

HENRY STOBART AND IAN CROSS

The Andean anacrusis? rhythmic structure and perception in Easter songs of Northern Potosí, Bolivia

Simiyki kuyuchun Chakiyki tusuchun
(“Let your mouth move Let your feet dance”)

This paper is the result of a collaboration between an ethnomusicologist (Henry Stobart) and music psychologist (Ian Cross). It examines the interaction of a variety of processes underlying the rhythmic structure and perception of a song genre of the Bolivian Andes: these include linguistic prosody, movement patterns, perceptual constraints and the dynamics of the culture’s musical aesthetics. The “Easter songs” which form the focus of this study, present particular problems of rhythmic perception for outsiders to the culture (such as the authors), who often tend to misperceive these songs as anacrusic. This phenomenon is addressed through an exploration of the unequal proportions and accent placement in the charango accompaniment, and an analysis of stress patterns of Quechua (and Aymara), the languages in which these songs are sung. It is shown that the first syllable of a phrase is treated as a functional “downbeat” and, despite outsiders’ perceptions, the anacrusis appears to be absent from the Quechua and Aymara musical genres of the region. The paper questions whether these findings might be relevant to other musical genres of the Andes, and considers the problems of perception in the transcription and analysis of Andean music.

Recordings on the Worldwide Web

This paper is accompanied by a series of recorded examples available on the Worldwide Web [<http://www.mus.cam.ac.uk/~cross/BJE/>]

- I Cholita Chapareña
- II Sakista Jilatay
- III Viacha Puntapi (a) *charango* (b) voices and *charango*
- IV Suwamay Sakista
- V Composed recorder melody, with tapping of Bolivian subject

Introduction

The issue of rhythm perception is mentioned in the first major study of Andean music, *La Musique des Incas et ses survivances* ("The music of the Incas and their survivors"), published by Raoul and Marguerite d'Harcourt in 1925. Their chapter devoted to rhythm begins by recounting the pride of the inhabitants of Arequipa at the inability of a famous Spanish pianist to reproduce the rhythmic particularities of Peruvian music. According to the d'Harcourts:

This demonstrates how these particularities differ from those which characterise Spanish songs and those of Europe in general. The illiterate Indians and *cholos* of the country, most of whom sing, dance and play the flute, carry these rhythms in the blood and their instincts, more securely than the musical culture of the pianist, permitting them to reproduce them with precision.¹

(1925:155)

The d'Harcourts go on to explain that by mingling with the people of the country and observing the rapid movements of their feet on the ground – beating the "rhythmic accents" (*temps rythmiques*) rather than the "measure" (*mésure*) – they were able to overcome their initial disorientation and discover the "secret" of the rhythm. A "secret" which unfortunately they fail to divulge! Such ambitious claims, especially alongside their contentious thesis of prehispanic pentatony, has sometimes rendered this pioneering study of Andean

¹ It is interesting to note the parallels between the d'Harcourts' attribution of rhythmic skill to their "illiterate Indians" and Myers' (1905) claim in respect of the "Sarawak Malays" that their music had "rhythmical characteristics ... [such as] ... change and opposition in rhythm ... carried [to such lengths] ... that their aesthetic effect may neither be appreciated nor reproducible by more advanced peoples". It seems quite feasible that both views are coloured by the notion, prevalent in much late nineteenth-century anthropological thinking, that "primitive" peoples could be capable of finer grades of "sensory" distinction than could "more advanced" (on the whole, Western) peoples, and that this reflected fundamental racial differences, a notion that can be traced to the prolific Darwinian popularizer Herbert Spencer (see Shore, 1996, Chapter 1).

music all but “unreadable”,² but it is difficult not to be impressed by the d’Harcourts’ immense engagement with Andean music and culture, and by their considerable efforts to make sense of what they encountered.³ Subsequent scholars of Andean music have been surprisingly silent about issues of rhythm perception, even in discussions of the process of musical transcription.

In his study of the relationship between musical thought and notation, entitled *Fraseologia – La Música Popular Argentina* (1941), Carlos Vega also reveals his awareness of the “imperfections” of music notation (1941:523). However, he dedicates little space to practical issues of perception and the majority of his musical examples are drawn from European repertoires. Problems of transcription are intriguingly and dubiously attributed to the “mentality” of the performer, rather than the perceptions or lack of adequate contextual knowledge of the transcriber. For example, Vega distinguishes between two types of musical “mentality” among singers of “popular” (or today’s notion of “folk”) music; singers of *concepts* (*conceptos*) and the much rarer singers of *pictures* or *images* (*diseños*). For the singers of *concepts* “the song is a skeleton which may be externalised changing its details”, making the transcriber’s task a “nightmare”. In the case of singers of *pictures*, who are “much esteemed by collectors”, the song takes a “precise form of pitches and fixed values”, which may be repeated with great precision (Vega 1941:484–5). Aretz and Ramón (1976) follow the methodologies of Vega, but do not mention issues of perception in the creation of their comparative transcriptions. (However, most of the songs included in this collection are in Spanish and hence are only marginally relevant to this paper).⁴

In the preface to his selection of 53 transcriptions of music from various regions of Peru, Rodolfo Holzmann rightly emphasizes the “personal interpretation” involved in the transcription process. However, his later and seemingly contradictory claim for the validity of his transcriptions, due to being based on the “objectivity of the recorded tape” (1966:9–10), seems highly anachronistic today. A decade later, in her assessment of the problems facing ethnomusicologists, Maria Ester Grebe was to observe the “difficulty of producing valid musical transcriptions which objectively describe the sonic phenomenon”, thus also betraying a focus on abstract sound, rather than musical process (1976:19).⁵ As a number of authors, working in other parts of the world, have noted (Blacking 1976, Kubik 1979, Baily 1985), it is a mistake

² See Strathern 1987 for discussions of how shifting attitudes render certain key texts “unreadable”. Such texts may however become “readable” once more at a later date: Strathern cites the example of Frazer’s “The Golden Bough”.

³ Despite presenting their notations as “absolutely exact” (thereby compensating for the “regretful” lack of phonographic documentation), the d’Harcourts revealingly add the proviso that “certain rhythms were particularly difficult to grasp in notation” (1925:202).

⁴ For more general issues concerning perception and interpretation in transcription see Ethnomusicology 8 (1964), Nettl 1983:65–81, and Ellingson 1992:110–52.

⁵ However, in her study of the panpipe music of the Aymara speakers of Tarapacá of Chile, Grebe is very revealing about musical process and ethnography, but adopts a structuralist rather than cognitive approach to rhythmic relations (1980:419–23).

to analyse rhythm, or other aspects of musical performance, simply in terms of abstract, acoustic cues or “raw sound”. The sounds created in musical performance are dependent on the interaction of a variety of processes of production and cognition that are both abstract and corporeal.

The experience of rhythmic patterning reflects this interaction of motoric, prosodic, acoustical and conceptual processes (see Handel 1989 Chapter 11), but the forms in which these processes manifest themselves and the ways that they come into being and interact are likely to differ not only according to culture but also genre and performance context. Thus, for example, whilst Western classical rhythmic patterns are largely structured according to a hierarchical, metrical framework, much African music tends to be based on “pulse”, which, unlike metre, does not carry with it an implicit organizational framework (Arom 1991). Human movement patterns are also a highly important aspect of musical performance, and, as Gerhard Kubik notes for African music, sometimes “the auditory complexes may even be an, albeit important, by-product of the motional process” (1979:227).⁶

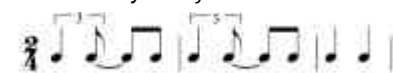
Although few scholars of Andean music have focused on rhythm perception, several theories have been developed concerning the rhythmic “feet” employed in songs of the region. For example, Carlos Vega has suggested that “the Incas only knew and employed binary feet” (1941:496), whereas the colonial music of the region employed ternary feet (Aretz and Ramón 1976:13).⁷ From more localized and practical perspectives, several writers have identified a number general rhythmic characteristics of certain genres of Andean music. These include:

- polyrhythmic relationships typically of duplets against triplets, for example between melody and percussion (d’Harcourt 1925:156, d’Harcourt 1959:74, Holzmann 1966:18).
- linear interplay between duplets and triplets, which according to Ellen Leichtman “adds bounce to much Andean music” (1987:161). Leichtman also distinguishes between “Indian rhythm” and “*mestizo huayño* rhythm” (1987:170):

Indian rhythm:



Mestizo huayño rhythm:



⁶ Although it should be noted that the identification of music with movement can itself be conceived of as the product of a specifically situated point of view. As Waterman puts it those arguments concerning a critical importance for movement in African music tend to “flow from the same intellectual wellspring, a German psychological tradition linking the Berlin School and Boasian cultural anthropology” (1991:175).

⁷ This is contrasted with an association of the colonial music of the East coast of the continent with binary feet (Aretz and Ramón 1976:13).

Leichtman also notes that what she finds “interesting about the *mestizo huayño* is that there is no Western metre that can be used which is able to distinguish between triplet and duplet subpulses within each measure. This means that there must always be the addition of triplet (or duplet) markings over each group of notes in addition to the metre”. She suggests that the *mestizo huayño* is thus “a blending of Indian and European rhythmic understanding” (1987:170)

- typical rhythmic gestures, for example:



Dale Olsen has contrasted the articulation of Andean rhythms with those of African music, suggesting that the rhythmic articulation in Andean music may be derived from the breath attack required in panpipe performance (1980:410).⁸

African:



Andean:



- rhythmic diminution, where imitative motifs become progressively shorter through the course of a phrase, resulting in an additive aspect to rhythmic organization (Holzmann 1986:241).⁹

We shall return to consider some of these observations later in the paper, but at this stage we simply wish to stress that most theories and scholarly discussions about rhythm in the Andes, as in many other parts of the world, are shaped by notational conventions and the process of musical transcription.

⁸ The articulation he describes, if attack is construed in terms of relative energy, appears to differ from our findings for the Quechua songs discussed in this paper.

⁹ Holzmann also identifies a form of “natural heterophony” resulting from two instruments being played together with “complete rhythmic independence”. He relates this to a lack of preoccupation with metrical organization and rhythmic coordination (1986:349). However, it is difficult not to draw the simple conclusion that the recording used for his transcription (on instruments which in many parts of the Southern Andes would never be played together in consort) captured two independent performances. Indeed it is common practice for socially distinct groups of musicians to perform side by side during feasts, thereby asserting their contrasted musical identities and creating a sense of cacophony and musical saturation. This stresses the inadequacy of basing musical analysis merely upon the “sounds”.

The trials of transcription

Besides its potential value for musical analysis, transcription is also a practical way of documenting and referencing certain types of field recordings.¹⁰ It was during the transcription of numerous tapes of peasant music recorded in northern Potosí, Bolivia – principally for referencing purposes – that the question of rhythmic perception emerged as a problematic issue.¹¹ On several occasions when returning to the transcription of a song in the indigenous languages Quechua or Aymara, after a break, a highly disorientating sense that the transcription had been made in entirely the wrong metre was experienced,

Cholita Chapareña

(A)

(not on sound example) →

Chó - li - ta Cha - pa - re - ña - ta, ma - ya - ge - ta, kaw - kashu - ki)
 Saw - si - lu - rin - chu, kasqa - ni? Ku - may - kus - pa - wa - qa - may - paq.

Chuy - paq - ka - ni Ma - ga - ri - tay, a - si - kus - pa - qha - wa - may - paq. D.C.

(B)

Saw - si - lu - rin - chu Kasqa - ni Ku - may - kus - pa - wa - qa - may - paq
 Chuy - paq - ka - ni Ma - ga - ri - tay, a - si - kus - pa - qha - wa - may - paq. D.C.

Figures 1a and 1b Part of song “Cholita Chapareña” – sung and played on the *guitarilla* by Alesandro Mamani (Quichi Vilki, province Charka, northern Potosí), recorded in Sacaca 4 February 1987 (Tape 21a:26)

10 Ethnomusicologists have traditionally distinguished between “descriptive” and “prescriptive” transcriptions, where (in the simplest terms) the former are intended for analysis purposes, and the latter to realize or reproduce the music (Seeger 1958). However, in many ways this distinction is unsatisfactory (Nettl 1983:68–70). For example, the theoretically “prescriptive” transcriptions of the music discussed in this paper, which were initially intended for referencing purposes, became the focus of analysis.

11 These particular recordings were made by Henry Stobart during a year of fieldwork (1986–7). Ideas in this paper are informed by a further six subsequent fieldwork visits to Bolivia, principally based in northern Potosí.

making it necessary to abandon the previous version and start all over again.¹² Similarly, it was only years later – by listening very carefully for the dance steps – that we realized that many songs which had sounded and been transcribed as strongly anacrustic, actually began on the beat (Recording I, Figures 1a and 1b). In order to appreciate the problems in perception addressed in this paper, the reader is strongly advised to read this essay in combination with listening to the sound examples that may be accessed via the Worldwide Web.

Text on recording

Sawsillurunchu kasqani? Kumuykuspa waqanaypaq
Am I a weeping willow to weep with my head bowed down?
Chaypaq kani Margaritay, asikuspa qhawanaypaq
For this I am Margarita to watch laughing

The immediate aural impression of “Cholita Chapareña” for most readers of this paper is likely to be of an initial anacrusis followed by an on-beat accent by the *guitarilla* and voice (1a).¹³ However, it is clear from the footfalls, audible at the end of the recording, that the voice begins on the beat and that most of the notes of the melody and strums of the *guitarilla* occur off the beat (1b).

This raises the question: have other transcribers of Quechua songs from this part of Bolivia suffered similar rhythmic misperceptions or confusions? And, are similar kinds of problems of rhythmic perception (by outsiders) more widely relevant to Quechua or Aymara songs from other parts of the Andes? One of the few sets of published transcriptions to include songs from northern Potosí is Max Peter Baumann’s “Sixty-six Quechua songs from Bolivia” (“Sojta chunka qheshwa takis bolivia llajtamanta”, 1983). In the explanatory notes of this attractive and, in many ways, exemplary volume, Baumann does not mention any problems of rhythmic perception encountered in the transcription process. However, judging from our experience of a large number of songs collected in the region, it seems likely that the metric organization of at least five of these transcriptions would be at variance with the pulse perceived (and expressed as footfalls) by the performers themselves. For example, the transcription of “Lari wayñu 2” (Baumann 1983:6), which has also been published in Europe with the recording (Baumann 1982:19, 35 and track C8), presents the rhythm of the voice as:¹⁴



¹² As one of the authors is fluent in Quechua, we will focus on this language rather than Aymara. However, some of the songs we shall consider incorporate both Quechua and Aymara words. Also, the stress rules, which will be discussed later, apply for both Quechua and Aymara.

¹³ We would be pleased to receive feedback from readers concerning their perceptions of these recordings.

¹⁴ According to the documentation this transcription was made by Bözene Muszlalska, rather than Baumann himself.

No footfalls are audible in the recording to confirm the pulse perceived by the performers, but footfalls in other recordings of this genre (which is found in several parts of the northern Potosí region) make it evident that the first syllable should coincide with a footfall:



Easter songs

The genre which, more than any other, alerted us to the problems of rhythmic perception in the music of northern Potosí, was a form of courtship song accompanied by the *charango* which is often locally known as *pascuas* or “Easter” (referred to hereafter as “Easter songs”). This seasonal genre, in which young women’s voices are accompanied by a young man strumming a metal-string (mandolin-like) *charango*, was commonly performed informally in bars or in the streets during feasts in such towns as Chayanta, Sacaca, Toracari and San Pedro de Buenavista during the late 1980s.¹⁵ Easter songs were performed by Quechua or Aymara-speaking *campesinos* (“peasants”) from the surrounding countryside, rather than the *cholo* (or *mestizo*) populations of these rural towns.



Figure 2 Dancing to Easter songs through the streets of Toracari (Charka province, northern Potosí) October 1986. Dance steps are often the only clue for outsiders to the participants’ perceptions of the pulse.

¹⁵ For descriptions of Andean dance-song genres accompanied by the *charango* see Martínez 1992:30–31 (although the Easter music to which she refers is quite different from that discussed in this paper), Solomon 1994:59–68 (for the case of ayllu Chayantaqa, including an example of the genre discussed in this paper), and, for the case of Southern Peru, Turino 1983.



↑ = clapping of European subjects

∇ = performers' footfalls

$$\frac{2}{4} \text{ ♩} = \frac{6}{8} \text{ ♩}$$



Figures 3a and 3b Takirillasun writay – from “Sakista Jilatay” (excerpt from Recording II; see Figure 7 for full transcription)



Figure 3c Sakista jilatay – with timings and ratios

Our analysis will suggest that, alongside our own problems as outsiders in perceiving the rhythmic structure of these songs, Easter songs appear to highlight rhythmic ambiguity as an important aspect of tension creation and aesthetics for the performers themselves.

To our ears, the acoustic accents in recordings of many Easter songs often suggest a compound anacrusic 6/8 rhythm. Similarly, the European subjects to whom examples of these recordings were played have tended to perceive and tap the metre as 6/8 (Figure 3a). However, the footfalls of the dancers imply an on-beat 2/4 rhythm (Figure 3b). As the reader will note, the relative durations of these two likely ways of transcribing these alternate perceptions of the rhythm do not match up.

When the rhythmic values of individual notes were measured in milliseconds¹⁶ it was discovered that relationships between the durations of individual notes were often asymmetrical and variable, but that the pulse and durations of rhythmic groups (e.g. of two or three notes) were highly regular. The notation of Figure 3c comes closer to the true durational values (the use of a time signature and bar lines is to aid analysis and should not be taken as implying metrical strong and weak beats).¹⁷

An iambic (short–long) relationship between paired shorter value notes, both in the strummed *charango* accompaniment and voices, was found in many examples of this style.¹⁸ In the case of bars 1 and 3 (Figure 3c) this is in close approximation to the ratio 3:5, although in other songs this variable ratio was nearer 2:3, and occasionally nearly equal. However, European listeners tended to hear this pattern as the ratio 1:2 (quaver–crotchet), leading them to perceive the second note of the pair as a marker of pulse. Thus, small differences in durational values were “misperceived” by the European listeners who assimilated them into metrically conformant categories or “conventional” proportions (see Clarke 1985), these “categorical perceptions” (see Harnad, 1987) occurring without any conscious effort (or indeed awareness) on the part of the listeners.

¹⁶ Using SoundEdit and Alchemy software on Apple Macintosh.

¹⁷ The durational values of these measurements are, for practical reasons, only approximate. Defining the start of a rhythmic event using computer-generated imaging of the sound envelope is often somewhat subjective and arbitrary, especially in the case of the human voice. For example, the onset of phonemes initiated by stops may be measured quite precisely whereas those initiated by sibilants and nasals are more gradual and difficult to define.

¹⁸ Ellen Leichtman has transcribed *charango* rhythms from Sacaca, northern Potosí (probably for Easter songs) with the consistent rhythm ^e q^e q (1986:153), which comes quite close to the 3:5 ratios of our measurements.

Viacha Puntapi

(A)

(B)

footfalls

charango

footfalls

Tunaririllasun hiyaway wiritay tunaririllasun
 Let's make merry hiyaway wiritay let's make merry¹⁹
Puntapi, puntapi Viacha puntapi; Q'illu rosas t'ika
 On the peak, on Viacha [mountain peak]; Yellow rose flower²⁰

Figures 4a and 4b "Viacha Puntapi" (see Recordings IIIa and IIIb). *Charango* player: Alonzo Vilka; singers from Cairuma community province, Alonzo de Ibanez, northern Potosí, recorded in Sacaca 19 April 1987 (Easter Day) (Tape 29b:1-79)

¹⁹ The verb stem *tuna-* implies dancing, singing, drinking and other ingredients which enliven a ceremonial occasion. The words *hiyaway wiritay* appear in numerous dry season song texts. *Wiritay* is derived from the Spanish *vida* (life), but to date performers have been unable to supply an explanation of the meaning of *hiyaway*.

²⁰ The word *rosas* implies both the colour rose (pink) and the flower itself.

The *charango* upstroke

Another example of this tendency for European listeners to “misperceive” the rhythm of Easter songs is found in “Viacha Puntapi” (Recordings IIIa and b, Figures 4a and b). The powerful strummed accent of the *charango* on the upstroke (second event) of the regular paired down–up strums (in a variable iambic rhythmic ratio approximating 2:3) is likely to be heard by many listeners as the pulse, thus leading to an anacrusic interpretation of the sounds (Figure 4a). Two short sound examples of this song are presented; the first (Recording IIIa) features the *charango* with the voices heard in the background and the second (Recording IIIb) highlights the voices. Towards the end of the first of these recordings (IIIa) the dancers’ footfalls may be heard very clearly, marking the regular pulse of the song (as shown in Figure 4b).

In a number of recordings of Easter songs the downstroke of the *charango* accompaniment, which coincides with the pulse (and performers’ footfalls) was almost inaudible. Thus, the only part of the player’s motion realized in sound was the upstroke. This may result from the fact that many players dampen (or even entirely stop) the strings on the downstroke, but allow them to ring out on the upstroke. Similarly, as Figure 6 demonstrates, the *charango* upstroke in Viacha Puntapi is sounded with much greater intensity than the downstroke, thereby heightening rhythmic tension and leading to a tendency to perceive the upstroke as the pulse. Figure 6 also highlights the iambic (approximate 2:3 ratio) nature of the *charango* motor programme which in turn supports the rhythmic inequality of the voices.



Figure 5 A *charango* player holding his instrument at an exceptionally steep angle (Bustillo province, northern Potosí) April 1989. In rural music it is more common to see *charangos* held almost parallel to the ground and quite low against the player’s body.

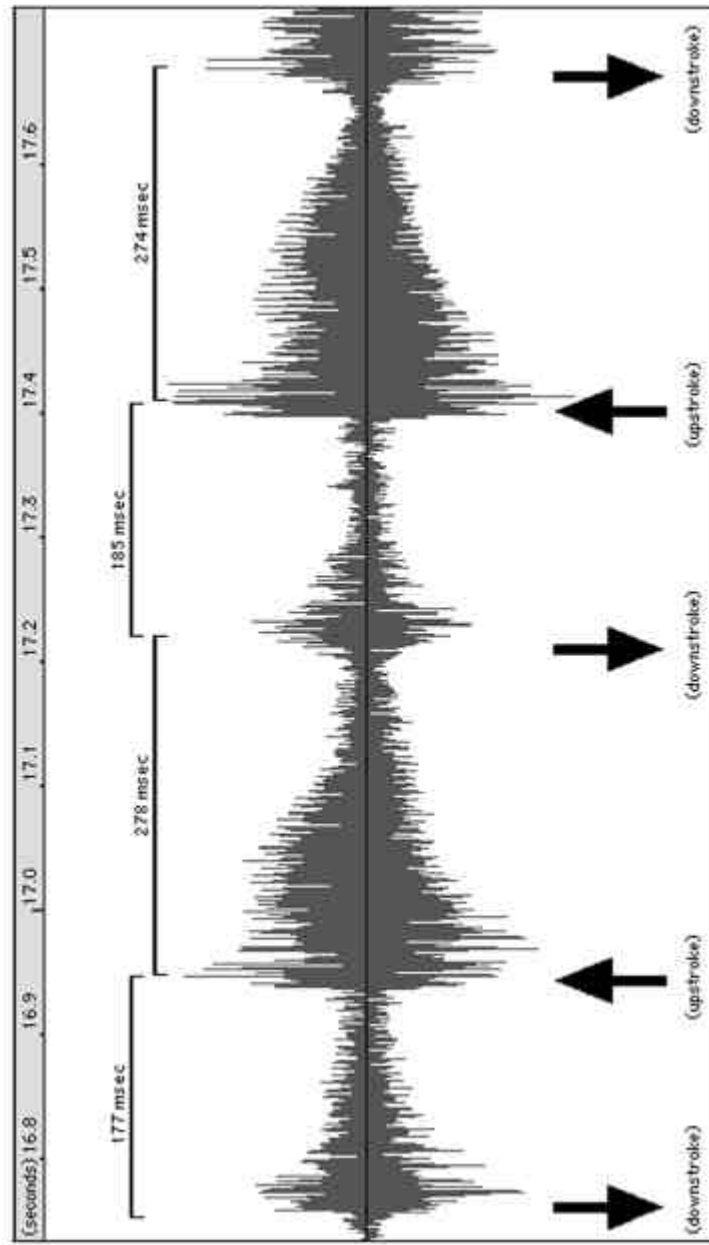


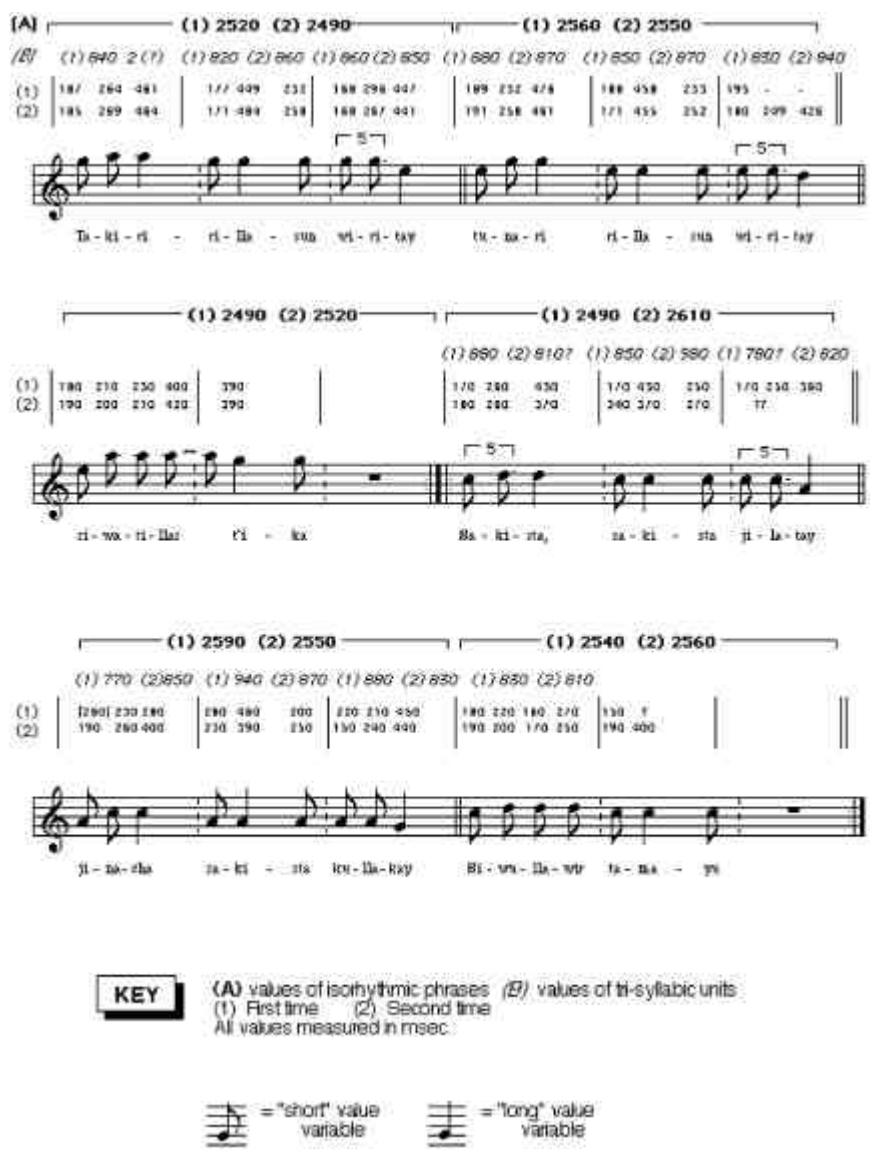
Figure 6

The combined duration of the downstroke and upstroke of the *charango* (which is also the pulse and inter-footfall interval) is generally in the region of 500ms. This approximates Fraisse's "spontaneous tempo" (1956), which Clarke relates to the "intrinsic pendular movements of the body" (1999:488). Pöppel and Wittmann (1999:842) suggest that at, or above, this time period of 500ms, fine temporal control of repeated actions is possible as it allows for "the collection of somatosensory information", so that the performer is able to use muscular feedback to time each subsequent event accurately. However, durations of each individual downstroke or upstroke of the *charango* in Easter songs are between 150 and 280ms. According to Pöppel and Wittmann periodic motor actions with durations of around 200ms are at, or beyond, the limit of such control and must rely on "course pre-attentive control" (1999:842). This means that Easter song rhythms appear poised between control and autonomy, with the larger combined downstroke/upstroke movement susceptible to fine temporal control while the components of that movement are freer to vary, within the constraint of the first event of the pair being shorter – and less intense – than the second.

Listening exercises

The first Easter song excerpts (Figure 3a, b and c) were taken from "Sakista Jilatay", the vocal part of which is transcribed in full in Figure 7. Readers may achieve a crutic or "on-beat" perception of this song (Recording II) fairly easily by tapping along with the *charango* introduction and maintaining this rhythm through the rest of the song. At the ends of phrases the reader may well find himself or herself slipping into an anacrutic (6/8) hearing of the song (Figure 3a), a phenomenon which we shall consider later. Also, like the authors, the reader may well find it difficult to consciously switch between an on-beat (crutic) and an anacrutic perception of the rhythm.

In our transcriptions we have avoided using complex note values to represent precise durations (besides sometimes showing an approximate 2:3 ratio as a group of 5). Such complex notation would be both difficult to read and probably fail to convey the flexibility of the iambic rhythmic relations. To give a sense of this variability, in Figure 7 we have included the durations of individual notes and groups measured in milliseconds. A fair degree of variation in individual durations may be seen through the course of the piece, but there is considerable consistency on repeats suggesting that this rhythmic inequality may have an expressive function. Such potential expressivity operates within remarkably consistent values at the level of three-bar isorhythmic phrases (2643–2750ms), one-bar trisyllabic units (855–927ms), and individual "long" events, shown as crotchets (426–484ms) – even when "syncopated". The value of these "long" events (which is the same as the pulse and inter-footfall durations) also closely approximates the sum of the "short" and "medium" events, which appear to be negatively correlated (the longer the first, the shorter the second). Thus, the variable and potentially expressive iambic nature of



Takirillasun wiritay tunarillasun wiritay siwatillas t'ika

Let's sing *wiritay* / let's make merry *wiritay* / barley flowers

Sakista, sakista jilatay jinacha sakista kullakay siwulla wirta mayu

Tell me, tell me brother / Just like that, tell me sister / Onion garden river.

Figure 7 Transcription of "Sakista Jilatay", showing durations of individual notes and groups in milliseconds (the values in bar 9 refer to the *charango* accompaniment) (Recording II)

individual “short” and “medium” durations in Easter songs operates within a highly regular broader rhythmic structure and phrase structure.²¹

It is also evident from Figure 7 that the first event in each ternary group (or bar) is always the shortest, whether followed by a note of “medium” or “long” duration. The first “short” event coincides with the pulse (marked by footfalls) and the downstroke of the *charango*, whereas the second event coincides with the high intensity *charango* upstroke. Similarly, when the second event is “medium” in duration, the third (“long”) event coincides with the second *charango* downstroke, but when the second event is “long” in duration the third (“medium”) event coincides with the second *charango* upstroke. It is only at the ends of phrases that this isorhythmic pattern is temporarily distorted, as we shall discuss later.

Figure 8 shows the co-ordination between the *charango* motor programme and the first and second syllables of the voices in each trisyllabic unit. The synchronization of the first syllable and pulse (footfalls) with *charango* downstroke perform a “referential” function within the broader rhythmic structure, whilst the co-ordination of the variably timed second syllable with higher intensity *charango* upstroke appears more “expressive” in nature.

Complex rhythmic relations in previous studies of Andean music, such as those discussed by Leichtman above (1987:161, 170), have been explained in terms of the juxtaposition of triplet and duplet subpulses – an approach undoubtedly derived from Western European notational conventions. However, it seems likely that real time measurements might reveal rather different types of asymmetrical rhythmic relationships and interactions, perhaps comparable with those of Easter songs.

The measurements in Figure 7 highlighted the close interaction between the iambic rhythm of the *charango* and that of the voices. But in certain Easter songs, such as “Suwamay sakistathis,” iambic effect is much less pronounced

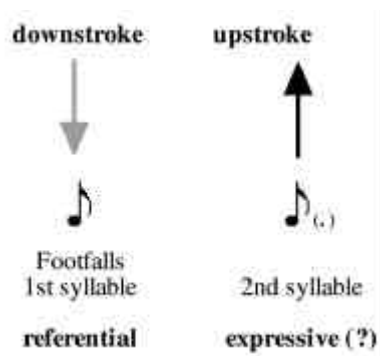


Figure 8 Referential/expressive function of *charango* and vocal rhythm

²¹ See Gabriellsson 1999 for comparable studies of expressive timing in the performance of Western tonal music.

Suwamay Sakista

(A)

Ta-ki-ri-ri - lla - sun hi-yaway wi-ri - tay tu-na-ri-ri - lla - sun

Sa - ki - sta, sa - ki - sta su-wa-may sa-ki - sta sa-say en-ga - ña -

sta cho-li - ta q'i-lhu ro-sa t'i - ka D.C.

charango

(B)

Ta-ki-ri-ri - lla - sun hi-yaway wi-ri - tay tu-na-ri-ri - lla - sun

Sa - ki - sta, sa - ki - sta su-wa-may sa-ki - sta sa-say en-ga - ña - sta

cho - li - ta q'i-lhu ro-sa t'i - ka D.C.

**Charango player: Juan Agavisi
and singers from Estancia Liapa Ilapa
province Alonzo de Ibañez, Northern Potosí.
Recorded in Sacaca 19.4.07 (Easter Day)**

Takirillasun hiyaway tunarillasun
Let's sing *hiyaway* let's have a good time
Sakista, sakista suwamay sakista
Tell me, tell me "I'll steal you away"
Sasay engañesta cholita q'illu rosas t'ika
Saying, girl, you cheat me, yellow rose flowers.

Figure 9 Transcription of "Suwamay sakista" (Recording IV)
(a) Typical offbeat perception of rhythm by Western Europeans
(b) On-beat perception of rhythm based on performers' footfalls

The figure displays a musical score for an excerpt of "Suwamay sakista". It consists of two staves: the top staff is for the *charango* and the bottom staff is for the *voices*. Above the *charango* staff, a series of vertical arrows indicate strumming patterns: a downward arrow (labeled '=downstroke') followed by a sequence of alternating upward and downward arrows (labeled '=upstroke'). The *charango* staff shows a melody with many beamed eighth notes. The *voices* staff shows a vocal melody with notes that align with the *charango* strumming. Below the *voices* staff, the lyrics are written in a syllabic format: Ta-KI-ni - RI - LLA - SUN hi-YA-way wi-RI - TAY in-NA - ni - RI - LLA - SUN. Capitalized syllables (Ta-KI, RI, LLA, SUN, hi-YA, wi-RI, TAY, in-NA, ni, RI, LLA, SUN) are placed above the corresponding notes. A legend at the bottom right states: "CAPITALISED syllables coincide with accented charango chords".

charango

voices

Ta-KI-ni - RI - LLA - SUN hi-YA-way wi-RI - TAY in-NA - ni - RI - LLA - SUN

↓ =downstroke

↑ =upstroke

CAPITALISED syllables coincide with accented charango chords

Figure 10 "Suwamay sakista" (excerpt), showing interaction between the *charango* strumming and the vocal melody syllabic stress of the voices.

and the paired notes of the *charango* accompaniment are of almost equal duration (Recording IV, Figure 9a and b).

Western European listeners have tended to perceive “Suwamay sakista” as anacrusic or offbeat,²² like the other Easter songs discussed, but the relative equality of paired events, especially in the *charango* accompaniment, leads to a 1:1 or 2/4 perception of the rhythm (Figure 9a) rather than the 2:1 (6/8) categorization found in, for example, “Viacha Puntapi” (Figure 4a, Recording III).

Once again, in the *charango* accompaniment of the song “Suwamay sakista” a higher intensity second event (upstroke) and relatively weaker first event (downstroke) is maintained. This is shown in Figure 10, alongside a simultaneous stress on the second event in the vocal melody, marked by capitalised syllables. These various aspects of performance practice push towards an offbeat (anacrusic) perception of the rhythm – where the final three notes of the vocal melody in each section are likely to be misinterpreted as coinciding with the pulse, rather than as “offbeats”.

Production or perception?

The strong tendency for Western European listeners to hear Easter songs as anacrusic led us to wonder whether Bolivian peasant musicians presented with these recordings, outside the performance context, would also perceive them as anacrusic. Was such anacrusic interpretation of the rhythm a by-product of the production process and likely to be shared by listeners from different cultural backgrounds? Or alternatively, were the Western Europeans and Bolivians in question perceiving these rhythms in different ways?

To investigate these questions we carried out some informal explorations of how listening strategies might relate to the experience of rhythmic patterning. These involved playing a tape that included a number of Bolivian recordings, a synthesized melody (imitating an Easter song but with equal stress on every duration), and several European melodies that were either anacrusic or non-anacrusic, to Bolivian and Western European participants. Each subject was asked to clap (or tap) along with the music as though they were dancing to it and the result was recorded on a second tape recorder. Although the informal nature of the tests limits the extent to which the results may be generalized, a number of standard types of response appears evident.

For the Easter song recordings of Northern Potosí, without exception the Bolivian subjects, who all spoke Quechua or Aymara as their mother tongue, clapped in time with the performers’ footfalls, even though many of them were unfamiliar with this genre. Furthermore, for the examples of anacrusic European melodies, the Bolivian subjects tended to treat the anacrusis or “upbeat” as synchronic with the pulse, thus functionally as a “downbeat”.

²² This perception of the rhythm should perhaps be described as “offbeat” rather than strictly anacrusic as we have transcribed it with three notes (rather than just one) before the barline.



Figures 11a, b and c

This tendency for the Bolivians to include the first note of a melody as a clapped or “pulse” note was especially evident in an unaccompanied recorder melody that was composed and played especially for the experiment. The melody was composed so that it might be performed to emphasize either an on-beat, duple (2/4) or anacrustic, compound (6/8) interpretation. It was recorded twice, the two versions separated by another piece. The first version was performed so as to favour an anacrustic, compound (6/8) metre (see Figure 11a) whilst the second was played so as to favour an on-beat, duple (2/4) interpretation (see Figure 11b).²³

For both versions, the tapping of the Bolivian subjects implied an on-beat/duple (2/4) or on-beat/ternary (3/8) perception of the rhythm (Recording V). In contrast, the responses of many of the Western Europeans implied that they perceived both melodies as anacrustic and compound (6/8) (see Figures 11a, b and c opposite).²⁴

These initial results remain at present inconclusive. However, it would seem that Western European subjects have a tendency to perceive the second and longer duration of short–long rhythmic events as determinants of metrical stress (see Lee, 1991) whereas Bolivians appear to ascribe that stress to the first and shorter duration.²⁵

Bolivian subjects	Western European subjects
(short–long)	(short–long)
first-note stress	second-note stress

The fact that this shorter duration is the first sound that is heard is also significant. For the Bolivian subjects this first sound within a phrase appears to initiate and mark the pulse of the piece.²⁶ Thus, for them, the hierarchy of rhythmic events would appear to be organized according to the order in which these rhythmic events are heard rather than on the basis of their durational relationship to one another. It appears that for the Bolivian subjects the first note of a melody tends to be perceived as hierarchically dominant (as a marker of pulse) in respect of the second, even when the first pair of notes is in the relation short–long, an interpretation that would run counter to rules that have been adduced as being universally applicable to all musics (Metrical Preference Rule

²³ This metrical distinction was made using Western performance conventions. For the anacrustic (6/8) interpretation this involved a short, light anacrustic quaver, leading to a lengthened crotchet, and for the on-beat (2/4) interpretation a stressed first quaver followed by an unstressed and shortened crotchet.

²⁴ John Blacking (1995 [1967]:164) has noted a similar tendency among the Venda to treat short-long durations as iambic (as in Figures 11b and c) rather than as anacrustic (as in Figure 11a). However, the context and performance strategies he describes to explain this phenomenon appear rather different from the Bolivian case discussed here.

²⁵ Significantly, many Quechua songs feature iambic (short-long) rhythmic relations. For example, the majority of the Carnival songs from Ayacucho, Peru, transcribed in Vásquez and Vergara 1988 follow the pattern: $\text{e} \text{ qe} \text{ q}$.

²⁶ This is also the case for the many Bolivian melodies which begin with the rhythmic durations long–short.

5a, Lerdahl and Jackendoff 1983:348). It also accords with David Hughes' suggestion (1991:330) that metre, as construed within Western music-theoretic tradition, may not have the universal applicability that is generally assumed for it.

Cognitive perspectives

The contrasted perceptions of the rhythmic structure of Easter songs by Bolivian and Western European subjects suggested the possibility of differing cognitive processes at work. We hypothesized a number of cognitive explanations to account for the iambic (short-long) pairs of durations present in many Easter songs, such as the possibility that Bolivian musicians were perceiving rhythmic structure in some figural way, independent of regular time hierarchies (see Hargreaves, 1996:160), or that they were employing different rhythmic categories from Western listeners. This led us to design an experiment which aimed to compare how small time differences in durational proportions were perceived by subjects from rural Bolivia and Europe. However, there were several methodological flaws in this experiment, which seemed to demonstrate (although inconclusively) no significant differences between the patterns of judgements of the European and Bolivian listeners (except a greater tendency for Europeans to be able to distinguish between regular equal patterns and irregular patterns).

Neither the figural nor the categorical hypotheses appeared helpful here, but the iambic nature of the pairs of durations did suggest the possibility that the rhythmic structure of Easter songs might be constrained or shaped by the phenomenon of "time-shrinking". This process, first proposed by Nakajima et al. (1991), suggests that when two short time intervals are experienced consecutively and comparatively, the second must be significantly longer than the first for both of them to be experienced as equal in duration. It has been suggested that time-shrinking, which occurs most strongly when durations of less than 200–300 milliseconds are involved, "probably reflects a universal perceptual mechanism operating at a level before linguistic idiosyncrasies determine listening behaviour" (1991:18).

The durations in Easter songs lie close to the upper threshold (c. 200ms) of those employed in the experiments demonstrating time shrinking. Nakajima et al. suggest that below this threshold time shrinking is more-or-less unavoidable in perception, becoming less so as the threshold is approached, which might help explain the rhythmic ambiguity encountered by many listeners to Easter songs – especially those aiming to make symbolic and consistent judgements about the durational relations between paired notes, such as an ethnomusicologist attempting to transcribe this music. But, whilst time shrinking may help us to understand how paired iambic durations might be employed to produce a subjective equality of duration in Easter song performance, it does not explain the differences in rhythmic perceptions encountered between Bolivian and European listeners. One area which does,

however, offer a possible explanation for this complex situation, is the prosodic structure of the Quechua (or Aymara) language of these songs.

Language

The stress rules of the languages Quechua and Aymara, in which these songs are sung, work in a rather different way from most European languages.²⁷ The primary stress in Quechua (on which we shall now focus) appears on the penultimate syllable of a word, and the secondary stress comes on the first syllable (Cerrón-Palomino 1987). As a suffix-based language, this means that the position of the primary stress in Quechua is highly variable. For example:

<u>Ta</u> -ki- ku -ni	<u>Ta</u> -ki-ri-ku- sha -ni	<u>Ta</u> -ki-ri-ku-sha- lla -ni ²⁸
I sing	I'm singing	I'm just singing

It is significant that the secondary stress always occurs on the first syllable of a word, and as such is the only “fixed” stress feature. Thus, in terms of stress, the initial sound or syllable of a word is usually privileged as a referential feature in respect of, for example, the second syllable. This may help to explain why the Bolivian subjects tended to perceive the first note they heard as marking the pulse.

However, an exception to this pattern for Quechua stress would appear to occur in the case of words with three syllables where the primary stress comes on the second syllable, thus favouring it over and above the first syllable. Might we then expect mother tongue Quechua speakers to treat songs that started with such words as anacrustic?

Trisyllabic stress: Wi-ri-ta [“Life”: Spanish loan word]

Bruce Mannheim (1986) has noted that such tri-syllabic words, where the primary and secondary stress are placed consecutively, are rare in Quechua and form an exceptional category. These exceptional tri-syllabic words are also found in adolescents’ riddle games in Peru, and have been interpreted as a means of achieving verbal competence (Isbell and Roncalla 1977). Significantly, this exceptional class of tri-syllabic words is particularly common in Easter songs and even appears to form the rhythmic basis of this genre, where three-syllable words (or six-syllable words treated as two tri-syllabic words) are incorporated into isorhythmic figures.

Ta-ki-ri	-	ri-lla-	sun
sa-ki-sta,		sa-ki-	-sta
□□□		□□□	□□□

²⁷ Both Quechua and Aymara are widely spoken in the areas where these songs are sung and many of the performers from our recorded examples spoke both these languages (and sometimes Spanish).

²⁸ Primary stress in bold, secondary stress underlined.

The exceptions to this essentially trisyllabic rule and structure come only at the ends of phrases when words of even syllable number (e.g. two or four) are introduced. This has the effect of skewing the isorhythmic pattern set up by the repeated tri-syllabic combinations of words. From the authors' perceptions, the skewing of the tri-syllabic isorhythmic figures by the introduction of words with even syllable number also seems to have the effect of emphasizing an anacrustic (6/8) interpretation. It seems likely that Bolivian performers of these songs might also experience some form of rhythmic tension at these points, perhaps adding to the aesthetic pleasure of the song.

Despite the prosodic tri-syllabic rhythmic configurations of Easter songs, which Western listeners usually seemed to perceive as anacrustic, the Bolivian performers and subjects all treated the first syllable as a "downbeat" or dance step. It would seem that Quechua stress rules, which might imply an anacrustic interpretation in the trisyllabic case, are not followed in this genre. Alternatively, it may be necessary to reconsider these stress rules and question Bruce Mannheim's classification of the first syllable in tri-syllabic Quechua words as "extra-metrical" (1986:58). Perhaps, for the poetry of Easter songs at least, it may be appropriate to identify two distinct forms and functions of Quechua stress: (a) "primary" stress, marked by intensity, pitch or duration (as commonly used in English), which signals the termination of a word;²⁹ and (b) "secondary" stress, which may be perceived in other ways and serve a qualitatively different function.³⁰

The perception of "secondary" stress in Quechua might be compared to modern Welsh, in which intensity and pitch give no indication of stress. Indeed, the regular stress that occurs on the penultimate syllable is often wrongly perceived by English people to occur on the final syllable, due to the increased duration of the post-stress consonant (Williams 1983). It seems possible that the "secondary" stress at the start of a Quechua word may act as some kind of perceptual anchor, as the onset of a delimited stream of sonic linguistic information, which is marked in song by a dance step.³¹ In the case of the tri-syllabic words of Easter songs, where exceptionally "secondary" and "primary" stress occur adjacently, this unusual juxtaposition would seem to heighten rhythmic interest for the performers.

The Andean anacrusis?

As we have argued, Easter songs are an exceptional genre in a number of respects, and have required us to focus on rhythmic structure and perception in

29 Where a Quechua word consists of a variable length cluster of suffixes added to a stem.

30 This also suggests that the classification "primary" or "secondary" is somewhat arbitrary – reflecting the Western history of linguistics and its categories rather the reality of how stress might actually function in Quechua.

31 This is in part prepared for by the "primary stress" which marks the end of a preceding word.



Figure 12 Young *charango* players about to accompany Easter songs. The *charango* is closely associated with courtship. (Sacaca, Alonso de Ibañez province, northern Potosí, Easter 1997)

considerable detail. The typically iambic and higher intensity *charango* upstroke and second syllable, alongside elements of play in language stress patterns, are clearly of great aesthetic importance for the performers, adding to rhythmic “tension” and interest. But even if outsiders, such as the authors, often find themselves hearing this music anacrustically, an anacrustic interpretation of these songs was notably absent from Bolivian mother tongue Quechua (or Aymara) speakers. This raises the question of whether the absence of the anacrusis, or rather the tendency to treat the first syllable of a phrase as a functional “downbeat”, is more widely generalized among the songs of mother tongue Quechua (and Aymara) speakers. A thorough survey of music from across the Andean region would be necessary to reach any firm conclusions on this question. Although such a survey is beyond the scope of this paper, it is worth noting that none of the several hundreds of Quechua or Aymara songs (and instrumental pieces) from the peasant communities of northern Potosí that we have recorded and analysed were found (after overcoming our initial misperceptions) to be anacrustic.³²

The implications of Quechua stress on the construction of melodies (and thus perception) has also been discussed by Vásquez and Vergara who note that “the rhythm of Carnival melodies [from Ayacucho, Peru] responds to the

³² A few instrumental pieces from Yura, to the south of Potosí, were however undoubtedly anacrustic. These may have been based on Spanish rather than Quechua songs.

³³ Incidentally, none of the Carnival melodies transcribed by Vásquez and Vergara include an anacrusis and many begin with iambic (short–long) rhythmic pairs.

rhythm of the Quechua words, and because of this when the melody is presented with Spanish, sometimes, it seems to contradict the accentuation of this language” (1988:196 our translation).³³ This linguistic basis for difference in the rhythmic structure of Andean songs seems to be significant. For example, an anacrustic rhythmic structure is common in predominantly Spanish language genres, such as the Peruvian Yaravís and Marineras transcribed by Rodolfo Holzmann (1966:25, 29, 70 etc.). In the few examples from this collection where Quechua songs have been transcribed as anacrustic, it seems likely that Holzmann has been subject to rhythmic misperceptions similar to those that we encountered (1966: 40, 62, 67).

Whilst language seems to be of considerable significance for understanding the rhythmic structure in Andean music, it is important not to present Spanish and Quechua/Aymara musics as neatly isolated spheres of musical activity. The juxtaposition of Spanish and Quechua (or Aymara) stress patterns in the Andes needs to be understood in the historical context of these languages’ close proximity, interactions and mutual borrowings since the sixteenth century, as well as widespread bilingualism. Indeed, like many other essentially Quechua (or Aymara) genres, Easter songs incorporate a number of Spanish loan words, such as *wirita*, from the Spanish *vida* (“life”). Also, Quechua (or Aymara) words have often been set to melodies derived from Spanish prosody, and vice versa. For example, Carlos Vega has observed how singers unconsciously apply their own “rhythmic system” to renditions of a “foreign song” (*canción extraña*) – thereby creating a hybrid (1941:495–6) and Ellen Leichtman has described the *mestizo huayño* in terms of “a blending of Indian and European rhythmic understanding” (1987:170).

This leads us to wonder how often Spanish melodies have been reinterpreted by mother tongue Quechua or Aymara speakers without anacrusis (as we discovered in their tapping to anacrustic European melodies), or how often speakers of European languages have added anacrusis to Quechua or Aymara melodies. For example, one of the authors played and sang the song “Cholita Chapareña” as anacrustic (Figure 1a) for several years before becoming aware of the placing of the footfalls on the original recording (Figure 1b). It seems likely that similar forms of rhythmic misperception, or reinterpretation, may underscore the development of many Andean musical genres through the course of the region’s complex history of *mestisaje* (cultural mixing) and Westernization.

Conclusions

We have seen how the interplay between features of language (in the form of rules of prosody), motoric patterns and other aspects of performance acts to shape Easter songs, enabling the *charango* players and singers to sustain the “unevenness” of rhythmic relations. These act together in opposition to the referential function implied by the fixed – perhaps even default – status of the initial syllable stress to create and sustain tension, affording a dynamic

rhythmic structure to the performance, keeping it “on the edge”.

It can be hypothesized that the fixed status of the stress on the initial syllable leads to the initial event in a temporal pattern coming to act as a “perceptual anchor”, a determinant of the temporal structure in respect of which other elements will be perceived. It may not be too far-fetched to conceive of this “orienting” function for Bolivian musicians of initial events in respect of later events in perception as being similar (in function, if not in form) to the orienting function exercised by, e.g., the tonic in respect of other scale notes within Western tonal music. Hence patterns of tension and resolution might be articulated in this Bolivian music in terms of match or mismatch of temporal structure with the accent structure expected on the basis of prosodic rules together with other elements, such as motor patterns, in performance.

It is interesting to consider Easter song performance in terms of what appears to be the most highly developed theory of temporal musical cognition, Jones’s theory of dynamical attention (Jones 1976, Jones and Yee, 1993). According to this theory, the function of rhythmic and metric frameworks in the experience of patterns unfolding in time is to reduce the amount of cognitive effort involved in interpreting such patterns by enabling listeners to align their expectations with predictably spaced reference points marked by the occurrence of beats. However, the mechanics of this theory, in which relative duration constitutes an important cue in the abstraction of a regular periodic framework of beats, would appear to require considerable reformulation in order to account for Easter song performance. Moreover, the prosodic and motoric factors central to the articulation of the experience of time in Easter songs scarcely figure in either Jones’s theory or, indeed, in most theories of the cognition of time in music (although see Pressing et al. 1996, and the accounts of Todd and Parncutt’s theories in Clarke, 1999).

Overall, a conclusion that may be drawn from this study is that while certain capacities and propensities can be shown to be operational in the cognitions of Western and non-Western subjects and might thus be deemed to be “cognitive universals”, the ways in which the operation of these cognitive universals might be actualized in the performances of different cultures can be highly divergent. Although inevitably conforming to general timing constraints on human perceptual systems and on periodic motor behaviours, the ways in which rhythm and metre are structured in a culture’s music appear, from this study, to be highly culture-specific. Whereas rhythmic complexity in much Western music can be accounted for in terms of the expectancies generated by the periodic and hierarchical nature of “conventional” Western phrase-structure (albeit that these have historic origins in dance), the capacity to produce complex and ambiguous rhythms appears in this instance to derive from a complex interaction between linguistic prosody, movement patterns, perceptual constants and the dynamics of a culture’s musical aesthetics.

It may be that an account of the experience or cognition of music within the peasant culture of Northern Potosí either should not or cannot be expressed in terms of what might be thought of as the sorts of “natural kinds” that have been applied to account for the cognition of music within a Western cultural context.

These natural kinds constitute things like pitches and durations, which, according to Lerdahl and Jackendoff, constitute the musical surface, a level of description that (in Jackendoff's 1987 account) mediates between auditory input and conceptual representations of musical structure in cognition. The idea of a musical surface that is comprised of pitches and durations as constituting the substrate for natural kinds in music cognition may simply reflect specificities of much Western musical usage and may accurately reflect elements in and of Western musical cognition. But the close ties between language, movement and rhythmic structure evident in Easter songs would suggest that an appropriate mechanism for mediating between sensory (not just auditory) input and conceptual structure can be described only by taking into account all these contributory and interacting factors.

This view is similar to that of Kofi Agawu, who has characterized Ewe conceptions of rhythm as "not a single unified or coherent field, but rather one that is widely and asymmetrically distributed, permanently entangled, if you like, with other dimensions" (1995:388). Similarly, Agawu's aim to "develop a view of African rhythm in which its mechanical aspects are shown to reside in broader patterns of temporal signification (movement, language and gesture)" (1995:395), has many resonances with our own approach for the case of the Andes. However, for us, the focus is less on the "broader patterns" but rather on the factors that motivate them, locating these in the domain of embodied and encultured cognition.

Easter songs comprise just one of the countless and extraordinarily varied genres of rural musics of the Andes. Their performance and specific type of rhythmic interplay are appropriate to a specific time of year and limited to a small geographical area. However, we may have an important lesson to learn from the rhythmic structuring of these songs in our approaches to Andean music in general as well as in our understanding of the relation between music and cognition. It is significant that while many English songs – indeed, poetic metres, such as iambic or anapaestic – are anacrustic, very few (if any) songs in the Andean languages Quechua or Aymara can truly be classified as such. Those which have been transcribed or claimed as anacrustic, necessarily by (ethno)musicologists schooled in the European classical tradition, might tell us more about the perceptions of the researcher than about the Andean music or musicians in question.

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