour exhibits similar variation (cf. section 6.1.3). A similar analysis to represent it is made in section 6.3.2. For the variant as produced by HA30, where the H tone is restricted to the penult of the prefinal word, a ranking is needed in which alignment to the prominent syllabic position is high-ranked. This will come next. It seems plausible to take the competition between these rankings, leading to variable alignment with either the final syllable or the penult at several occasions

394 https://osf.io/uxqtc/

in the overall data, to be one of the reasons for the quantitative findings on variable peak alignment in section 6.1.6.

Table 41: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-boundary variant *without* multiple H tone alignment of a *rise-falling* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the *prefinal word prominent* in the phrase.

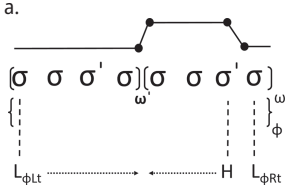
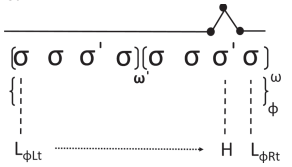
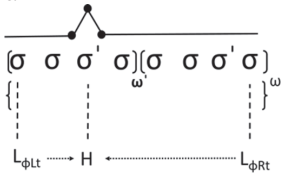
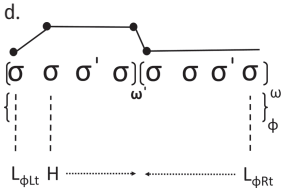
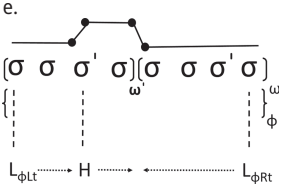
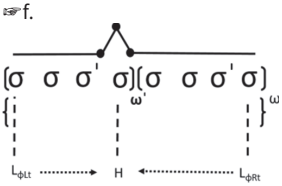
$[(\sigma\sigma'\sigma)_\omega{}' (\sigma\sigma'\sigma)_\omega]_\phi$ $L_{\phi Lt}$ H $L_{\phi Rt}$	Align ($L_{\phi Rt}$, Rt_ϕ)	Align ($L_{\phi Lt}$, Lt_ϕ)	Align (H, $Rt_{\omega'}$)	Align ($L_{\phi Rt}$, Lt_ϕ)	Align (H, Rt_ϕ)	Align ($L_{\phi Lt}$, Rt_ϕ)	Align (H, Lt_ϕ)	Align (H, σ', Lt)	Align (H, σ', Rt)	Align (H, $Lt_{\omega'}$)	Align (H, Lt_ω)
a. 			***!	**7***	*	****	****	**		****	
b. 			***!	**7***	*	**	**6***			**6***	**
c. 			*!	***	**5***	**6***	**			**	**
d. 				****	****	**7*!**	*	*	*	*	*

Table 41 (continued)

$[(\sigma\sigma'\sigma)_{\omega'}(\sigma\sigma'\sigma)_{\omega}]_{\phi}$ $L_{\phi Lt}$ H $L_{\phi Rt}$	ALIGN ($L_{\phi Rt}$, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Lt_{ϕ})	ALIGN (H, $Rt_{\omega'}$)	ALIGN ($L_{\phi Rt}$, Lt_{ϕ})	ALIGN (H, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Rt_{ϕ})	ALIGN (H, Lt_{ϕ})	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)	ALIGN (H, $Lt_{\omega'}$)	ALIGN (H, Lt_{ω})
e. 				****	****	**6*!**	**		*	**	**
☞ f. 				****	****	**5***	***	*	*	***	*

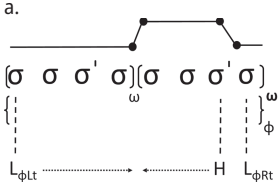
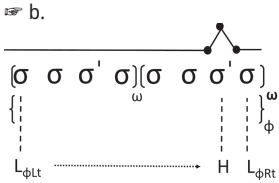
6.3.1.2 Word penult-variant

The previous rankings, in which alignment is only oriented towards prosodic edges, cannot generate examples like Figure 173. For them, a ranking is needed in which the two constraints militating for alignment between the right and left edge of the H tone with the right and left edge of the prominent syllable, ALIGN (H, σ', Rt) and ALIGN (H, σ', Lt), are promoted to a higher position. This is done in ranking (173). Winning candidate **b)** in Table 42 on phrases with final prominence is again the phrase-final rise-falling contour, also generated in the "phrase accentuation" variant of Huari Spanish (cf. sections 5.3.2, 5.3.3), and from the word-boundary ranking without multiple H tone alignment (170) on finally prominent phrases, candidate **b)** in Table 40. Note again that the H tone here might well associate, as it does in the Spanish contour, but this is not relevant for generating the contours (see above). ALIGN (H, $Rt_{\omega'}$) here is kept at a relatively high position, only having moved ALIGN (H, σ', Rt) and ALIGN (H, σ', Lt), above it. This keeps the difference between (170) and (173) minimal and also has the desired effect of keeping the high tone

within the prominent word in winning candidates, even though ALIGN (H, σ', Rt) and ALIGN (H, σ', Lt) are not specified for this.[395]

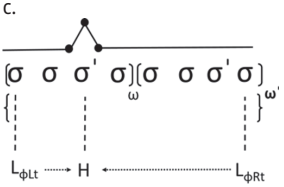
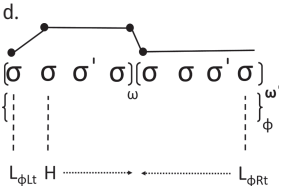
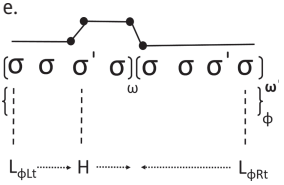
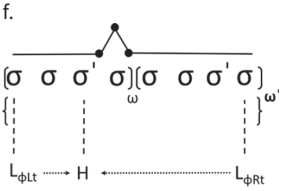
(173) Alignment constraint ranking for the word-penult variant of Quechua (rise-falls)
LINEARITY, MAXIO(T), NOCROWD >> ALIGN ($L_{\phi Rt}$, Rt_{ϕ}) >> ALIGN ($L_{\phi Lt}$, Lt_{ϕ}) >> ALIGN (H, σ', Lt) >> ALIGN (H, σ', Rt) >> ALIGN (H, $Rt_{\omega'}$) >> ALIGN ($L_{\phi Rt}$, Lt_{ϕ}) >> ALIGN (H, Rt_{ϕ}) >> ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) >> ALIGN (H, $Lt\phi$) >> ALIGN (H, $Lt_{\omega'}$) >> ALIGN (H, Lt_{ω})

Table 42: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-penult variant of a *rise-falling* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the *final word prominent* in the phrase.

[(σσ'σ)$_{\omega}$ (σσ'σ)$_{\omega}$']$_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	**ALIGN ($L_{\phi Rt}$, Rt_{ϕ})**	**ALIGN ($L_{\phi Lt}$, Lt_{ϕ})**	**ALIGN (H, σ', Lt)**	**ALIGN (H, σ', Rt)**	**ALIGN (H, $Rt_{\omega'}$)**	**ALIGN ($L_{\phi Rt}$, Lt_{ϕ})**	**ALIGN (H, Rt_{ϕ})**	**ALIGN ($L_{\phi Lt}$, Rt_{ϕ})**	**ALIGN (H, Ltϕ)**	**ALIGN (H, $Lt_{\omega'}$)**	**ALIGN (H, Lt_{ω})**
a. 			****!**		*	**7***	*	****	****		
☞ b. 					*	**7***	*	**	**6***	**	**

395 With a change in relative ranking between ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) and ALIGN (H, Ltϕ), the very infrequently attested variant where the rise takes place on the penult of one word and the fall in that of a later word (combination g) in (153) and Table 32 in section 6.2.3.2, would be the winning candidate, indicating perhaps that their relative ranking distributions overlap just enough to occasionally produce the rare variant (cf. Boersma & Hayes 2001). Another option for keeping the H tone within the prominent word might be to say that it associates secondarily with that word, as Roettger (2017) does for Tashlhiyt Berber, but this is disallowed in Gussenhoven (2004).

Table 42 (continued)

$[(\sigma\sigma'\sigma)_{\omega}\ (\sigma\sigma'\sigma)_{\omega'}]_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	ALIGN ($L_{\phi Rt}$, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Lt_{ϕ})	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)	ALIGN (H, Rt_{ω})	ALIGN ($L_{\phi Rt}$, Lt_{ϕ})	ALIGN (H, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Rt_{ϕ})	ALIGN (H, Ltϕ)	ALIGN (H, Lt_{ω})	ALIGN (H, Lt_{ω})
c. 					**5*!**	***	**5***	**6***	**	**	**
d. 			***!**	*	****	****	****	**7***	*	***	*
e. 				***!**	****	****	****	**6***	**	**	**
f. 			***!**	*	****	****	****	**5***	***	*	*

Applying the same constraint ranking to phrases in which the prefinal word is prominent now finally yields the winning candidate **c)** in Table 43, exemplified by HA30_Conc_Q_2398 (Figure 173), the variant realization to candidate **f)** in Table 41.

The idea here has been to keep the analysis of the word-penult pattern as close to the spirit of a tonal grammar paying more heed to phrases and edges than to words and prominent syllables. In this sense, this is an analysis of the word-penult pattern that is minimal in its concession to the penult as a prominent position in the word. That is in keeping with the characterization of Quechua prosody in section

Table 43: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-penult variant of a *rise-falling* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the pre*final word prominent* in the phrase.

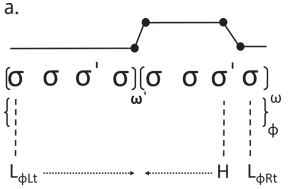
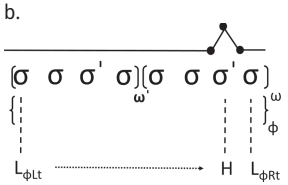
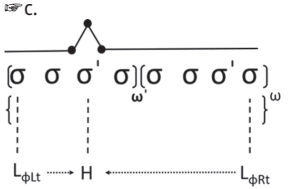
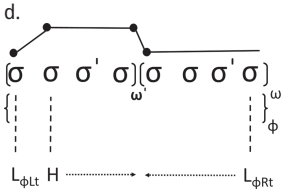
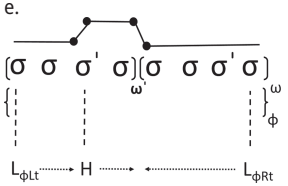
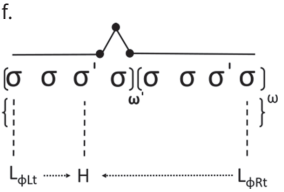
$[(\sigma\sigma'\sigma)_{\omega}{}'\ (\sigma\sigma'\sigma)_{\omega}]_{\phi}$ $L_{\phi Lt}$ H $L_{\phi Rt}$	ALIGN ($L_{\phi Rt}$, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Lt_{ϕ})	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)	ALIGN (H, $Rt_{\omega}{}'$)	ALIGN ($L_{\phi Rt}$, Lt_{ϕ})	ALIGN (H, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Rt_{ϕ})	ALIGN (H, Ltϕ)	ALIGN (H, $Lt_{\omega}{}'$)	ALIGN (H, Lt_{ω})
a. 			**!		***	**7***	*	****	****	****	
b. 					***!	**7***	*	**	**6***	**6***	**
☞ c. 					*	***	**5***	**6***	**	**	**
d. 			*!	*		****	****	**7***	*	*	*
e. 				*!		****	****	**6***	**	**	**

Table 43 (continued)

$[(\sigma\sigma'\sigma)_{\omega'}(\sigma\sigma'\sigma)_{\omega}]_{\phi}$ $L_{\phi Lt}$ H $L_{\phi Rt}$	ALIGN ($L_{\phi Rt}$, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Lt_{ϕ})	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)	ALIGN (H, $Rt_{\omega'}$)	ALIGN ($L_{\phi Rt}$, Lt_{ϕ})	ALIGN (H, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Rt_{ϕ})	ALIGN (H, Ltφ)	ALIGN (H, $Lt_{\omega'}$)	ALIGN (H, Lt_{ω})
f. 			*!	*		****	****	5*	***	***	*

6.1, as making some reference to a prominent syllabic position, but minimizing the effects of this. The analysis is kept here so much on this "accentless" side of things not because I think that more accent-oriented grammars are not available to the speakers, but because I want to map out the space of grammatical possibility that the Huari speakers can take recourse to by tracing its peripheral boundaries. It is clear that the speakers have access to the grammars represented by the rankings (169) and (170), which do not need to make reference to a prominent syllabic position at all. From the Spanish OT-analysis it is clear that they also have access to the other end of the spectrum, the "main variant" of Spanish, where even stressed syllables in nonprominent words in the phrase form pitch accents. In between, they have a variety of only subtly different options both at the level of the contours produced and of the constraint rankings utilized to generate them at their disposal. This middle ground is accessible from either direction and could therefore be seen less as belonging to either language but to the structural communicative resources available to the speakers of this community. In the following, the constraint rankings will be adapted to rising contours.

6.3.2 Rising contours

For the rising contours, the rankings for the rise-falling contours can be adapted. The global difference is that all constraints making reference to the right L tone here have no target and are therefore omitted. In addition, the constraint aligning the H tone with the right phrase boundary ALIGN (H, Rt_{ϕ}) is promoted to a position where it is undominated by all other alignment constraints militating against it.

Thus we have a phrase-initial L tone and a phrase-final H tone and the remaining constraints generate the attested contours. This ensures, together with the faithfulness constraints, that bisyllabic phrases will always realize the initial syllable low and the final high, as attested (see Figure 141 and the discussion in section 6.1.5), even under the word-penult variant ranking (176). Since the promotion of ALIGN (H, Rt_{ϕ}) means that ALIGN (H, $Rt_{\omega'}$) will never be able to differentiate between any candidates that comply with ALIGN (H, Rt_{ϕ}), i.e. all attested candidates, it has also been omitted here.

6.3.2.1 Word boundary-variant

With these changes, the ranking for the word-boundary variant of the rising contour with multiple H tone alignment, parallel to that of the rise-falls (169), is the following:

(174) Alignment constraint ranking for the word-boundary variant (with multiple H tone alignment) of Quechua (rises)
LINEARITY, MAXIO(T), NOCROWD >> ALIGN (H, Rt_{ϕ}) >> ALIGN ($L_{\phi Lt}$, Lt_{ϕ}) >> ALIGN (H, $Lt_{\omega'}$) >> ALIGN (H, Lt_{ω}) >> ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) >> ALIGN (H, Lt_{ϕ}) >> ALIGN (H, σ', Lt) >> ALIGN (H, σ', Rt)

This ranking correctly selects the winning candidate **b)**, in the case where the final word is prominent in the phrase, and **e)** when the prefinal word is prominent (see Tables 44 and 45, respectively).

In sections 6.1.3 and 6.1.5, it was already discussed that there are two variants of the rising contour when the rise takes place at the end of the phrase-final word: in one, the high tonal target is clearly realized already on the penult, in the other, the penult is realized as low and only the final syllable is high (e.g. (101)/Figure 118 vs. (118)/Figure 138, and examples for both in Figure 142, cf. also the schematic difference in Figure 137). This latter variant is generated by ranking (175), parallel to ranking (170) for the rise-falling contours. In it, ALIGN (H, $Lt_{\omega'}$) has been ranked down, allowing ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) to have a much stronger effect. This yields the desired result, generating winning candidate **c)** in Table 46 under the condition of the final word in the phrase being prominent, but it poses something of a conundrum when applied to a phrase in which the prefinal word is prominent (see below). It is also something of a deviation since it ranks ALIGN (H, $Lt_{\omega'}$) down, which comes back up again for the word-penult pattern.

Table 44: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-boundary variant *with* multiple H tone alignment of a *rising* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the *final word prominent* in the phrase.

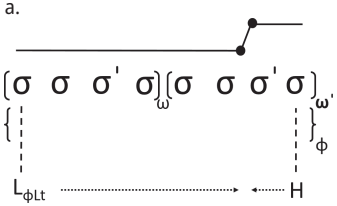
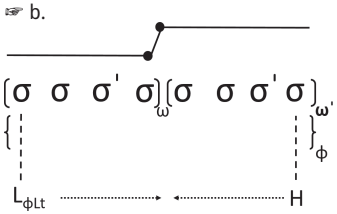
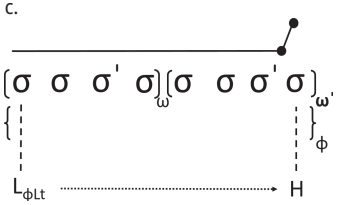
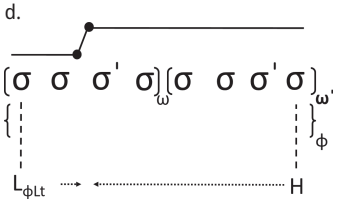
$[(\sigma\sigma'\sigma)_{\omega}\ (\sigma\sigma'\sigma)_{\omega'}]_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	ALIGN (H, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Lt_{ϕ})	ALIGN (H, $Lt_{\omega'}$)	ALIGN (H, Lt_{ω})	ALIGN ($L_{\phi Lt}$, Rt_{ϕ})	ALIGN (H, Lt_{ϕ})	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)
a. 			****!**	**	**	**6***		*
☞ b. 					****	****	**	*
c. 			*****!**	***	*	**7***	*	*
d. 			****!**	**	**6***	**		*

Table 44 (continued)

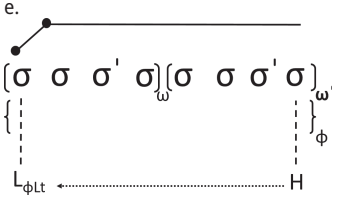
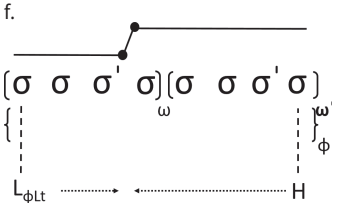
$[(\sigma\sigma'\sigma)_{\omega}\ (\sigma\sigma'\sigma)_{\omega'}]_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	Align (H, Rt_{ϕ})	Align ($L_{\phi Lt}$, Lt_{ϕ})	Align (H, $Lt_{\omega'}$)	Align (H, Lt_{ω})	Align ($L_{\phi Lt}$, Rt_{ϕ})	Align (H, Lt_{ϕ})	Align (H, σ', Lt)	Align (H, σ', Rt)
e. 			***!	*	**7***	*	*	*
f. 			*!	*	**5***	***	*	*

Table 45: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-boundary variant *with* multiple H tone alignment of a *rising* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the *prefinal word prominent* in the phrase.

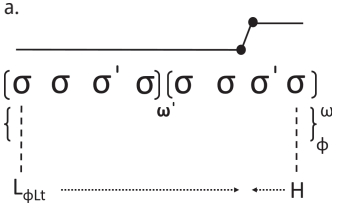
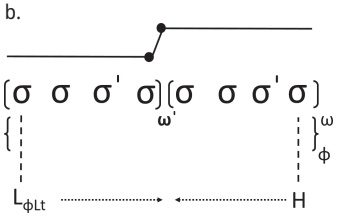
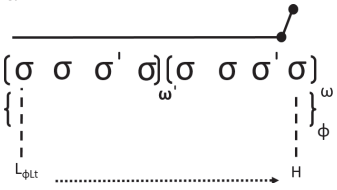
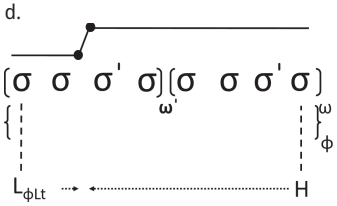
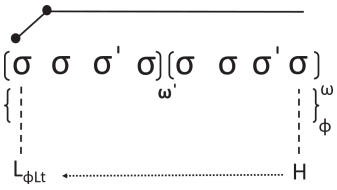
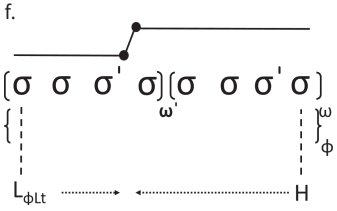
$[(\sigma\sigma'\sigma)_{\omega'}\ (\sigma\sigma'\sigma)_{\omega}]_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	Align (H, Rt_{ϕ})	Align ($L_{\phi Lt}$, Lt_{ϕ})	Align (H, $Lt_{\omega'}$)	Align (H, Lt_{ω})	Align ($L_{\phi Lt}$, Rt_{ϕ})	Align (H, Lt_{ϕ})	Align (H, σ', Lt)	Align (H, σ', Rt)
a. 			**6***!	**	**	**6***		*

Table 45 (continued)

$[(\sigma\sigma'\sigma)_{\omega}{}' (\sigma\sigma'\sigma)_{\omega}]_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	Align (H, Rt_{ϕ})	Align ($L_{\phi Lt}$, Lt_{ϕ})	Align (H, $Lt_{\omega'}$)	Align (H, Lt_{ω})	Align ($L_{\phi Lt}$, Rt_{ϕ})	Align (H, Lt_{ϕ})	Align (H, σ', Lt)	Align (H, σ', Rt)
b. 			****!		****	****	**	*
c. 			**7***!	***	*	**7***	*	*
d. 			**!	**	**6***	**		*
☞ e. 			*	*	**7***	*	*	*
f. 			***!	*	**5***	***	*	*

(175) Alignment constraint ranking for the word-boundary variant (without multiple H tone alignment) of Quechua (rises)
LINEARITY, MAXIO(T), NOCROWD >> ALIGN (H, Rt_{ϕ}) >> ALIGN ($L_{\phi Lt}$, Lt_{ϕ}) >> ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) >> ALIGN (H, Ltϕ) >> ALIGN (H, σ', Lt) >> ALIGN (H, σ', Rt) >> ALIGN (H, $Lt_{\omega'}$) >> ALIGN (H, Lt_{ω})

Table 46: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-boundary variant *without* Multiple H tone alignment of a *rising* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the *final word prominent* in the phrase.

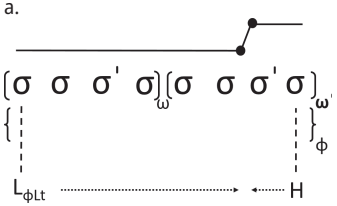
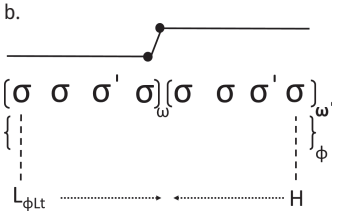
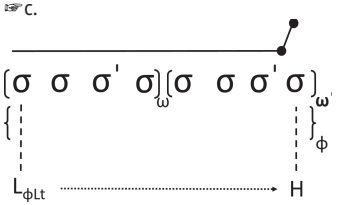
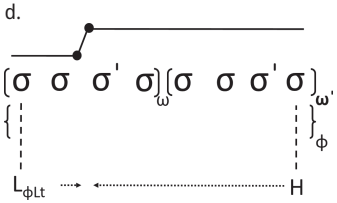
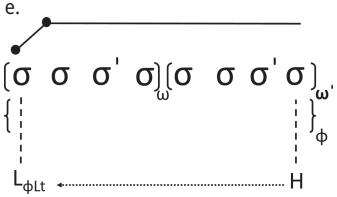
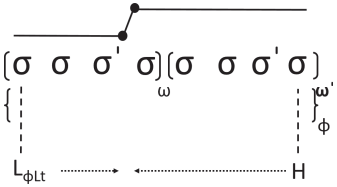
[(σσ'σ)$_{\omega}$ (σσ'σ)$_{\omega'}$]$_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	**ALIGN (H, Rt_{ϕ})**	**ALIGN ($L_{\phi Lt}$, Lt_{ϕ})**	**ALIGN ($L_{\phi Lt}$, Rt_{ϕ})**	**ALIGN (H, Lt_{ϕ})**	**ALIGN (H, σ', Lt)**	**ALIGN (H, σ', Rt)**	**ALIGN (H, $Lt_{\omega'}$)**	**ALIGN (H, Lt_{ω})**
a. 			**!**	**6***		*	**	**
b. 			****!	****	**	*		
☞ c. 			*	**7***	*	*	***	***

Table 46 (continued)

$[(\sigma\sigma'\sigma)_\omega\ (\sigma\sigma'\sigma)_{\omega'}]_\phi$ $L_{\phi Lt}HL_{\phi Rt}$	ALIGN (H, Rt_ϕ)	ALIGN ($L_{\phi Lt}$, Lt_ϕ)	ALIGN ($L_{\phi Lt}$, Rt_ϕ)	ALIGN (H, Lt_ϕ)	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)	ALIGN (H, Lt_ω)	ALIGN (H, Lt_ω)
d. 			**6*!**	**		*	**	**
e. 			**7*!**	*	*	*	***	*
f. 			**5*!**	***	*	*	*	*

In the case of a prefinal prominent word, the ranking does not yield a separate contour variant. Instead it again selects candidate **c)**, meaning that this ranking does not differentiate between final and prefinal prominence via an intonational contour[396] (the tableau has been omitted here to save space). In comparison, in the

396 No other ranking of the existing constraints could be found that would have been able to distinguish between the prominence configurations. That is because the ranking promotes ALIGN ($L_{\phi Lt}$, Rt_ϕ) to a nearly undominated position in order to produce the attested winning candidate **c)**. A theoretical possibility would have been to create a new constraint, like e.g. ALIGN ($L_{\phi Lt}$, Rt_ω), and ranking it above ALIGN ($L_{\phi Lt}$, Rt_ϕ). That would have produced candidate **b)** in the case of prefinal prominence and still kept **c)** as the winning candidate in the case of final prominence. However, it would have meant both introducing a new constraint purely for this case and making **b)** in turn ambiguous between a reading in which the final word is prominent and one in which the prefinal

rise-falling contours, the ranking always differentiates according to prominence via separate contours. However, the distribution of rising contour variants as given in Table 30 in section 6.2.3.2 supports the analysis here, because the sixth contour that is "missing" from the comparison with the other variants, where the rise takes place not at the penult but the final syllable of a prefinal word (candidate **f**), only occurs when that word is an oxytonic Spanish loan, and the position for the rise is thus lexically specified (it is also very rare). So the gap in the paradigm of contours generated from the rankings corresponds to that found in the data. Whether this ranking occasionally really produces contours where the position of the H tone is misaligned with the prominent word, or whether some process acts to counteract this, remains unknown.

6.3.2.2 Word penult-variant

For the ranking generating contours in the word penult-variant, ALIGN (H, $Lt_{\omega'}$) is promoted back to position 5 among the aligment constraints, while ALIGN (H, σ', Lt) and ALIGN (H, σ', Rt) are ranked above it. This parallels the change from the word boundary- to the word penult-variant in the rise-falling contours, but note that here it is ALIGN (H, $Lt_{\omega'}$), and not ALIGN (H, $Rt_{\omega'}$), which is needed to ensure that the rise takes place in the prominent word. The ranking (176) produces the winning candidate **a)** in Table 47 under the condition that the final word is prominent, the direct variant to **c)**, which is derived from ranking (175). Under the condition of the prefinal word being prominent, the ranking also generates the attested winning candidate **d)** in Table 48.

(176) Alignment constraint ranking for the word-penult variant of Quechua (rises)
LINEARITY, MAXIO(T), NOCROWD >> ALIGN (H, Rt_{ϕ}) >> ALIGN ($L_{\phi Lt}$, Lt_{ϕ}) >> ALIGN (H, σ', Lt) >> ALIGN (H, σ', Rt) >> ALIGN (H, $Lt_{\omega'}$) >> ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) >> ALIGN (H, Ltϕ) >> ALIGN (H, Lt_{ω})

6.3.3 Only-falling contours

The analysis for the only-falling contours is complementary to that of the rises in terms of which constraints are used, but otherwise runs entirely in parallel. Here,

---

word is prominent. Since it would not have generated an attested candidate not generated otherwise, and since candidate **f)** is only attested in the "inherited" pattern and therefore cannot be the target contour here, the addition of such a constraint would be spurious and also not reduce the number of ambiguous contours.

Table 47: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-penult variant of a *rising* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the *final word prominent* in the phrase.

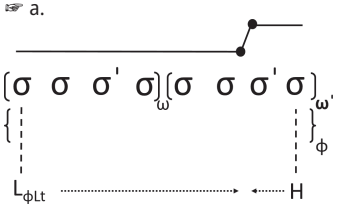
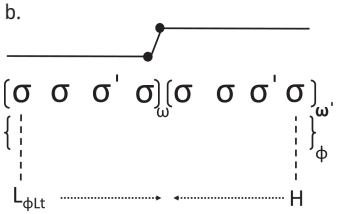
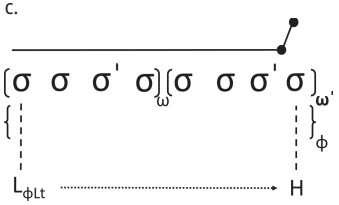
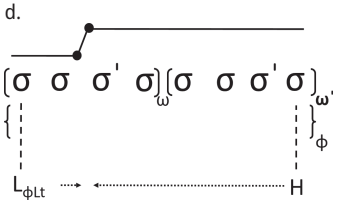
$[(\sigma\sigma'\sigma)_{\omega}\ (\sigma\sigma'\sigma)_{\omega'}]_{\phi}$ **$L_{\phi Lt}HL_{\phi Rt}$**	**Align (H, Rt_{ϕ})**	**Align ($L_{\phi Lt}$, Lt_{ϕ})**	**Align (H, σ', Lt)**	**Align (H, σ', Rt)**	**Align (H, $Lt_{\omega'}$)**	**Align ($L_{\phi Lt}$, Rt_{ϕ})**	**Align (H, Lt_{ϕ})**	**Align (H, Lt_{ω})**
☞ a. 				*	**	**	**6***	**
b. 			**!**	*		****	****	
c. 			*!	*	***	*	**7***	***
d. 				*	**	**6*!**	**	**

Table 47 (continued)

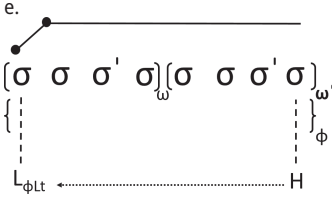
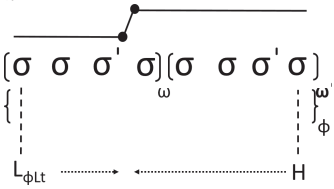
$[(\sigma\sigma'\sigma)_{\omega}\ (\sigma\sigma'\sigma)_{\omega'}]_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	ALIGN (H, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Lt_{ϕ})	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)	ALIGN (H, $Lt_{\omega'}$)	ALIGN ($L_{\phi Lt}$, Rt_{ϕ})	ALIGN (H, Lt_{ϕ})	ALIGN (H, Lt_{ω})
e. 			*!	*	***	**7***	*	*
f. 			*!	*	*	**5***	***	*

Table 48: OT-Tableau with the constraint rankings to arrive at the correct alignment behaviour for the word-penult variant of a *rising* Quechua phonological phrase (ϕ) containing two prosodic words (ω) consisting of four syllables (σ) each, with the *prefinal word prominent* in the phrase.

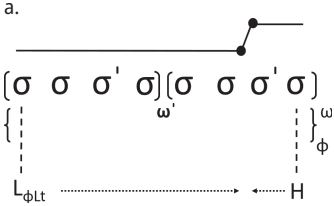
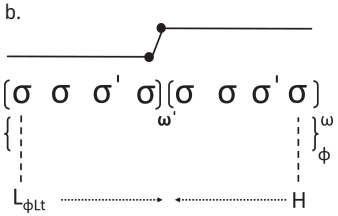
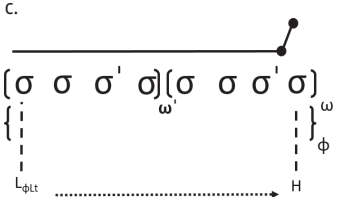
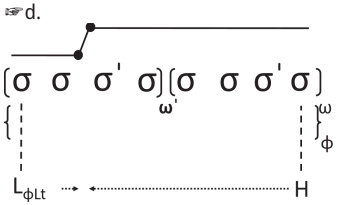
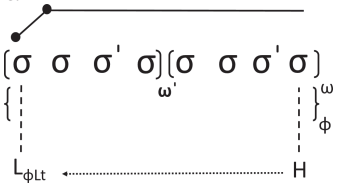
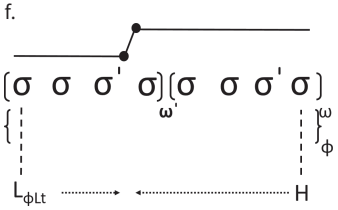
$[(\sigma\sigma'\sigma)_{\omega'}\ (\sigma\sigma'\sigma)_{\omega}]_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	ALIGN (H, Rt_{ϕ})	ALIGN ($L_{\phi Lt}$, Lt_{ϕ})	ALIGN (H, σ', Lt)	ALIGN (H, σ', Rt)	ALIGN (H, $Lt_{\omega'}$)	ALIGN ($L_{\phi Lt}$, Rt_{ϕ})	ALIGN (H, Lt_{ϕ})	ALIGN (H, Lt_{ω})
a. 				*	**6*!**	**	**6***	**

Table 48 (continued)

$[(\sigma\sigma'\sigma)_{\omega}{}' (\sigma\sigma'\sigma)_{\omega}]_{\phi}$ $L_{\phi Lt}HL_{\phi Rt}$	Align (H, Rt_{ϕ})	Align ($L_{\phi Lt}$, Lt_{ϕ})	Align (H, σ', Lt)	Align (H, σ', Rt)	Align (H, Lt_{ω})	Align ($L_{\phi Lt}$, Rt_{ϕ})	Align (H, Lt_{ϕ})	Align (H, Lt_{ω})
b. 			**!*	*	****	****	****	
c. 			*!	*	**7***	*	**7***	***
☞ d. 				*	**	**6***	**	**
e. 			*!	*	*	**7***	*	*
f. 			*!	*	***	**5***	***	*

the constraints making reference to the left L tone are omitted and ALIGN (H, Lt_{ϕ}) is ranked directly underneath ALIGN ($L_{\phi Rt}$, Rt_{ϕ}), so that all winning contours will start high at the left edge and be low at the right edge, with what happens in between determined by the other constraints. Again complementary to the rises, the interaction of these constraints with NOCROWD and the other high-ranking faithfulness constraints also ensures that on bisyllabic phrases, the left syllable is always high and the right always low, and here this does not run counter to the penult being occupied by the high tone in the word-penult variant. Here it is ALIGN (H, $Lt_{\omega'}$) which does not have any distinguishing effect between winning candidates, so it will be omitted. On the other hand, ALIGN (H, $Rt_{\omega'}$) plays the crucial role of making sure that the high tone is realized within the prominent word here, just as in the rise-falling contours. The only-falling contour is the least frequently occurring contour in our data, particularly on phrases consisting of more than a single word, as Table 31 in section 6.2.3.2 shows. This makes some of the expected alignment combinations in multi-word phrases exceedingly rare. In particular, there is not a single token of an only-falling contour on a multi-word phrase in which the fall takes place on the penult of the prefinal word. Additionally, no cases were found in which the H tone did not extend at least to the right boundary or the penult of the prominent word, so that the separate ranking for a word boundary-variant without multiple H alignment is not included here. No contours are attested for the only-falling variant that specifically necessitate the word penult-variant at all, since on phrase-final words, both the word boundary-variant and the word penult-variant result in superficially the same contour. The ranking for the word penult-variant is still given here. More data is needed to see whether these gaps persist or are accidental. Its low frequency could suggest that the only-falling contour is simply an apheretic variant of the rise-falling contour, but it does not exclusively occur when there are insufficient phrase-initial TBUs to realize the initial L tone on, as a number of examples attests.[397] Because the treatment of the only-falling contours is entirely in parallel to that of the rises, I will not give tableaus here and merely state the rankings for the three alignment variants.

(177) Alignment constraint ranking for the word-boundary variant of Quechua (only-falls)
LINEARITY, MAXIO(T), NOCROWD >> ALIGN ($L_{\phi Rt}$, Rt_{ϕ}) >> ALIGN (H, Lt_{ϕ}) >> ALIGN (H, $Rt_{\omega'}$) >> ALIGN ($L_{\phi Rt}$, Lt_{ϕ}) >> ALIGN (H, Rt_{ϕ}) >> ALIGN (H, Lt_{ω}) >> ALIGN (H, σ', Lt) >> ALIGN (H, σ', Rt)

397 Cf. the examples in section 6.1.5 showing that the two falling variants collapse on individually phrased bisyllabic words, with the initial L being omitted, but from trisyllabic words onwards, both variants exist side by side.

(178) Alignment constraint ranking for the word-penult variant of Quechua (only-falls)
LINEARITY, MAXIO(T), NOCROWD >> ALIGN ($L_{\phi Rt}$, Rt_{ϕ}) >> ALIGN (H, Lt_{ϕ}) >> ALIGN (H, σ', Lt) >> ALIGN (H, σ', Rt) >> ALIGN (H, $Rt_{\omega'}$) >> ALIGN ($L_{\phi Lt}$, Rt_{ϕ}) >> ALIGN (H, Lt_{ϕ}) >> ALIGN (H, Lt_{ω})

6.3.4 The marked loanword patterns and moving towards Spanish

Turning to the patterns only found on Spanish-origin words, the "inherited" pattern will be generated by the rankings for the word penult-variant, but with a different specification regarding which syllable is stressed in the lexical entry for the word than the default penult specification for Quechua words. In this respect, the difference between the word penult- and the "inherited" variant has more to do with differences in lexical entries than tonal alignment. However, section 6.1.8.3 showed that speakers differ non-categorically in whether they align according to the Spanish stress position or the penult-default in realizations of the same lexical word. Since all speakers are bilingual and do not stress words "wrongly" in Spanish, the difference in tonal alignment position can hardly be due to a difference in stress position in the lexical entries for the same item between different speakers. It can however be captured by introducing two new constraints that seek to align the left and right edge of the H tone with the left and right edge of the lexically accented, as opposed to the regularly stressed, syllable, respectively. This captures the different natures of the truly lexically specified stress position in Spanish loanwords vs. that of the entirely regular penult word stress of native Quechua words.

(179) ALIGN (H, σ_{LEX}, Lt): Align the left edge of the H tone with the left edge of the lexically accented syllable

(180) ALIGN (H, σ_{LEX}, Rt): Align the right edge of the H tone with the right edge of the lexically accented syllable

If these are each ranked above their counterparts ALIGN (H, σ', Lt) and ALIGN (H, σ', Rt) in a word-penult ranking, the result will be the "inherited" pattern. If they are ranked below them, the normal word penult-pattern results. The respective ranking distributions of these constraint pairs must be at different distances for each speaker here, making it more or less likely for them to produce one of the variants preferentially. However, since section 6.1.8.3 also showed a clear difference between lexical items in the production of the marked loanword patterns, the true explanation for the variation here cannot be restricted to a difference only between speakers.

Regarding the "grafted" pattern, I said in section 6.1.8.2 that the additional pitch accent tones LH* are specified separately and have the same constraint rankings as in the Spanish "main" variant which outranks that of the Quechua phrasal tones. That means also assuming that the H tone here associates. That ranking is repeated here in (181), adapted so that its tones are specified as being from Spanish (H_S and L_S) and the alignment and association constraints refer to the lexically accented syllable.

(181) Constraint ranking for the "main" variant of Spanish adapted for the "grafted" accent of Quechua
ALIGN (H_S, σ_{LEX}) >> (σ_{LEX})$_{\omega'}$ ← T_S >> H_S → TBU >> σ_{LEX} ← T >> ALIGN (L_S, Rt_ϕ) >> ALIGN (L_S, Lt_ϕ) >> ALIGN (H_S, Lt_ϕ) >> NOASSOC >> ALIGN (H_S, Rt_ϕ)

These constraints can now be inserted into the ranking for the Quechua word-penult variant, above all except the faithfulness constraints.

(182) Alignment constraint ranking for the "grafted" accent pattern on Spanish-origin words in Quechua (rise-falls)
LINEARITY, MAXIO(T), NOCROWD >> **ALIGN (H_S, σ_{LEX})** >> **(σ_{LEX})$_\omega$ ← T_S** >> **H_S → TBU** >> **σ_{LEX} ← T** >> **ALIGN (L_S, Rt_ϕ)** >> **ALIGN (L_S, Lt_ϕ)** >> **ALIGN (H_S, Lt_ϕ)** >> **NOASSOC** >> **ALIGN (H_S, Rt_ϕ)** >> ALIGN ($L_{\phi Rt}$, Rt_ϕ) >> ALIGN ($L_{\phi Lt}$, Lt_ϕ) >> ALIGN (H, σ', Lt) >> ALIGN (H, σ', Rt) >> ALIGN (H, $Rt_{\omega'}$) >> ALIGN ($L_{\phi Rt}$, Lt_ϕ) >> ALIGN (H, Rt_ϕ) >> ALIGN ($L_{\phi Lt}$, Rt_ϕ) >> ALIGN (H, Lt_ϕ) >> ALIGN (H, $Lt_{\omega'}$) >> ALIGN (H, Lt_ω)

In (182), the constraints from the Spanish main variant are in bold. This combined ranking will generate the attested contour of the "grafted" pattern, because the alignment of the differentially specified Spanish pitch accent tones outranks that of the Quechua phrasal tones. There is no need to assume that LINEARITY applies to the whole sequence L_SH_S $L_\phi H_\phi L_\phi$, but just to those tones belonging to the same source, in keeping with the analysis for IP-level boundary tones for Spanish (section 5.3.3). The analysis further supports the relational underspecification of tones at a relevant level of representation, since the L that is phrase-initial in all other Quechua variants here is phrase-medial.[398] That the Spanish-origin stressed syllable is differentially specified as a lexical accent position captures the insight gained from section 6.1.8.2 on how the loanword patterns resemble

398 Alternative analyses would involve either crossed association lines or the stipulation of an otherwise unattested H*L pitch accent, and a more complex integration of the different constraints into a single ranking.

lexical accent systems in other languages. The analysis of the "grafted" pattern further demonstrates how aspects of the Quechua and Spanish tonal grammars can be integrated, in the middle ground of the prosodic possibility space the speakers can take recourse to. Unlike the phrase-final rise-fall contour, which is a convergent intonational option accessible via at least three different constraint rankings for the speakers (two from Quechua, one from Spanish), the "grafted" pattern represents another option available to the speakers. It is a nonconvergent exploitation of the possibilities of two different tonal grammars: a lexically specified Spanish accent position uncoupled from the three-syllable window together with a peripherally determined Quechua default prominence position; Spanish pitch accents together with Quechua phrasal tones. It results in something that is best characterized as belonging to the repertoire of these speakers, rather than either language.

6.4 Context-based analysis of prosodic and other cues to information structure

Section 6.2.3.3 presented findings that default prominence in nominal sequences is phrase-final, compatible both with broad focus contexts and other information structural configurations, and that narrow final and narrow prefinal focus associate significantly with final and prefinal prominence, respectively. The analysis was restricted to sequences consisting of nominal elements for a more homogeneous dataset. This section (6.4) will qualitatively explore further cases that extend the analysis to entire utterances also involving verbs, and on units larger than individual phrases. I will begin by showing that final main prominence is also the default in verbal utterances from *Cuento* (section 6.4.1). That section will establish the prosody of "broad focus" in the sense of asserting larger chunks of information with no internal IS-partition in longer utterances. Describing the intonation appropriate to such contexts is also important because it establishes a default and contrast foil for turns which do contain internal informational structuring because of discourse contexts involving more negotiation, as in the subsequent sections on utterances from *Maptask* (section 6.4.2) and *Conc* (section 6.4.3). The examples investigated here corroborate the hypothesis that the right boundary of (narrowly or broadly) focused constituents tendentially seeks to align with the right boundary of a phrase (a broad cross-linguistic tendency, cf. Féry 2013 and the discussion in section 3.7.3). Coherence of individual PhPs in a group and their prominence profile is argued to be signaled via tonal scaling. In such groups of PhPs for which context suggests no internal IS-partition (broad focus), local pitch span on prefinal PhPs is reduced compared to that on the final PhP, thus cueing rightmost prominence (section

6.4.1). In groups for which context does suggest an internal IS-partition (prefinal narrow focus), peak height and pitch level are reduced (downstepped) after the prefinal PhP whose right boundary corresponds to the right boundary of the focus domain (section 6.4.2). This cueing of prominence across individual PhPs constitutes grounds for assuming a prosodic grouping at a higher level, but this grouping is not cued via a separate set of boundary tones, and instead only via differences in scaling. This suggests a prosodic structure in which the PhP is recursive. Besides investigating the prosodic cues for prominence above the level of individual PhPs, this entire section (6.4) is also concerned with the interaction of prosodic cues with those from other domains (word order and morphology) for information structure. We will consider this throughout the entire section, but it will come particularly to the fore in in section 6.4.3. Having established prosodic cues for final and prefinal prominence on units larger than individual PhPs as a contrast foil in sections 6.4.1 and 6.4.2 on data from *Cuento* and *Maptask* respectively, utterances from *Conc* will be used in section 6.4.3. to demonstrate how cues from prosody, word order, morphology and context interact in complex negotiations of information. It will be shown that they can align or misalign in doing so. I will conclude by arguing that neither of the different formal cues directly "mean" categories from information structure, each obeying formal constraints specific to their domain, but that their interaction is exploited to navigate subtle information structural differences in complex contexts.

6.4.1 "Broad focus" in Cuento

This section will consider data from *Cuento*, the task where speakers hear a recorded story and then re-tell it to each other. The *Cuento* corpora are the most narrative corpus type covered in this study. The active speaker in this task has relatively great liberty for telling the story they heard from the recording or the other speaker in whichever way they choose, they can pace themselves and rarely need to anticipate interruptions or challenges to how they build up the common ground. The discourse progresses at the speed of their choice. Because in a narrative format like *Cuento* there is very little risk of being misunderstood or contested, and speakers have comparatively much time to plan ahead, they can effectively unilaterally determine what content should be added to the common ground and in what units. They can minimize elements that are not at-issue and intended to help specify and negotiate which material should enter CG in what way (i.e. elements intended for common ground *management* instead of *content*, cf. Krifka 2007). Therefore they can to a certain extent forego IS-related internal prosodic structuring of utterances and instead increase the use of prosody for

demarcating maximal coherent units of material intended to enter CG in one go (matching large prosodic units to conversational moves). Because of this, the intonation observed in *Cuento* exemplifies how new information is asserted in large chunks without the anticipation of problems or the need to negotiate as reflected in internal IS-partition, i.e. what is often called "broad focus". We will see how default rightmost prominence is cued via scaling across units of more than one individual PhP to demarcate those larger chunks corresponding to the broad focus domains. This constitutes prosodic phrasing at a level above (minimal) PhPs. In the absence of a need for marking internal IS-partitions, phrasing can also sometimes come to be employed to cue high-level syntactic structure like relative constructions or subordinations.[399] We'll see how this plays out in the first sequence from AZ23 & ZZ24's *Cuento*.

6.4.1.1 First Cuento sequence: Establishing a default for broad focus

(183) AZ23_Cuent_Q_0104–0274[400] (context for Figures 174 and 175)[401]

time (seconds)	AZ23
10.4	(L H-----) !(H----------)
	unay-shi ka-naa huk
	long.ago-REP COP-PST.REP one
	they say a long time ago there was a
12.1	L
	uhm

399 This claim is related yet different to that by Féry & Ishihara (2010: 37) that in an "all-new sentence" (one with broad focus), "the formation of prosodic phrases as well as the tonal pattern and scaling depend entirely on the morpho-syntactic structure". Here we will see instead that scaling in particular can cue broad focus on an utterance irrespective of syntactic factors, e.g. whether a sentence is verb-final or object-final. The effect of syntactic structure is instead observable sometimes in the boundary location of individual PhPs that form a larger unit whose coherence is signaled by scaling and which is the domain of broad focus.

400 The first line for each turn gives a basic intonational analysis, with low (L) and high (H) tones aligned at the position in the line below where their targets are first realized. H tones form plateaux rightwards only if indicated by a dashed line, L tones form low stretches by default. Round brackets () indicate phrase boundaries of PhPs/APs, square brackets [] indicate the boundaries of larger units. Where it isn't quite clear whether individual phrases should really be analyzed as such, because of severely reduced scaling (see text), the boundaries and tones in doubt are in grey. The exclamation mark (!) before a phrase indicates downstep of the entire phrase (pitch level), the upside-down exclamation mark (¡) indicates upstep.

401 https://osf.io/m397j/

12.6 (L H----------)
hampikuq runa
healer person
healer

13.6 [(L H)(L H)(L H L)]
allaapa yacha-naa hampi-ku-y-ta
much know-PST.REP heal-MID-INF-OBJ
[who] knew a lot [about] healing

16.2 (L H-----)(LH------)
tsay-qa huk dia-qa aywa-n
DEM.DIST-TOP one day-TOP go-3
then one day he went

18.3 (H----------L)
hampi-y ashi-q
heal-INF search-AG
looking for medicine

19.6 (L H)
karu-pa
far-GEN
far away

21.2 (L H----------)
tsay-chaw-shi
DEM.DIST-LOC-REP
then

22.9 L H L
tsaka-y
get.dark-INF
getting dark

24.0 H
tar-

24.3 (L H---------)
tsaka-pa-ku-ski-n
get.dark-ITER-MID-ITER-3
it is getting dark

25.7 ![(L H)(L H)(LH L)]
mana-raq hampi-y-man chaa-r-nin
no-CONT heal-INF-DEST arrive-SUBID-3
[with him] not yet having come upon the medicine

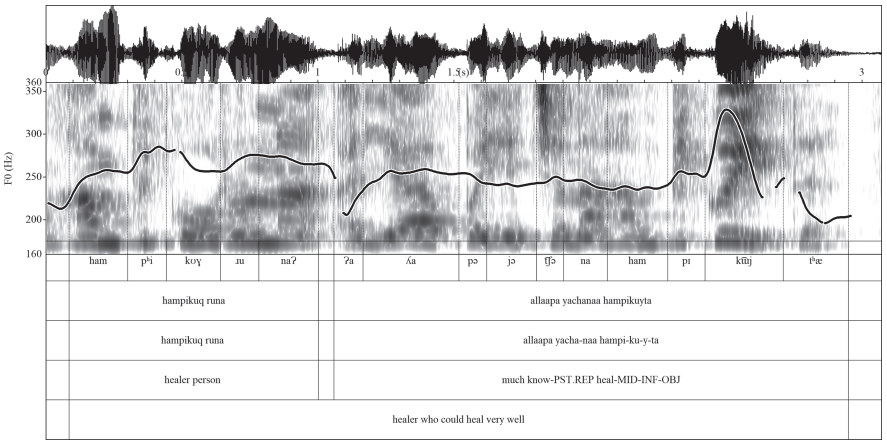


Figure 174: AZ23_Cuent_Q_0126.[402] Cf. (183) for the context.

In (183), nearly each turn corresponds to the assertion of a new proposition. The propositions are nearly all predicated about the protagonist, who, once introduced (at 12.6), is implicitly understood as topical subject and as most prominent discourse referent referred to without a (pro)nominal expression. In terms of the model of implicit QUDs by Riester and colleagues (cf. section 3.7.2), the utterances in (83) all answer a QUD like WHAT HAPPENED (NEXT)? or WHAT DID THE PROTAGONIST DO?, with almost no material repeated from one utterance to the next (i.e. all material is new). Thus these utterances almost all have the broadest possible focus domain.

Figure 174 (at 12.6 and 13.6) and Figure 175 (at 24.3 and 25.7) are examples in point for how high-level prosodic phrasing is cued in such broad focus utterances. The boundaries of high-level syntactic units are demarcated via a similarly high level of prosodic phrasing: the separation between the head noun *hampikuq runa* and its (quasi-) relative phrase *allaapa yachanaa hampikuyta* in Figure 174, and that between the two verb phrases, *tsakapakuskin* and *manaraq hampiman chaarnin* in Figure 175 are both cued by short breaks in the flow of speech. In both cases the first and shorter unit is realized with a rising contour signaling continuation; the second and longer one with a rise-fall signaling finality. Scaling at the level of local pitch span acts to cue coherence across lower-level phrases: each individual word in both of the larger phrases could be assumed to form a PhP with a rising contour. This is evidenced by low tonal targets at the beginning of each of the prefinal words, followed by small rises and then a return to low towards

402 https://osf.io/dmf6u/

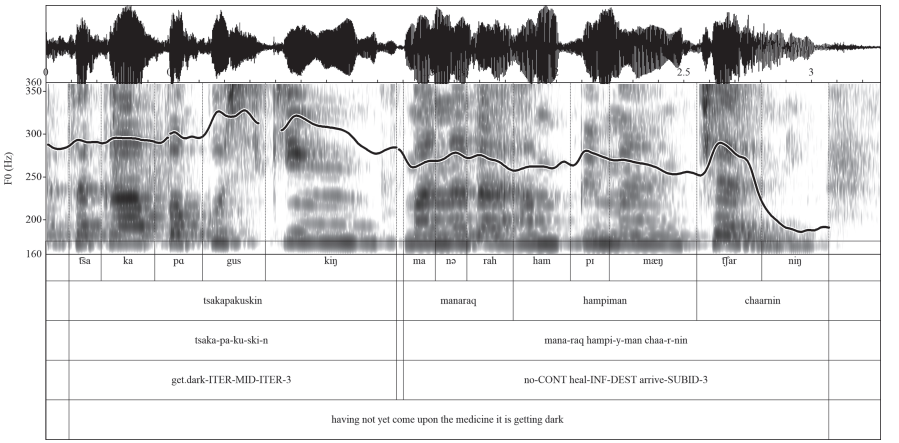


Figure 175: AZ23_Cuent_Q_0243[403] Cf. (183) for the context.

the beginning of the next (cf. also Figure 171 in section 6.2.3 and the discussion there – the analytical uncertainty due to the reduced scaling is marked in (183) by setting the corresponding tones and phrase boundaries in grey). On the final word in both cases, *hampikuyta* and *chaarnin*, pitch events are unambigously identifiable. Whether we analyze individual PhPs on each word or not, prosodically the two prefinal words in the larger phrases are clearly cued to be subordinate to the final one via local pitch scaling. Thus in both cases all three words are part of a larger unit with final prominence (parallel to the findings in section 6.2.3). The pattern of a pronounced rise-fall on the final word, dwarfing any preceding pitch movement in terms of local scaling, is found in the majority of longer utterances in this *Cuento* corpus.[404] Often, as here, the prefinal phrases in the larger unit are rising, if identifiable, and the final one is rising-falling. Since the context clearly suggests broad focus, it is assumed that such a larger unit with a single prominence profile can in fact be made up of PhPs with different tonal contours, as here. Such sequences were classed as indeterminable with regards to their prominence profile in section 6.2.3.3.

This global contour shape cueing rightmost prominence across a large unit seems unaffected by syntactic differences in the sentences corresponding to it, but some of these differences are nonetheless reflected in the prosody. In Figure 175 the first verb is syntactically the main verb, the second, *chaa-r-ni-n*, is marked

403 https://osf.io/9h8u3/

404 Cf. section 5.1.3.1, where very similar context conditions were argued to favour the Spanish phrase accentuation, which is also formally similar to the broad focus contours discussed here.

morphologically as subordinate by the morpheme *–r*. They are phrased separately, and their subordinating relationship is likely reflected in the downstep (in terms of pitch level) between the first and second verb phrase in Figure 175, which does not occur in Figure 174. Yet the syntactic structure of the sentence in Figure 175 does not result in a global contour signaling prefinal prominence (on the main verb): the rising contour shape on the main verb phrase suggests continuation, and even though it is scaled higher in terms of pitch level than the final subordinate verb phrase, it is the latter which is realized with the final rise-fall, also scaled larger in terms of local pitch span. Highest prominence is therefore still final in the entire utterance in Figure 175. This suggests that different scaling cues (pitch level compared between phrases vs. pitch span on local pitch events) can signal different structures: some phrasing matching relevant internal syntactic partitions while at the same time signaling no internal IS-partition (=broad focus). We will see this again in the next examples. For global contour shape, word order also does not seem to matter. In Figure 174 the final word is the direct object, while in Figure 175 it is the verb, yet the contour is the same and context suggests broad focus in both cases. In Figure 174, the utterance does not map onto one sentence, but on the continuation of one, plus another. (183) shows that its first part is the completion of a sentence begun at 10.4: *unayshi kanaa huk . . . uhm . . .* ***hampikuq runa*** "a long time ago there was a . . . uhm . . . **healer person**", with a filled pause occurring between the numeral *huk* and the noun it modifies. The second part, *allaapa yachanaa hampikuyta*, could be a full sentence with a null pronominal subject: "[s/he] knew a lot about healing". Prosodically however, the two parts of Figure 174, *hampikuq runa* and *allaapa yachanaa hampikuyta* are more closely fitted together than its first part is with the preceding *unayshi kanaa huk*, from which it is separated by a mostly filled pause of more than 500 miliseconds (likely signaling continuation, as does the rising contour on *unayshi kanaa huk*). *Hampikuq runa* is realized with a rising contour, also indicating continuation, and separated by only a very short break (90 miliseconds) from *allaapa yachanaa hampikuyta*. The realization of Figure 174 as a single utterance suggests a reading of its second part as a relative clause with the first part as head noun. Syntax and prosody thus seem to be able to contribute independently to discourse cohesion.

6.4.1.2 Second Cuento sequence: Syntactic and prosodic subordination

(184) AZ23_Cuent_Q_0274–0525[405] (context for Figures 176 and 177, continuing right after (183))

time (seconds)	AZ23
27.4	*pause*
28.2	(L H)
	tsay-chaw *(0.7)*
	DEM.DIST-LOC
	then
29.8	(L H--------)(L H--------)
	ala-tsi-ku-n mantsa-ku-n
	be.cold-CAUS-MID-3 be.afraid-MID-3
	he is cold, he is afraid
32.0	L
	y
	and
	and
32.5	(H----------L)
	tsiqtsi-kuna-si yuri-pu-ski-n
	bat-PL-ADD appear-DIR-ITER-3
	even bats appear
35.2	(L H L)
	ala-tsi-ku-yka-pti-n
	be.cold-CAUS-MID-PROG-SUBDIFF-3
	[while] he is getting cold
36.4	[(L H)$_i$(L H--------)]
	mallaqa-y-ni-n tsari-ski-n
	be.hungry-INF-FON-3 grasp-ITER-3
	hunger grasps him [= he gets hungry]
38.8	(L H----------)(L H L)
	tsay apa-naa chuqllu-ta-wan aytsa-ta
	DEM.DIST bring-PST.REP corn-OBJ-INST meat-OBJ
	he had brought corn and meat

405 https://osf.io/s9kqr/

41.6 (L HL)(LHL)(L H L)
almuersu-n na-n mirienda-n-ta
lunch-3 PSSP-3 snack-3-OBJ
his lunch, thing, his snack

44.4 (L H----------)(L H----)(L H----------)
tsay-chaw-na-m allaapa mallaqa-ski-n-lla-raa
DEM.DIST-LOC-DISC-ASS much be.hungry-ITER-3-LIM-CONT
then he is still very hungry

47.2 L
y
and

47.7 [(H L) (H L) (L H L)]
hoqta chuspi-ta tsari-ski-r miku-ski-n
six fly-OBJ grasp-ITER-SUBID eat-ITER-3
he catches and eats six flies / catching six flies he eats [them]

51.1 (L H L)
pacha-n hunta-na-n-paq
stomach-3 fill-NMLZ-3-BEN
in order to fill his stomach

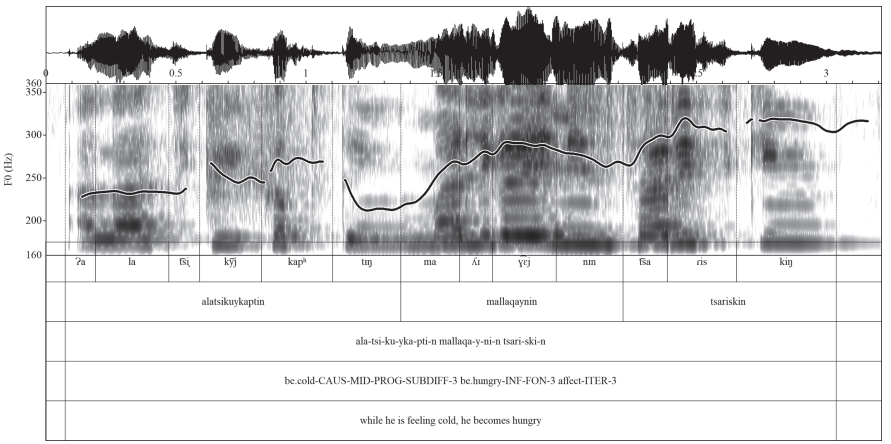


Figure 176: AZ23_Cuent_Q_0352.[406] Cf. (184) for the context.

406 https://osf.io/4as7m/

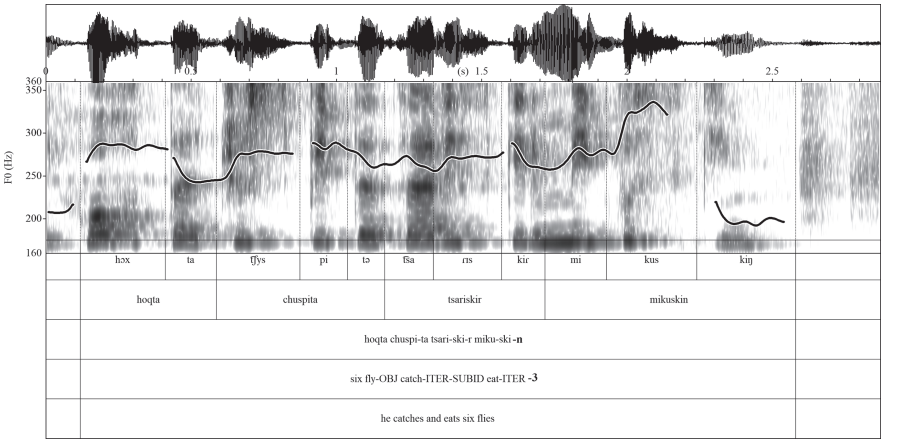


Figure 177: AZ23_Cuent_Q_0477.[407] Cf. (184) for the context.

This section further discusses utterances that exhibit some internal phrasing at the level of individual PhPs, while still also cueing broad focus overall. Some of this internal phrasing corresponds to boundaries between high-level syntactic divisions. The utterances in both Figures 176 and 177 are of sentences that contain two verb phrases, a main verb and a subordinated one each. In Figure 176 the subordinated verb phrase is *alatsikuykaptin* „[while][408] he is getting cold“, and the main one is *mallaqaynin tsariskin* “he gets hungry” (lit. “his hunger grasps [him]”). Here, *alatsikuykaptin* clearly forms its own rise-falling phrase, with the final low tone reaching a low target early on the final syllable [tɪŋ] (cf. the rising contour on *tsakapakuskin* in Figure 175 where the low target is only reached with the onset of the next word). *Mallaqaynin tsariskin* is realized as two rising phrases, with the second, on *tsariskin*, upstepped: the H tone in the second phrase reaches far higher than the one in the first, and the initial L of the second phrase is also just a little lower than the H on the first and far higher than that phrase’s initial L. It is clear that the boundary between *alatsikuykaptin* and *mallaqaynin tsariskin* is stronger than that between the phrases on *mallaqaynin* and *tsariskin*. This suggests the latter are part of one larger prosodic unit which contains both PhPs formed on

407 https://osf.io/wur83/

408 The semantic relation between the action conveyed by the main verb and that conveyed by the verb marked as subordinated by *–pti* is underspecified: it can be interpreted as temporal (consecutive or contemporaneous), causal, conditional etc. depending on the context (Parker 1976: 143–144, 160). Parker (1976: 160) states that what they express is that the action or state denoted by the subordinated clause is a “prerequisite” for that denoted by the main clause. I adopt that formulation in the main text.

the two words, but not that on *alatsikuykaptin*, like A(BC) or (A(BC)). The high-level separation between *alatsikuykaptin*, on the one hand, and *mallaqaynin tsariskin*, on the other, reflects the fact that these form two separate propositions, "he got cold", and "he got hungry", both partial answers to the superordinate QUD WHAT HAPPENED ONCE IT GOT DARK? (answered by the entire sequence (184)), with "he got cold" already having been asserted at 29.8 and now serving as a prerequisite for "he got hungry". *Alatsikuykaptin* here establishes a reference back to the scene set with the previous utterances (at 29.8–32.5). The separation is also reflected in the syntax: *-pti* in *alatsikuykaptin* marks a subordinated verb with a different subject from that of the main clause (Parker 1976: 143). Its subject is not the same as that of the main verb *tsariskin* "s/he grasps", whose subject is the preceding *mallaqaynin* "his hunger", with only the possesive marker *–n* (3rd persons singular) coreferential with the protagonist. In the following utterance at 38.8, the healer is reactivated as subject with the demonstrative *tsay* instead of a null pronoun, confirming that the subject change took place here.

The final rise on the utterance indicates thematic continuation in the sense that the superordinate QUD WHAT HAPPENED ONCE IT GOT DARK? is not yet fully answered: the issues of hunger and lack of food are continued. The utterances at 38.8 and 41.6 provide answers to the subordinate QUD WHY WAS HE HUNGRY?, with 38.8 answering another subordinate QUD about how the healer had brought corn and meat (HAD HE BROUGHT SOMETHING TO EAT?), but that this was for lunch (41.6, answering subordinate QUDs along the lines of DID HE HAVE ANY LEFT? or WAS IT ENOUGH FOR DINNER, TOO? by implicature[409]). These two utterances each completely answer their respective QUDs as well as together answering the QUD WHY WAS HE HUNGRY?, and are produced with rise-falling contours. The fact that they provide a background to the superordinate QUD of WHAT HAPPENED ONCE IT GOT DARK AND HE GOT COLD AND HUNGRY is then brought back to the fore in 44.4, which repeats that he was hungry.

409 How to best analyze implicit QUDs in this sequence is a tricky question which cannot be fully treated here. To give an example, strictly speaking, according to the principles laid out in Riester et al. (2018); Riester & Shiohara (2018); Riester (2019), at 38.8 the implicit QUD would have to be WHAT DID HE DO?, because neither the verb *apanaa* 'he had brought' nor its objects *chuqllutawan aytsata* 'corn and meat' are previously mentioned in the context. However, the previous assertion that the healer got hungry arguably evokes the question in a rational interlocutor whether a competent healer setting out on a long journey through uninhabitated country did not bring any provisions with him. In such a context, the action denoted by the verb *apanaa* would be contextually given, making the implicit QUD something like WHAT HAD HE BROUGHT? or even HAD HE BROUGHT ANY FOOD?. Possibly, this is also cued by the objects being postverbal, because then word order is compatible with a prosodic realization cueing final prominence (on the food items), unlike a verb-final one. Future research will have to show how it is possible to include such deliberations into the generation of implicit QUDs in a principled way.

The morpheme *–na* in *tsaychawnam mallaqaskinllaraa* indicates a kind of topic change (Leonel Menacho and Gabriel Barreto, p.c.), and the utterance is realized with rising contours, suggesting that a further partial answer to the superordinate QUD is still to be given. This happens at 47.7/Figure 177. There, *huqta* and *chuspita* likely form only-falling phrases each (more clearly on *huqta*). The falling contours possibly serve to highlight the six flies as new referents that are important in that they will play a crucial role in the story later, while at the same time keeping the phrases formed on *huqta chuspita* prosodically subordinate to the larger unit as signaled by the reduced local pitch span on them compared to that on the final word *mikuskin*. The subordinated verb *tsariskir* and the main verb *mikuskin* directly following it are realized with a single rise-falling phrase with the subordinated verb realized only on the initial low stretch. In terms of local pitch span, the final pitch movement on *mikuskin* is larger than all the preceding ones in the utterance, serving to cue that not *huqta chuspita* alone, although realized with falling contours, but the complex proposition conveyed by the entire utterance, is the answer to the QUD (HE GOT HUNGRY AND?). In Figure 177, the subordinated verb and the main verb are phrased together, while in Figure 176, they were phrased apart. This fits the tighter syntactic relationship the two verbs have here: the subordinating morpheme *–r* in *tsariskir* indicates subordination with the same subject as the main verb *mikuskin*, in contrast to *–pti* used before. The subordinate verb and the main verb here not only share the same subject, the null pronoun coreferential with the protagonist, but also the object, the six flies (*huqta chuspita*). Word order here is the unmarked OV.[410] The Quechua utterance arguably achieves an effect of cueing the object as new while at the same time signaling a tight relationship between the two verbal actions (so that they can be interpreted as conveying a single complex proposition) and broad focus overall, something which no single English translation can do. The two options given in (184) each only achieve some of these properties, either unmarked word order or the subordinating relation between the two verbs. Morphosyntax and prosodic phrasing here align to cue that the utterances in Figures 176 and 177 have different information structures: in Figure 176, the two verb phrases denote two separate propositions, with the one denoted by the main verb phrase *mallaqaynin tsariskin* asserted and the one denoted by *alatsikuykaptin* serving as a prerequisite (having been previously asserted). In Figure 177, in contrast, a single proposition is asserted composed of two verbal actions (grasping and eating).

These individual examples support the hypothesis from section 6.2.3.3 that larger prosodic groupings exists which can include several PhPs as identifiable from their tonal make-up. The extension of this unit is signaled via local pitch span

410 Cf. sections 6.4.2.3 and 6.4.3 for discussions on which word orders are unmarked.

differences: relatively smaller or reduced pitch span was observed on prefinal PhPs in such units, while the final PhP had the greatest pitch span. Such groups of PhPs with greatest pitch span in final position all occurred in contexts with comparatively broad focus, supporting the hypothesis that they form larger units on which prominence is final by default. The groupings created by prosodic phrasing, both at this higher level and at that of individual PhPs, interact with groupings created by morphosyntax, either to mutually reinforce when aligning, or to convey additional grouping information when not aligning. Tonal contour shape of individual PhPs (rising/falling) seems also able to cue distinctions aiding discourse coherence independent of focus, suggesting that global phrasing cued by relative differences in local pitch scaling (at a level above individual PhPs), local contour shape, and local phrasing (at the level of PhPs) each may contribute different types of information.

6.4.2 Complex contexts and marked prosody in Maptask

In the following, context examples from *Maptask* will be examined, with quite different interactional dynamics and resulting prosody. Instead of long, uninterrupted narrative passages produced by one speaker, there is much more back-and-forth between the speakers, negotiating CG increments via clarification requests and specifications of how a proposition relates to elements already in CG. We will see how pitch scaling plays a role in cueing IS-partitions within larger prosodic units.

6.4.2.1 First sequence: Initial and final backgrounded constituents

In the first sequence, KP04 (with the path on the map) and TP03 (without it) have already been playing the maptask for about three and a half minutes. They proceeded without problems until coming upon the spot where the maps differ (in the upper part of the map, the skunk and the lightning have swapped places, cf. Figures 188 and 189 in Appendix B). Confusion ensues and they realize that their maps are different. They change strategies: instead of KP04 leading the conversation by giving descriptions of the path for TP03 to follow, he now asks TP03 a series of questions about the layout of this part of his map, trying to bring the landmarks, mostly known by now, into their correct relative positions. Arguably, the superordinate QUD that best represents this strategy has three open variables, two location variables and one path variable, as in FROM WHICH LANDMARK TO WHICH LANDMARK DOES THE PATH GO WHICH WAY?. This is itself a subquestion to the more general WHAT IS THE CORRECT PATH? guiding the game overall. The speakers begin pursuing this new strategy starting from the lightning, which they identified as one of the landmarks that has a divergent location. This is where (185) takes off:

(185) TP03&KP04_MT_Q_2010–2216[411] (context for Figures 178 and 179)

time (seconds)	KP04 (*with the path on the map*)	TP03 (*without the path on the map*)
201.0	(L H--------) y tsiqtsi-qa and bat-TOP *and the bat*	
202.4	(L H----) (LH L)(L H----------L) (L H--------L) tsiqtsi-qa manka este tsay na-lla-chaw-mi[412] este tsay manka-pa bat-TOP pot uhm DEM.DIST PSSP-LIM-LOC-ASS uhm DEM.DIST pot-GEN *the bat is just to the thing of the pot, of that pot*	
205.8		*(2.2)*
208.0		(L H----------L) !(H L) huk costado-chaw ka-yka-n one side-LOC COP-PROG-3 *it is on the other side*
209.2	(L H---) !(L H-----)(H----------L)!(H-----L) tsawra-qa entonces kay-naw-mi rura-shun then-TOP then DEM.PROX-SIMIL-ASS do-1.PL.FUT *so then this is what we'll do*	
211.5	(L H-------) tsay tillakuq DEM.DIST lightning *that lightning*	
213.5	(L H ----------L)(LH) tillaku-yaq-cha aywa-nki aw lightning-TERM-ASS go-2 right *you go to the lightning right*	
214.5		(LH) ajá
215.1		(L H) (L H L)!(H--------L) ti[llakuq] hawa-n-pa-m (?aywa-yka-n) lightning below-3-GEN-ASS (?ir-PROG-3) *(?it's going) below the lightning*
215.2	(L H) [tillaku]	

411 https://osf.io/pcu9b/

412 The morpheme *–mi* is here attached to a semantically empty predicate: *na-lla-chaw-mi*, where *na-* is a placeholder morpheme speakers use when for whatever reason (lexical retrieval problems etc.) they cannot say the actual word they mean (Leonel Menacho, p.c.). Thus *na-lla-chaw-mi* is an assertion that something (*manka* 'the pot') is just at the location that is specified by something the speaker cannot at the moment name.

216.5 (L H---------)
tillaku-pa uh
lightning-GEN
the lightning uh

217.1 (L----H----------) (L H L) !(LH L)
tilla punku-pita may-chaw-tan manka
lightning front-ABL where-LOC-DET.VAR pot
from in front of the lightning, where is the pot

219.5 (L H) (L H----------L)(LH L)
tillaku-pa kay-naw hawa-n-man-pa-chaw-chi manka
lightning-GEN DEM.PROX-SIMIL below-3-DEST-GEN-LOC-CONJ pot
from the lightning, it's like this in towards below it, the pot

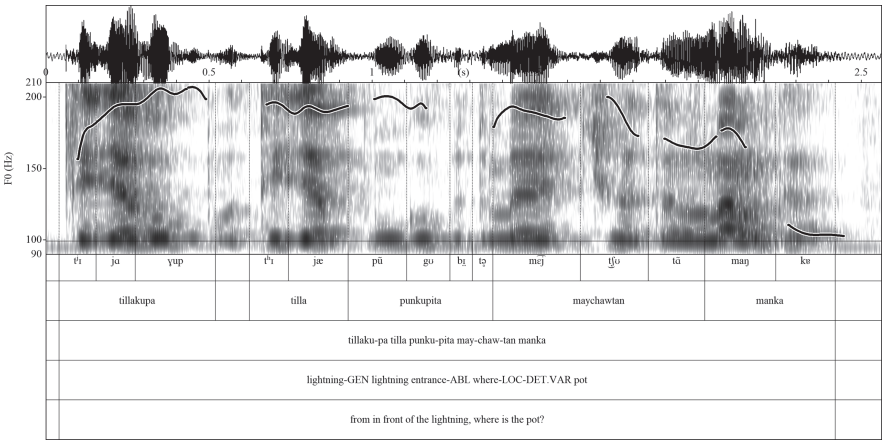


Figure 178: KP04_MT_Q_2165.[413] Cf. (185) for the context.

At 217.1, KP04 asks where the pot (*manka*) is from in front of the lightning (*tilla(kuq)*). Both objects are given referentially from the preceding discussion about their locations. However, while *tillakuq* is active from the preceding turn, *manka* was last mentioned at 202.4, nine turns and 13 seconds previously. At 217.1, *tilla punkupita* is a topic in the sense that it specifies the first location variable in the superordinate QUD FROM WHICH LANDMARK TO WHICH LANDMARK DOES THE PATH GO WHICH WAY?. It referentially restricts the open proposition denoted by the wh-question. Although the lightning is active, *tilla punkupita* is here realized fully probably because it changes roles: in KP04's turn at 213.5 it was the goal, but is now the origin. This topic is the leftmost constituent in the utterance, realized with a single rising phrase. The final constituent *manka* is fully realized because the pot is not

413 https://osf.io/ptjnu/

active enough in the directly preceding context: had the previous utterances been about it as subject, *maychawtan* would have been contextually specific enough as a question. However, as it is, *tsiqtsi* "the bat" might have been another possible candidate in the context. Thus *manka* here specifies the second locational variable in the super-QUD, but it is also referentially given. The wh-constituent *may-chaw-tan* is in focus, asking for the specification of the path variable relative to lightning and pot in the super-QUD. Context leaves ambiguous whether the pot is only part of the question background, or separately specified, i.e. a second topic.[414] Prosody separates the wh-word *maychawtan* from the final *manka*, realizing both with a falling contour each. *Manka* is downstepped in terms of pitch level from *maychawtan*, but still clearly realizes its own contour. The initial topic is realized with a separated rising phrase. In response, TP03 produces a declarative (Figure 179) with similar syntax and prosody at 219.5.

In his answer, the lightning, here *tillakupa*, is again realized first on a separate phrase with a rise. As in the question, it functions as a topic here, restricting the reference of the at-issue part of the proposition. The at-issue part, corresponding to the wh-constituent in the question, is expressed by the locative noun phrase *kaynaw hawanmanpachawchi*[415] "like this in towards below", realized as one rise-falling

414 This difference could perhaps best be described by refering to the kind of hierarchical QUD-structure the question implies. I suggest that it is the difference between two structures with differing depths. In the first with three question nodes, the super-QUD FROM WHICH LANDMARK TO WHICH LANDMARK DOES THE PATH GO WHICH WAY? leads on to a first subordinate question, FROM WHICH LANDMARK TO THE POT DOES THE PATH GO WHICH WAY?, and only then to the one actually asked, FROM THE LIGHTNING TO THE POT DOES THE PATH GO WHICH WAY?. In the second with only two question nodes, both landmark variables are filled at the same time in only one subordinate question. The former results in a question in which the pot is only backgrounded, while it is a second topic in the latter. In English, this difference would arguably be cued by the position of the strongest prominence (in capitals) in the corresponding question:

(i) A. From the lightning, WHERE is the pot? ['pot' = backgrounded]
B. From the lightning, where is the POT? ['pot' = second topic]

In both questions, what is at-issue/in focus is only the part denoted by the wh-element.

415 The location-denoting noun *hawa* is here marked with not just one, but three, locative suffixes: *-man* (glossed as DEST, marking a destination for a path), *-pa* (glossed as GEN, 'genitive', often also marking a location along which a path passes), and *–chaw* (glossed as LOC, marking a static location). Such multiple marking is not frequent in our corpora, but similar cases are also reported in Parker (1976: 86–87). The translation tries to reproduce this with the sequence of prepositions. It's possible that this proliferation of locative descriptors is due to TP03 struggling a bit to find the right formulation for the actual spatial layout (note the use of *kaynaw* 'like this' and his continued efforts to describe the location of the objects in subsequent turns): on his map, lightning, bat and pot form an isosceles upside-down triangle, with lightning and bat at the left and right top corners and the pot at the bottom corner. Thus, the pot is both to the right and below the lightning.

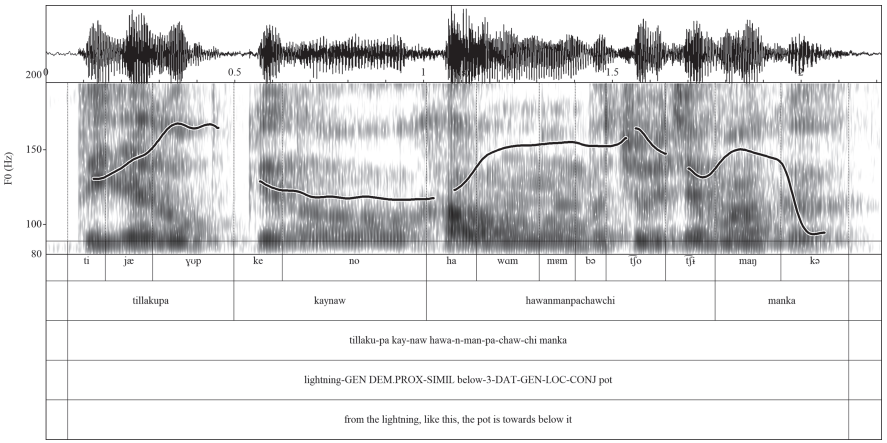


Figure 179: TP03_MT_Q_2195.[416] Cf. (185) for the context.

phrase. This constituent is marked with the conjectural evidential *–chi*, one of the evidentials said to attach to focused constituents in Southern varieties of Quechua (cf. Muysken 1995; Sánchez 2010; Muntendam 2015). Morphosyntactic marking here aligns with prosody and context to mark the focus domain, but we will see in subsequent examples that this is not always the case. The final constituent is again *manka*. It is also realized via its own phrase, this time not downstepped. It is a resumptive topic here, specifying the second referent about which the at-issue predication has been made even though this relation is already evident from the context. Even though *manka* is not downstepped as in the preceding wh-question, it is notable that the overall contour of these two utterances is clearly distinct from the broad focus utterances in *Cuento*. Here, context and morphosyntax indicate an IS-partition with narrow focus on the locational constituent, and this is cued prosodically. On the one hand, via the placement of a right phrase boundary of a falling phrase after the focal constituent, and on the other via a global contour whose scaling does not cue final main prominence and thus broad focus: the peak on the locational constituents is not scaled lower than that on the final constituent, *manka*.

6.4.2.2 Second sequence: Differential interpretations for initial elements

This section demonstrates that the same initial element can receive different interpretations in two utterances, even though local prosody and word order are very similar. It also demonstrates how verbfinal sentences do not exhibit the rise-falling

416 https://osf.io/8v7rn/

contour cueing rightmost prominence if the context is not compatible with broad focus, as in *Cuento*.

(186) TP03 & KP04_MT_Q_2221–2329[417] (context for Figure 180; directly continued after (185))

time (seconds)	KP04 (*with the path on the map*)	TP03 (*without the path on the map*)
222.1	L H tsay-pa- DEM.DIST-GEN there	
223.7	(L H----------L) !(H----------L) tsay-pita may-pa-tan tsiqtsi ka-yka-n DEM.DIST-ABL where-GEN-DETVAR bat COP-PROG-3 *from there where is the bat*	
226.0		(H------L) tsiqtsi-qa- bat-TOP *the bat*
227.1		*(0.5)*
227.6	(L H----------L)(L H) tsay na ka-q-chaw este tillakuq DEM.DIST PSSP COP-AG-LOC that lightning *where that thing is, the lightning*	
229.8	(HL) ya	
230.5		(L H-----) !(L H L)!(H L) **ya manka y tsiqtsi-m ka-yka-n** ok pot and bat-ASS COP-PROG-3 *yes the pot is there with the bat*
231.8	(L H)(H----------L) !(H----L) (L H----------L) **manka chawpi-chaw-mi ka-yka-n** [y hawa-n-kuna-chaw pot middle-LOC-ASS COP-PROG-3 below-3P-PL-LOC *the pot is in their middle and below them*	

KP04 continues to ask about the location of the other objects. At 223.7, he asks where the bat is. In response, TP03 produces two turns (226.0 – 227.6) separated by a pause,

417 https://osf.io/bg78v/

asserting that the bat is where the lightning is. The overall sequence is here again one of topic followed by at-issue/focal content, which in turn is followed by a postposed NP. The first turn consisting only of the constituent *tsiqtsi-qa* is marked morphologically as topic but not produced with a rise. The focused constituent *tsay na kaqchaw* "where that thing is" is right-aligned with a rise-falling phrase. The postposed replacement for *na, tillakuq* "the lightning", is produced with a rise. KP04's response here is only via an acknowledgement token (229.8). TP03 seems to agree that the assertion he has just made is not sufficient as answer to KP04's question given the purposes of the conversation, because he continues with an elaboration (230.5–231.8, cf. Figure 180).

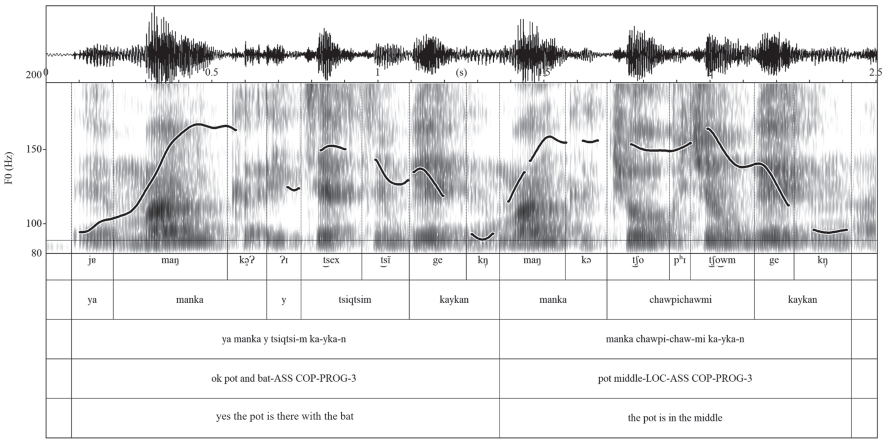


Figure 180: TP03_MT_Q_2305.[418] Cf. (186) for the context.

These two utterances both initially realize *manka* with a rising phrase, followed by a further constituent morphologically marked with *–m(i)*, and realized with a falling phrase. Then follows the existential verb *kaykan*, realized with a downstepped falling phrase. Both of these are best understood as answering the QUD WHAT IS THERE?, with "there" the location the discourse has progressed to previously,[419] i.e. where the lightning (*tillakuq*) is and where the bat (*tsiqtsi*) has been asserted to be. That this is the appropriate implicit QUD is signaled by the presence of the verbs of being. The verb of being *ka-* is omitted in the 3rd person present when it is used

418 https://osf.io/ajm2n/

419 As also noted in section 5.1.3 on Spanish, in the *Maptask*, the progression from landmark to landmark along the path on the map in the conversation of the participants is parallel to the progression the speakers make in the discourse via the negotiation of how the context set can be reduced. The landmarks and the path the speakers have successfully agreed on are, quite literally, their *common ground*.

as a copula, but not when used existentially, or when it serves as a locative copula, similar to Spanish *hay* (cf. Parker 1976: 68). This use is frequently expressed via the progressive form, as here. As part of the background of the QUD, the verbs are also not part of the at-issue content of these two utterances that answer it. Since the previous context has established that at the location under discussion, the bat (*tsiqtsi*) and the lightning (*tillakuq*) are there, what is new in the first utterance (230.5) is the information that the pot (*manka*) is also there, and it is asserted that it is there together with the bat, while the bat being there on its own is presupposed. This difference in information status is likely responsible for the prosodic realization of these two elements. *Ya manka* is realized in a separate rising phrase, like an initial topic, although it quite clearly isn't one here – the pot is the one referent that hasn't already been asserted to be in the location they are discussing. *Y tsiqtsim* is realized in a separate rise-falling phrase, but downstepped relative to the rising phrase on *ya manka*. This realization, instead of one e.g. in which the entire sequence is realized with a finally prominent rise-falling phrase (as seen in *Cuento*, appropriate for a context in which none of the referents are given or presupposed to be at the location), reflects the context conditions outlined above, which the translation also attempts to recreate: "yes the pot is there with the bat", instead of e.g. "yes the pot and the bat are there". *Tsiqtsim* and *kaykan* are both downstepped, but there are additional cues that their information structure differs: in both cases, the downstep in pitch level can be taken to cue that the element to the left of the downstep is more prominent. In the case of *ya manka* and *y tsiqtsim*, in addition, the phrase on the first element is rising, and the second is marked with *–m(i)*.[420] Assuming leftwards scope for *–m(i)* (in accordance with Muysken 1995; Sánchez 2010), this would support the interpretation that the new information that the pot is there with the bat is asserted. Yet the referents forming this proposition differ in status: that the pot is there with the bat is at-issue, but the entailed proposition that the pot is there is new, while that of the bat being there is presupposed.

420 Marking a constituent with one of the evidentials *–m(i)/-ch(i)/-sh(i)/-cha* is thought to indicate focus on that constituent (Muysken 1995; Sánchez 2010). Yet see note 84 in section 3.7.3.2 as well as the analysis in section 6.4.3 for problems with this account. Beyond this syntagmatic function, this work does not discuss the paradigmatic semantic contribution of the different evidentials besides the very broad characterization that *–m(i)* and *–cha* mark information as either asserted or based on "best possible grounds" Faller (2002, 2003), *-ch(i)* marks information as based on conjecture and *–sh(i)* as based on hearsay. In work on southern Quechua varieties, a consensus seems to have been reached that the meaning contributed by the evidentials falls under the broad category of non-at-issue meaning (similar to that of discourse particles and intonation, cf. Zimmermann 2011; Truckenbrodt 2012), but whether it is a conventional implicature (Roberts 2017) or a speech act operator (Faller 2014) seems undecided. Hintz & Hintz (2017) pursue a somewhat different route but are specifically concerned with the evidentials of South Conchucos Quechua.

Between *tsiqtsim* and *kaykan*, on the other hand, the metrical relation cued is also strong-weak, but the left element *tsiqtsim* here is realized with a falling phrase and marked with *–m(i),* both used to cue the right edge of focal material. This aids the contextual interpretation that *kaykan* is only backgrounded.

In the second utterance (231.8), *manka chawpichawmi kaykan*, *manka* is also realized with a rise, but the following *–mi*-marked locative noun is not downstepped. Here, *manka* being realized with a separate rising phrase aids in its interpretation as topical subject. Having been copular subject in the preceding utterance, the pot is a prime topic candidate already, so that in a comparable sequence, *manka* could probably be omitted and the utterance still be understood to be about the pot. However, here there are three highly salient referents in the discourse: the pot, the bat and the lightning, and the guiding QUD for the entire section of the conversation is how they are located relative to each other. Under these circumstances, it is more cooperative of the speaker to disambiguate the topic referent instead of omitting it. If *manka chawpichawmi* were here realized as a single rise-fall with the rise only occurring on the final element, like in the broad focus utterances in *Cuento*, the sequence would be ambiguous. As illustrated in (148) in section 6.2.3, it allows two interpretations, one with *manka* as modifier of *chawpi* ("x is the middle of the pot") and another with it as copular subject ("the pot is in the middle"). I argue that a realization as a single rise-falling phrase with final prominence like in *Cuento* would favour the former reading, or at least not disfavour it, whereas a realization as here, with two separate phrases and the first not metrically subordinate to the second, is more compatible with the latter reading. The latter reading is undoubtedly correct in the context, because the third utterance here (see (185)), *y hawankunachaw* "and below them", with *-n-kuna* marking possession by a plural possessor, clarifies that *chawpi* "the middle" is also to be related to this plural referent, the two other salient entities in the context, the bat and the lightning. This is further confirmed by looking at TP03's map, on which no objects are inside the pot, but where the three objects are located exactly as he describes: pot, bat and lightning form an upside-down triangle, with the pot at the bottom, so that it is both between and below the other two.

Comparing the two utterances produced at 230.5 and 231.8, we have seen that despite initial similarities, they are quite different in their information structure, especially regarding the role of the initial *manka* "the pot". In the first utterance, its presence at the location is part of what is asserted, while in the second, it is topical, forming part of the background but selecting between elements competing in the context. Although this element by itself is realized in both cases with a rising phrase, I argue that the differences in tonal scaling between the elements in the two utterances act together with those in morphosyntax and the presence/absence of the conjunction to signal these differential interpretations.

6.4.2.3 A positional template for information structural roles?

The observations here and on *Cuento* uncontroversially support the hypothesis of right-alignment of a (narrowly) focused constituent with the right boundary of a phrase, specifically a falling one. However, in order to better understand how prosody interacts with word order and especially the role of the separately phrased initial and final constituents I've been calling topics here, I will discuss and build on two proposals in the literature on Quechua about the relative position of elements in a sentence and their information structural roles.

For Huallaga Quechua (also Quechua I), Weber (1989: 427–435) proposes that an information packaging pattern for sentences exists in which zero, one, or several *-qa*-marked constituents are initial, followed by a number (zero also possible) of preverbal constituents plus the verb, of which one is evidential-marked, and then optionally followed by further *-qa*-marked constituents. The function of *–qa* is to mark elements that relate a sentence to its context, and compared to the notion of topic (cf. Weber 1989: chapter 20). The preverbal material including the evidential-marked constituent is broadly linked to focus (Weber 1989: 419, 428–431). Sánchez (2010) builds upon this proposal for southern varieties of Quechua II in a generative framework. In her account, fronted constituents in the "left periphery" of a sentence can be either topical or focal and then require marking with *–qa* or the evidentials, respectively. Postverbal constituents in the "right periphery" can only be topical, never focal, are not always marked with *–qa*, and are sometimes realized with "low pitch and voiceless vowels typically associated with breathy voice" (Sánchez 2010: 38–39). Elements in the left periphery can be contrastive (Sánchez 2010: 29), but not the postverbal topics (Sánchez 2010: 51). However, the elements at the right edge are also said to "disambiguate between potentially competing topics" (Sánchez 2010: 175), relativizing the claim about an absence of contrast. I take the two proposals to capture an important observation about a relation between relative positions and information structural roles, with elements in a central position conveying the "main" or at-issue content, and those in the periphery conveying instructions about how to relate that content to the ongoing discourse, very broadly speaking, and in agreement with other observations that forms encoding more discourse-related meanings seem to occupy peripheral positions in larger units universally (e.g. Zimmermann 2011: 2034 with respect to the clause). Yet our observations suggest that for our data, some of the generalizations do not hold. Sánchez (2010: 12–13) states that canonical word order corresponding to broad focus in Cuzco Quechua is word-final both in transitive and intransitive sentences, yet examples like AZ23_Cuent_Q_0126 ((183), Figure 174) show that in our data, object-final utterances can also be compatible with a broad focus reading and be realized with a contour cueing final prominence. Examples like Figures 178 and 179 also show that initial constituents (fronted according to

Sánchez 2010: 29–31) not marked with *-qa* can still be inferred to be topical from the context. It seems unclear how best to define the units that determine centrality and periphery here.

I would like to reframe the proposals by Weber (1989) and Sánchez (2010) somewhat, as a kind of template that serves as a heuristic default, presumably based on the frequent experience of pairings of constituent order and context, and involved in the generation of expectations, like metrical structure (see sections 3.3.1, 3.7.3). While Weber (1989) and Sánchez (2010) mainly frame their proposals as being about morphological marking and word order within sentences, I suggest that it can apply to utterances or even sequences of turns, instead of individual sentences, and that prosody also contributes to cueing the position of some element relative to this template. That is to say, I propose that this is a structure based on the typical sequencing of information when it is negotiated in interaction (cf. Wiltschko 2021). I do not mean to say at all that the proposals in terms of morphosysntax are wrong, but that prosodic and morphosyntactic cues to discourse and information structure can be complementary or even in conflict with each other and that they all need to be taken into account to really arrive at an apt IS-interpretation. This is based on the broader idea that cues to IS are not categorical, but distributional or probabilistic.

Taking what the two proposals have in common, I add suggestions on how observations about prosody and information structure can be formulated with reference to the template, assumed to have (at least) three positions: two peripheral positions for elements that could be said to be somehow topical (given or active in the context and filling a variable in the referential specification connecting the proposition being asserted to its discourse context), an initial and a final one. Between them is a position on which material is realized that is at-issue. We could also go on and describe another circumferential position, even more initial or final, in which response particles or tags such as *aw* are located, but I will leave this to the side here.[421] I suggest that prosody cues the position of material relative to the template

421 Cf. the proposal of an "interactional spine" by Wiltschko (2021). She proposes that languages have a grammaticalized structure derived from generalizations about how conversations normally proceed, which contains two layers concerned with how information is negotiated in interaction, the responding and the grounding layer, and one layer concerned with the actual informational content, the propositional layer (Wiltschko 2021: 72–92). Her grounding layer can be roughly equated with the two peripheral non-at-issue positions in the template I propose, and the propositional layer with the central at-issue position. The utmost peripheral positions of e.g. response particles and tags would correspond to the interactional layer. Importantly, she also does not assume that the maximal unit for these domains of grammar is the sentence, but that it can extend to turn sequences. The general idea that 'preposed' and 'postposed', i.e. peripheral, elements somehow fulfill more discourse-related functions than their more syntactically integrated counterparts at a

in three ways. Firstly, via phrasing: a boundary between two positions in the template is at least a PhP-boundary (but not the other way around). Secondly, via pitch contour choice: material in the initial position is preferentially realized with rising contours, material in the central and final positions with falling contours. Thirdly, via metrical structure as cued by tonal scaling: the middle position has the highest prominence and is scaled highest. That would mean that a reduction in tonal scaling/downstep on an element cues that it is not in the central position. Applying this template to the utterances analyzed so far predicts that those we have seen from *Cuento* mostly consist of material in the central position, which squares well with them having broad/final focus. The template allows to unify observations about the interaction between word order and syntagmatic uses of prosody, which is absolutely necessary in my opinion given that they are intimately connected via their essential use of sequentiality. An object in syntactically marked postverbal position can nonetheless be part of an assertion with broad focus, as in Figure 174, or narrow final focus, as in the utterance at 38.8 in (184), if it is realized as part of a rising-falling contour with rightmost prominence. At the same time, we can say that constituents like *manka* in Figures 178 and 179 are in a relevant sense postposed, because they are phrased separately and not scaled higher than preceding elements, and that this correlates with them having a function that connects the at-issue proposition with the preceding context, even though there is no verb in these sentences relative to which they could be postverbal. Regarding Figure 176 from *Cuento*, we can now say that *alatsikuykaptin* is realized separately in the initial position, which fits its function of establishing a relation to the preceding discourse context for the proposition that is asserted, similar to the initial topics in the *Maptask* utterances.[422] I also suggest that tonal scaling cues relative prominence also *within* each of these three positions: as seen in *Cuento*, a sequence of phrases in which the last one is scaled highest in both pitch level and span is compatible with rightmost prominence. In contrast, I propose that a sequence of phrases that are all downstepped relative to each other from left to right cues leftmost prominence. Thus the copular verbs in

more central position in an utterance is of course at least as old as Givón (2018 [1979]). Note that Givón (2018 [1979]: 154) also explicitly includes intonation into what cues separated vs. integrated elements.

422 Haiman (1978: 564) argues that such subordinate clauses, especially conditionals, have a very similar meaning to topics, because both are "givens which constitute the frame of reference with respect to which the main clause is either true (if a proposition), or felicitous (if not)". He supports this with evidence from languages in which formal marking for both is identical. Note how Haiman's definition and Parker (1976: 160)'s description that such subordinates are "prerequisites" for the proposition denoted by the main clause are also related to the definition for semantic presuppositions by Bas van Fraasen cited in Karttunen (1973: 169), that "sentence A semantically presupposes another sentence B, just in case B is true whenever A is either true or false".

Figure 181 are part of the central proposition, but cued to be non-at-issue. And this also elucidates the difference in interpretation for the two *mankas* in the two utterances in Figure 181: the first is part of the assertion in central position and cued via scaling to be the most prominent part of that, because it is the only new addition in that assertion. The second, on the other hand, is in initial position and a topical subject. In terms of prosodic structure, the proposed model necessarily assumes a higher-level domain which partially determines the tonal make-up and scaling of the phrases it contains, but for which no separate boundary tones have been found. I suggest therefore that it is simply a maximal level of the recursive PhP/AP.

A template generating expectations as conceived in this way aids interpretation, both when individual sequences conform to it and when they diverge from it. Weber (1989: 428–436) suggests a similar relationship between the relative placement of morphologically marked constituents and information structure, showing that the pattern he has identified is preferential and providing an unmarked default, with deviations from it being interpretable as what he calls "rhetorical devices". Sánchez (2010: 221–228) also observes that intonational form of both left-peripheral and right-peripheral elements can vary in her data, with some of the pitch tracks of right-peripheral elements looking similar to what I have called downstep here. In her data too, intonational form varies irrespectively of whether a left- or right-peripheral constituent is marked with an evidential or *–qa*, or left unmarked, pointing to an independence between cues, as she notes (Sánchez 2010: 224). If morphology, syntax, and prosody thus each interact independently with such a projected preferential default, then they can also either align or misalign, which might result in subtle interpretable effects, perhaps highlighting different aspects of semantics or information structure. My main point here is that the cues to positions should not be considered in isolation. This leads to problems when only morphosyntax is considered without prosody. But we've equally also seen that prosodic cues need to be interpreted together with those from other domains. Potential for ambiguous cueing seems to exist in particular in the two initial positions. In a sentence consisting only of a subject and a verb, in this order, the subject might be cued as focal due to its immediate preverbal position, and it is also potentially topical as an initial constituent. This ambiguity is perhaps already reflected in Sánchez (2010: 29, 36, 38–39)'s observation that left-peripheral elements can be either focal or topical, while postverbal elements are topical.[423] We will encounter similarly ambiguous examples below, especially in section 6.4.3.

423 Cf. the brief discussion about fronted constituents in Spanish in section 3.7.3.1 that also suggested that there is a separately phrased initial position in which both topical and focused material can be found.

6.4.2.4 Third sequence: Cueing against context

In this section, before moving on to data from *Conc*, I will discuss one further sequence from the *Maptask* that demonstrates how additional information that is essential for an appropriate interpretation can arise from a conflict between cues from prosody and morphosyntax, on the one hand, and context, on the other.

(187) TP03 & KP04_MT_Q_2329–2398[424] (context for Figures 181 and 182, directly continued after (186))

time (seconds)	KP04 (*with the path on the map*)	TP03 (*without the path on the map*)
232.9	(LH) (HL)	
	ajá o]k	
233.8	*(0.3)*	
234.1	(L H--------)	
	y atuq-qa	
	and fox-TOP	
	and the fox	
235.5	(L H L) !(LH----------L) !(H----------L)	
	atuq-qa hana-chaw-mi uh na-chaw ka-yka-n	
	fox-TOP above-LOC-ASS PSSP-LOC COP-PROG-3	
	the fox is above there	
237.4	(L H------)	
	atuq-yaq m- at-	
	fox-TERM	
	to the fox	
238.4	(L H---------L)!(LH L)!(H L)	
	atuq-chaw-mi usha-n naani	
	fox-LOC-ASS finish-3 path	
	it is at the fox that the path ends	

At 232.9, KP04 accepts TP03's description of the relative location of the items via acknowledgement tokens, and proceeds. He then (234.1) introduces a new referent, the fox, topicalizing it via *–qa*, and asking about it.[425] TP03 responds, saying that the

424 https://osf.io/jg2z8/

425 He produces *atuq* with the topic marker *–qa* and in a rising phrase. We could call this a wh-question without wh-word or polar question without polarity (due to the absence of an inflected verb). But it is perhaps better seen as a question whose type is entirely determined by context. Formally it is comparable to similar questions e.g. in Japanese, such as *go-chuumon-wa*? (HON-order-TOP) 'what is your order?' (in a restaurant). Such questions are also possible in European languages,

fox is above (235.5, Figure 181), i.e. above the location they had so far been talking about. He realizes the initial topic, *atuq-qa,* with a separate rise-falling phrase. This is followed by a downstepped rise-falling phrase, realizing the focused constituent *hana-chaw-mi*. The following material, *na-chaw ka-yka-n*, is realised in a single downstepped falling phrase aiding to cue it as backgrounded. Even though KP04's question is very broad, TP03 seems to have interpreted it to convey a QUD like WHERE IS THE FOX? and not e.g. WHAT DOES THE FOX WANT FOR DINNER?, since in the *Maptask*, only the first question is relevant for the overall discourse goal (Roberts 2012a) of following the correct path to the end. A possible explanation for why TP03 realizes *atuq-qa* in initial position here, instead of entirely omitting it (permissible since it is part of the question) or realizing it in final position, as done with *manka* earlier in 219.5, involves selection between active referents. Since the directly preceding discourse had been about the relative locations of pot, bat, and lightning, it is cooperative to repeat the somewhat suddenly introduced referent "fox" at the beginning here to avoid confusion.

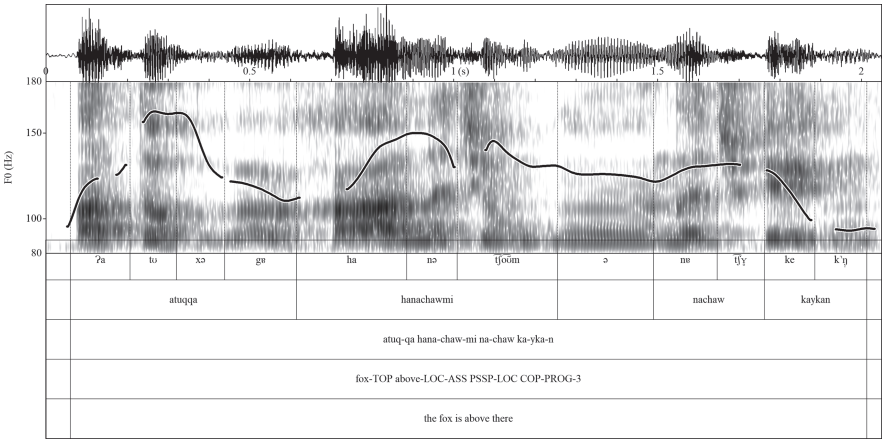


Figure 181: TP03_MT_Q_2355.[426] Cf. (187) for the context.

It is also likely that for similar reasons, TP03 understands KP04's question to imply that the fox should be at the same location as those three, whereas for TP03, it is in a separate location. Realizing *atuq-qa* in initial position and downstepping the

like "and your bike?", "y el zorro?", or "und die Wasserwage?". In our Quechua data, unlike neutral polar and wh-questions, these types of question are probably most often realized with a rise. Cf. also note 48 in section 3.6.1.

426 https://osf.io/7g3vk/

phrase with the focused constituent might be a way of indicating the presence of this perceived expectational contrast in the context.[427]

KP04's response at 233.5 provides further evidence that TP03's utterance in Figure 181 implies a perceived lack of relevance of KP04's question about the fox (234.1) to the previous discourse. It is an assertion that can be understood as justification for bringing up the fox at all: *atuq-chaw-mi usha-n naani* "it is at the fox that the path ends" (238.4, Figure 182). This utterance is remarkable considering the context: from the preceding discourse the fox is active as topic, it was marked so in both KP04's question (234.1) and TP03's response to it (235.5). Applying the criteria developed by Riester and colleagues, the implicit QUD here has to be WHAT HAPPENS AT THE FOX?, so that the fox is backgrounded in the corresponding assertion. An utterance conveying the proposition "the path ends at the fox" at this point would therefore be expected to be structured in such a way as to maintain the fox as topic, and the predicate "the path ends" as the at-issue content. From what we know, such an utterance might for instance be *naani ushan atuqchawqa*, with *atuqchawqa* downstepped; or *atuqchawqa ushan naani,* with it realized as a rise, and *ushan naani* in a falling phrase signaling its status as at-issue content; or just *ushan naani*, with the fox omitted as topical subject. Yet none of this is the case.

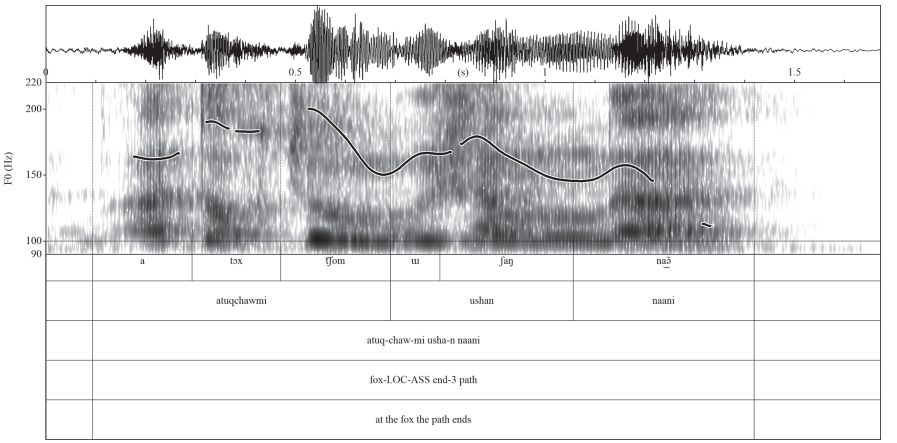


Figure 182: KP04_MT_Q_2384.[428] Cf. (187) for the context.

427 It is tempting to also attribute the substantial rise on the lengthened initial syllable of the focused constituent *hana-chaw-mi* to this contrast, in the manner of iconic prosody like "it's faaar". I can only note this auditory impression by a listener whose hearing conventions are shaped by European languages. Should it turn out to be a real phenomenon in future research, it would be important to investigate what anchors the position of the rise.

428 https://osf.io/xn256/

The constituent denoting the fox, *atuqchawmi*, is realized initially, *–mi*-marked with a rise-falling phrase, cueing it to be focused as answer to the QUD. *Ushan naani* is realized with two downstepped falling phrases, i.e. in a position and with prosody so far seen as cueing backgrounded information. Thus the information structure inferred and expected from the context and that signaled by the utterance itself are in conflict here. This is summarized in (188).

(188) Comparison of information structure of KP04_MT_Q_2384 as inferred from context and as likely cued by morphosyntax and prosody

Inferred from context:	[*not at-issue;* topic]	[*at-issue;* comment]
	atuq-chaw-mi	ushan naani
Signaled by scaling relations:	(x)	(x)
Signaled by contour shape:	[closed]	[closed] [closed]
Cued by morphology:	[focus]	[background]
Cued by word order relative to verb:	[focus]	[background]
	[comment]	[topic]

From (188), it seems that formal marking suggests a QUD like WHERE DOES THE PATH END?. However, if that were really the implicit QUD, the utterance should be expected to be simply *atuqchawmi*, which would not convey any new information in this context. As in previous examples and according to the proposed template, the fact that constituent(s) that could be omitted are instead realized as downstepped in the postfocal final position seems to indicate that these elements are needed to relate the proposition conveyed by the utterance it to its context, or that it should be understood as answering QUD that is different from the one inferrable from the context. So, if formal marking here aligns to signal a QUD like WHERE DOES THE PATH END?, in spite of this going against the preceding context progression, this gives rise to an implicature that the utterance is relevant with this information structure, even though it does not seem to be so at first sight. I argue that the missing puzzle piece for understanding this lies in the fact that the information where the path ends is necessary for the completion of the game. Without knowing this information, the overall discourse goal cannot be achieved. Thus, WHERE DOES THE PATH END? is a relevant QUD because responses to it constitute a partial answer to the superordinate QUD of the game, WHAT IS THE CORRECT PATH?. Because answering this question is thus by definition relevant for the game, answering it with "at the fox" in turn gives an explanation for why KP04 had brought the fox up at 234.1, and which, as argued, TP03 had implicitly questioned the relevance of at 235.5. It is because the utterance, in utilizing both prosodic and morphosyntactic means against the expectations built up by the context, manages to answer both WHAT

ABOUT THE FOX? and WHERE DOES THE PATH END?, that I have translated it here with an it-cleft, "it is at the fox that the path ends". In my understanding, such a structure can also be used to express such a complex information structural configuration, in which the fox is both contrastively specified as answer to WHERE DOES THE PATH END? and the topic about which the proposition is predicated.

This section has provided evidence that utterances which from the context can be inferred to have a more complex internal information structure than the broad focus observed in the previous section in *Cuento* do reflect this increased complexity in their prosodic realization, although no simple one-to-one correspondence between prosodic marking and information structural categories can be assumed. I proposed a heuristic tripartite positional template that prosodic cues as well as cues from other domains can refer to, in which material realized to the left of a first relevant prosodic boundary and with a rising contour is linked to a topical interpretation, as is material to the right of a second relevant prosodic boundary. Material in between these two boundaries, realized with a falling contour, is linked to an at-issue interpretation. A reduction in tonal scaling between two adjacent phrases (downstep) has been taken to cue that the second phrase is less prominent than the first one, in opposition to the increase in tonal scaling between units we saw in the previous in *Cuento,* cueing rightmost prominence compatible with broad focus. In these data from *Maptask*, we also continued to observe how prosodic and morphosyntactic cues interact in the signaling of information structure. Mostly, they could be seen to plausibilize an interpretation that is also inferrable from the context. In the final example we also saw how they aligned to contradict the interpretation from the preceding context. It was argued that plausible reasons for this can be found when more than the immediate discourse context is considered. In the final section, utterances with conflicting cues will be examined.

6.4.3 Variability and conflicting cues in Conc

This section will explore further how cues to information structure from prosody, morphology, and word order can interact using data from *Conc*, mainly by ZR29 & HA30, but also in comparison with other speakers. I will begin by recapitulating what we know so far about how word order is related to signaling information structure. In the *Maptask* examples, it was often the case that the constituent directly in preverbal position was (narrowly) focused, which would align with observations on a number of verb-final languages (cf. Kügler & Calhoun 2020: 465). For southern Quechua II varieties, Muysken (1995: 383); Sánchez (2010: 36–37) assert that postverbal elements cannot be focused or marked by one of the evidentials. Sánchez (2010: 12–13, 37, note 10) further claims that the canonical

word order is verb-final, and that this is linked to broad focus. According to her, other word orders signal a different information structure. In *Cuento*, utterances with the "non-canonical" order V-O have also been seen to be clearly interpretable as having broad focus from both context and prosody (cf. Figure 174 and (183)). For Huallaga Quechua, which as a variety of Quechua I is more closely related to Huari Quechua, Weber (1989: 15–16) points out that even though it shares many properties typically claimed for SOV-languages (postpositions instead of prepositions, modifiers before their heads, main verbs before auxiliaries, possessors before possessed, cf. Greenberg 1966), main constituent word order is actually not so much one of them: in his count, only slightly less than half of all sentences realizing all three constituents (48 of 99 out of a total of 1309 observed sentences, 714 of which transitive) actually did so in SOV order. He does however also connect the preverbal material to a notion of focus (Weber 1989: 419, 428–431). All three accounts agree that word order is sensitive to information structure, and that there is at least a preference for focal elements to be realized preverbally. In our data, an evidential-marked constituent does not occur postverbally in all seven *Conc*, *Maptask*, and *Cuento* corpora.[429] However, there is evidence that a postverbal constituent can occur in contexts in which it is the answer to the QUD, i.e. focused, and also contrasted, as in some of the following examples.

6.4.3.1 Cues to information structure in five examples from ZR29 & HA30's Conc

I will first introduce examples from *Conc* and then expand the discussion to cues conflicting with each other, and with IS as constructed from the context of the respective examples. To my knowledge, while multiple cues also conflicting with each other have e.g. been discussed in Baumann & Grice (2006); Venditti et al. (2008); Kaiser (2016); Edeleva et al. (2020), among others, this is the first attempt for Quechua to show that there are cases in wich cues conflict both with each other and with expectations from the discourse context. The examples are HA30_Conc_Q_1482 ((189)/Figure 183) and 1576 ((190)/Figure 184), LD20_Conc_Q_1150 ((191)/Figure 185), and HA30_Conc_Q_1836 ((192)/Figure 186).

(189) HA30_Conc_Q_1482

na	washa	chawpi-chaw	ka-yka-n	este	tsuku
PSSP	DEM.DIST	middle-LOC	COP-PROG-3	uhm	hat

"in the middle of that over there there is the hat"

429 Muntendam (2010: 117, 126) reports *–mi*-marked postverbal constituents for an unidentified variety of Quechua not studied by herself, but does not find them in her own data from Ecuadorian and Bolivian varieties.

(190) HA30_Conc_Q_1576
hana kantu-chaw ka-yka-n arash
above edge-LOC COP-PROG-3 lizard
“at the border above there is the lizard”

(191) ZR29_Conc_Q_1150
kay ultimu-chaw-mi ka-n pitu
DEM.PROX last-LOC-ASS COP-3 whistle
“in the last one here there is the whistle”

(192) HA30_Conc_Q_1836
arash ka-yka-n tsay chawpi-chaw
lizard COP-PROG-3 DEM.PROX middle-LOC
“the lizard is in the middle there”

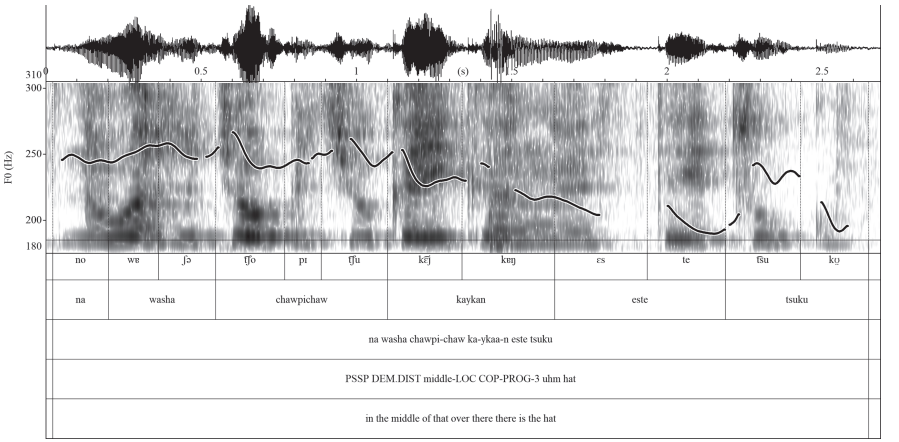


Figure 183: HA30_Conc_Q_1482.[430] Cf. (195) for the context.

All these examples have non-verb-final word order: a form of the copula is surrounded on one side by a noun specifying the location at which an item in the game is to be found, and on the other by another noun specifying the item. As explained in section 6.2.2, speaker pairs mostly follow one of two strategies in *Conc* consistently, either to realize the location-specifying expression before the item-specifying one (pattern a), or the other way around (pattern b). Correspondingly, in three of the four examples they first specify locations and then the items to be found at

430 https://osf.io/4ahqe/

them. HA30_Conc_Q_1836 ((192)/Figure 186) is the exception which reverses the order of the nouns. Section 6.1.1 had an example from this *Conc* (repeated here as (193)) with verb-final word order: location – game item – copula.

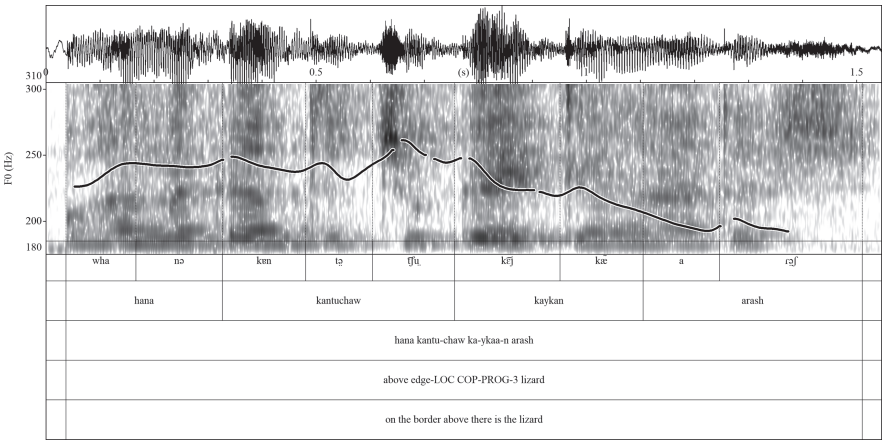


Figure 184: HA30_Conc_Q_1576.[431] Cf. (195) for the context.

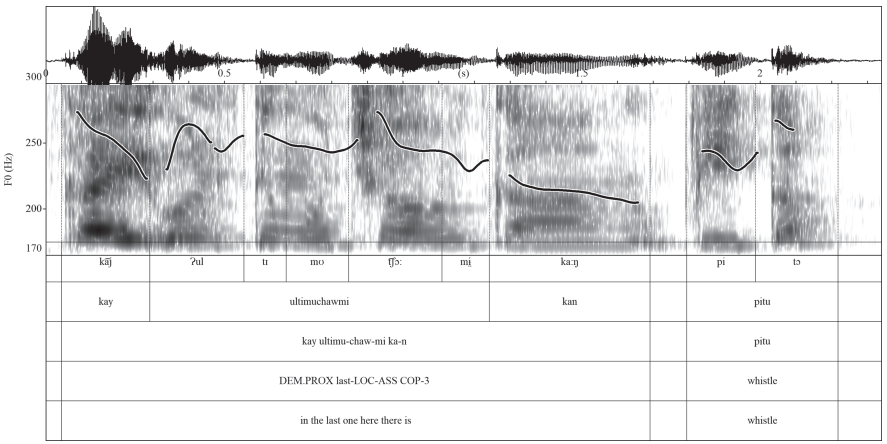


Figure 185: ZR29_Conc_Q_1150.[432]

431 https://osf.io/w5kzy/
432 https://osf.io/bhqxy/

(193) HA30_Conc_Q_0211 (repeated from (108)/Figure 125, see also (125))

washa	kantu-chaw	ukush-mi	ka-ykaa-n
DEM.DIST	edge-LOC	mouse-ASS	COP-PROG-3

"at that border there is a mouse"

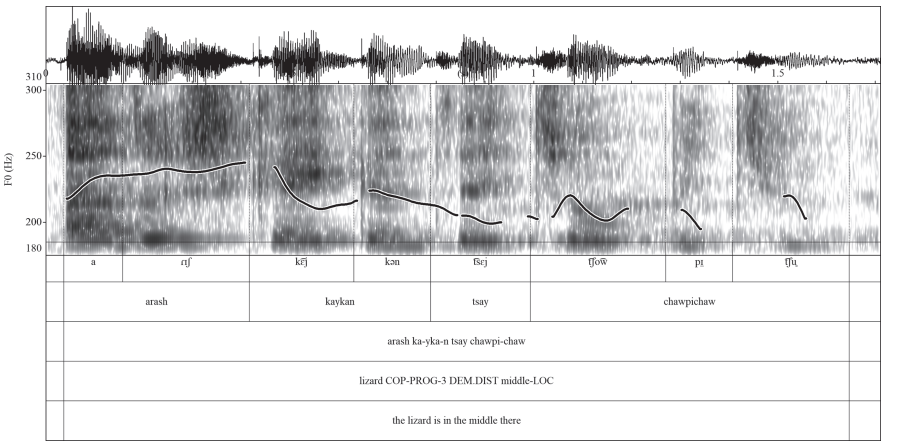


Figure 186: HA30_Conc_Q_1836.[433]

In this example, the location is realized with a rise, and then the *-mi*-marked item-specifying expression plus the locative copula follow in a falling phrase. Word order, morphosyntactic marking and prosody here all act just as the context lets us expect: a location-specifying referent is called up as a topic, and then a predication is made about that location regarding which item is to be found there in a way that also conforms to the predictions made about word order and *–mi*-marking on other Quechua varieties (see above). In the four other examples though, things are different. Word order here is not verbfinal as in HA30_Conc_Q_0211. From the predictions about the relation between word order and information structure by Muysken (1995); Sánchez (2010), and Weber (1989), as well as partially from the analysis of the *Maptask* examples, the preverbal constituent (location-specifying in (189)/Figure 183, (190)/Figure 184, (191)/Figure 185, item-specifying in (192)) would be expected to be focal. It should be *-mi*-marked and realized with a falling phrase, so that it is clearly cued as the at-issue component of the assertion. The postverbal constituent would be expected to be downstepped, cued to be interpreted as post-

433 https://osf.io/28nq9/

focal/non-at-issue. At most it might be a resumptive topic, but not denote a newly introduced referent whose specification is a crucial part of what is asserted. All of these assumptions do not hold.

Instead, the initial constituent is only once realized with *–mi* (in (191)/Figure 185), and also realized with a rise instead of a fall in (190) and (192) (probably also in (189)/Figure 183, but there is interference from consonants). The postverbal constituent is realized as downstepped only in (190) and (192). In (191), it is realized with a rise, and in (189)/Figure 183 with a rise-fall whose high tonal target is just as high as preceding ones, while it is supposedly backgrounded in all of them. The copula however is downstepped or low in all five utterances.

An analysis of their contexts does not fully mirror the divisions made by these formal cues. Instead, context can best be said to group (189)/Figure 183, (191), and (193)/Figure 125 together, with (190) and (192) separate. In particular, (189) and (191) are very similar contextually. In both of them, the item-specifying expression (*tsuku* "hat", and *pitu* "flute", respectively) denotes an item mentioned for the first time in the game. They are first turns after a speaker change, and the location-specifying expression also denotes a new referent. In (193), the location-specifying expression *washa kantuchaw* is repeated from the directly preceding turn at 10.3 consisting only of that phrase (cf. (194)). The item-specifying expression *ukush-mi* "mouse" is lexically given, because HA30 begins by making an enumeration of all the items that are there.

(194) Beginning of ZR29 & HA30_Conc_Q[434]

time (seconds)	HA30
0.8	(L H L------)
	tsay-chaw-mi ka-n
	DEM.DIST-LOC-ASS COP-3
	there is
2.5	(L H)
	ukush
	mouse
4.2	(H L)
	tsuklla
	hut

434 https://osf.io/z6akq/

5.2 (H L)
uusha
sheep

[moderator intervenes]

10.3 (H----- L----------)
washa kantu-chaw
DEM.DIST edge-LOC
at that edge there

The game moderator intervenes after the first three items, explaining how the game is played, and HA30 continues with the turn at 10.3, leading to the one at 21.1, which is (193). Thus, *ukush* has been mentioned previously in (193), but it is not unambiguously the most salient referent in the discourse. From the context, it makes no sense to interpret the item-specifying constituents as backgrounded in either of (189)/Figure 183, (191), or (193)/Figure 125. The opposite is the case: specifying them means selecting from a limited set of alternatives in all cases (implying a degree of contrast), i.e. all the other available items in the game (twelve in total), or in the case of (193), perhaps from the set of the three mentioned initially. This selection is new information in all three. In (189) and (191), the item-specifying constituent itself is totally new. So it is clearly at-issue in all three examples. Yet it is realized postverbally with N-V-N order in (189) and (191), and preverbally with N-N-V order in (92). If any contextual differences are to be invoked to explain this formal variation, they must be the subtle ones discussed here: the possible differences in the degree of activation of the item referent (*ukush* being more active in (92) than *tsuku* and *pitu* in (189) and (191)), that *ukush* is perhaps selected from a smaller set of referents, and the fact that (92) is directly preceded by a turn that already realizes the location once. But the difference cannot be one in terms of the overall at-issue partition of the utterances, since the item-specifying expression is in focus in all three. Note that the postverbal item-specifying expression is not downstepped in (189) and (191).

The situation is different again in (190). This is the fourth attempt in this *Conc* to correctly guess the location of the lizard (*arash*). In a previous turn, ZR29's at 135.2, its location had last been wrongly guessed (cf. (195)), so that the utterance is perhaps even a kind of reversal/correction of that move.

(195) ZR29 & HA30_Conc_Q_1352–1591[435] (context for (189)/Figure 183 and (190)/Figure 184)

time (seconds)	HA30	ZR29
135.2		(L H--) (HL----------)(L H)
		kay pitu ladu-n-chaw-na-mi arash
		DEM.PROX flute side-3-LOC-DISCONT-ASS lizard
		beside that flute now there is the lizard
137.9	*[short discussion between moderator and ZR29]*	
148.2	(L H----------)!(H L)(L H L)	
	na washa chawpi-chaw ka-yka-n este tsuku	
	PSSP DEM.DIST middle-LOC COP-PROG-3 uhm hat	
	there in the middle is the hat	
151.7	(H---------L---)	
	chawpi-chaw	
	middle-LOC	
	in the middle	
156.4	(L H---)	
	y hana	
	and above	
157.6	(LH----------)!(H L----------)	
	hana kantu-chaw ka-yka-n arash	
	above edge-LOC COP-PROG-3 lizard	
	at the edge above there is the lizard	

Thus, *arash* is here both referentially and lexically given, and determining its location is a salient issue in the discourse. This makes it more likely that the utterance has an implicit QUD like WHERE IS THE LIZARD?, as opposed to the previous examples, which answer a QUD like AT [LOCATION], WHAT IS THERE?. This view is supported by the fact that *kaykan arash* is very clearly downstepped and *arash* possibly even part of the phrase-final low,[436] cueing it as backgrounded. However, the preverbal location-specifying constituent is neither *–mi*-marked nor realized with a falling contour, which goes against what we might expect with the QUD WHERE IS

435 https://osf.io/3r5x8/

436 Here it is plausible to see *arash* as not contrastive in the sense of not having any salient alternatives, because it is part of the background of the QUD. This shows again that word order does not suffice as cue, because we just saw that postverbal elements can be focal and contrastive (*pace* Sánchez 2010: 51). Arguably it needs the combination of being postverbal and scaled down to cue backgrounding (and a realization in final position in the proposed template) here.

THE LIZARD?. The case for an implicit QUD in which the item is given instead of the location is even stronger for (192). The move by another speaker directly preceding it in the game, by ZR29 at 169.7, is *mas ladunchaw arash* "further to its side is the lizard", so that (192) can be seen as a kind of retort,[437] asserting that the item is at a different location. This interpretation is supported by the fact that (91) is the only utterance in the game by these two speakers in which the item-specifying expression *arash* is initial and preverbal, and the location-specifying expression is postverbal. Furthermore, it is also realized with a rise, supporting its status as a topic. Here, word order and prosody thus seem to align in cueing the item as topical. However, both the verb and the postverbal location-specifying expression are also clearly downstepped and thus not prominent despite being at-issue from the context. In both (190) and (91), the cues that signal the referent contextually determined to be non-at-issue as such seem stronger than any that cue the reverse, i.e. signaling the other referent as at-issue. In all of these examples, with the exception of (193)/Figure 125, we see conflicting cues. (196) summarizes these cues to IS from context, word order, morphological marking, and prosody in the five utterances.

(196) Conflicting cues to information structure from context, word order, morphology, and prosody in five utterances from *Conc* by ZR29 and HA30

IS via context	[topic]		[focus]
HA30_Conc_Q_1482 (=(189))	**na washa chawpichaw**	**kaykan**	**este tsuku**
order of elements	location-specifying expr.	verb	item-specifying expr.
IS via word order			
relative to verb	[**preverbal / focus**]		[**postverbal/background**]
overall	[topic]	[	focus]
IS via morphology	--	_	--
IS via prosody			
Contour shape	[rise/open(?)]	[fall/closed]	[rise-fall/closed]
Scaling		[low/downstepped]	
Metrical structure	(x)		(x)
IS via context	[focus]		[topic]
HA30_Conc_Q_1576 (=(190))	**hana kantuchaw**	**kaykan**	**arash**

437 It is not a direct response to ZR29's move because that was followed by the game moderator turning the card over and showing that her guess was wrong.

order of elements	location-specifying expr.	verb	item-specifying expr.
IS via word order			
relative to verb	[**preverbal / focus**]		[**postverbal/background**]
overall	[topic]	[	focus]
IS via morphology	--	--	--
IS via prosody			
Contour shape	[rise/open]	[fall/closed]	[fall/closed]
Scaling		[low/downstepped]	[low/downstepped]
Metrical structure	(x		)
	(x)	(x	)
IS via context	[topic]		[focus]
LD20_Conc_Q_1150 (= (191))	**kay ultimuchawmi**	**kan**	**pitu**
order of elements	location-specifying expr.	verb	item-specifying expr.
IS via word order			
relative to verb	[**preverbal / focus**]		[**postverbal/background**]
overall	[topic]	[	focus]
IS via morphology	[*-mi-marked/focus*]		
IS via prosody			
Contour shape	[	rise-fall/closed]	[rise/open]
Scaling		[low/downstepped]	
Metrical structure	(x	)	(x)
IS via context	[topic]		[focus]
HA30_Conc_Q_1836 (=(192))	**arash**	**kaykan**	**tsay chawpichaw**
order of elements	item-specifying expr.	verb	location-spec. expr.
IS via word order			
relative to verb	[**preverbal / focus**]		[**postverbal/background**]
overall	[topic]	[	focus]
IS via morphology	--	--	--
IS via prosody			
Contour shape	[rise/open]	[	fall/closed]
Scaling		[	low/downstepped]
Metrical structure	(x		)

IS via context	[topic]	[focus]	
HA30_Conc_Q_0211	**washa**	**ukushmi**	**kaykan**
(= (193)/Figure 125)	**kantuchaw**		
order of elements	location-specifying expr.	item-specifying expr.	verb
IS via word order			
relative to verb	[	**preverbal / focus**]	
overall	[topic]	[	focus]
IS via morphology	[	*-mi-marked/focus*]	
IS via prosody			
Contour shape	[rise/open]	[	fall/closed]
Scaling			[low/downstepped]
Metrical structure	(x)	(x	)

Word order is given as cueing IS in two different ways in (196). As argued in section 6.2.2, the game context likely induces an overall bias to treat the locations as more active/accessible in the discourse. That makes them more likely to be topics about which predications are then made in which the items are focal. This is what plays out in their overall word order, in which the location-specifying expression precedes the item-specifying expression in four out of the five cases here, with (192) being the only exception to that in the entire game. As argued, (192) follows the order topic-comment, but with the item exceptionally being the topic and initial. For (190)/Figure 184, I also argue that the item should be interpreted as more topical or backgrounded than in the other three examples, but here, word order does not reflect that, instead being the same as in (189) and (191), so that the postverbal item is once backgrounded and twice focal. On the other hand, word order relative to the copular verb[438] cues preverbal focus and postverbal background, according to the predictions made for other varieties and to what we have seen in the previous section from the *Maptask* examples. These two different ways in which word order can be seen to cue IS are given as "overall" and "relative to verb", respectively. This means that in all examples except (193)/Figure 125, overall word order between location-specifying expression and item-specifying expression, and word order relative to the verb, are in conflict with regards to their cues to information structure. Overall word order aligns with context in almost all cases, except (190)/Figure 184. Verb-medial utterances with only one constituent to the left and the right of the verb, respectively,[439] are an inherently

438 Most other utterances from the *Conc* data by all speakers are verbless.

439 This is the preferred realization by HA30 in this corpus, see Table 49 below.

ambiguous case: according to the position template proposed in the previous section, in such cases, the initial constituent will tend towards a topical interpretation, but it will also be likely to receive a focal interpretation because it is directly preverbal.[440] In terms of prosody, three different cues are also distinguished. In (190)/Figure 184, (192), and (193)/Figure 125, the rise on the initial element, cueing openness, aligns with the topical interpretation from context and overall word order. In both (193) and (189), the non-downstepped rise-fall on the item-specifying constituent cues completion, supporting an interpretation as focal comment, but its realization with a rising phrase in (191)/Figure 185 does so less. However, that the postverbal item-specifying constituent is not downstepped in (189) and (90) but in (89) supports the contextual interpretation that it is focal in the two former, but backgrounded in the latter. In both (192) and (89), that the item-specifying constituent is realized as downstepped aligns with the contextual interpretation of it being backgrounded and non-contrastive. None of the utterances unambiguously cue final main prominence. The downstepped verb in all utterances suggests that the preverbal element is at least locally more prominent. The preverbal element is also globally most prominent in the verb-medial utterances (190) and (192), because the postverbal element is also downstepped. However, in (189) and (191), the downstepped verb is surrounded by equally scaled phrases. The phrases realizing the location- and item-specifying expressions are thus relatively balanced in prominence cues, with a rightmost default acting in favour of the final element. In (191), the realization as a falling phrase and the marking with *–mi* on the location-specifying constituent support its interpretation as at-issue, but this clashes with the rising realization of the item-specifying constituent, which makes it difficult to interpret it as backgrounded.[441] Overall however, scaling-based cues seem to align more clearly with the contextual interpretation than contour-based ones, and word order cues seem to also need scaling cues in order to be interpretable for an IS-partition into at-issue- and non-at-issue-material.

440 This analysis is also applied to KP04_MT_Q_2384 ((188)/Figure 182) in the previous section. According to Sánchez (2010), left-peripheral elements can also be either focal or topical in southern varieties of Quechua. The conundrum is rather old: with two proposed principles of pregrammaticalized linearization, the fronting of unexpected information and that of important information, Givón (2018 [1979]: 180, 217, 221) plausibilizes the initial realization of both new topics ("L-dislocation"), and of foci (in clefts).

441 Several other utterances by ZR29 in *Conc* realize the final item-specifying expression as rising. I suggested in section 6.2.2 that this might be part of a stance of uncertainty projected by this speaker.

6.4.3.2 Comparison with further examples

The findings summarised in (196) provide further evidence that prosody, word order and morphosyntactic marking can cue information structure both in conflict with each other and against what is expected from context via QUD analysis. This suggests that they do not cue it directly, and instead do so indirectly, and/or probabilistically. For prosody, this insight is represented in (196), where I take contour shape (rising or falling) and tonal scaling (realization as low or downstepped) to cue openness/closedness (see section 6.2.2) and phrasal prominence, respectively. We have seen in section 6.2.3.3 as well as here that both information status (given-new) and information structure (focus-background, topic-comment) affect prominence, but that prosody does not cue these categories directly. For word order and morphological marking, (196) represents them as cueing information structure directly, but this is only out of convenience until it is better known what exactly they contribute to the meaning of an utterance.[442] We saw that word order alone is not a good cue for an IS-interpretation of constituents. In addition, while we can identify dominant strategies where speakers pick out one of the elements (location or item) to be specified first in order to anchor the predication involving the second of them to it (cf. section 6.2.2), suggesting a kind of topic-comment structure, the nature of what has been called a topic here seems different from that in *Maptask* and also *Cuento*. In those tasks, a topic is often continued across several utterances. In *Conc*, on the other hand, the topic constituent (most often the location) is selected from an available and finite set anew (almost) each time, arguably creating a contrast relative to the other members of this set, and it therefore needs to be just as explicitly specified as the element which is then put into relation with it.[443] In this sense, the two nominal elements here are more similar to each other than was the case for what was discussed as topics and foci in *Maptask* and *Cuento*, which might go some way in explaining the conflicting cues from prosody and morphosyntax.[444] Note that

442 The paradigmatic meaning of the evidentials is of course subject of a number of works. I refer here to their syntagmatic meaning, i.e. what is cued by their placement at some position in an utterance, and not another.

443 The beginning of the game (194) shows that also in *Conc*, a topical location can be omitted in subsequent turns once activated, as HA30 does with *tsaychawmi* 'in there'.

444 I think that introducing some of the terminology specific to copular sentences, like *predicational*, *specificational*, *identificational* (cf. Dikken 2006: 298–300) does not help the issue at this point. On the one hand, the different types of copular sentences are supposed to differ regarding their IS: in specificational sentences, the pre-copular NP cannot be in focus, while this is not the case for predicational sentences (Dikken 2006: 301; Martinović 2013: 137). However, the location- and the item-specifying expressions in *Conc* are arguably both referential, making these copular sentences identificational (Martinović 2013: 139) rather than one of the two other types, which does not help for predicting their information structure. Dikken (2006: 300) also points out that

the "topic marker" *–qa* does not occur once in all of the seven *Conc* games analysed here. Whatever topic-related meaning *-qa* signals, there seems to be no need for it in these discourses (it does occur in *Maptask* also in copular sentences, e.g. Figure 181). It seems that the two speakers here can choose varying expressional strategies to express these contextual conditions. Recall again from section 6.2.2 that the majority of speaker pairs, including ZR29 & HA30, follow the order location – item (pattern a) in *Conc*, while one speaker pair out of seven (XU31 & OA32) exclusively prefer the reverse order (pattern b). These are thus two diverging default strategies of ordering the elements, perhaps reflecting two different information structural conceptualizations, with one treating the location as more topical, and the item as more focal, and vice versa. Here we saw that the one time the less frequent order (b) occurs in this *Conc* ((192)), it cooccurs with an information structure that is also other than expected, and probably aids in cueing this. This expectation is shaped by a global distribution, i.e. that the location – item pattern is more frequent across all speakers, but also by the local expectation established in the game between these two speakers. In XU31 & OA32's *Conc*, the same order of elements cannot be marked in the same way, because it is the exceptionless default in their game (even though it is globally marked across all *Conc* games). This suggests that locally and temporally established conventions between interlocutors are relevant for the analysis of meaning in natural conversation. While ZR29 & HA30 are with the majority in terms of order of elements, suggesting a broadly topical interpretation for the location-specifying expression, prosody in terms of contour shape paints a different picture. As seen from Table 29, five of the seven speaker pairs realize a clear majority of the first elements (the item-specifying expression for XU31 & OA32, the location-specifying expression for all others) with a finally rising contour, and the second element, correspondingly, with a finally falling contour. They thus align the information structural cues from overall word order with those from contour shape. ZR29 & HA30 are the only ones who clearly go against this trend. Table 49 summarizes all of their moves from *Conc*, sorting them according to

copular sentences can be ambiguous between the three readings "on paper", which seems to mean 'without context and intonation', while Martinović (2013: 149) additionally claims that her analysis on data from Wolof puts the claimed information-structural restrictions on specificational sentences, based as usual mostly on European languages, in doubt. I suggest that at this point it is still too early to say anything about what types of sentences the ones here from Huari Quechua are, in which definiteness is not marked and in which word order in copular sentences is variable, as we have seen. However, I would hope that the analysis presented here, aiming to relate formal marking to contexts, can be used to aid such further in-depth studies in the future.

order of elements, *-mi*-marking, and prosody.[445] Their prosodic behaviour against the overall trend shows there as well.

Table 49: Moves in *ZR29&HA30_Conc_Q* sorted according to the order of elements (location-specifying expression, item-specifying expression, verb), marking with *–mi*, final contour on each element, and whether they are downstepped / realized as low.

order of elements	number of occ.	loc *–mi*	item *–mi*	loc rise	loc fall	item rise	item fall	item flat	verb rise	verb fall	loc downstep/low	item downstep/low	verb downstep/low	number loc. exps.	number item exps	number verbs
Location	4	–	–	–	4	–	–	–	–	–	–	–	–			
Location-verb	2	–	–	1	1	–	–	–	1	1	–	–	1			
Location-item	5	2	–	1	4	4	1	–	–	–	–	–	–			
Location-item-verb	2	–	1	1	1	–	2	–	1	1	–	–	1			
Location-verb-item	13	6	–	5	8	4	8	1	3	10	–	2	10			
Item-verb-location	1	–	–	–	1	1	–	–	–	1	1	–	1			
Item	4	–	–	–	–	1	2	1	–	–	–	–	–			
All	**31**	**8**	**1**	**8**	**19**	**10**	**13**	**1**	**5**	**13**	**1**	**2**	**13**	**27**	**25**	**18**

The three rightmost columns are concerned with tonal scaling. They count how often the three elements are realized either with a separate phrase, but downstepped, or as only the low part of a contour. Both speakers here show a clear tendency to realize the verb as scaled low (13 of 18 occurrences). The location-specifying (1 of 27) and the item-specifying expression (2 of 25) are rarely downscaled, and only in final position. In the high number of verbal forms (in 18 out of 31 moves),[446] this *Conc* is also an exception: in the *Conc* corpora by the other six speaker pairs, only five verbal forms occur in total, of which only one is a copula used in the same way as here (the others are part of item-specifying expressions). The frequency of *-mi* (9 times in 31 moves) here is also exceptional compared to the *Conc* games by other speaker pairs: *-mi* only occurs five other times, four times in TP03 & KP04's *Conc*, and once in that by XU31 & OA32. In ZR29 & HA30's game it mostly occurs

445 The table also includes sequences that are not full guessing moves in the game because they do not specify both location and item. They are either specifications of only the item or reformulations after a guess (the "Item" row), or incomplete guessing moves ("Location" and "Location-verb") that are then followed by full. Table 29 did not include any of those, which is why total numbers differ between the two tables.

446 It is mostly HA30 who uses verbal forms at all.

on an element realized with a falling contour, but not always, as Figure 187 shows. There it occurs on a location-specifying expression realized with a rising contour.

While the generalization that *–m(i)*-marked elements do not occur postverbally (Muysken 1995: 387) seems to hold here, utterances with *–m(i)* do not require the presence of a tensed verb in our data, as Table 49 and utterances like (197) demonstrate (*pace* Muysken 1995: 385; Sánchez 2010: 49).

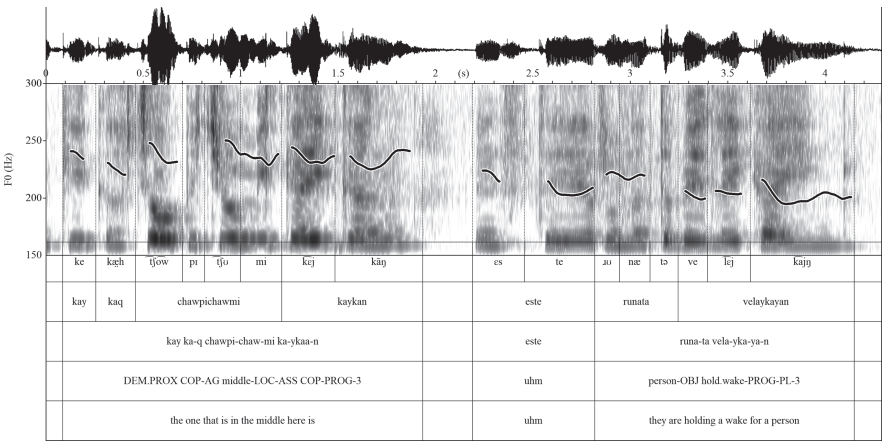


Figure 187: HA30_Conc_Q_0453[447] (voicing threshold 0.9).

(197) KP04_Conc_Q_1653
tsay keeda-q anka-m
DEM.DIST stay-AG eagle-ASS
"the one that's left [is the] eagle"

A question for future research is whether the three exceptional behaviours in ZR29 & HA30's *Conc* (the two speakers are close friends) are related: the use of the copula, the use of *–mi*, and the preference for falling contours in initial position and rising contours in final position. Partly, they seem to constitute individual formal strategies for cueing information structures that are particularly sensitive to the similarity in status of the two elements denoted by the location-specifying and item-specifying expressions in *Conc*, comparable perhaps to what KP04_MT_Q_2834 achieves with the conflicting cues (188) as discussed in the previous section. It also seems plausible that these behaviours are partly the result of their individual and shared multilingual acquisition histories and stylistic stances.

447 https://osf.io/6jfz4/

6.4.4 Conclusions

We have now seen how Quechua prosody and morphosyntax are used to structure utterances in more complex contexts than in those compatible with broad focus in *Cuento*. In the *Maptask*, word order, morphological marking and prosody were seen to mostly align in cueing information structural roles for constituents, relating them in a complex fashion to the context. Yet the *Maptask* and especially the *Conc* data showed that the cues can also not align, leading to ambiguous interpretational possibilities likely pointing to a more differentiated picture than just a separation between focus-background and topic-comment. Possibly, information structure in terms of these two dimensions is best thought of as an interpretational condensation, emerging from heterogeneous cues that contribute other information as well.[448] Regarding prosody, the observations here are difficult to reconcile with a view that aspects of it signal either of these dimensions directly: instead, I have argued that it makes sense to see prosody as signaling 1) whether units are together or apart at different levels of structure (via phrasing and scaling), 2) cueing the relative prominence at each of these levels (via scaling both within and across phrases) and 3) whether a unit should be understood as complete or incomplete (via tonal contour choice). None of this signals focus or topic, but assuming that competent speakers have expectations about how prosodic structures are built, they can exploit them to direct the interpretation of equally competent listeners towards intended information structures. Word order and morphology, which were treated more peripherally here, clearly also contribute to this complex interpretation. They are constrained by their own structures and also build up expectations based on them. Here they have been seen to not straightforwardly signal focus or topic, either. As amply seen, word order is only a good cue for information structure when combined with scaling-based cues. Regarding the evidentials, the prediction that only preverbal elements can be marked with them seems to hold across varieties of Quechua, but that means neither that focus is always preverbal nor always marked by an evidential, nor even that only a constituent that could be marked by an evidential can be interpreted as focal in context (postverbal elements are not *-mi*-marked but were shown to be focal). The constraint against postverbal evidential-marked elements seems

448 Matić & Wedgwood 2013 express the more radical view that focus exists only as an interpretational category for linguistic analysis and has no reality in actual language, especially crosslinguistically. I am thinking more along the lines of what Gunlogson (2001, 2008) has shown for declarative questions in English, in which the cues for polar questionhood from word order (subject-verb inversion) and prosody (final rise) productively misalign for the expression of a speech act category that has more marked contextual specifications than either assertions or neutral polar questions (cf. also section 5.1.2.2).

purely morphosyntactic, not one of information structure. Weber (1989: 427)'s statement that the evidentials do not always mark the focused constituent thus seems to hold, even apart from their likely specialized occurrence in certain types of confirmation-seeking questions reported by Floyd (1996, 1997). Here we've only discussed the syntagmatic function of the evidentials, mostly disregarding their semantics. Studies of them (Faller 2002, 2003, 2011, 2014; Behrens 2012; Bendezú Araujo 2021) show that they likely interact with focus, but that they do not signal it directly as part of their meaning.

It seems that word order and morphology, just like prosody, make contributions cueing constituents towards an interpretation as focal or topical, but this is not a categorical function, and accompanied by other effects they have. Drawing this conclusion is only possible because of the adopted context-based view of information structure proposed by Riester and colleagues (cf. section 3.7.2), allowing for a strict separation of information structure from formal means of expression. The analysis of the data here has shown that occasionally, the formal means suggest a different information structure than that arrived at via implicit QUD analysis from the context. This allows for situations in which it is a speaker's intention to actively influence their interlocutor's interpretation of an utterance *against* what could be expected from the discourse context. The fact that such situations exist consequently means that the model by Riester and colleagues cannot uncover all subtleties of information structure in all contexts. Yet coming to this conclusion is only possible because a context-based approach allows us to first establish default correspondences between contexts and means of expression empirically, so that marked transgressions against them can then be identified. This would be conceptually impossible under an approach that treats information structural categories as formal markers themselves instead of context configurations, because congruence between context and the presence of such marking can then only ever be a coincidence.

All of this leads to a picture in which prosody, word order and morphology can either align or disalign in their cueing of information structure. The latter probably does not mean that no interpretation is possible, but rather that it is more detailed than just imposing a uniform focus-background and topic-comment structure. In order to understand this better, it should be worthwhile distinguishing more accurately at which level of structure each type of expression system contributes cues that are then probabilistically weighted (cf. Calhoun 2010a, 2015) for an interpretation in terms of these two dimensions, but not only in those terms. Venditti et al. (2008: 505) make a similar point regarding different aspects of Japanese prosody:

> [. . .] phonological relationships such as the contrast between an IP boundary and a mere AP boundary are grammatical abstractions that native speakers acquire in the course of extensive exposure to a rich variety of language-specific cues. [. . .] A frequently encountered congruence of cues from multiple sources in the signal induces a stronger abstraction, which allows adult native speakers to produce conflicting cues when necessary to convey the intended information structure [. . .]. The native listener, conversely, can accommodate to such conflicting cues to recover both the intended focus pattern and the syntactic grouping that the prosodic phrasing also cues. [. . .] [T]he next generation of models of intonational phonology needs to do better justice to these complex interactions among discrete contrasts (e.g., between accented and unaccented words) and continuous variation (e.g., more versus less extreme degrees of pitch range expansion or compression at the edges of focus constituents) and the ways that native speakers and listeners take advantage of the statistical dependencies among different patterns.

I would suggest that this view can be extended to the interaction between cues not only from prosody. In a bilingual community such as the one investigated here, the availability of resources from two languages affords speakers with even more possibilities to heterogeneously signal complex structures. I have barely scratched the surface of this, but I am confident that future research will be able to uncover far more here, using more sophisticated kinds of modeling (e.g. Boersma et al. 2020) in order to paint a more realistic picture of how prosody helps structuring information in actual conversation in a multilingual setting.