Perspectives on the song of the indigenous peoples of northern Eurasia: performance, genres, musical syntax, sound

Edited by
JARKKO NIEMI

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Layout *Maaret Kihlakaski*

Cover *Mikko Reinikka*

The book cover design is based on indigenous Siberian motifs (Tuvin ornamentation on leather and Nenets ornamentation on fur and cloth), presented, for example, in Ivanov, S. V. 1961. Ornament. Istoriko-etnograficheskiy Atlas Sibiri, ed. M. G. Levin & L. P. Potapov. Moskva-Leningrad: AN SSSR. Pp. 369–434.

ISBN 978-951-44-7877-2 ISBN 978-951-44-8015-7 (pdf)

Tampereen Yliopistopaino Oy – Juvenes Print
Tampere 2009

This publication is respectfully dedicated
to the memory of
Professor Vladimir Vladimirovich Mazepus.

Contents

Foreword

For the first time in the history of ethnomusicology in Finland it became possible to bring together some theoretical and methodological issues concerning musical practices of the so-called northern indigenous peoples of Siberia and the Eurasian North in the form of a special symposium, which took place at the Department of Music Anthropology, University of Tampere, 23–24 April, 2004. Siberia usually makes good headlines, but the theme of this symposium could also have been labelled otherwise: as the study of the least studied or almost non-studied traditions of ethnic minorities way outside academic projects or the most dense scientific crossroad areas of research.[1]

So far, productive efforts in creating traditions of continuous collegial gatherings of researchers in the field of study of the musical traditions of the Finno-Ugrian and Uralic people have been made by Estonian, Hungarian and Finnish researchers. Especially admirable is the work of Estonian musicologists in organising international scientific conferences in this field, already beginning from the 1970's. I would be very happy if our symposium in Tampere and this publication of the papers can be thought of as a contribution to that collegial tradition.

1. The organisation of this symposium, participation in it and publishing the present collection of articles was part of the results of the author's postdoctoral researcher period (2002–2004), funded by the Academy of Finland (N:o 80548/201789). The editor wishes to thank Jenny and Antti Wihuri Foundation for financial support and Virginia Mattila for proof-reading the English text.

The Russian colleagues participating in the symposium and the present publication belong to the ethnomusicological collegium of the Department of Ethnomusicology of the Novosibirsk State Conservatory. They have been specialising in the study of Siberian indigenous musical cultures already from the 1980s, so that this department has been established as the centre of its kind in Russia.

My personal contacts with the ethnomusicologists of the Finno-Ugrian republics and also with Russian scholars of this speciality stem from the beginning of the 1990s, from a symposium organised by Ingrid Rüütel in Tartu, Estonia. This symposium was planned to bring together ethnomusicologists from different regions of Estonia, Finland and Russia – in order to plan collaborative efforts for research and publication of materials associated with the study of Finno-Ugrian musical traditions in Baltic Finnic, Permian, Volgan and Ob-Ugrian and Samoyedic areas. The Tartu symposium was a starting point for me also for collaboration with Russian ethnomusicologists like Igor' Bogdanov, specialising in ethnomusicological study of the northern indigenous peoples. Bogdanov began his fieldwork at the end of the 1950's, while working in the conservatory of Vladivostok. He was able to engage groups of students in his fieldwork projects around the area. One of these students, Yuriy Sheykin, was to become his most active disciple during the 1970's. Bogdanov continued travelling and collecting musical folklore throughout Siberia and the part of his massive collections resulted in the seminal series of disks, published primarily between the 1970's and the 1990's by the Soviet record label Melodiya. Sheykin, in turn, moved to Novosibirsk, already with an extensive, practical experience of the musical cultures of the northern indigenous peoples. It was largely due to Sheykin's efforts that the conservatory of Novosibirsk and later its Department of Ethnomusicology was to be established as the centre for the Russian ethnomusicological study of the northern indigenous peoples. From the 1990's, Sheykin pursued his career in Yakutsk, but his colleagues continued to develop the Novosibirsk collegium of ethnomusicologists, refining, for example the methodology for the analysis of vocal timbre. While the city of

Novosibirsk is located on the river Ob', in the vicinity of the Altai-Sayan mountain ranges in southern Siberia, it was quite natural that the Novosibirsk ethnomusicologists began to work especially with the musical cultures of the Turkic peoples of southern Siberia, but also downstream along the river – with Ob-Ugrians. This is the collegium that we had the opportunity to invite to Tampere. Unfortunately the researchers specialising in the study of the Uralic peoples like Galina Soldatova working with Mansi, Ol'ga Vasilenko working with Khanty or Oksana Dobzhanskaya working with the northern Samoyedic musical traditions were unable to join us on that occasion.

A short history of indigenous peoples of the northern Eurasia as an area studies topic

In the wide theoretical and methodological horizon of ethnomusicology – a speciality of scientific inquiry characterised more by its object of study than its uniform methodological history – there is a wealth of research orientations having a strong emphasis on sophisticated manipulation of theoretical models adopted from sociology, musicology, literature studies, history, linguistics, anthropology, ethnography etc., aiming at research themes *near* to the average European's everyday life. This comprehensive research orientation forms a continuum, on the opposite side of which seem to be located projects and orientations that have originated from the classical imperative of anthropology and ethnography to study the objects *less known* for Europeans, whether the native, tribal, peasant or imperial other.

If we accept that the mentioned fields of scientific investigation have more or less conventional arrays of theoretical and methodological procedures, which give a rigorous background for solving the most imaginable research problems in the realms of phenomena close to European, urban, post-industrial etc. social reality, problems may

emerge if we direct our gaze outside this known world. At the same time, it has been acknowledged that even the most sophisticated study of a researcher's own cultural phenomena may pose substantial methodological and interpretative challenges.

It must be immediately added that there are classical cases in the field of human or cultural studies, where the theoretical premises applauded in the field of the philosophy of science have been, in fact, exported to explain cultures remote to us, right from the beginning of the ethnographic era in human and social sciences (Boas, Malinowski, Mead, Lévi-Strauss etc.) In the scientific pursuits of the early 20th century to the exotic, non-European, alien, tribal was thus accorded a position of an empirical example to represent proofs whether in favour of cultural evolution, diffusionism, structuralism or functionalism.

Whatever the interest of a researcher was, this orientation triggered a totally new era in human and social sciences – that based on researcher's personal witnessing of the phenomena (s)he was studying. The concept of fieldwork achieved its full meaning – only to be problematised later as the issues of multivocality, reciprocicity and symmetria became important concerning the research objectives.

Concerning the generation and intellectual legacy of ethnomusicological research I am able to identify with as a Finn, one of the most important contexts for area research is, obviously, traditional music in the Baltic Finnic language area. As it is, obviously, more important to define this area of research interests in terms of local cultural traditions and not by borderlines of nation states, this "Finnish" area is best described in a close analogy of the geographical distribution of the speakers of Baltic Finnic languages. Thus, this research context is thereby already enlarged to encompass cultural heritage of people living in, besides Finland, also Estonia and Russia. Extended slightly further, this context is widened towards the study of other Finnic peoples as well. We thus arrive at a larger Finno-Ugrian context and it is at this point, where the ideological history of scientific enterprise is particularly clearly seen. "Finno-Ugrianism" can be defined as a conglomeration of, mainly, linguistic and ethnographic scientific investigations, hav-

ing its history in ideological imperatives for the search of ethnic roots, voiced at the end of 18th century, for example by H. G. Porthan of the then Åbo Academy.

During the second half of the 18th century, the knowledge about the peoples of the Russian Empire was already beginning to accumulate, due to the massive, complex explorations initiated by the Russian tsar Peter the Great. The primary task of these projects was to gather knowledge about Siberia and its environmental resources, geography, minerals, flora and fauna – but also about the people living there. Due to the legendary, long joint fieldwork projects accomplished by D. G. Messerschmidt and Ph. J. T. von Strahlenberg (1719–1727), V. Bering, J. G. Gmelin and G. F. Müller (1733–1743), P. S. Pallas, V. F. Zuev, J. G. Georgi and I. I. Lepekhin (1768–1774), first accounts of the people inhabiting the Russian North began to be available.

The era of Finnish Finno-Ugristics began with the fieldwork of A. J. Sjögren during 1824–1829 on the Karelians, Sami, Komi and Udmurts and especially with the unprecedented fieldwork of his successor M. A. Castrén in 1841–1844 and 1845–1848, with the ultimate aim of giving the first, comprehensive account of the limits of the areal of languages related to Finnish. The main thrust of Castrén's work was associated with gathering linguistic data for identifying the Samoyedic languages, which were understood as forming a special group of languages remotely related to the Finno-Ugrian languages. The Hungarian linguist Antal Reguly pioneered the research of Ob-Ugrian languages, also by fieldwork expeditions in 1844–1845. Due to the work of Castrén and his successors, it was possible to reinterpret and corroborate the vague knowledge of the 18th century explorers about the linguistic relatedness of the people of (western) Siberia and to formulate the internal hierarchy of the large family of Uralic languages and its Finno-Ugrian and Samoyedic branches.

This is the historical background motivating area studies from the Finnish perspective. Finno-Ugrian studies still have a pronounced impetus, as reflected in Finnish academia by long traditions of top level Finno-Ugrian linguistics, but also as the establishing of international

network of scholars specialised in Finno-Ugrian or Uralic languages and culture.

However, this was not the whole point in organising a seminar for ethnomusicologists specialised in the study of little known indigenous musical cultures of western and southern Siberia. We need information and interpretations of musical cultures representing a wide range of ethnic, linguistic or cultural factors. In this case, the central factors are – ultimately – place and time. Geographical relationships point to areal processes, as interrelatedness of ethnic traditions, whereas time points to historical factors, such as possible common cultural processes in the past of various pre-ethnoses, which render it possible to explain – or at least to make bold interpretations – of cultural interaction in the past. Thus, beyond the immediate imperatives of Uralic studies – perhaps designed during the 19th century as projects of national identity – there continues to be a compelling relevance for larger areal comparisons of the frustratingly weakly studied oral traditions of the northern indigenous peoples.

This publication is an attempt to sketch some borderlines for the study of some areal characteristics of phenomena of traditional song styles. Geographically, this area centres on Russian western Siberia, inhabited by indigenous peoples speaking Uralic languages (Samoyedic and Ob-Ugrian peoples). However, the cultural and historical whole of this area has strong ties to its southern borders, to the mountainous areas of the Altai and Sayan, inhabited by peoples speaking Altaian (Turkic) languages. Thus, this publication is also an attempt to begin the dialogue between researchers specialised in Uralic and Altaian indigenous musical traditions, in order for better understanding of the areal processes in the realm of forms of traditional expressive acoustic communication in western and southern Siberia, including the related Sámi and Baltic Finnish areas in the west.

Indigenous small peoples of the North and problems of ethnomusicology

The decree of the Government of the Russian Federation (17th April 2006, N:o 536-r) confirmed the List of the Indigenous Small Peoples of the North, Siberia and Far East of the Russian Federation including the following people (given in singular form): Aleut, Alyutor, Chalkan, Chukchi, Chulym (Turk), Chuvan, Dolgan, Enets, Eskimo, Even, Evenki, Itelmen, Kamchadal, Kerek, Ket, Khanty, Koryak, Kumandin, Mansi, Nanai, Nganasan, Negidal, Nenets, Nivkh, Oroch, Orok (Ul'ta), Sami, Selkup, Soyot, Taz, Telengit, Teleut, Todzha Tuvin, Tofa, Tuba, Udege, Ulcha, Shor, Veps and Yukagir. From this list are excluded some indigenous peoples that are not considered "small", i. e. the Sakha (Yakut), Tuvin (proper) and Buryat or other Finno-Ugrian people besides the Veps. This governmental listing articulates the threats of cultural future of particularly the people considered "small" in population statistics, although the future expectations for the survival of language and culture are far from unproblematic among the more numerous people either. Moreover, the list is rather symbolic in its identification of ethnic units of the governmental minority policy. It gives hardly any clues for understanding the complex ethnographic circumstances under many ethnic appellations of the list. Many of the people listed are, in fact, complex ethnic conglomerations, consisting of internal groupings varying by language or subsistence system. Thus, many names listed conceal, in fact, internal ethnical tension, majority-minority asymmetries and varying possibilities of survival of languages not necessarily intelligible between each other. Thus, for example the northern Khanty have the privilege of the literary standard of the Khanty language, while the eastern Kanty communicate with their northern neighbours in Russian. The division and power relations are somewhat similar between the Tundra and Forest Nenets, just to mention few examples.

The study of musical traditions of these so-called small indigenous peoples of the North (including the Siberian indigenous peoples as well

as, say, one of the most ancient Finno-Ugric nations: the Vepsians) has long been in need of a conference dedicated to this particular theme. The need is for theory and the need is for methodology. In ethnomusicology, there are no ready-made theoretical approaches or methodological canons for solving a specific research problem. Usually the researcher's secondary specialties and her/his personal inclinations point to the theory and methods chosen. In western ethnomusicology this has resulted in a wealth of perspectives, whether anthropological, musicological, sociological, linguistic, ethnographical, philosophical or those associated with literature studies.

It has to be emphasised, however, that the definition of an ethnic research area in association with, say, propagation of a particular methodology of research, is not unproblematic. It is possible, for example, to argue that the concept of "Finno-Ugrian studies" refers not so much to a definable area of cultural inquiry as to a linguistic network of communities. There are similar problems in proclaiming "Siberian indigenous music" a geographically and ethnically defined area of research that insists a methodology or theoretical approaches if its own. For me, the question is more practical. "Siberian" or "Eurasian" indigenous music as a definition for boundaries and interests of research is best understood through ethnographic, historical or ecological realities: most of the indigenous cultures of northern Eurasia can be grouped into areals according to their linguistic, ethnic, historical or economic characteristics. In turn, various research problems can be formulated as addressing the specific nature of these areals. Ultimately, "Siberia" has no special characteristics that make it stand out from other areas of indigenous people on our globe – perhaps other than cultural ecological and geographical context. For example, it is possible to formulate theoretical standpoints applicable both for the study of singing styles of, say, Siberian Forest Nenets and Canadian Cree. Transcontinental cultural comparison, however, evokes premises of its own. As for most of the present research interest, studying indigenous Siberian musical practices involves yet producing basic empirical evidence – because it has not yet been done to a sufficient extent.

Perhaps now it is time for the first possibilities of interpretation that explain areal distribution or exchange of phenomena of indigenous Siberian traditional cultures, as we begin to have enough evidence for this – but also attested, reasonable, culture-sensitive methods of working with this empirical evidence.

Problems of genres, syntax and sound as ethnomusicological research problems in the study of musical practices of the Eurasian indigenous North

The foci of the symposium held in Tampere were *genres*, *syntax* and *sound*. As most of the traditions presented in these papers are comparatively little studied in general, this publication opens up, in many cases, issues of a more detailed level, hardly ever touched upon before. The issue of *generic* categories of the forms of traditional expressive communication must be based not so much on prevailing folkloristic theorising, but especially backed up with new information resulting from ethnographic fieldwork. In what ways are the traditional forms of acoustic expression categorised generically from the point of view of the traditions themselves?

The study of the *syntax* of the traditional expressive communication adds to the understanding of the forms of this communication in the realm of the logic of the architecture. What are the elements, of which, for example, sung expression is made? Furthermore, what are the principles of pitch organisation and metrical structures in different local traditional styles? By the study of syntax understanding is sought especially of the order of traditional forms of expression. Songs, for example are not built up of random pieces of musical motifs, word formations or other acoustic landmarks. Each traditional local style consists of some kind of order between the structure of its elements. The efforts of the researchers presented also in this publication contribute

to understanding of the fundamental structures of some indigenous Siberian and northern local singing styles.

An additional object for the study of the traditional acoustic expression is the study of *sound* phenomena. This research orientation must lean to multidisciplinary innovations achieved, for example, in speech studies. In some indigenous singing styles, especially in Turkic southern Siberia, variational range of vocal sound seems to have even generic relevance, which also justifies the importance of sound studies in this area.

The presentation by Nataliya Kondrat'eva sums up the need for general agreement on an analytical symbol language in the analysis of musical traditions outside Europe. The propositions for a graphic representation of vocal styles, which the conventional notational metalanguage is only vaguely capable of describing, are of great importance. It is no wonder that the initiative for this comes form the area of studies of South Siberian indigenous vocal styles, where many of the phenomena relevant for the local singing traditions have no counterpart whatsoever in the conventional notational symbolics.

The Estonian ethnomusicologist Triinu Ojamaa's paper on extremely little studied dance traditions of the Taimyr Nganasan includes both an account of the historical changes in Nganasan traditional culture within the last hundred years and also an in-depth analysis of the vocal sound production of the vocal part of the dance performance. Ojamaa's analysis adds to the understanding of analytical possibilities in examining vocal sounds in between sung, speech or recitative expression.

Docent Galina Sychenko contributes to the present publication with two texts. Her first text introduces the concept of musical intonation, its historical formation and its particular usages among many of the present Russian ethnomusicologists. Coined already at the beginning of the 20th century in Russian musicology, the concept of intonation epitomised in the work of Boris Asaf'ev. He linked it with the domain of competence and semantic formulation of a local culture, thus extending the conceptual scope of the concept from mere cultural

conventions associated with production of tonal structures to larger, culture-bound norms and practices of making sound. Asaf'ev's view of musical intonation was, in point of fact, also essentially philosophical and thus in its original form it was not designed as a conceptual instrument to work with the wealth of phenomena associated with ethnic, local musical traditions.

However, the 1980's marked a new era in studies of Siberian indigenous musical cultures, as the accumulated ethnographical data began to permit the first generalisations. Asaf'ev's theory of intonation was also revived as it became evident that there were rich depositories of local musical expression in use among various peoples of the Siberian tundra and taiga that seemed to lack proper definition in the European sense. Among the indigenous peoples of Eastern Siberia and the Pacific Coast peculiar techniques of so-called throat-grunting are widely distributed. These performance techniques are a unique mixture of raspy, grunting inhalation and exhalation arranged into a rhythmical form, sometimes including conventional vocal sounds with a definable pitch level. In southern Siberia, there are numerous traditions of biphonal singing. Acoustic expressions addressed to domesticated or hunted animals or to nature, whether because of signal or ritual purposes are produced in various ways, either by the human voice or with sound instruments, like birch-bark trumpets that are sucked.

Various findings of this kind evoked a systematisation of various exuberant ways of production of acoustic signals among the indigenous people of Siberia. The continuum of voice production seemed to include so much more than speech, singing or instrumental music. The term "intonational culture" was suggested by the Novosibirsk ethnomusicologists in order to be used in description of various ways of acoustic communication. As it became evident that some of these techniques of production of acoustic signals were more or less restricted ethnically, the concept of an "intonational culture of the ethnos" was proposed. This conceptualisation takes the Asaf'evian concept of intonation into a new, ethnographically attested context. Sychenko's article about the concept of intonation in Russian musicology is most welcome to

non-Russian readers, because it offers background for understanding this development and revival of the original concept – but most of all, it underlines the difference of the Asaf'evian intonation from the conventional usage of the term in European musicology.

Sychenko's second text is based on her research with the Turkic peoples of southern Siberia. She presents Todzha Tuvin and Chalkan materials to address the question of a multitude of generic polymorphia of various local traditions, as well as their manifestation in performance practices.

Nataliya Skvortsova, specialist of the musical styles of the South Siberian Turkic peoples and of the Tofalar[2] in particular, examines in her paper the architectural similarities between the widely used standard melodies of the Tofalar to those of the neighbouring Oka valley Buryats and Soyots. Her detailed comparative analysis of pitch phenomena related to metrical basis in a traditional song is a perfect example of the – often neglected – possibilities of a rigorous structural analysis as a means to gain new insights into musical data not thoroughly explored before.

In my own paper I present some recent field materials from the Pur River Forest Nenets. My purpose here is to address both the problem of structural identity of Forest Nenets individual, owned songs and to the problem of singing styles of adjacent ethnic groups. With the first issue I wanted to explore the limits of the possibilities of musical and metrical analysis in cases of indigenous Siberian musical styles, the structural elements of which are especially problematic to define as relevant parameters of analysis. The second issue addresses the question of merging of musical elements of neighbouring traditions.

Professor Timo Leisiö applies recent advances in the neurophysiology of hearing to his theoretical standpoint on the abilities of the human ear to respond to musical pitches. He illustrates his analytical system here with Altai Turkic materials of Nataliya Kondrat'eva and Vladimir Mazepus.

2. The ethnonym Tofalar has been established in the literature with a Turkic plural form, instead of the Turkic singular form Tofa. Likewise Tuba / Tubalar.

Jari Eerola presents his work on computer-aided musical analysis based on his Vepsian fieldwork materials. He concentrates especially on examining Vepsian *lühüd pajo* songs and their possible generic and performance characteristics reflected, for example, in the so-called long term average spectrum graphs or by examining the formant structures of the song samples.

The theoretical innovativeness of the late Professor Vladimir Mazepus (1947–2006) in designing a computer-aided approach to the measurement of some characteristics of a *sound* – and especially that of *tension* in a vocal style – is still an unprecedented departure. His personal scholarly background as a physician, highly competent to give a mathematical formulation contributing to various relevant phenomena in the area of cultural studies presents a rarely emphasised direction, the value of which is only gradually beginning to be fully understood among the humanists.

Ol'ga Novikova's presentation on melodic intonational models among three regionally definable groups of Buryats reveals a wealth of possibilities for the formation of modal structures – in the context of one single anhemitonic mode presented in her paper. At the same time, her method of analysis may prove very helpful in its applicability to other local traditions.

Marko Jouste suggests some fundamental analytical ways of approaching Sámi musical structures. Although extensively studied in the field of ethnography and anthropology, there is still much to be done towards understanding the principles of the architecture of the musical styles of the various Sámi groups, as there are three distinctive local Sámi singing traditions to be studied only within the borders of Finland, not to mention the Sámi in Norway, Sweden and Russia.

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Pitch structures in the traditional music of the peoples of Siberia

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Characteristics of pitch organisation in Siberian indigenous music cultures

At present, there are over 40 indigenous peoples living in Siberia. Each of them masters a highly evolved traditional musical culture. Siberian traditions of musical folklore are strikingly original, which seems to be why they form a metacultural whole, sharply differing from the European (Mazepus 1997).

The specific character of the Siberian metaculture appears, along with other parameters, in its characteristic pitch organisation. Hence to establish and adequately describe the pitch systems of the traditional music of the indigenous peoples of Siberia is one of the most important problems in ethnomusicology.

This problem has already interested researchers for a long time. In the solution of this problem, remarkable successes have been achieved. Among these comes first and foremost the typology of intonational and pitch structures presented by Eduard Alekseev (1986), as well as the findings of G. A. Grigor'yan on the phenomenon of the "opening" modes (Alekseev 1976). However, so far many substantial features of the pitch organisation in the musical traditions of Siberia lack clarification and further investigation.

Progress in this direction can be connected with two factors. First, research of pitch structures of Siberian music presupposes the use of specialised computer programs designed for the accurate definition of the acoustic characteristics of sound. With the help of these programs, it is relatively easy to accurately define pitch, dynamic and even timbral parameters of sound complexes really existing in the musical examples. Among the computer programs which have proved to be highly effective in the study of Siberian pitch structures, we can especially mention the present version of the program Speech Analyzer (© Summer Institute of Linguistics International).

Altogether, applying computer technology does not, by any means mean a decline in the traditional auditory transcription and conventional five-line notation of traditional music. More exactly, the question concerns checking the accuracy of our auditory experience, as well as applying complementary symbols which reflect the relevant characteristics of the pitch organisation of the tradition studied. In any case, the computer melogram or spectrogram cannot fully replace auditory transcription, at least because at the present we have not yet worked out formal criteria to permit the infallible identification of the real pitch level incidents from computer artefacts.

The second important factor is the transition from the analysis of separate examples to the analysis of whole musical traditions and styles. With this kind of approach, the subject of the study becomes immediately the whole of the available material of a tradition, in other words, its structural organisation as such. New perspectives in this direction are offered by the universal-grammatical method developed in the 1990's (Mazepus 1993), which has shown its fruitfulness with different materials (Mazepus & Poluektova 1994; Kondrat'eva 1996; Nazarenko 1998; Poluektova 1999; Novikova 2003).

These factors lead in the direction that already at the level of segmentation, we have to give up the traditional view that minimal segments of music are understood as sounds with *determined pitch*. In many cultures – from the Mansi of western Siberia to the Tuvins in the South and to the Chukchi in the Northeast – we encounter pitch

contours which are at times quite complex, i. e. musical sounds in which the pitch changes constantly. These contours, which are realised at certain degrees of the scale, form the basis of the universal (at least for the Siberian cultures) pitch level segments, which are maximal durational units in the musical texture and which are compatible by reason of their universality. Of course, in each concrete ethnic, local and even generic tradition, a specific selection of elements of a higher level can be systemically defined (and, corresponding to a higher level structure, also with longer durations), but even then, the universal elements examined here retain their salience, because it is particularly their combination that forms the segments of a higher structure.

A proposal for a typology of indigenous Siberian pitch contours

The pitch contours existing in Siberian musical traditions can be divided into two classes. The first class of contours includes an unaltering part, on the basis of which the scale-step can be identified. These contours can be called *stabilised*. Among the stabilised contours, six basic types can be identified.

1) *Level contours (a), without substantial pitch level alterations during the duration of the segment.*
2) *Pre-gliding contours (b), having in the initial phase of the duration a rapid glissando. On the basis of the direction of the glissando, the pre-gliding contours can be further divided into contour types pre-gliding from above (b^1) and pre-gliding from below (b^2).*
3) *Post-gliding contours (c), having in the final phase of the duration a rapid glissando. Analogically with the pre-gliding contours, the post-gliding ones can be divided into contours post-gliding ascending (c^1) and post-gliding descending (c^2).*
4) *Mordental contours (d), with a single alteration of the pitch level during the duration of the segment. Mordental contours can be divided into*

further subcategories according to the character of the pitch level of the central tone of the mordent contour, into high (d^1) and low (d^2) and according to the phase in which the alteration occurs, into initial, medial and final mordental contours.

5) *Pulsating contours, with multiple mordental fluctuations of pitch during the duration of the segment. Among the pulsating contours it is possible to differentiate high (e^1) and low contours (e^2), in relation to the pitch of the auxiliary tone.*
6) *Vibrating contours (f), with multiple periodical, minuscule alterations of the pitch, in general not exceeding 20 cents.*
   It seems that stabilised segments may absorb characteristics of different basic types, that is, pre-gliding-mordental, mordental-post-gliding segments etc. are possible, as are segments containing characteristics of all the types.

Contours associated with the second class do not at all contain parts that are stable in pitch level. They consist throughout of glissando and can be called gliding (Kondrat'eva 1999). Gliding pitch contours can also have different configurations and can accordingly be divided into three basic types:

1) *Sloping (g), with pitch changing in one direction. They are further subdivided into ascending (g^1), where the pitch rises throughout the segment and descending (g^2), where the pitch descends throughout the segment.*
2) *Arcuate (h), where there is one bend in the pitch line. By their internal configuration, arcuate contours can be divided into ascending-descending (h^1) and descending-ascending (h^2).*
3) *Zigzag, with two bends in the pitch line. They may also be ascending (i^1) or descending (i^2), according to the direction of their initial movement.*

Working with gliding segments requires solutions to certain principal problems. One of these is associated with establishing the type of configuration and the pitch dimensions of the glissandi within the segment. Furthermore, a separate methodological problem is the definition of the steps of that tone scale on which the gliding pitch contour is realised.

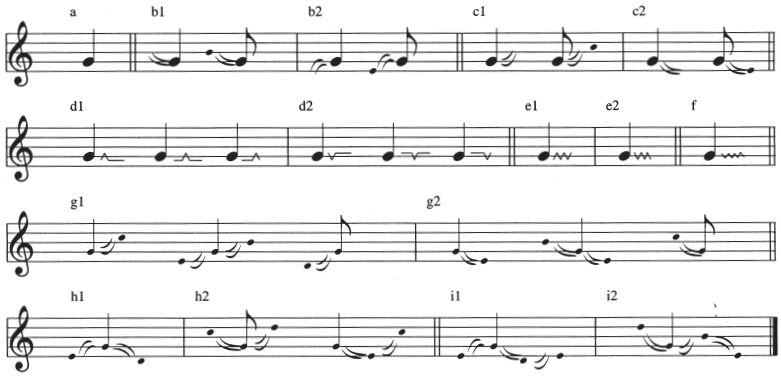
Criteria for discerning the steps may be the slowing up of the glissando at some part of the segment, a point of turn in the pitch line, a dynamic accentuation, or, probably, other factors, likewise their combinations. In either case, this question needs special examination.

As already was mentioned, in each ethnic culture, and sometimes in each generic tradition within a culture its own selection of segments and, consequently, of pitch contours is realised. Thus, for example, in the culture of the Telengits level, pre-gliding, post-gliding, mordental and vibrating contours can be observed. Among the Tuvins, the neighbours of the Telengits, pulsating contours are also widespread. Different types of gliding contours, together with stabilised segments, which include a part stable in its pitch level, form relevant units of pitch structures in the songs of the Siberian Tatars (Kapitsyna & Kondrat'eva 2002), Nenets (Skvortsova 2001; Jouste & Niemi 2002), Udehe, in the shamanistic singing of the Chalkans, in Buryat lullabies and in many other Siberian musical traditions.

All types of pitch contours enumerated occur regularly in the musical examples. They oppose each other in systemic relationship and form the rich palette of expressive means, ignoring which would probably mean the loss of what is indispensable in the music of the Siberian peoples. There is no need even to mention that detailed investigation of systems of this kind is possible only with the help of detailed computer measurement.

In the context of a conclusion about the principal meaningfulness of the pitch contours, it seems to be unavoidable also to discuss their symbolic representation in notational text. As a whole, it is entirely appropriate to use conventional notation with correspondingly more detailed symbols for the representation of the steps of the stabilised contour and for the steps of the gliding contour. The gliding contour is represented here with a small note with a stem, connected with a double tie to small notes that show the limit and turning points of the glissando (traditionally glissando is indicated with double ties). The note with a stem in a composition of a segment marks its total duration.

The note example (Ex. 1.) shows the introduced symbols for level (a), pre-gliding from above (b^1), pre-gliding from below (b^2), post-gliding ascending (c^1), post-gliding descending (c^2), high initial, medial and final mordental (d^1), low initial, medial and final mordental (d^2), high pulsating (e^1), low pulsating (e^2), vibrating (f), sloping ascending (g^1), sloping descending (g^2), arcuate ascending-descending (h^1), arcuate descending-ascending (h^2), ascending zigzag (i^1) and descending zigzag (i^2) pitch contours.



Ex. 1. Proposed symbols for different pitch contours.

From pitch contours to scalar types in indigenous Siberian music

In the following, we move to the question of the structure of the pitch scale, meaning the pitch relationship of the contour segments in the material of the tradition studied.

Multiple measurements have shown that in the musical styles of almost every Siberian culture, there is nothing in common with the classical pitch scale with a dot-like or almost dot-like pitch representation. The pitch scales in the Siberian tradition are not successions of points along the axis of pitch, but systems of pitch zones, which often may be wide

enough to overlap with each other (see Kondrat'eva 2000). Apparently, it would be more accurate to call Siberian pitch scales *zone scales*. The width of each zone ranges from a quartertone to one and a half tones, in some special cases even more.

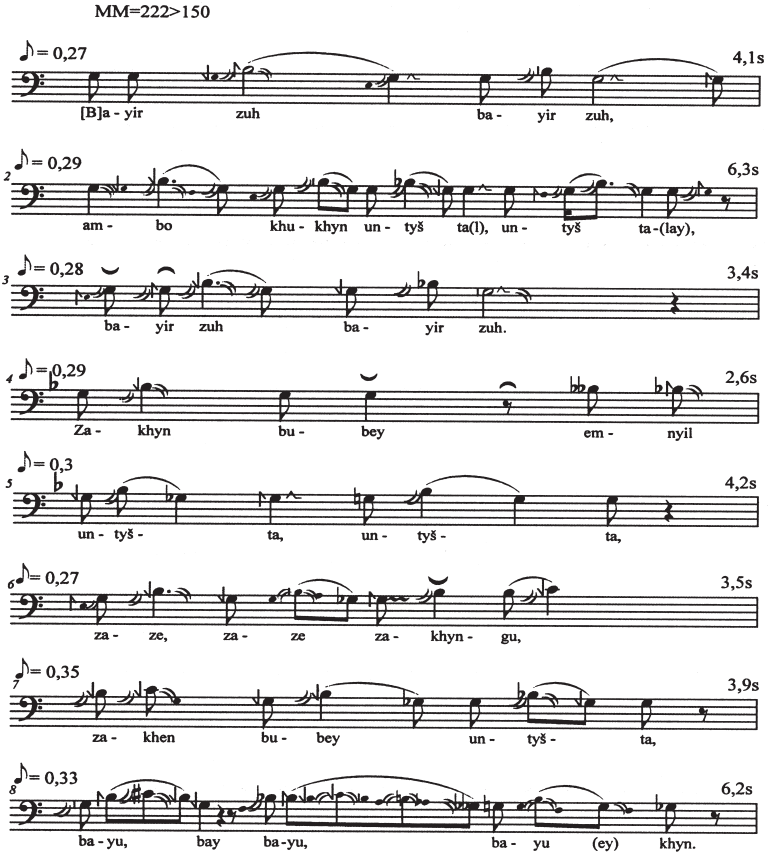
These zones represent formations of quite a complex system. Mostly, among such zones central and peripheral regions can be identified. In the central regions, the adjacent zones do not overlap with each other, so that in this case we can anyway, with some reservations, talk about the interval composition of the pitch scales. In turn, the peripheral zones are more likely to overlap with each other, although this does not mean that the different steps of the pitch scale are mixed with each other.

This is because the concrete pitch realisation of the step depends on its environment in the musical text, in other words on that context in which it is realised in the corresponding material. The realisations of other steps are also conditioned by their position, which means that mixing or mistaking steps usually does not occur in any positions.

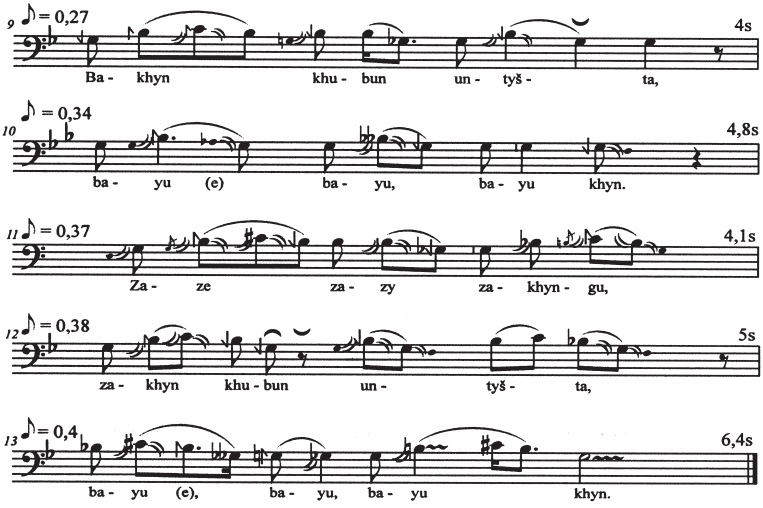
We emphasise that while there are general regularities, the structure of the pitch scale in every ethnic and generic tradition is also culturally conditioned in quite a specific way. Thus, in Telengit stock-raising incantations in a sung form the pitch scale consists of five steps of different width. In four basic steps, almost dot-like centres can be identified statistically and they form a continuum reminiscent of the scalar pattern g–a–h–c. Moreover, the zones of the first and second steps encompass almost a half-tone, with deviations from their centres of a quarter tone up and down, while the zone of the third step comprises almost a whole tone, with deviations from the centre of three quarter tones down and a quarter tone up. The zone of the fourth step is about two whole tones, with deviations from the centre of a quarter tone down, but almost 1.5 tones up. An additional substep (s), which is realised depending on the context as a subfourth either for the first or for the second step, has also a zone of almost 1.5 tones (Kondrat'eva & Mazepus 1999).

In concrete examples of incantations, the basic pitch scale (s)–g–a–h–c may also appear in scalar structures, which are close to successions of g–a–b–c, d–g–a–b–c, eb–g–a–b–c, e–g–a–b–c, g–a–h–c#, d–g–a–h–c#, e–g–a–h-c# etc. However, all these differences which seem to be crucial

from the European point of view, are not relevant for the Telengit musical culture. A completely different kind of structure can be observed in Buryat lullabies, exemplified here in a lullaby (Ex. 2)[1] performed by the master of the Khori Buryat tradition, the story-teller R. E. Erdyneev[2].



1. The recording was made by N. M. Kondrat'eva (sound recording), O. V. Novikova, N. S. Kapitsyna, R. N. Pavlova and A. A. Kachusova, in the village of Ust'-Egita, Eravna rayon, Republic of Buryatiya, on the 11th of July, 2003. Archive of Traditional Music, Novosibirsk State Conservatory, coll. A193, Nr. 196. The music transcription was made by N. M. Kondrat'eva and R. P. Pavlova.
2. Rykzyn Erdyneevich Erdyneev, a Khori Buryat of Khubdut kin, born in 1909 in Ust'-Egita, resident of Ulan-Ude.



Ex. 2. Lullaby of the Khori Buryat.

In this lullaby a three-step scale is used, which can be represented with reservations as a pitch succession g–h–c only. In point of fact, each step includes a rather wide pitch zone, almost completely filled with level parts of segments. The first step especially is realised with level parts of segments in a zone ranging from geses (f) to g#. The width of this zone is 300 cents. Furthermore, around the first step spreads a zone of glissandi reaching a half-step down and 30 cents upwards. It is formed respectively of the initial phases of segments pre-gliding from below and of central tones of high mordentals. The second step has a zone with a range from bes (a), flattened by 50 cents (a^{-50}) to h, sharpened by 90 cents (h^{+90}). Thus, the overall width of the zone is 340 cents. The third step has a zone 170 cents wide, presented with pitches from h^{+60} to cis^{+30}. As we can see, the third step overlaps with the second, and the zone of this overlap is 30 cents.

As regards the types of contours, from the class of stabilised contours level, vibrating, pre-gliding, post-gliding, pre-gliding-post-gliding, high initial mordental, pre-gliding-mordental, mordental-post-gliding

and pre-gliding-vibrating segments are presented, and from the class of gliding – the ascending-descending arcuate segments.

Cases where the zones of some steps of the scale do not have central (i. e. statistically prevailing) regions are quite often met with in the music of the Siberian peoples. Such a phenomenon can be observed in the above example of the Buryat lullaby; it is also characteristic of the so-called "opening" modes, in which, during the process of their intoning, the distance between the steps increases or decreases. The width of such zones may encompass more than three tones. Obviously, it is possible to identify such steps only by their context, which is not always a simple and self-evident task. Thus, fairly complex contexts are observed, for example, in the traditional singing of the Yakuts, Udehe and Evens.

The "zonal" nature of the steps of the scale is also often reflected in the tuning of the traditional musical instruments. A clear example is a Tuvin four-string bowed lute *byzaanchy*, in which the first and the third, as well as the second and the fourth string are tuned in "unison" by a width up to 60 cents.

Moving from segmentation to the study of the grammatical norms of a tradition or a style as a whole, we encounter the necessity to describe the material in terms of structural invariants, in which are unified various segments meaningful to the tradition in question. Indispensable for the structure of the grammar, invariants at different levels can be scrutinised in the framework of the universal-grammatical method (Mazepus 1993). In terms of such invariants, the description of pitch systems achieves particular simplicity and wideness (see, for example Kondrat'eva & Mazepus 1999).

Literature

Alekseev, E. E. 1976. *Problemy formirovaniya lada (na materiale yakutskoy narodnoy pesni): Issledovanie [Problems of formation of the mode (on the materials of Yakut folk song): A Research]*. Moscow: Muzyka.

Alekseev, E. E. 1986. *Rannefol'klornoe intonirovanie: zvukovysotnyy aspekt [Early folkloric intonation: the aspect of pitch].* Moscow: Sovetskiy Kompozitor.

Kapitsyna, N. S. & Kondrat'eva, N. M. 2002. Traditsionnye muzykal'nye zhanry eushtintsev [Traditional musical genres of the Eushta]. *Muzykal'naya kul'tura kak natsional'noe i mirovoe yavlenie [Musical culture as national and global phenomenon]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 104–110.

Kondrat'eva, N. M. 1996. *Skotovodcheskie zagovory telengitov [Stock-raising incantations of the Telengits]*. (Academic thesis, unpublished.) Novosibirsk: NGK.

Kondrat'eva, N. M. 1999. Vysotnaya segmentatsiya kak problema muzykal'noy grammatiki [Pitch segmentation as a problem of musical grammar]. *Materialy mezhdunarodnykh konferentsii pamyati A. V. Rudnevoy, ch. 2 [Materials of the international conference in memory of A. V. Rudneva, part 2]*, ed. N. N. Gilyarova. Moscow: MGK. Pp. 137–142.

Kondrat'eva, N. M. 2000. Printsipy opisaniya zvukovysotnoy organizatsii v traditsionnykh muzykal'nykh kul'turakh Sibiri [Principles of description of the types of pitch organization in traditional musical cultures of Siberia]. *Teoreticheskie kontseptsii XX veka: Itogi i perspektivy otechestvennoy muzykal'noy nauki [Theoretical concepts of the 20th century: conclusions and perspectives in the Russian science of music]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 351–355.

Kondrat'eva, N. M. & Mazepus, V. V. 1999. Modal'naya organizatsiya telengitskikh skotovodcheskikh zagovorov [The modal organization of the Telengit cattle incantations]. *Yazyki korennykh narodov Sibiri [Languages of the indigenous peoples of Siberia]*, ed. N. N. Shirobokova. Vyp. 6. Novosibirsk: SO RAN. Pp. 19–43.

Jouste M. & Niemi J. 2002. Monochronic and additive principles in North Eurasian song styles. Etnomuzykovedenie Povol'zhya i Urala *[Ethnomusicology of the Volga and Ural]*, ed. I. M. Nurieva.Izhevsk: IIYaL RAN. Pp. 250–282.

Mazepus, V. V. 1993. *Universal'no-grammaticheskiy podkhod v kul'turologii [Universal-grammatical approach in culturology].* Novosibirsk: NGK.

Mazepus, V. V. 1997. Muzykal'nye kul'tury Sibiri i printsipy ikh opisaniya [Musical cultures of Siberia and principles of their description].

Muzykal'naya kul'tura Sibiri, t. 1 [Musical culture of Siberia, book 1], ed. B. A. Shindin. Novosibirsk: NGK. Pp. 8–16.

Mazepus, V. V. & Poluektova, O. V. 1994. Grammatika funktsional'nykh otnosheniy v klassicheskoy garmonii (sinkhronnyy i diakhronnyy aspekty) [Grammar of the functional relations in classical harmony (synchronic and diachronic aspects)]. *Problemy istoriko-stilevoy evolyutsii: garmoniya, forma, zhanr [Problems of the historical and stylistical evolution: harmony, form, genre]*, ed. L. V. Aleksandrova. Novosibirsk: NGK. Pp. 54–65.

Nazarenko, R. B. 1998. Muzyka shorskogo eposa: strukturnaya organizatsiya, notatsiya, editsiya *[Music of the epos of the Shor: Structural organization, notation, edition].* (Academic thesis, unpublished.) Novosibirsk: NGK.

Novikova, O. V. 2003. *Pentatonika v pesennoy traditsii buryat [Pentatonicism in the Buryat vocal tradition].* (Academic thesis, unpublished.) Novosibirsk: NGK.

Poluektova, O. V. 1999. *Kitayskaya dvortsovaya muzyka epokhi Tan iz yaponskikh istochnikov (strukturno-analiticheskiy aspekt) [Chinese court music of the Tan dynasty from Japanese sources (aspect of structural analysis)].* (Academic thesis, unpublished.) Novosibirsk: NGK.

Skvortsova, N. M. 2001. O muzyke traditsionnykh nenetskikh pesen [About the music of traditional Nenets songs]. *Fol'klor nentsev. Pamyatniki fol'klora narodov Sibiri i Dal'nego Vostoka, ch. 23 [Folklore of the Nenets. Monuments of folklore of the peoples of Siberia and Russian Far East, part 23]*, ed. B. M. Putilov & V. M. Gatsak. Novosibirsk: Nauka. Pp. 50–86.

Some aspects of Nganasan dance music

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Aims of the present article

This article serves two purposes. Firstly, it gives an overview of the changes that have occurred in the Nganasan dance tradition over the last one and a half centuries. The conclusions are based on the notes of A. Th. von Middendorff, made by him during the Siberia expedition of 1884–1885, on the dance descriptions by Yu. B. Simchenko from 1961, as well as on the fieldwork materials conducted by the author of this paper in the 1980s and 1990s.

The second purpose is to describe the particular character of Nganasan dance music. The dance accompaniment consists of two different parts. The sound of the first part is close to speech and it is often described as *recitative*. In the second part, the dancers imitate the growling of the bear. This article analyses primarily the recitative-like part of the accompaniment.[1]

Nganasan dance has been very little studied, which is why there is not much literature on the topic. This could have two reasons. As will be indicated below, the dance was danced only once a year on one particular

1. A more thorough overview of the structure and phonetic characteristics of the throat rasping used in imitating the growling of the bear has been published in the journal *The World of Music* (*Throat Rasping: Problems of Visualization*).

night. Consequently, the researchers have had only a few chances to witness the dance, at least in an authentic situation. In addition, from the choreographic point of view, the dance has a simple structure and it is possible that it has not been of sufficient interest to researchers. Similar round dances are common all around the world. However, this is not the case with the Nganasan dance accompaniment. This, too, may at first seem primitive. Yet, after a more thorough investigation of the music, several problems emerge: the accompaniment is difficult to transcribe and to describe comprehensively.

Changes in the Nganasan dance tradition

The Nganasan dance at the end of the 19th century

Let us begin with a summary of the main observations of Middendorff and Simchenko on the features of Samoyed dance. Having reached on his Siberia expedition a place called Boganida, Middendorff described in his travel journal a round dance performed by "Samoyed *Assya*'s of Tungus heritage". The dance was accompanied by shouted words *Kheyra! Khonya!* as well as by grumbles and grunting coughs. Both the movements and music were meant to imitate a bear. The dancing took place during the time of snow melting (Middendorff 1956, 208–209).

In summary, the description by Middendorff contains the following pieces of information that can also be found in subsequent descriptions, thus enabling comparison:

The dancers were Assya Samoyeds.
The dance was performed early in spring.
The dance could be classified as a round dance.
The dancers moved clockwise and used cross steps.
Their arms were bent at the elbows and were moving back and forth.
The dance was accompanied by shouted words (Kheyra! and Khonya!) as well as sounds imitating the growling of the bear.

Middendorff's dance description does not clearly indicate the actual origin of the dancers. According to an interview conducted by the author of this paper, *Assya* is a name given by the Nganasans to the Dolgans. The word also has the connotation 'younger brother', which implies that the Dolgans were regarded as newcomers in Taimyr when compared to the Nganasans, the native people. According to Kortt and Simchenko, the word means 'Dolgan, Tungus, eastward neighbours' (Kortt, Simchenko 1985, 64). Consequently, the tribe name *Assya* in Middendorff's description would refer to the Dolgans, but on the other hand the Dolgans are not Samoyeds. The words *Kheyra!* and *Khonya!* used in the accompaniment to the dance would also indicate that these peoples were the Dolgans. The data collected from the Nganasan and Dolgan informants suggests that the word *kheyro* in Dolgan means 'the sun' and it is often repeated in the texts used as dance accompaniments. According to G. Alekseeva, *Kheyro* is the name for a Dolgan round dance (Alekseeva, *manuscript*).

The prime indicator that these people were, nevertheless, the Nganasan (Samoyeds) is the fact that they danced a bear dance. The Dolgan dancers usually imitate the mating dance of storks (Alekseeva, *op.cit.*).

Middendorff's description of the choreography indicates several similarities with both the Nganasan and Dolgan dance. Both are round dances with clockwise movement and cross steps. However, as Middendorff's description does not mention bowing that – according to Alekseeva – plays an important role in the Dolgan dance, we could assume that he is describing the dance of the Nganasans. In favour of the Nganasans is also the fact that Middendorff witnessed the bear dance while staying in Boganida. As is known, this was the area in which the Nganasans spent the winter.

I would like to add here that during the 1989 fieldwork in the Ust'-Avam village[2], the Nganasans performed both the bear dance and the Dolgan *Kheyro*. The movements in *Kheyro* were similar to those in the Nganasan dance (i.e., there was no bowing), but the dance was ac-

2. Researchers from various Estonian research institutions and the conservatory of Novosibirsk participated in the fieldwork.

companied by shouts of "*kheyro*". This permits the conclusion that the two basically similar dances could easily have been contaminated.

It is interesting to note that Middendorff with his Baltic-German background saw fervour and elegance in the dance, while the Nganasans themselves have complained about the clumsiness of their dance compared to the modern European dances. The only element that seemed to disturb Middendorff was the "illicit fluctuation" in the song accompanying the dance. Middendorff's dance description has nicely captured the so-called philosophical core of the dance, but his description remains sketchy – especially with regard to the context of the dance. The dance description gradually turns into a very detailed description of nature, which is understandable given Middendorff's profession and the purpose of his expedition.

The Nganasan dance in the middle of the 20th century

Simchenko provides us with a good overview of the dance itself as well as the associated events. He describes the Nganasan dance as it was danced in the middle of June 1961 near the Ust'-Avam village. The dance was associated with the *Ani'a d'aly* ('Big Day') ceremony. It took place as soon as the snow started melting and the first patches of ground became visible.

The ceremony started with an offering to the Earth Mother, Water Mother and Sun Mother. Then the round dance began. The singers were only the men. The melody was composed of two tones, which, according to Simchenko, made up a pure fifth. On the higher tone, the singers inhaled with a rasp and on the lower tone of the fifth, they exhaled with a throaty sound (Simchenko 1963, 173–174).

Simchenko's description provides us with the following details (the information that is new or different compared to the Middendorff's data is marked in bold).

The dancers were **Avam Nganasans** *(i.e., Samoyeds).*
The dance was danced early in spring **as a part of the *Ani'a d´aly* ceremony.**
The dance could be classified as a round dance.
The dancers moved clockwise and used cross steps.
The rim and heel of the right foot were put down alternately.
The arms were bent at the elbows and were moving back and forth.
The dance was accompanied by sounds that were produced through inhalation and exhalation.
The singers were only the men.

When we compare the data of Simchenko and Middendorff, we can find some minor choreographic differences. Simchenko's article contains very important information on the accompaniment of the dance. It is possible that he was the first researcher to notice the fact that the Nganasans use both inhalation and exhalation to produce musical sounds. This breathing technique differs from regular singing, where sounds are produced only during exhalation.

The dance described by Simchenko is associated primarily with the traditional Dolgan culture primarily through the fact that this dance is a part of the ceremony that marks the beginning of spring. Even the name is the same: 'Big Day' (cf. the Nganasan *Ani'a d´aly*; the Dolgan *Ulakhan kün takhsyyta* (Alekseeva, *op. cit.*)). Both Nganasan and Dolgan informants have reported that on this day, they greet the sun after the passing of the polar night. There are many similarities between the Nganasan and Dolgan customs: the time and reason of the celebration of this feast; the inclusion of the dance in the structure of the ceremony; choreographic similarities; similar interpretation of the dance (i.e., the dancers imitate the behaviour of some bird or animal); only the men sing to accompany the dance.

When we view the Nganasan bear dance in a wider context against the background of the whole Siberian traditional culture then, based on the typology by G. Sychenko, it is associated with the collective

ceremony (Sychenko, *manuscript*).[3] According to Simchenko, the shaman participated in the events of *Ani'a d'aly* as an ordinary person. The event was organized by the oldest woman in the village; she was the person who summoned everybody together. The festivities started with an offering performed collectively (Simchenko regards it as a reflection of the ancient order of Nganasan society). Immediately after the offering, the dance circle was created without any particular person being in charge of the activities (Simchenko 1963, 169–173).

Nganasan dance at the end of the 20th century

The third dance description is based on the video recording made by the author in August 1989 in the Ust'-Avam village. The dance was no longer danced in authentic situations in the 1980s and the *Ani'a d'aly* rituals had also ceased. The recorded dance was performed to show the researchers how the Nganasans used to dance in the past. The circle consisted of the family members of Dyulsymyaku Kosterkin (see Photo 1). The children had not danced nor even seen such a dance before. The clumsy movements and unusual sounds accompanying the dance made the children laugh at first. Yet, when they saw how seriously their parents took the performance, the children also calmed down and tried hard to imitate the movements and sounds made by their parents.

The dancers were imitating a bear. D. Kosterkin made the following comments with regard to the dance: "This is our national dance – our most national dance. It is a bear dance [Ng. *ngarka betersya*]. The bear stands on two legs and moves his paws. It is not an ordinary dance, it comes from the shaman. The bears are the helping spirits. But actually we only dance this dance in spring. In March, the bear comes out of his den. He has been there through the whole winter and has not been moving at all. Now, in the spring, he wants to move."

3. Sychenko classifies the ceremonies as personal and collective, depending on whether the shaman plays a central role in the ceremony or not. – The author would like to thank Galina Sychenko for enabling her to preview the unpublished manuscript of the article collection, which included important data used and referred to in this article.

Photo 1. Video frame of the Nganasan bear dance performed by the family of D. Kosterkin.

When we view the dance as a movement in 8/8 metre, we could describe it as follows. At the beginning of the dance, the dancers stand in initial position with the right leg crossed over the left. On the first beat, they bend their knees (Photo 2a). On the second beat, they rise with legs straight (Photo 2b). The same is repeated on the third and fourth beats. The result is the swinging of the body up and down. The fifth beat is stronger than the others and on this beat the left foot is raised off the ground (Photo 2c). Simultaneously, the arms bent at the elbows are moved forward. This step lasts over the fifth and sixth beats. On the seventh beat, the dancers make a sidestep to the left (clockwise) (Photo 2d). This step lasts over the seventh and eighth beats. On the next (first) beat, the right leg is again placed in front of the left one and the same pattern is repeated.

Photo 2. The steps of the Nganasan bear dance: knee bending (2a); return to the initial position (2b); push-off (2c); sidestep (2d). Photos: Piret Voolaid.

The dance accompaniment consists of the vocables *antina mantina aku ai*, and rasping sounds produced during inhalation and exhalation. Summing up, we could state the following:

> *The dancers were Avam Nganasans (Samoyeds).*
> *The informants knew that the time of the dance was early in spring.*
> *The dance could be classified as a round dance.*
> *The dancers moved clockwise and used cross steps.*
> *The dancers* **bent their knees while standing on the spot**.
> *The arms bent at the elbows* **were moved forward only on the fifth beat**.
> *The dance accompaniment consisted of* **vocables** *and rasping sounds produced during inhalation and exhalation.*

When we compare the dance of the Kosterkins with Simchenko's descriptions, we can see that over time the movements have become more simple. Even though the dance has degenerated choreographically, it has retained its particular accompaniment. As we have a sound recording of the dance, it is possible to subject it to a more thorough analysis.

Analysis of the dance music

In the following, we try to describe the dance music as it sounded during the performance by the Kosterkin family in 1989.

The Nganasan name for the accompaniment of the dance is *betersya kunti*. In Nganasan, *betersya* means 'dance'. The second part of the term, *kunti*, is an adverb of location, meaning 'inside' or 'towards the interior' as explained by D. Kosterkin.

The accompaniment can be divided into two parts with different characters. These parts contrast with each other textually as well as in the method of producing sounds.

The sequence of vocables

The text of the first part of the dance accompaniment consists of the vocables *antina mantina aku ai*. Linguistically, these are asemantic words. According to the information received from D. Kosterkin, these vocables are derived from a shaman's ritual.[4] D. Kosterkin has said in his comments that an ordinary person does not even have to know the meaning of these words. D. Kosterkin has demonstrated the travel episode of a shamanistic ritual.[5] It starts with a pantomime that represents 'the search for the right path'. The shaman shakes himself, moves his arms bent at the elbows, and looks to the left and right. Then he starts moving in a manner similar to the round dance. The movement is accompanied by the vocables *antina mantina aku ai*. In

4. Demnime Kosterkin, the father of Dyulsymyaku Kosterkin, was a shaman. Dyulsymyaku acted as his assistant and, therefore, is familiar with the ritual technique of his father. The author would prefer to avoid making generalizations on the technical aspects of the Nganasan shaman ritual based only on his information – it would be more appropriate to treat it as a description of an incantation technique of one particular shaman.
5. In 1990, D. Kosterkin demonstrated a shaman ritual in the conservatory of Novosibirsk. The author of this article has made a video recording of this demonstration and has set down the comments of D. Kosterkin on the meaning of the ritual episodes.

between the vocables, the shaman utters the roars of a bear that are repeated irregularly, unlike in the ordinary round dance.

The vocables *antina mantina aku ai* were also used by D. Kosterkin in the round dance recorded in 1989. In the following, we will analyse this musical artefact that uses a method of producing sounds, which is somewhere in between speech and singing.

The intonation of the vocables is similar to speech. The auditory analysis enables making the statement that the pitch of the vocables is not constant during one syllable. It means that the melody consists of gliding sounds. Alteration of the pitch during the pronunciation of a syllable is also characteristic of the regular speech. This raises the question whether the accompaniment of the dance could still be viewed as singing. This question can be answered when we compare the vocables in the regular speech and in the accompaniment of the dance.

Vocables in the regular speech

In the comments of D. Kosterkin, there are sentences that include vocables. He pronounces the vocables as if they were regular words. Unfortunately, the quality of the recording does not enable an acoustic analysis. Therefore, the following experiment was conducted to acquire data for comparison.

Description of the experiment. The experimentee read the written text aloud; he had never heard its traditional presentation. Neither did he know the purpose of the text (i.e., that it is a dance accompaniment). The written text used by the experimentee had syllables grouped just as they were grouped in the dance accompaniment (*antina mantina aku ai*). The experimentee treated the vocables as two trisyllabic, one disyllabic and one monosyllabic word. He stressed the first syllable when reading the text, which could be expected, as the stress is on the first syllable in his native language (Estonian). The stress in Nganasan is variable and in trisyllabic words it is usually on the second

syllable. Yet, unlike in normal Nganasan speech, the stress in the case of the Nganasan vocables is only on the first syllable and, therefore, the text read out by the experimentee can be viewed as acceptable for the purposes of analysis.

Method of analysis. The pitch was analysed with Multi-Speech Model 3700 (Version 2.5.2.) software. Identification of variations taking place during the pronunciation of the syllable was based on the pitch contour. The fundamental frequency was measured in Hz with an interval of 25 milliseconds during one sound. The graphical outcome of the measurement consists of curves representing the changes in the pitch, with each point on the curve representing a particular frequency at a given moment (see Figures 1 and 2).

Results. The numerical results of the measurement have been converted into cents. In order to simplify the grasp of the pitch variations during the syllable, the following table (Table 1) uses the ordinary names of the intervals. The intervals were determined based on the range of the intervals in equally tempered tuning. The author considers it appropriate to express the average range of the change in cents.

Syllable	Sequence A	Sequence B	Sequence C	Average range of the interval in sequences
an	≈ min.2 ↑	≈ min.2 ↑	≈ maj.2 ↑	130 C ↑
ti	→	≈ maj.2 ↓	≈ min.3 ↓	150 C ↓
na	≈ min.2 ↓	≈ maj.3 ↓	→	141 C ↓
man	≈ min.2 ↓	→	→	→
ti	→	≈ min.2 ↓	≈ min.2 ↓	100 C ↓
na	≈ min.2 ↓	≈ maj.2 ↓	≈ min.2 ↓	150 C ↓
ak	≈ maj.2 ↓	≈ min.2 ↓	≈ min.2 ↓	82 C ↓
ku	≈ min.2 ↓	→	→	→
ai	≈ pure 4 ↓	≈ min.3 ↓	≈ min.6 ↓	476 C ↓

Table 1. The table presents the data in three vocable sequences (A, B, C) in regular speech. The intervals show the range of the pitch variation during the syllable. The arrow after the name of the interval indicates the direction of the sound. The horizontal arrow (→) represents a plateau, i.e., a sound in which there were no fluctuations greater than ¼ of the tone.[6]

6. The term *plateau* has been used here following the example of C. Odé, who uses it in his research to denote the part of a gliding sound with a stable pitch (Odé 1990, 35–37).

In the text read aloud by the experimentee, a dominant role was played by falling sounds. The curve (see Fig. 1) represents a typical pitch variation in the syllables pronounced by the experimentee.

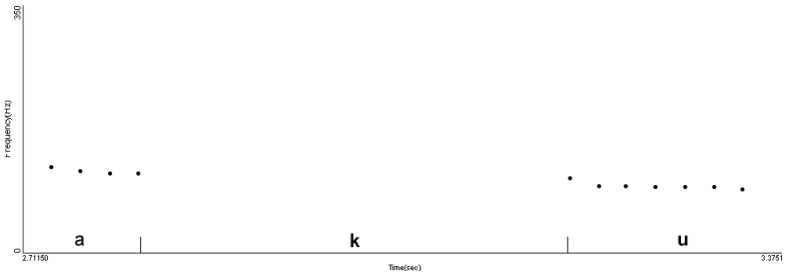

Fig. 1. Pitch contour of the vocable *aku* in regular speech. The vocable is divided into two syllables by the geminate (*ak-ku*). The direction of both syllables is falling.

It must be conceded that in a certain sense the experiment did not completely fulfil its purpose. The experimentee perceived a regular rhythm in the sequence of the vocables and pronounced all syllables with a slight hint of recitative. The participant stressed the beginning of all syllables more than is common in regular speech. The stressed beginning also had a higher pitch. Such pronunciation certainly affected the result in which there is a high percentage of falling sounds. The presence of falling sounds in the last syllable *ai* would be in accord with the regularities of speech prosody; however, it is quite unexpected in the first syllable *man* in which, according to I. Lehiste, F0 should be falling (Ross and Lehiste 2001: 49), but in fact it is rising in all sequences.[7]

The most frequent fall in the syllables is ≈ min.2. The greatest fall appeared in the last monosyllabic vocable of the whole motif, *ai* (≈

7. The Nganasan language has not been studied with regard to its phonetics/phonology to the same extent as the Estonian language and, therefore, all comparisons should naturally be regarded with reservation. However, the syllable structure of the vocables is very similar to that in the Estonian words, which gave the incentive for this comparison.

min.6). This is similar to the end of the sentence in the regular speech: the sequence of vocables in general follows the prosodic characteristics of a normal sentence in which the end of the sentence is falling.

Vocables in dance accompaniment

The vocable sequence used to accompany the dance was analysed with the same method. The results with regard to the characteristics of pitch variations and their range are presented in Table 2 (on page 48).

The comparison of the dance accompaniment and the regular speech would point to the following **differences**:

1) *In dance accompaniment, the structure of the glide could include high (H) or low (L) plateau. The plateau can be high or low only in a glide consisting of several segments (three, in our case). If the pitch is rising in the first segment, the plateau is high and vice versa. The vocable sequences in regular speech did not include glides consisting of several sequences.*[8]

2) *In dance accompaniment, the pitch variations during one syllable have a greater range and are more varied than in the text read aloud by the experimentee (cf. Table 1).*

3) *The data in Table 1 enables presenting the average change of the pitch (see the last column in Table 1), because the direction of the change is similar in all variants and there are very few exceptions. In the dance accompaniment, on the other hand, there is no such consistency. The average change of the pitch would be very uninformative in this case.*

8. The fact that the vocable sequences uttered by the participant in the experiment did not include glides consisting of several segments does not mean that they could not occur in regular speech. C. Odé has discovered that plateaus exist precisely in the spoken text (see, e.g., Odé 1990, 35–37).

Syllable	Sequence A			Sequence B			Sequence C			Regular variation
	Segment 1.	2.	3.	Segment 1.	2.	3.	**Segment 1.**	**2.**	**3.**	
an	≈ pure 4 ↑	≈ min.2 ↓		≈ min.6 ↑	H →	≈ min.3 ↓	≈ pure 5 ↑	≈ min.2 ↓		*
ti	≈ min.2 ↓			≈ min.2 ↓			≈ min.2 ↑	≈ min.2 ↓		
na	→			≈ maj.2 ↑			≈ maj.2 ↓			
man	≈ maj.2 ↑	H →	≈ min.2 ↓	≈ maj.2 ↓	L →	≈ min.3 ↑	≈ pure 4 ↑	H →	≈ maj.2 ↓	*
ti	→			→			→			*
na	≈ min.2 ↑			≈ min.2 ↑			≈ maj.2 ↑			*
ak	≈ pure 4 ↑			≈ maj.3 ↑			≈ pure 4 ↑			*
ku	≈ min.2 ↑			≈ min.2 ↓	L →	≈ min.2 ↑	≈ min.3 ↓	L →	≈ min.2 ↑	
ai	≈ pure 5 ↓			≈ maj.2 ↑	≈ maj.3 ↓		≈ min.2 ↑	≈ maj.3 ↓		*

Table 2. The table presents the data of three vocable sequences (A, B, C) in dance accompaniment. One sound can consist of several segments. Cells 1., 2. and 3. demonstrate the pitch variation during the segments. L = low; H = high; the asterisks in the last cell indicate the sounds with regular variations (i.e., the changes in the sequences A, B and C are similar).

Comparing the dance accompaniment to regular speech, we could also point to the following **similarities**:

1) *The pitch of the first vocable (antina) is always rising.*
2) *The last vocable (ai) is always falling. The average range of the interval in speech is 476 C, in dance accompaniment 468 C – consequently, the end of the sequence is similar in both cases.*

There are a few regularities in the dance accompaniment in certain syllables. This means that these syllables are in some sense similar in all compared sequences.

The regularities are the following.

**** an***	*All variants are characterized by a rising segment with great range and a falling segment with small range.*
**** man***	*All variants consist of three segments.*
**** ti***	*In all variants, there is only horizontal plateau.*
**** na***	*There is a rising second in all variants.*
**** ak***	*There is a rising interval with a range larger than a second in all variants.*
**** ai***	*There is a falling interval with a range larger than a second in all variants.*

Finally, we can see that even though the vocable sequences in the dance accompaniment share some similarities with regular speech, the intention of the performer is to create music. This is expressed primarily in much greater dynamics of melody movement compared to the regular speech. In the opinion of the informants, the vocable sequence can be viewed as music mainly because of its rhythmical organization.

The problem of terminology

In ethnomusicology, the speech-like method of producing sounds is often labelled recitation. In Estonian ethnomusicology, this term was first used by Herbert Tampere at the beginning of the 1930s. He characterized traditional incantations as recitatives that, in musical sense, were nothing more than a fixation of the verse melody (Tampere 1932, 5).

Recitation technique in classical music differs from that in the speech-like genres of traditional music. The rhythm of the recitative is usually quite free: the rhythm structure has been written down in the score, but the interpreter is allowed to use *rubato*. The pitches of the notes are strictly adhered to, i.e., random pitches are not allowed. Due to these differences, the term *recitation* is not relevant in defining the sound compositions under discussion. Instead, while following the example of Schönberg, for instance, we could use the term *Sprechgesang* ('speech-song'). This is a performance style where the indicated rhythms should be adhered to, but whereas in ordinary singing a constant pitch is maintained throughout a note, in *Sprechgesang* the indicated pitch should be given, and then immediately left, either by rising or falling[9]. A similar process is also characteristic of the vocables used to accompany the Nganasan dance (see, for example, the pitch contour in Fig. 2).

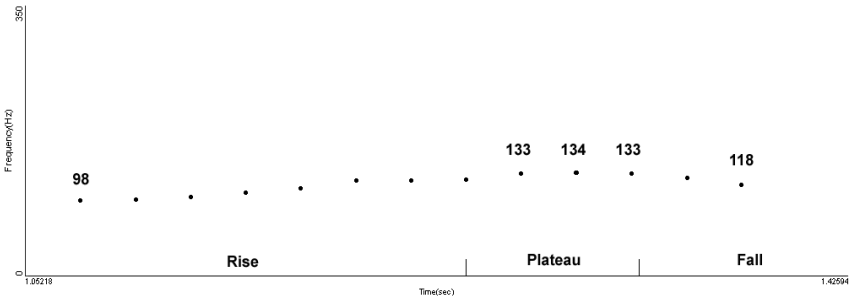

Fig. 2. Pitch contour of the vocable *man* consisting of rise, plateau and fall. The numbers above the dots represent the pitch in Hz. The interval between the beginning of the rise and the plateau is 528 C (≈ pure 4), and 207 C between the plateau and end of the fall (≈ maj. 2).

9. See e.g. Machart 1992 or *http://www.fact-index.com/s/sp/sprechgesang.html*).

In notations, *Sprechgesang* is usually indicated by small crosses through the stems of the notes, or with the note head itself being a small cross.[10] The notes with cross-shaped heads are also quite often used in ethnomusicology to transcribe speech-like vocal music. Similarly, the vocable sequence of the Nganasan bear dance can be notated using these signs (Fig. 3):

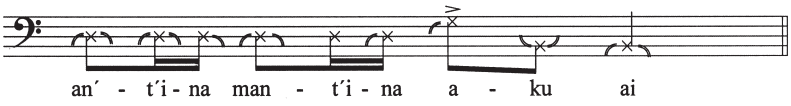

Fig. 3. The notation of the vocables of the Nganasan bear dance. Cross-shaped note heads represent speech-like sounds. The double slurs denote glides.

However, the cross-shaped note heads could also have a different meaning in the transcriptions of the music of Siberian peoples. For example, Yuriy Sheykin uses them to mark sounds with a laryngeal undertone (Sheykin 2002, 505). This leads us to the conclusion that all signs that are not used in regular notation should be accompanied by detailed comments and explanations to avoid misunderstandings.

Throat rasping

The second part of the dance accompaniment imitates the growling of the bear. The imitation consists of the syllables *ə'-ə-ai*. The specific timbre is achieved through a certain breathing technique. The segment *ə* preceding the glottal stop (') is produced during inhalation and the following sounds during exhalation. The wideband spectrogram[11] analysis indicates that the spectra of vowels *ə* and *a* are mixed with the spectra of consonants *h* and *r*. The latter influence the timbre of the sound.

10. In the score of the opera *Pierrot Lunaire*, which has provoked many discussions on *Sprechgesang*, Schönberg uses the first variant (small crosses through the stems of the notes).
11. 200 sampled data points per frame.

The vocal technique, which is based on sounds produced through alternating inhalation and exhalation, is quite common in the circumpolar cultural area. This technique is used by the Koryak, Evenki, Even, Tungus, Chukchi and other Siberian peoples, as well as the Inuit. Presumably, the Inuit moved over the Bering Strait from Asia to America and in the opinion of Jean-Jacques Nattiez, they also took with them the proto-forms of this vocal technique. Several genres have developed based on these proto-forms: the throat games of the Inuit (and the Ainu) and the dance music of the Northern Siberian nations (Nattiez 1999, 411–412).

Function of the dance music

The dance music and throat games are related through a common magical function. Throat rasping was used to imitate bears, elk, seals, ravens, willow grouse, storks and other birds and animals. This fact and the statements made by the Inuit informants confirm that the genres related to throat rasping were used to influence hunting luck (Nattiez 1999, 405). Yet, apparently, the imitating of birds and animals with throat rasping in dances and throat games has a wider meaning than only hunting magic. For example, the Dolgan dance imitates the stork, but according to G. Alekseeva, it was not allowed to kill storks. The study by C. Charron indicates that throat games were also performed to greet guests and they served a didactical purpose in child raising (Charron 1978, 246).

In connection with the function, I would like to discuss briefly a few other aspects of throat rasping. The primary purpose of the Nganasan dance music is similar to the purpose of any dance music – to coordinate the rhythm of movements. This is clearly the only purpose of the vocables. The throat rasping, which is also metrically organized, could possess some additional functions. It is possible that the breathing technique used to produce throat rasping causes hyperventilation[12], which can be used by the dancers to reach a state of ecstasy.

12. Hyperventilation is abnormally fast or deep respiration, which results in the loss of carbon dioxide from the blood, thereby causing a fall in blood pressure, tingling of the extremities, and sometimes fainting.

The written sources do not indicate that the Nganasans have used – intentionally – the effect of hyperventilation to induce a state of ecstasy. The only reference to the possibility of hyperventilation can be found in the article by Simchenko, who writes that the dance lasted for a long time and people danced until they collapsed. This happened to an old man approximately one and a half hours after the beginning of the dance (Simchenko, *op. cit.*). It seems, however, that trance plays little role in the Nganasan shamanism and in their collective rituals, as we know them today. The author has succeeded in recording three rituals and on these occasions the shaman never attempted to reach a state of trance. The same applies to the bear dance, but it must be added that its demonstration lasted only about ten minutes. This is undoubtedly too short a period for any effects of hyperventilation to become manifest.

Summary

The dance has degenerated choreographically. The Nganasans danced the bear dance during the festivities marking the end of the polar night – it was called the 'Big Day' (*Ani'a d'aly*). The Big Day was no longer celebrated in its traditional form in the 1980s and 1990s. It is quite common in the case of fading traditions that certain parts of the ritual ceremony still persist in a new context, often in the sphere of entertainment. In this sense, the Nganasan bear dance is an exception: the tradition of dancing has faded along with the ceremony. The choreographic aspect of the dance was preserved by this period only in the memory of a few Nganasans and even then in a simplified form when compared to the earlier data.

The particular sound quality of the accompanying music (throat rasping) has been better preserved than the dance movements. An important role in the dance accompaniment is played by sounds imi-

tating the growling of the bear. The imitations are characterized by a special breathing technique, which is based on the alternation of inhalation and exhalation. It is impossible to say how many Nganasans still remembered this technique in the last decades of the 20th century; no respective survey has been conducted among the Nganasans. Dyulsymyaku Kosterkin, the main source of information on the dance, had a good command of the technique. However, more data for comparison would be needed in order to make any assessments. The author has no information on any existing sound recordings of Nganasan throat rasping from the middle of the 20th century when the tradition was still alive. However, we can compare the throat rasps of Kosterkin to the sound recordings of similar techniques from other nations. Some possibilities for comparison are offered by the throat rasping that can be found on the CDs recorded by J.-J. Nattiez and H. Lecomte (Nattiez 1991; Lecomte). Based on these recordings, we could affirm that at least in the repertoire of some informants, the Nganasan throat rasping has preserved its ancient sound quality.

The existing data permit **two hypothetical conclusions** on the dance accompaniment. The first conclusion has to do with the structure and purpose of the sound.

In addition to throat rasping, the structure of the accompaniment to the Nganasan bear dance could also include vocables. According to the information collected from the Kosterkin family, the vocables *antina mantina aku ai* form a part of the structure of the dance music. The existing data are not sufficient to confirm that the Nganasan dance music originally contained vocables. It is possible that the Kosterkin family[13] has combined the vocables of a shaman ritual with the round dance. The assumption of the traditional use of the vocables is contradicted by the fact that Simchenko does not mention them, although he saw the dance in an authentic situation. On the other hand, Middendorff's data would support the possible authenticity of the vocables.

13. Similar vocables were used in the dance accompaniment by the sisters Nina Logvinova and Evdokiya Porbina, who lived separately from D. Kosterkin. It is interesting to add that they were not familiar with the correct breathing technique of throat rasping. This could be explained by the fact that throat rasping was not a part of the repertoire of women.

As the use of the vocables and even words with linguistic meaning in the dance accompaniments is quite common, it is at least theoretically possible that they were also a part of the structure of the Nganasan dance accompaniment. The vocables were used even in the Inuit throat games as indicated by several studies: *ulu-haa-hamma* (Nattiez 1991); *hehi-haho* (Beaudry 1978: 264).

The throat rasping used to accompany the bear dance could induce ecstasy through the effect of hyperventilation. We all know for a fact that there is a causal link between the dance and the state of trance in shamanism. This could be confirmed with a quote from a study of ecstasy techniques by M. Eliade: "From the earliest times, the classic method of achieving trance was dancing" (Eliade 1974, 451). There are several reasons why dancing facilitates the achievement of trance. The main reason is undoubtedly the performance of rhythmic movements at an accelerating tempo. In the Nganasan bear dance, however, a moderate tempo is maintained throughout. The achievement of trance could be influenced by a specific breathing technique in which deep inhalations and exhalations alternate rhythmically at a faster pace than in regular breathing. Today the fieldwork materials can no longer confirm or disprove the intentional use of the effect of hyperventilation in Nganasan traditional culture.

Literature

Alekseeva, G. G. Kheyro – zhuravlinaya pesnya dolgan [Kheyro – Crane song of the Dolgan]. *Manuscript*.

Beaudry, Nicole 1978. Towards transcription and analysis of Inuit throat-games: macro-structure. – *Ethnomusicology, Vol. 22, No. 2*, pp. 261–273.

Charron, Claude 1978. Towards transcription and analysis of Inuit throat-games: micro-structure. – *Ethnomusicology, Vol. 22, No. 2*, pp. 245–259.

Eliade, Mircea 1974. *Shamanism. Archaic techniques of ecstasy*. Bollingen Series LXXVI. Princeton: Princeton University Press.

Kortt, I. R., Simchenko, Yu. B. 1985. *Wörterverzeichnis der Nganasanischen Sprache. Teil 1:*

Nganasan – Deutsch – Russisches Glossar. Berlin.

Machart, Renaud 1992. *"Pierrot Lunaire…". Booklet for Schönberg, A. Pierrot Lunaire, op. 21*. HMC 901390.

Middendorff, Alexander Theodor von 1956. *Auf Schlitten, Boot und Rentierrücken*. Leipzig: VEB F. A. Brockhaus Verlag.

Nattiez, Jean-Jacques 1999. Inuit throat-games and Siberian throat singing: A comparative, historical and semiotical approach. *Ethnomusicology, Vol. 43, No. 2*, pp. 399–418.

Odé, Cecilia 1990. Acoustics vs. perception in the study of intonation. *IPO Annual Progress Report 25*. Pp. 32–39.

Ross, Jaan, Lehiste, Ilse 2001. *The temporal structure of Estonian runic songs*. Berlin, New York: Mouton de Gruyter.

Sheikin, Yu. I. 2002. *Istoriya muzykal'noy kul'tury narodov Sibiri [The history of the musical culture of the Siberian peoples]*. Moskva: Vostochnaya literatura.

Simchenko, Yu. B. 1963. Prazdnik Any'o-dyaly u avamskikh nganasan [The celebration Any' o-dyaly among the Avam Nganasans]. *Sibirskiy etnograficheskiy sbornik V [The Siberian ethnographic collection V]*. Moskva: Izdatel'stvo Akademii Nauk SSSR. Pp. 168–179.

Sychenko, G. B. K voprosu tipologii muzykal'no-obryadovykh form [To the question about typology of musical ritual forms]. *Manuscript*.

Tampere, Herbert 1932. Eesti nõidussõnad [Estonian incantations]. *Manuscript*. Estonian Literary Museum.

Discography

Nattiez, Jean-Jacques 1991. *Canada: Inuit games and songs / Chants et jeux des Inuit.* Auvidis-Unesco, D 8032.

Lecomte, Henri (n. d.[14]). *Sibérie 3: Kolyma: chants de nature et d'animaux (Chukch, Even, Jukaghir)*. Buda, Musicue du Monde/Music from the World, 92566-2.

14. Probably 1994. (Editor's note.)

"Shamanic intonation": history and phenomenology of the concept

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Background of the concept of "shamanic intonation"

Before discussing the essential characteristics of shamanic intonation, it is appropriate to clarify what is understood by the term "shamanic intonation" and why it seems inadequate to talk simply about "music" in connection with shamanistic traditions. For this it is necessary to make a concise historical and terminological digression and to examine the concept of "intonation".

The concept of intonation can be etymologically traced to Latin *intonare* 'to pronounce aloud'. This, in turn, is connected with the Greek *τονος*, 'tension', 'accentuation'. In modern European languages, there is the noun "intonation" (Italian *intonazione*, French and English *intonation*, German *Intonation*), as also the verb "intone" (Italian *intonare*, English *intone*, German *intonieren*), with an overall consistency in meaning and with a manifestation in two basic spheres. Intonation relates, most of all, to a prosodic system of language and the term is used, firstly, with tonal languages, i. e. languages with systems of tones differentiating meanings and secondly, to logic and emphatic systems (intonations in narrative, interrogative etc. sentences), which exist in any language, and emphatic aspects of speech (intonation of

anger, joy, etc.). In all linguistic aspects, the concept of intonation is connected with the pitch of speech tones. In music, "intonation" is an appellation for a musical piece, performed in church, at the beginning of the liturgy. "To intone" is connected in a high degree with musical origin and has the meaning 'to sing in the initial part of the liturgy'; 'to pronounce certain texts of the ceremony cantabile'; 'to psalmode'; 'to sing monotonously', etc. This way, the terms have both a linguistic and also a musical (albeit a rather narrowly specialized) meaning.

The situation is somewhat different in Russian scientific thought. If in linguistics the understanding of intonation coincides altogether with the general European tradition (Bernshteyn 1996; LES 1990, 197; 514), in Russian musicology there is a special conceptual and terminological field of researching such categories as "intonation", "to intone", "intoning" and "intonationness". The concept of "intonation" as a fundamental musical category was introduced by B. L. Yavorskiy (1908). Before that the concept of "intonation" and "intoning" occurred only rarely in the practices of musicology, in those meanings which were characteristic of the general European tradition described above. In the 1920s, the concept began to be actively utilized in historical works, but it was also theoretically refined by B. V. Asaf'ev, the founder of the musical and philosophical "theory of intonation" (Asaf'ev 1947). There is a whole body of scientific literature on the Asaf'evian multilayered concept of intonation, on its formation and evolution (see Orlova 1964; 1984).

In its systematised form, the concept of intonation is included in encyclopaedic publications (see e. g. ME 1974), which renders it unnecessary to present and analyse all aspects of intonational theory. For the purposes of the present article, it is fundamental to comprehend intonation as a natural form of existence of music and also to introduce the concept of "intonational culture" and "intonational system". Music, as Asaf'ev thought, is always intonational, but intonation is not always musical. The most characteristic example is speech intonation (Asaf'ev 1965). Consequently, the concept of "intoning" is wider than "music" (understood as a process, i. e. as "musical intonation" or "music-making").

Folklore studies are connected with a great selection of sound phenomena that are not classified into the domain of the "musical" (various signals, sound imitations, shouts, speech-intoned incantational formulae etc.[1]) and in these cases the concept of intonation turned out to be especially needed. In this subject area of musicology especially this concept is not only in use but also in the process of active development. Right after the introduction of the new concept of "intonation" it was adapted by musicologists and folklorists[2]. However, it was Asaf'ev, who first began to apply the whole complex of "intonational" terminology to folk music, as evinced by materials (articles, notes, sketches, programmes, fragmentary works etc.), collected in his publication "On folk music" (Asaf'ev 1987). A simple listing of all the variants and contexts of application of this sphere of terminology, from the more or less rigorous to the free and metaphorical ones would not fit into a single text page. It is necessary to point out some especially meaningful aspects.

First, the most essential seems to be Asaf'ev's understanding of the process of intonation (speech, singing and instrumental) as uniform in nature (see e. g. Asaf'ev 1987, 54–56), although in some of his statements "intonational" and "musical" appear as almost identical. Second, it seems fruitful to present such concepts as "intonational culture(s)" and "intonational system(s)" (ibid., 34–36; 48; 54 etc.). Third, Asaf'ev moved directly in distinguishing types of intonation, although he does not conceptualize them so (ibid., 182). Nevertheless, in his work on speech intonation (1925), he distinguishes, in fact, different kinds of intoning, which comprise a kind of range between those originating

1. Again and again researchers of folklore come across entire layers of such forms of intonation. See, for example, M. A. Lobanov's (1997) study on intonational culture of shepherd signal melodies from northern Russia. In this study the historiography of the problem is also discussed.
2. The dual nature of the concept of "intonation" was characteristic as applied by the famous folklorist A. L. Maslov at the beginning of the 20th century. In his study on Russian bylinas, published in 1911, intonation was characterised on one occasion as the emotional shade of a word, out of which grows, then, the melody of a funeral lament (Vul'fius ed. 1979, 297). On another occasion, specifically musical intonations are discussed, in connection with the complexity of their representation in European notation (ibid., 313).

especially from speech and those with a musical-vocal background (see Asaf'ev 1965).

The post-Asaf'evian Russian musicology – as also folklore studies – based on and developed this conceptual apparatus, which was connected with the fundamental concept of "intonation". To this basic concept were also attached such fundamental theoretical concepts as "melodic formulae" and their redefinitions in different genres (as in the works of E. V. Gippius and Z. V. Eval'd); interaction and cross-over of "intonational fields" (L. S. Mukharinskaya); consideration of the problem of "intonational typification" (V. I. Elatov) and many others.

The comprehension and research of the problems of intonation was, initially, highly characteristic of the study of musical performanceship, which is natural, insofar as intonation is connected with the process of discovering music and with translation of music from the conceptual level to the level of existence. Consequently, intonation is always associated with musical performanceship and it is equally important for musics of both oral and literal tradition.

Quite early there appeared a motivation in musical acoustics to study questions of intonation. This orientation was active in researching intonation on the material and physical levels of single sounds and sound in general and its scope widened largely towards questions of semantics. The objectivism of research of this kind contributes to a profound understanding of the fact that intonation is, indeed, sonoric activity, which manifests itself in various forms. As a result, in current studies on this orientation, any phenomena associated with "the ability specific to humans for sonoric expression and perception" (Mentyukov et al. 1993, 56) are included (although with some reservation) in the types of intonation.

In the study of musical folklore, the problems associated with intonation begin to be presented later, although different forms, means and types of intonation – from speech to musical intonation – have always been within the scope of ethnomusicologists, however, without corresponding definitions. I. I. Zemtsovsky (1981) presented a definition for types of intonation as "performative clichés", which occupy

a certain place in the model of transition from the "social" (i. e. the form of music-making) to the "musical" (i. e. the form of music). It is obvious that in this connection the category of the type of intonation is limited within the framework of only "musical" and beyond its borders are located other – both potential and real – types of intonation. However, before long, within the framework of one scientific discipline the concept of the type of intonation is substantially expanded. It is possibly not a coincidence that this occurs in the works of researchers who study the music of the peoples of Siberia and also some other ex-Soviet cultures, where the existence of the human sonoric action stands out with its great multiformity and in many cases not conforming with the standard (European) categories of "musical", "vocal" etc. (see Bulgakova 1985; Sheykin 1988; Sheykina 1985; Shivlyanova 1988).

In 1986 E. E. Alekseev's work, dedicated to different kinds of intonational phenomena was published, which until then had been located on the periphery of the research interests of folklorists (Alekseev 1986). In this work, the concept of intonation is worked out in a historical-typological key.

One of the latest adaptations in this field, considering the previous attempts at practical description and theoretical typologization of intonation, is the *classification of types of intonation*, presented by V. V. Mazepus in the framework of a more general articulatory classification of vocal timbres. This classification was constructed only for intonation resulting from the system of the speech organs (which are also the articulatory organs for singing), because sound timbres in the intonation of musical instruments are largely determined by the construction of the instrument, as well as by the system of approach of the performer and therefore the timbral characteristics in performance of folk music have to be described according to each concrete instrument. (See Mazepus 1998.)

The scientific basis, on which this approach was formulated, is constructed from points of view from linguistics, acoustics and specifically ethnomusicology. The idea of the typology presented comprises of identification of articulatory characteristics independent of concrete

cultural systems which allows a reasonably simple and economic description of the corresponding phenomena and a differentiation of the types of sounds characteristic of folklore intonation (and not only folkloric). According to this idea, at the most general level of classification it is sufficient to identify *four basic types of intonation: vocal, signal, speech and tonal speech*. For the identification of these types two distinctive characteristics are proposed: 1) medial tension of the breathing and speech organs, 2) medial amplitude of the variations of this tension in the sound stream (ibid., 30–32). It has to be noted that associating the types of intonation with the category of vocal tension directly conforms to the "original" meanings of the concepts of "tone" and "to intonate".

The vocal type of intonation is characterised by its high grade of tension and its low diffuseness; the signal type of intonation is also characterised by its high tension, but also a high degree of diffuseness, whereas for speech intonation is characteristic its low tension and substantial diffuseness and tonal speech by a low tension and low diffuseness. It is natural that various medial types are also possible and can be observed in real intonations. The system presented also gives scope for creating, if necessary, a more differentiated classification. The universal character of the present typology is combined with its smooth and easy use, which permits it to be considered as a tool for the research of shamanic intonation, for example.

Towards a theory of intonational cultures

An important conceptual tool for the discovery of shamanic intoning is the *theory of intonational cultures*, the origin of which also extends to the early phases of the establishment of the Russian musicological tradition. As already mentioned, the concept of "intonational culture" was actively used by B. V. Asaf'ev. In the 1980's, Yu. I. Sheykin, V. M.

Tsekhanskiy and V. V. Mazepus aimed at a formulation of the concept of the "intonational culture of the ethnos", from the point of view of systematic methodology (Sheykin et al. 1986). The concept of intonational culture is understood here as a "systemic formation of the sonoric environment by a man in the process of his social life" (ibid. 237). In other words, the concept of intonational culture goes far beyond the limits of only "musical", which has become axiomatic for modern ethnomusicology. This approach was tested in several empirical studies on Siberian intonational cultures (academic theses and monographic publications made of them, but also in a multivolume publication of the Conservatory of Novosibirsk (see Shindin (ed.) 1997)).

There emerged a need for a theoretical generalization with materials accumulated in recent years, a more rigorous definition of the concept of the intonational culture of the ethnos and a discovery of substantial characteristics and presentation of new levels of its description. The need for solutions to these tasks was proclaimed in an article by our research colleague (Kondrat'eva et al. 1999), where we chose the intonational culture of the Telengits as an example to illustrate the fundamental premises in the theory of the intonational culture. One of the most important of the premises at this point of evolution of the theory was the concept of *strata*, parts of the intonational culture of the ethnos that are opposed by its other similar parts from the point of view of a grammatical structure. In the article mentioned the fundamental types of the strata were also defined.

At present, the theory of the intonational cultures is tested on materials from various ethnic groups. It is, however, appropriate to note that in many cases the concept of the strata is used quite passively and it is substituted with a traditional and not rigorously defined category of "generic sphere" or "tradition". It is possible that this situation is largely explained by the fact that at the level of primary description it is impossible to discover grammars of one or another stratum and to establish the whole system of an intonational culture of the ethnos, which is why the researchers express a certain reservation about using a corresponding terminology. Nevertheless, the conception of the

intonational culture of the ethnos likewise demonstrates its heuristic competence.

Thus, so far, Russian musicology provides the fundamentals of the theory of the intonational culture, as also types of intonation. From this point extend two mutually reconcilable approaches to the use of the term *intoning*. In both approaches, intonation is defined as any culturally perceived sonoric human action and this is where this modern theory follows the Asaf'evian approach. From the viewpoint of the theory of intonational cultures it is possible to speak about intonation as a sonoric human action, which is connected with some *stratum* of the intonational culture. In this sense, *intoning* appears as a category on a level of content, associated with the entire cultural context of the corresponding stratum. Here it is appropriate to utilize such definitions as "epic" or "story-teller's intonation", "song-associated intonation", "shamanic intonation" etc. Many ethnomusicologists have adopted such coinings, although they may not necessarily share the approach from the point of view of the theory of the intonational cultures (see Dorokhova 1988; Kiryushina 1988; Leonova 1997; Reznichenko 1998 etc.)

The concept of the *type of intonation*, on the contrary, is culturally neutral, rigorously defined from the structural point of view and associated with the *level of expression*. A similar type of intonation may occur in different layers (for example, signal intonation may be characteristic for the levels of signals in particular, imitations, fairytales, shamanism and songs; vocal intonation may be typical of songs, lullabies, incantations, shamanism, fairytales; speech intonation again may be typical of – besides the specifically spoken folklore genres – the mixed forms of epos, shamanism etc.), although, of course, in concrete cultures, the interrelatedness of the types of intonation and the concrete strata is not random.

The applicability of the concept of "shamanic intonation"

Our research collegium understands *shamanic intonation* as a special concept defining human sonoric action, which is somehow associated with shamanistic practices. This concept can be used with its rather *extended meaning*, however it is sometimes useful to confine this understanding within certain limits. Thus, in the first case, the concept of shamanic intonation can be taken to include singing, making music with sound instruments, sound imitations and exclamations, different forms of speech heard during a shamanistic ritual and during the process of preparation for the ritual, after the ritual, during dreaming or during the process of spontaneous improvisation of the shaman in various non-ritual situations. In this sphere it is seemingly possible also to include sonoric actions associated with shamanistic traditions by individuals not specifically shamans, but who are in some way part of the shamanistic sphere. Yu. I. Sheykin (1992) suggests describing such phenomena by the term of "parashamanism".

In the sphere of parashamanism can be included, for example, collective sonoric behaviour during rituals of collective excitement (such phenomena have been observed among Yakuts and Buryats), singing of the audience during a shamanistic séance (traditional in southern Siberia and central Asia). It is fully possible to consider in this context, for example, playing on the shaman drum by the audience present in the shamanistic séance, who are not shamans, which is characteristic of the people of Eastern Siberia (see Smolyak 1991; Sheykin 1992) (in many other cultures the corresponding usage of ritual attributes is strongly taboo). D. A. Funk and V. A. Kharitonova (1999) suggest the term of "folk shamanism" (everyday shamanism) in this case, as well as to call the corresponding persons as the "shamanizers". The same terminology is used by D. A. Funk to refer to modern ritual specialists encountered in Siberia. However, the question is not quite one-sided and the absence of the main shamanistic attribute – the drum – does not always mean a transition from "shamanistic" status to "shaman-

izing" or "parashamanistic". In the cultures of southern Siberia (as well as in many other regional traditions), along with shamans there always were other categories of ritual specialists, who conducted rituals of healing, foretelling, ritual cleansing, rainmaking etc., without resorting to shamanistic approaches. In ethnology, a principal differentiation was made long ago between the shaman and other specialists, so that it is not necessary to discuss this problem further here. One of the best works on this subject in the modern ethnology is that of the American anthropologist D. Holmberg, who for many years studied the ritual life of the eastern Tamangs in Nepal (see Holmberg 1989). In this respect, the mere fortune-teller or healer does not fit into the category of "shamanizing" in any way. However, there is still one aspect of this problem associated with the situation that in shamanistic cultures there is always an explicit or implicit, to various extents pronounced hierarchy of the very shamans and it is connected to a greater or lesser amount of the supernatural power the shaman is believed to possess. From this point of view, even a weaker shaman is still a shaman.

Shamanic intonation, in its wider sense, is thus associated with the part of the traditional culture which can be defined as a shamanistic subculture, representing, in turn, a systemic formation of a complex organization that is by no means possible to reduce to the mere activities of the specific shaman. It is possible here to observe complex intersections of grammars belonging to different layers of the intonational culture of the ethnos.

By contrast, shamanic intonation in a narrow sense, possibly, is to be limited only to the sonoric activities of the shaman as a ritual specialist (regardless of the degree of his power) and, primarily, to the context of a real ritual situation. In some cultural traditions this can be a situation of a didactic type, which, incidentally, is also realized in a ritual and practical activity. In this case, the shamanic intonation is primarily connected with the proper shamanistic stratum in an intonational culture, because it is the very real ritual situation that has a strong position in the culture and presents, first of all, the specific features of the level of expression, in other words – grammar.

In this case, too, as also in the other, shamanic intonation appears in two aspects – as vocal and instrumental, given that both these aspects in all concrete cultural traditions have numerous variants of realization. The fundamental character of the shamanic intonation is the usage of different types of intonation, both basic and also mixed[3].

The character of the shamanic intonation is defined by the realisation in it of the dialectic of "cultural" and "natural". As a cultural phenomenon, shamanic intonation in its complex form is connected to the general system of the intonational culture. At first sight, it seems to be absolutely opposed to the other strata. Indeed, shamanic intonation, in the clear majority of cultures, has autonomous characteristics and, most of all, differs markedly in its structure from the rest of the strata. However, such a conclusion seems hasty, if we only turn to comparative analysis with concrete materials. In the analysis we observe the multifaceted and multilayered connections of the shamanic intonations with the entire systemic intonational culture, including those spheres that are considered separate on the external conceptual level. Especially clearly such connections appear on the deep levels of the intonational culture.

A distinctive feature of the shamanic intonation appears to be its complex organization. In it are realized the most varied principles characteristic of musical and poetical forms of folk and professional art, as, for example, strophic or bursting structures, forms with refrains, rondos, formulae, ostinati, leitmotifs etc. It seems that the very shamanic intonation appears to be a source of many principles of this kind.

The "natural" in shamanic intonation is associated with the orientation of the intonation towards the solution of the primary task of the shaman – entering into a state of trance, because only in trance is the shaman capable of communicating with spirits, in other words of fulfilling his fundamental function as a medium. In our opinion, shamanic intonation is a direct involvement in the process of reaching an altered state of consciousness. In connection with this, many of the fundamental parameters of shamanic intonation are by no means

3. This kind of typology was suggested in the case of the traditions of the Shor (see Sychenko 2001).

random or accidental. They are directly conditioned by the given task and, consequently, firmly connected with the psychophysiological processes of consciousness and with the whole organism of the shaman. It is possible that in shamanic intonation are present particular mechanisms which help in achieving a state of trance. To this, seemingly, contribute not only playing on the drum (as is usually thought), but also – and to an even greater extent – shaman's singing. In this sense, there are present some universals in the shamanic intonation, not dependent by the ethnic, historical or regional specific features of any cultural character. The present hypothesis, which needs further argumentation, could, among other things, confirm the fact that shamanic intonations among various people demonstrate very similar range of characteristics. While shamanic intonation seems to differ among different peoples as a "cultural" phenomenon, because it is connected with its concrete culture by numerous ties, as a "natural" phenomenon there seem to be many more characteristics in common. It can be said that the common traits of shamanic intonation represent some kind of a suprasegmental character, its phenomenological quality. The presence and demonstration of such universals is of the utmost importance, because it allows us to pose the question of the actualization of the shamanic intonation in modern medicine, culture and art.

Literature

Alekseev, E. E. 1986. *Rannefol'klornoe intonirovanie: zvukovysotnyy aspekt [Early folkloric intonation: the aspect of pitch].* Moscow: Sovetskiy Kompozitor.

Anonymous 1974. Intonatsiya [Intonation]. *Muzykal'naya entsiklopediya [Musical encyclopedia]*, t. 2. Moscow: Sovetskaya entsiklopediya. Pp. 550–557.

Anonymous 1990. Intonatsiya [Intonation]. *Lingvisticheskiy entsiklopedicheskiy slovar' [Linguistic encyclopedic dictionary]*. Moscow: Sovetskaya entsiklopediya. Pp. 197–198.

Anonymous 1990. Ton [Tone]. *Lingvisticheskiy entsiklopedicheskiy slovar' [Linguistic encyclopedic dictionary]*. Moscow: Sovetskaya entsiklopediya. Pp. 514–515.

Asaf'ev, B. V. 1947. *Muzykal'naya forma, kak protsess: Intonatsiya, kn. 2 [Musical form as process: Intonation, book. 2]*. Moscow: Muzgosizdat.

Asaf'ev, B. V. 1965. *Rechevaya intonatsiya [Speech intonation]*. Leningrad: Muzyka.

Asaf'ev, B. V. 1987. *O narodnoy muzyke [On folk music]*, eds. I. I. Zemtsovskiy, A. B. Kunanbaeva. Leningrad: Muzyka.

Bernshteyn, S. I. 1996. *Slovar' foneticheskikh terminov [Dictionary of phonetic terms]*. Moscow: Vostochnaya literatura.

Bulgakova, T. D. 1985. Tipologiya muzykal'no-rechevogo intonirovaniya v nanayskom fol'klore *[Typology of music and speech intonation in Nanay folklore]*. (Academic thesis, unpublished.) Leningrad.

Dorokhova, E. A. 1988. O spetsifike intonirovaniya obryadovykh napevov v svyazi s ikh formoy [On the specific features of intonation of ritual melodies in connection with their form]. *Fol'klor: Problemy sokhraneniya, izucheniya, propagandy. Tezisy Vsesoyuznogo nauchno-prakticheskogo konferensiya, chast' 1 [Folklore: Problems of preservation, study and propaganda. Papers of the All-Soviet scientific and practical conference, part 1].* Moscow: GMPI. Pp. 100–103.

Funk, D. A., & Kharitonova V. I. 1999. «Shamanstvo» i «shamanizm»: k differentatsii ponyatiy ["Shamanhood" and "shamanism": towards differentiation of the concepts]. *Materialy mezhdunarodnogo kongressa «Shamanizm i inye traditsionnye verovaniya i praktiki», chast' 1 [Materials of the international congress "Shamanism and other traditional beliefs and practices", part 1]*. Moscow: IEA RAN. Pp. 180–184.

Holmberg D. H. 1989. Order in paradox: myth, ritual and exchange among Nepal's Tamang. New York: Ithaca.

Kiryushina, T. V. 1988. Vidy muzykal'nogo intonirovaniya v kostromskoy traditsii [Types of musical intonation in the Kostroma tradition].

Fol'klor: Problemy sokhraneniya, izucheniya, propagandy. Tezisy Vsesoyuznogo nauchno-prakticheskogo konferensiya, chast' 1 [Folklore: Problems of preservation, study and propaganda. Papers of the All-Soviet scientific and practical conference, part 1]. Moscow: GMPI. Pp. 104–106.

Kondrat'eva, N. M. & Mazepus, V. V. & Sychenko, G. B. 1999. K teorii intonatsionnykh kul'tur: intonatsionnaya kul'tura telengitov [Towards a theory of intonational cultures: intonational culture of the Telengits]. *Voprosy muzykoznaniya [Questions of musicology]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 212–225.

Leonova, N. V. 1997. Ob intonirovanii zagovorov [About the intonation of incantations]. *Russkiy kalendarno-obryadovyy fol'klor Sibiri i Dal'nego Vostoka: Pesni. Zagovory [Russian calendary and ritual folklore in Siberia and the Russian Far East: Songs. Incantations]*. Novosibirsk: Nauka SO RAN. Pp. 273–289.

Lobanov, M. A. 1997. *Lesnye klichi. Vokal'nye melodii-signaly na Severo-Zapade Rossii [Forest calls. Vocal signal melodies in northwestern Russia]*. Saint Petersburg: ISU.

Mazepus, V. V. 1998. Artikulyatsionnaya klassifikatsiya i printsipy notatsii tembrov muzykal'nogo fol'klora [Articulatory classification and principles of the notation of timbres of musical folklore]. *Fol'klor. Kompleksnaya tekstologiya [Folklore. Complex textology]*, ed. V. M. Gatsak. Moscow: Nasledie. Pp. 24–51.

Mentyukov, A. P., Ustinov A. A., Chel'diev, S. A. 1993. *Muzyka, elektronika, intonirovanie [Music, electronics, intoning]*. Novosibirsk: NGK.

Orlova, E. M. 1964. *B. V. Asaf'ev: Put' issledovatelya i publitsista [B. V. Asaf'ev: The path of the scholar and the journalist]*. Leningrad: Muzyka.

Orlova, E. M. 1984. *Intonatsionnaya teoriya Asaf'eva kak uchenie o spetsifike muzykal'nogo myshleniya: Istoriya. Stanovlenie. Sushchnost' [The theory of intonation of Asaf'ev as learning about the specifics of musical thought: History. Establishment. Substance].* Moscow: Muzyka.

Reznichenko, E. V. 1988. O vidakh intonirovaniya severnorusskikh prichitaniy [On forms of intoning in North Russian laments]. *Fol'klor: Problemy sokhraneniya, izucheniya, propagandy. Tezisy Vsesoyuznogo nauchno-prakticheskogo konferensiya, chast' 1. [Folklore: Problems of preservation, study and propaganda. Papers of the All-Soviet scientific and practical conference, part 1].* Moscow: GMPI. Moscow: GMPI. Pp. 92–94.

Sheykin, Yu. I. 1992. Muzyka shamanisticheskikh i parashamanisticheskikh obryadov narodov Sibiri [Music of the shamanistic and parashamanistic rituals of the Siberian peoples]. *Shamanizm kak religiya: genezis, rekonstruktsiya, tradicii [Shamanism as religion: genesis, reconstruction, traditions]*. Yakutsk: Yakutskiy Gosuniversitet. Pp. 48–49.

Sheykin, Yu. I. 1988. O tipakh intonirovaniya eposa narodov Sibiri i Dal'nego Vostoka [On types of intonation of epos among the peoples of Siberia and the Russian Far East]. *Problemy izucheniya muzyki eposa [Problems of studying music of the epos].* Klaipeda. Pp. 40–42.

Sheykin, Yu. I., Tsekhanskiy, V. M., Mazepus, V. V. 1986. Intonatsionnaya kul'tura etnosa (opyt sistemnogo rassmotreniya) [Intonational culture of the ethnos (experiment of a systemic examination]. *Kul'tura narodnostey Severa: traditsii i sovremennost' [Culture of the peoples of the North: tradition and modernity].* Novosibirsk: Nauka. Pp. 235–247.

Sheykina, O. A. 1985. Tipy intonirovaniya v nimanku udegeytsev [Types of intonation in the nimangku of the Ude]. *Sotsial'no-kul'turnye protsessy v Sovetskoy Sibiri [Social and cultural processes in Soviet Siberia].* Omsk: OGU. Pp. 76–78.

Shindin, B. A. 1997. Muzykal'naya kul'tura Sibiri *[Musical culture of Siberia]*. Novosibirsk: NGK. Parts 1–3.

Shivlyanova, V. K. 1988. K probleme tipologii epicheskikh napevov "Dzhanggara" [Towards the problem of typology of epic melodies of the "Janggar"]. *Problemy izucheniya muzyki eposa [Problems of studying music of the epos].* Klaipeda. Pp. 35–37.

Smolyak, A. V. 1991. *Shaman: lichnost', funktsii, mirovozzrenie (narody Nizhnego Amura) [Shaman: person, function, world view (peoples of lower Amur)].* Moscow: Nauka.

Sychenko, G. B. 2001. Tipologiya shamanskogo intonirovaniya shortsev [Typology of the shamanic intonation of the Shor]. *Narodnaya kul'tura Sibiri [Folk culture of Siberia].* Omsk: OGU. Pp. 82–87.

Vul'fius, P. A. (ed.) 1979. Vstupitel'naya stat'ya [Introductory article]. *Russkaya mysl' o muzykal'nom fol'klore: materialy i dokumenty [Russian thought on musical folklore: materials and documents].* Moskva: Muzyka.

Yavorskiy, B. L. 1908. *Stroenie muzykal'noy rechi [Structure of musical speech]. Parts1–3.* Moscow.

Zemtsovskiy, I. I. 1981. Sotsial'noe i muzykal'noe: ot form muzitsirovaniya k formam muzyki [Social and musical: from the forms of music-making to forms of music]. *Sovetskaya Muzyka No 1/1981*. Pp. 84–88.

On evidence for the genetic relationship between Turkic and Mongol song traditions

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Background for studies on the musical cultures of the indigenous peoples of East Sayan

Similarities between Turkic and Mongol musical traditions already raised researchers' interest a long time ago. Opinions have been expressed about the similarities between Tuvin and Mongol "throat singing" (see, for example, Kyrgys 1992), between Turkic and Mongol stock-raising incantations (Kondrat'eva 1996) or about similarities of pentatonic melodic models in the singing of the Buryats and some Turkic peoples of South Siberia (see Novikova's article in this publication).

In the study of Turkic/Mongol cultural connections, special interest focuses on a region of the mountain range of the East Sayan, located in South Siberia and forming a part of the Altay-Sayan mountain range. In this area there are ethnic groups speaking both Turkic and Mongol languages. One of the Turkic ethnic groups are the Tofalars, who live on the northern slopes of the eastern part of the East Sayan mountains (Nizhneudinsk district of the Irkutsk region) and the Todzha Tuvins, who live on the opposite southern slopes (Todzha district of the Republic of Tuva). The western part of East Sayan is inhabited by the Oka Buryats, who speak a Mongol language and belong to the

western group of the Buryats, as well as the Soyots (Oka district of the Republic of Buryatia).

Notwithstanding the polyethnicity of the area in question and the historical ties between the Sayan peoples, the Tofalars and Todzha Tuvins, as well as Oka Buryats and Soyots (who are referred to in the following as Okans) musical cultures have substantial differences and they have retained their peculiarities. Perhaps their living in the mountainous conditions, where the ethnic territories are divided by nearly inaccessible mountain ridges difficult to trespass and where there are no convenient ways of communication and transport between the neighbouring regions, inevitably creates natural limits to interethnic cultural contacts. However, there are still numerous characteristics unifying these intonational cultures[1] of East Sayan.

The research of the musical traditions of the peoples of East Sayan can be traced to the last quarter of the 20th century. In the mid-70s, A. K. Stoyanov made two expeditions in Tofalariya (Stoyanov 1980). During the 1980–1990s, the research was continued by the ethnomusicologists of the Novosibirsk State Conservatory (Academy) named after M. I. Glinka. It is also they who have conducted research in the region of the Todzha Tuvins from the beginning of the 1990's (Novikova 1998, Krupich 2004), as well as in the Oka district of Buryatia from the beginning of the 21st century (Gerasimchuk et al. 2004). This work is based on materials collected during expeditions I have also participated in, the materials now being archived in the Archive of Traditional Music in Novosibirsk State Conservatory (collections A105, A106, A121, A182). In addition, transcriptions of Tofalar and Okan song texts, made by V. I. Rassadin and A. G. Gombozhapov were used.

1. The concept of "the intonational culture of the ethnos", which was introduced by Siberian ethnomusicologists and already described in detail (see e. g. Kondrat'eva et al. 1999), implies the totality of all regular and culturally comprehended sound phenomena, comprising a part of human social activities and being the primary and expected result of these activities. As a generalized sign system, the intonational culture contains levels of content and expression. The generic system, as well as the associated cultural meaning belong to the level of content. The level of expression ("ethnomusical system") consists of various utterly different grammars ("strata").

Comparison of Tofalar and Okan standard melodies

As objects for comparative analysis two standard melodies[2] were chosen, which belong to the Tofalar and Okan song traditions. Such a choice was conditioned by the fact that both the generic content and musical structures of these melodies evince numerous common features (note that in Todzha Tuvin traditions we did not come across melodies reminiscent of those analysed here). In the following, the findings observed will be discussed in detail.

The standard melodies in question are closely associated with the genre of lyric songs. The Tofalars call this song type *yr* 'song' and the Okans *arsiin duun* 'table song', although among the Okans this kind of melody also occurs in other lyrical genres, such as in wedding songs, somewhat more rarely in round-dance songs. This was possibly also the situation among the Tofalars, although in their song culture, unfortunately, no other genres have survived than *yr*. However, Tofalar *yr*s can also be associated with dance. The performance situation of the Tofalar *yr* and the Okan *arsiin duun* is not dominated by associations with the calendar; they can be performed in various circumstances, they are not limited to a single sphere or pastime. However, to a greater extent, especially in the culture of the Okans, these songs are connected with the occasion of a feast at a table, where it is habitual to demonstrate one's abilities in singing. It is possible that the prevailing soloistic form of performance, together with the drawn-out style ornamented with intrasyllabic melisma has its background in this context. In the Tofalar tradition, this style has disseminated widely in forms of the genre *yr*, whereas in Okan traditions there are only vague expressions of "drawn-outness". An Okan song performed in a more drawn-out manner has a special designation *utaar taatakha duun*.

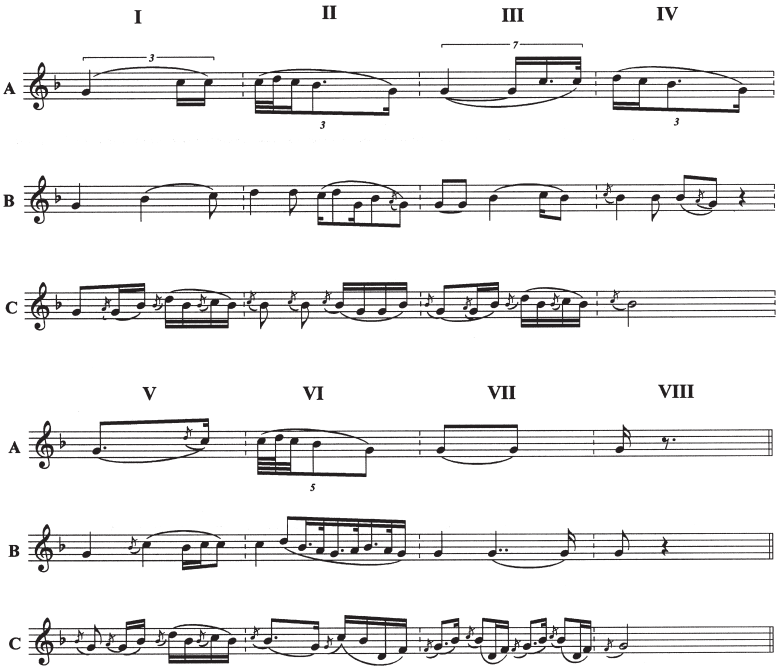
There is a substantial correspondence between the themes of the Tofalar and Okan songs (lyrical themes about love; table feasts and

2. Standard melody refers to a song melody which has invariant features in individual, local and other intracultural realisation and which can be associated with diverse poetic texts (within the boundaries of one tradition). Many song genres of the South Siberian Turkic peoples are based on standard melodies.

everyday life; praise of the beauties of the home region; philosophical aphorisms), as also between systems of poetic imagery. These are based on conceptual comparison of natural and cultural phenomena. The song texts are characterised by complete or incomplete semantic and syntactic parallelism, regular division of a minimal text line level unit as a paired line, as well as line-initial alliteration and rhyme.

In both the traditions, the standard melody is realised as individual melodic and rhythmic variants (among the Tofalars these variants are grouped as relatively stable versions – possibly reflecting family or local style). The performers are usually likely to adhere to one individual variant, which is associated with a multitude of song texts. The Okan singers very rarely perform two variants of the melody – with more or less drawn-out style.

Comparison of the compositional structure of the Tofalar and Okan melodies reveals a new kind of correspondence. In the Tofalar songs, the melodic and rhythmic content of the standard melody – seen as a complete form and recognised as an intonational phenomenon because of its repetition – extends over one melodic line. However, in the Okan tradition, the standard melody seems as if stretched over two melodic lines (see Ex. 1). The architectonic correspondences are not limited to this most general level, they also concern other structural levels (in this case the compositional parallels are defined not with the formal division of lines – this kind of isomorphism would be less informative – but with correspondences in the distribution of some melodic, rhythmic and timbral characters, which are discussed later in more detail). Thus, the Tofalar half-line is equivalent to the Okan line, the Tofalar two-syllable metric foot with the Okan half-line and the Tofalar syllabic segment to the Okan rhythmic group, which encompasses one word, a couple of words or a group of syllables.



Ex. 1. Examples of Tofalar (A), Oka Buryat (B) and Eastern Buryat (C) standard melodies, with syllabic segments of the strophic period marked with Roman numerals.[3]

Inasmuch as in both traditions the structure of a standard melody is closely connected with the structure of the line (the Okan system of versification is analogous with that of the Buryat – see the description of the latter from the point of view of the musical rhythm in Mazepus & Novikova 2002), the reasons for the correspondences enumerated are to be sought, seemingly, in the profound similarity of the Buryat and Turkic song verse (ibid.). Thus, it is not surprising that compositional correspondences continue to exist, also in larger structural units. In the Tofalar tradition, the fundamental song form is considered to be the *yr* of four lines and in Okan tradition, the *arsiin duun* of eight lines. The

3. In the present examples, the additional melismae within a sung syllable are presented with grace notes under the main slur.

Tofalars are fond of singing songs one after another, without notable breaks. It is also typical of the Okans to combine two or three different forms of table songs into a unified performance act.

From this point, however, we will be interested only in the level of the Tofalar line and, correspondingly, the Okan two-line strophe, as well as lower levels of organisation. Let us agree to define the structural unit corresponding to the Tofalar line and the Okan strophe as a *period*, and the unit that in the Tofalar melody corresponds to the syllabic segment as a *segment*. The units of medial levels are then called half-period and quarter-period.

We note that the number of segments in the period is stable and is equal to eight. In the music example (Ex. 1) the segments are referred to by their Roman numbers. An important characteristic of the architectonics of the melodies is the obligatory pause at the end of the period, complementing the short final tone to a normative duration of segment VIII. The other pause, also having a structural function and dividing the period into two half-periods, is optional in both Tofalar and Okan melodies, with the difference that among the Okans it is more preferred, obviously, because of the greater length of the half-periods.

The relative proportions of the segments and of other units differ notably in these traditions. In the Tofalar melody, notwithstanding the surface level even nature of the segments, there are many elements of an uneven nature at the microrhythmical level, but this does not become evident in direct observation. Together with this, iambic relationships prevail at every level of the architecture (for more detail on the microrhythmical peculiarities of Tofalar songs, see Skvortsova 2003). In Okan songs, first, the unevenness of the segments is expressed more strongly and more audibly and second, trochaic correspondences are more in common in them. Nevertheless, the traditions have one regularity in common: the degree of evenness gradually decreases when moving from big architectonic units to smaller ones.

Comparison of the syllabic rhythm in both of the melodies, seemingly, is not appropriate, inasmuch as the syllabic units seem to belong

to different levels. However, it is not impossible that the rhythmic of intrasyllabic melismae can be subjected to comparison. At this phase of the research it is not clear whether it would be better to compare directly the melismatic segments of the Tofalar songs with the partially melismatic segments of the Okan songs or to concentrate solely on the comparison of melismatic syllables. In any case, when comparing the segments, a similar feature can be observed in the distribution of the melismae within a period: segment VIII is always left without melisma, whereas for the other parts of the period it is more typical to have a structure with melismatic syllables in segments I–VII. Meanwhile, in agreement with the internal reconstruction, the present model of distribution of the melismae in the Tofalar culture is chronologically older, preceding other models (ibid.).

We turn our attention further to the parallels in pitches and melodies. The standard melodies of both the traditions are built on the basis of narrow-range anhemitonicism. For the Tofalar traditions it is typical to have three-step scales in the tonal range of a major third (g-a-h), a fourth (g-b-c'; this is the most common scale) and a fifth (g-b-d'). Along with the basic steps, the scales can also contain additional (alternative) super- and substeps, which are often marked with a special timbre and which have a wide range of intonation. A dominating scale in Okan songs is g-b-c'-d' and it is, actually, an extended structural variant of the Tofalar g-b-c'. It is also complemented with marginal steps. However, this kind of parallel has a rather external character. What is more important is apparently the fact that in both the traditions there are direct coincidences of functions of the steps.

Let us consider some of these functions. The architectonic functionality[4] of the steps in Tofalar and Okan melodies is reflected in the following table (Table 1; the steps marked here and afterwards with Arabic numbers are given in descending order of the frequency of their occurrence; the complementary steps are not taken into account; steps with close frequencies are separated with a slash (/)).

4. The concept of architectonic functionality is applied for the first time in V. V. Mazepus and O. V. Poluektova's work (in print).

	Tofalar melody		Okan melody	
	Initial	Finalis	Initial	Finalis
Period	1	1	1,4,2,3	1
First half-period	1	1,2,3	1,4,2,3	1,2
Second half-period	1	1	1	1
First quarter-period	1	1,2/3	1,4,2,3	1
Second quarter-period	1,2,3	1,2,3	1	1,2
Third quarter-period	1	1,2/3	1	1,2
Fourth quarter-period	1,2,3	1	1	1

Table 1. Architectonic functionality of the modal steps in Tofalar and Okan standard melodies.

In light of this data, we can identify a preliminary modal and architectonic model, common to both melodies. Its distinctive character is the recurring return to the first step at the borders of the periods, half-periods and quarter-periods.

In all likelihood, as a reflection of this model, some special features of melodic movement are also similar in the analysed songs. Thus, in both traditions variants of melodies prevail, in which segments III and V, and also I (alternatively) contain ascending movement naturally oriented from the initial lower tonal step. Segments II, IV and VI contain descending movement towards the same tonal step. Segment VII, differing from the others, is melodically less active and can contain a pitch repetition. Other similarities are connected with the prevailing smoothness of the melodic movement at the borders of the segments (this phenomenon is more clearly expressed in the Okan tradition),

Another, not less important character of the pitch structure of the melodies is the existence of the invariant progression of the steps in melodic lines. Such progressions were first found as a result of the statistical analysis of the song corpora of some Turkic musical traditions (Mazepus 2002). Among other things, for variants of a Tofalar melody the following progression is defined: 1 – 2 – 1 – 2 – 1 – 2 – 1 – 1 (as a criterion of identifying the invariant steps served their stability in the

variants of the melody; it could be shown that applied to the Tofalar tradition, this kind of step is mostly realised in the shape of the longest tone in a segment). Close parallels to this can be observed in the song traditions of the Tuvins and Altay Kizhi. The relatively wide distribution of this kind of structure, as well as the statistical ground for reliability in the observed cross-cultural parallels made it possible to evince a hypothesis about its possible Proto-Turkic origin (ibid.).

The progression in question dominates, but it is not the only one among the Tofalars. A total listing of corresponding schemes is shown below (in descending order of frequency of occurrence):

1) 1 – 2 – 1 – 2 – 1 – 2 – 1 – 1;
2) 1 – 2 – 2 – 2 – 1 – 2 – 1 – 1;
3) 1 – 3 – 1 – 2 – 1 – 3 – 1 – 1;
4) 1 – 3 – 3 – 2 – 1 – 3 – 1 – 1.

It is entirely likely that the second and the fourth progressions are variants of the first and the third, correspondingly (segment III is variable); in addition, the third scheme can also be expressed as a variant of the first one (segments II and VI are variables). Other remarks are associated with the realisation of these schemes in the singing of the Tofalars: within segments I, III and V the longest tones are distributed mostly in initial positions, whereas within segments II, IV, VI they are in medial or final positions. Finally, it must be noted that in those cases where it is impossible to identify the longest tone in a segment, the invariant tonal step nevertheless exists there, although in the form of a short sound.

In the Okan songs, following the criterion of the longest tone in a segment (as a rule, it is the initial one; in the case of repetition of sounds on one pitch level, their durations have been counted together), the following progression of invariant tonal steps can be discerned: 1/4 – 3/4 – 1 – 2 – 1 – 3/4 – 1 – 1. This scheme is quite close to the Tofalar scheme. We note that the second step, which is not used in segments II and VI as a long tone, is nevertheless contained in them as

a short duration within the melismae. Thus, the invariant character of the second step is also retained in the Okan examples. In other words, the Okan progression of the invariant steps, with the reservation of the special features of the aforementioned segments, is represented by the scheme 1/4 – 2 – 1 – 2 – 1 – 2 – 1 – 1. Then, when compared to the Tofalar progression, segment I is variable here. Both Okan schemes can be interpreted as parallels of the Turkic melodic model. Comparison of these schemes shows that the historical evolution of the invariant progression among the Okans has gone even farther in omission of the second step in segments II and VI than among the Tofalars. This kind of difference, as also differences connected with the variability of the segments among the Tofalars and Okans show that it is plausible that both these ethnic models have evolved autonomously over a long period.

Finally, similarities can also be observed in the timbral profile of the melodies. These parallels are notable in the use of segmental rather than suprasegmental timbres. The most characteristic parallel is suggested to be the complete postglottalisation at the end of the last segment of a period.

Concluding remarks

Thus, several characters of the genre and of the grammar of one ethnic tradition have correspondences in the genre and grammar of the other. The analogies observed are associated not only with the surface level, but also with the deep level structures. For example, the four-level architectonics of the period obviously has a deep level character, as also the strengthening of the unevenness of the structural units by movement from period to segment, the distribution of melismae in a period, the architectonic functionality of the steps of the mode and the scheme of the alteration of the invariant steps. Such similarities could evolve only in the case of active intercultural connections, during a long time-span

(Mazepus 2002). However, the current geographical distribution of the Tofalars and the Okans seems to exclude such connections.

Inasmuch as the Soyots were Turkic people relatively recently in a historical sense (Rassadin 2002), Soyot intonational culture could contain genres and melodies reminiscent of Tofalar *yr*. Could this genre have been preserved in the form of a substratum in the culture of the western Buryats? It is known that the Soyots live not only in the region of the river Oka, but also in the neighbouring Tunka district. Turning to the table songs of the Tunka Buryats, to whom can be traced the origin of the Oka Buryats, it is possible to discern that they use an analogical kind of type melody (see the note examples of Tunka *arkhiin duun* in Dugarov 1980). Nevertheless, it does not seem likely that the Buryats in their favourite table songs, which are widely distributed among different regional groups and families, would have used a type of melody originating in alien ethnic traditions, which, in addition, did not have, from their point of view, sufficiently high cultural status. Among the ethnic groups of East Sayan rather a reverse process has been observed: the western Buryats, as the most numerous ethnic group, with a developed type of economic system and a complex structure in their material and spiritual culture, have a strong influence on their ethnic surroundings. This is the reason why the hypothesis about the adoption of the present melody by Buryats (later: Okans) from the Tofalars is hardly plausible.

More natural in this situation seem to be suggestions about Mongolic influences among the Tofalars. In addition, attention is directed to the stylistic characteristic of the "drawn-outness" of the melody, which is an indispensable element both in Tofalar and Okan cultural traditions. This characteristic is, probably, loosely associated with concrete melodies, which permits the speculation that its origin is relatively later. While in Buryat and other Mongolic traditions it is woven into an evolved cultural semantic, among the Tofalars it functions only in the form of a general stylistic prerequisite in the performance of a song. In this connection, it seems justifiable to evince a hypothesis about the influence of the Mongolic "drawn-out" style on the Tofalar

yr. The question about dating and locating the ethnic source of this influence is left open. It could be during the period of subordination of the Sayanian ethnic groups to the reign of the Mongolic feudal power after the "forest" campaign of Jochi-Khan in 1207 (there are numerous loans in Tofalar from Middle-Mongolic language, see Rassadin 1971); it also cannot be excluded that the Tofalars had cultural contacts with the so-called "forest" Mongols who populated the eastern part of the Sayan mountains approximately at the same time (ibid.).

Regarding deep level similarities between Tofalar and Okan standard melodies, these similarities may have evolved much earlier from the mentioned style parallel. Their further analysis would necessitate comprehensive data from different musical traditions of the Mongolic world. At least in the local groups of the eastern Buryats different variants of melody have been observed, which is structurally reminiscent of that analysed. One of them, adopted from a published collection (Khaltaeva (ed.) 1999, 50–53), is presented in the music example (Ex. 1) (lines C). This song is associated with the so-called "songs of the ring", representing the lyrical genre, which is popular among the eastern Buryat. The melody in this tradition is a standard melody and is analogicously connected to the type of poetry mentioned above, which is based on semantic and syntactic parallelism. The example in question has a structure of eight segments and its pentatonic mode (*g-b-c'-d'-f'*) can be interpreted as an extension of the modal basis of the Okan melody. Finally, this song quite clearly evinces a Turkic progression of invariant tonal steps.

This and other parallels in the songs of the eastern Buryats allow us to suggest that the melody analysed is an intonational complex common to the Buryats and Turkic peoples of South Siberia. Its distribution over a wide territory is evidence of its relative antiquity. The parallelism concerns not only the musical grammar, but also the poetics and generic characters of the songs connected with this melody and may points to its common origin and correspondingly, to a genetic relationship of its concrete ethnic manifestations. Further treatment of this problem requires rigorous analysis of all observed parallels and also

their probable constitution. Furthermore, the quest for the similarities in other ethnic traditions, not only the Altayan and Sayanian would substantially enhance the conclusions of the present article.

Literature

Dugarov, D. S. 1980. Buryatskie narodnye pesni, tom 3: pesni zapadnykh buryat *[Buryat folk songs, book 3: Songs of the western Buryat]*. Ulan-Ude: Buryatskoe knizhnoe izdatel'stvo.

Gerasimchuk, O. D., Krupich, E. L. & Skvortsova, N. M. 2004. Intonatsionnaya kul'tura okintsev (soyotov i buryat) (po itogam polevogo sezona 2002 g.) [Intonational culture of the Okan (Soyot and Buryat) (results of the fieldwork season of 2002)]. *Mel'nikovskie chteniya: materialy I regional'noy naucho-prakticheskoy konferentsii [Mel'nikov readings: materials from the first regional scientific-practical conference]*, ed. N. V. Leonova. Novosibirsk: NGPU. Pp. 86–88.

Khaltaeva, L. A. (ed.) 1999. *Pesni Khori-Buryat [Songs of the Khori-Buryat]*. Ulan-Ude: VSGAKI.

Kyrgys, Zoya 1992. *Khöömey – zhemchuzhina Tuvy [Khöömey – The Gem of Tuva]*. Kyzyl.

Kondrat'eva, N. M. 1996. *Skotovodcheskie zagovory telengitov [Cattle-raising incantions of the Telengit]*. (Academic thesis.) Novosibirsk: NGK.

Kondrat'eva, N. M. & Mazepus, V. V. & Sychenko, G. B. 1999. K teorii intonatsionnykh kul'tur: intonatsionnaya kul'tura telengitov [Towards a theory of intonational cultures: intonational culture of the Telengits]. *Voprosy muzykoznaniya [Questions of musicology]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 212–225.

Krupich, E. L. 2004. Pesennaya kul'tura tuvintsev-todzhintsev [Song culture of the Todzha Tuvins]. *Sovremennye problemy gumanitarnykh i sotsial'no-ekonomicheskikh nauk. Tezisy dokladov mezhvuzovoy nauchnoy studencheskoy konferentsii "Intellektual'nyy potentsial Sibiri" [Current problems in humanities and social-economic sciences. Abstracts of an interinstitutional scientific congress of students "The Intellectual Potential of Siberia"]*. Novosibirsk: NGAKhA. P. 44.

Mazepus, V. V. 2002. Osnovaniya muzykal'noy komparativistiki: svidetel'stva rodstva nekotorykh tyurkskikh pesennykh traditsii [The foundations of musical comparativistics: proofs for a relationship of some Turkic song traditions]. *Sibirskiy filologicheskiy zhurnal [Siberian philological journal] 1/2002*. Novosibirsk. Pp. 76–82.

Mazepus, V. V. & Novikova, O. V. 2002. Muzykal'no-ritmicheskoe voploshchenie buryatskogo pesennogo stikha [Musical and rhythmical realisation of the Buryat song verse]. *Muzykal'naya kul'tura kak natsional'noe i mirovoe yavlenie [Musical culture as national and global phenomenon]*, ed. B: A. Shindin. Novosibirsk: NGK. Pp. 88–103.

Novikova, O. V. 1998. O nekotorykh intonatsionnykh traditsiyakh tuvintsev-todzhintsev [On some intonational traditions of the Todzha Tu-

vin]. *Narodnaya kul'tura Sibiri: Materialy VII nauchno-prakticheskogo seminara Sibirskogo regional'nogo vuzovogo tsentra po fol'kloru [Folk culture of Siberia: Materials of VII scientific-practical seminar of the Siberian regional higher education centre of folklore]*, ed. T. G. Leonova. Omsk: OmGPU. Pp. 80–84.

Rassadin, V. I. 1971. *Fonetika i leksika tofalarskogo yazyka [The phonetics and lexicon of the Tofalar language]*. Ulan-Ude: Buryatskoe knizhnoe izdatel'stvo.

Rassadin, V. I. 2002. O soyotakh i ikh yazyke [About Soyots and their language]. *Mir Tsentral'noy Azii. Yazyki. Fol'klor. Literatura, kn. 4, ch. 1 [The world of Central Asia. Languages. Folklore. Literature, book 4, part 1]*, ed. B. V. Bazarov. Ulan-Ude: Izdatel'stvo BNTs SO RAN. Pp. 100–105.

Skvortsova, N. M. 2003. *Ritmicheskaya struktura tofalarskikh narodnykh pesen [The rhythmic structure of Tofalar folk songs]*. Academic thesis. Novosibirsk: NGK.

Stoyanov, A. K. 1980. *Tofalarskie narodnye pesni (materialy fol'klornykh ekspeditsii 1975–1976 gg. [Tofalar folk songs (materials from folkloristic expeditions of 1975–1976)]*, ed. V. I. Rassadin. Irkutsk: Irkutskiy ONMT NTiKPR.

Evaluating parameters of structural analysis in indigenous Siberian singing

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Introduction

The main orientation of this text concerns the general methodological problem of assessing one's analytical apparatus as regards the data to be analysed, the emphasis here being on my own experiences with the structural analysis of indigenous Siberian singing. To what extent is it possible to use European premises, conceptualisations and analytic procedures in order to reach fruitful conclusions about non-European or tribal music materials? If we stick to the convenient methodologies and premises, what could be passable compromises and what kind of consequences will they have?

In my work, especially on the Nenets musical culture and especially on Nenets singing style, the theoretical background I adopted during the 1990's (Niemi 1998) has connections with generative approaches to the grammar of language, either in the field of (Chomskyan) linguistics or in musicology (Ruwet 1987). According to this premise, I deemed it possible to gain a structural understanding of a musical style, assuming that there were consistent principles available for identifying the parameters subjected to structural analysis and that it was possible to justify the conclusions of a structural analysis with empirical evidence

(i. e. sound recordings). Furthermore, this empirical evidence had to be reliably and explicably locked into a form consisting of surface and deep level forms. This structural point of departure was revealed in an encompassing form in the stichic studies by Péter Hajdú (1978) and Eugen Helimski (1989). Giving a thorough account of the deep and surface level structures of the Nenets (and in general North Samoyedic) forms of stichic or metrical language, the analytic field was left open for testing and examining the various forms of local realisation of these principles in real, recorded song data. I was able to draw quantitative conclusions on larger song materials and to arrive at a general explanation for the realisation of the stichic principles governing the realisation of Nenets songs regardless of their dialectal area. I was even able to pinpoint some structural stylistic features peculiar to certain geographic areas.

Thus, in such an undertaking, the central theoretical issue is the selection of relevant parameters for the structural analysis. In the case of northern Samoyed unaccompanied solo song with full, semantic song text, the relevance of the analytical parameters can be grounded in the fact that the very song text is undisputedly arranged in a stichic, metrical and thus predictable form. Furthermore, the fact that on a structural level, the song (performance) consists of a conscious (albeit natural, from the point of view of the performer) interplay between language and melody, as language is transformed into a metrical form in order to be performed to the melody of the song. Thus, the structural explanation is reached, when both the metrical principles of the song text and the melodic formation are accounted for.

This task becomes more tedious – and interesting – when we proceed to a closer look at the possibilities of identifying and characterising the metrical and melodic forms of a song. I subscribe to the practical view that the meter of a song is about accentuation and operates at both a deep and surface level and that both the song text and the melody are structured by their metrical patterns, the basic structures of which may be consistent with each other, but not necessarily. With the concept of a deep level we can characterise the principles of the

patterning of accentuation. The more a song style is governed by a full semantic song text, the easier is the argumentation about the interaction of the linguistic song text with the metrical patterns of the melody, because the metrical characteristics of semantic language forms may contain more discernible metrical implications than a song text with no straightforward linguistic semantic (i. e. the so-called euphonic, asemantic, synsemantic or even "non-sense" song syllables[1]). This background also has theoretical connections with the musicological work of Eduard Alekseev (1976; 1986), Urve Lippus (1995), but also our research group of "Eurasian Song" (EULA, funded by the Academy of Finland, 2002–2004). During our research, new thoughts have emerged regarding musical structure: first of all the ontology of melodic modalities and the manifestation of musical time.

The methodological background is governed by two necessary preconditions. First, by the conditions for the existence of traditions on the one hand and second, by the accessibility of the information about those traditions on the other. The condition for the existence of a tradition is a factual precondition, in the sense that in the vast area of northern indigenous musical traditions some local traditions have survived quite well to the third millennium, whereas others show unfortunate signs of waning. If a tradition is alive, it means that there are informants, masters, guides, and connoisseurs available, to whom to turn for help. Waning or extinct traditions are more likely to become objects of interpretative, retrospective or reconstructive research strategies. Among the indigenous peoples of western Siberia this means, for example, that there are ample opportunities for conducting fieldwork among the Nenetses, whereas the exponents of Selkup folklore or language have become tragically rare.

1. All these are somewhat awkward ways to describe the word forms of a song text without a straightforward semantic reference. I consider "euphonic" a passable choice, as it is associated with an outsider's interpretation that the use of these word forms in a song just seem to let linguistic utterances enhance the singing. To call them "asemantic" would be to maintain that the syllables used have no meaning at all, "synsemantic" is a way to give it up and say that the meaning is "open" or "general"; "secremic" is possible, if the outsider has the insider's knowledge about secret or forgotten meanings. Calling this kind of song text "non-sense" would be merely pejorative.

The problem of the accessibility of the information about a tradition has more to do with the design of a responsible research strategy: it has to be thoroughly negotiated with the representatives of a local culture on what conditions it is possible to retrieve information about their culture. A communication system, as for example a totality of a song culture, may consist of sections freely distributable and communicable to outsiders, but also of sections of internal knowledge which it is deemed inappropriate to discuss with outsiders of a culture. In western Siberia, for example, the institution of an individual song is a very demanding object for the outsider to research, because of the subtle network of individual, intimate, rumour-like, biased, truthful etc. knowledge and opinions, the revelation of which may have consequences for the representatives of the local societies. So far I have succeeded in studying the traditions of the individual songs among past generations. Thus, for example, working with the Forest Nenets it proved advisable not to distribute or discuss individual song repertoires, which contain information about individuals living in the present, whereas songs and deeds about people having lived two generations before our times usually lose most of their socially current meaning and thus become more amenable to discussion.

So far, my research process has entailed alternating between the fieldwork phase and the so-called laboratory phase. The present song examples are from my last trip to the Pur river Forest Nenets in September 2003. During this trip my aim was to record a maximum number of individual songs, together with the necessary genealogical information in order to draw songmaps of the individual songs – with the mentioned premises. The present Forest Nenets examples are a part of my wider, ongoing research on the singing style of the northern Samoyeds and especially the singing styles of various groups of the Nenets. During the course of this work, new fieldwork experiences have shed light on the mysteries of previous experiences, but, what may be even more important, constantly raised new unsolved problems. One actual result from this fieldwork experience has been my latest shift of research interest in the direction of studying the structural identity of

individual songs in relation to the network of song repertoires. What is the essential character of an individual song? Structure or meaning? If structure, how can we be sure that we are analysing relevant structural parameters? If meaning, how can we be sure that we have asked the relevant questions and furthermore, what are the possible borders of freely communicable and secret, exclusive information?

My position as a researcher is connected with this two-phase research process. On the one hand I have been able to do short, intensive fieldwork periods with different singers and masters of folklore and on the other I have spent more time analysing the fieldwork data at home. In general, for an average Finn, the possibilities of conducting long-term fieldwork in Russia seems to have been an almost insurmountable obstacle. Since the extensive work of the Finnish linguists at the beginning of the 20th century, no similar work has been possible. In a sense, I have compensated this lack of extensive fieldwork experience with the method of indirect learning of the research material. As this is a supplementary research strategy, where the learning process is based on my cumulative comprehension of the traditions studied, and not on constant dialogue with the tradition-bearers, I do not claim to have acquired a truly bicultural ability in learning the song traditions of the northern peoples. However, my dialogue has continued with my research partners outside the fieldwork periods in the form of other communication, including correspondence by letter, telephone and by visits of my partners in Finland.

These conditions have characterised my method of testing my learning process. I have been able, however, to adjust and corroborate my laboratory phase results with additional fieldwork. This dialogue seems to have worked well so far, for example with the analysis of the individual songs in the social network of the Tundra Nenetses (Niemi & Lapsui 2004), as well as with the Forest Nenetses (forthcoming).

The problem of the parameters

Thus, the theoretical perspective in my studies with the northern Samoyeds centres on understanding the structures of the songs at the level of the melody and the song text. For this, some fresh views for choosing meaningful parameters for the metrical processes of the melody and the text have been proposed, rephrasing the conventional conceptual pair of divisive and additive musical structures (see Niemi & Jouste 2003). Most importantly, this discussion is associated with the wider context of the question of the fundamental characteristics of a sung expression. This was one of the theoretical issues I already proposed in my doctoral dissertation (Niemi 1998) and as such it continues the discussion of identifying the structural forms of a musical expression dating back to the history of comparative musicology. While the discussion about divisivity and additivity in earlier ethnomusicology (Sachs 1953, Hood 1971) centred on European forms of even and uneven meters, in our rephrasing we deemed it more useful to apply this conceptualisation to focus on the easily identifiable and measurable, discrete structural elements of a musical expression compared to those continuous elements of a musical structure, the identification and measurement of which turns out to be more problematic. Moreover, we wanted to encompass not only the characteristics of a musical time, but also of musical pitch in this reformulation. Examining Tundra Nenets and North Sami musical examples from this point of view, we presented the principle of additivity and divisivity to include continuous or indiscreet forms of musical expression both in the realm of time and pitch. Furthermore, it is clear that this kind of conceptualisation is at best seen as a continuum, not an oppositional pair of structural possibilities.

This theoretical conceptualisation has consequences in the process of identification of the analytical parameters of a musical expression. Whereas traditional European forms of musical expression can be placed at the divisive end of this conceptual continuum, because their time and pitch structures are – in general – quite easily identifiable, much

non-European and especially tribal music can be placed at the additive end of this continuum. Thus, the northern Siberian and Scandinavian indigenous singing styles could be identified as additive.

In short, a musical structure is thus *divisive* if its elements of time and pitch can be identified in an unambiguous way. This unambiguity was also reflected in the conventional concept of divisivity, as rhythmical manifestations of a meter were seen as a coherent principle of dividing larger time units into smaller ones in some predictable way. The fundamental idea was to propose a steady pulse grid as a base, onto which rhythmical forms are built. Thus, for example, a duration of a 1/4 had to be understood as combination of two durations of 1/8. In our reformulation, similar unambiguity can be proposed in the identification of pitch structures: in some, say, European, traditional musical styles, the pitch continuum seems to be divided on some grid-form principle, as for example in diatonic or anhemitonic scales, yielding proportionally stable pitch and scale structures.

On the other hand, a musical structure is *additive* if there seems not to be any discernible structural grid onto which time or pitch structures can be said to be built. There may be no other way to form categories of, say, musical time, than to group their durational classes into "short" and "long", with no measurable connection between them. This kind of musical structure seems to be a natural standard in many of the tribal, non-European musical styles. Thus, arriving at an analytic conclusion about this kind of musical structure can be very difficult. This situation makes it very difficult to label additive musical performances with unambiguous time or pitch structures. Identification of musical parameters is the more difficult, if we are not sure what to look for. Making an excessively accurate transcription of an additive musical style may miss the point, if we do not know what we are looking for. Accordingly, making a broad generalisation of a musical structure may blur that musical structure. The notational system as a metalanguage of representing an auditive, musical form in a graphic form is also at stake. This is why the problem of choosing structural parameters especially in the examination of an additive style becomes

very important. Furthermore, as the conventional European notational language has developed – as also the European musical styles have evolved – through the centuries to best describe a divisive musical style with fairly clear boundaries of its time and pitch elements.

Musical structures in Forest Nenets individual songs

In light of the foregoing, I should like to discuss two partially interrelated theoretical issues. The first is the problem of *structural identity of individual songs*. Inside the culture, the individual song is defined as a stable song form representing its author. To an outsider and to a musicologist, however, it is not always clear what is meant by "stability". This is the central place to apply stylistic conclusions concerning musical parameters of analysis. If we have better insight into the ways the representatives of a musical style make structural distinctions in a song, it is naturally easier to draw relevant stylistic or comparative conclusions about songs. As a problem of musical analysis it is fundamental to have an opportunity to make comparisons with songs known to be identical as performed representations by the same person. However, it is not always an easy task to find performers who are able to sing variants of a requested individual song. Furthermore, it is an open question to what extent the external structural model of a song is identical to the original song form in the performance of performers *other* than the author of the song.

The second is the problem of *neighbouring styles*. During my fieldwork in 2003, I was happy to record a rare example of fusion style among the Nenetses. The study of song performances defined by the performers as containing stylistic elements of neighbouring ethnic singing styles is an intriguing task for future research, because of their (at times explicit) nature as a statement of stylistical boundaries of a song performance. Performances containing stylistic fusion point clearly to

the characteristics that the indigenous performers consider to belong to their own singing style as well as to the stylistical properties of their neighbours – as they perceive it.

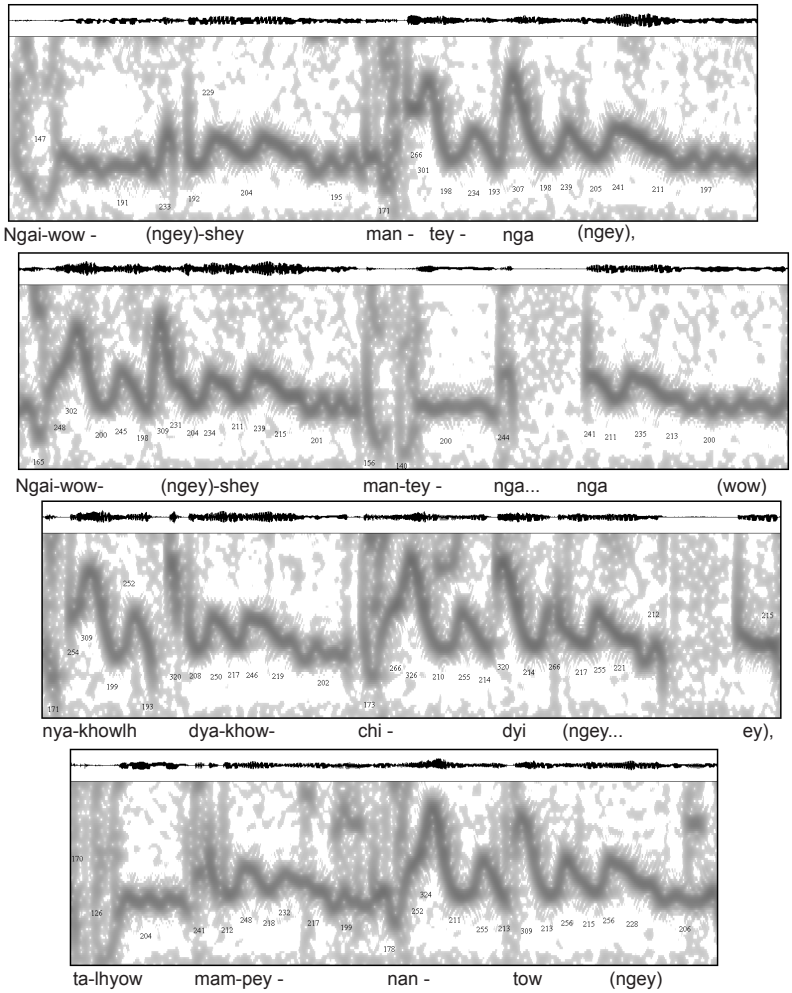
Before proceeding, let me state briefly that together with the Tundra Nenets, the Forest Nenets (autoethnonym *Nye"shang*) comprise the Nenets Samoyedic linguistic community. They are a minority of 2,000 individuals compared with the 35,000 Tundra Nenets. The territories of the Forest Nenets concentrate on the basin of the Pur River in western Siberian lowland. The upper Pur consists of two major tributaries, named after the traditional territories of the two major Forest Nenets clans, the *Ngaiwashatas* and the *Pya"ks*. The neighbouring river basins also have significant Forest Nenets populations. These adjacent regions are also zones of ethnic interaction with their neighbours. At the same time, they also define the dialect areas of the Forest Nenets. In the north, the Forest Nenets do not have an actual neighbourhood with the adjacent Tundra Nenets population, as there are very sparsely inhabited stretches of land at the lower Pur. In the west, the Forest Nenets territories – especially those of the other two Forest Nenets clans, namely the *We"las* and the *Dyiw"shis* intermingle with those of the northern Khanty at the upper Kazym and with the eastern Khanty in the south at the upper Agan. However, many of the We"las have territories along the upper Pur, as well. In the east, the Forest Nenets have contacts with the Selkups on the upper Taz and its western tributaries, such as the river Chasel'ka. All the following examples here are recorded and discussed among the Pur river Forest Nenets, and especially representatives of Ngaiwashatas and Pya"ks. At the same time, these major clans (with their various lineages) form two groups who usually intermarry.

Regarding the first issue discussed here, namely the problem of structural identity, let us briefly sketch a point of departure for one of our fundamental problems mentioned here, namely the problem of additive versus divisive musical styles. As the divisive structure is so obvious a fundamental for the European understanding of music (and its graphic presentation), are there any means of illustrating the

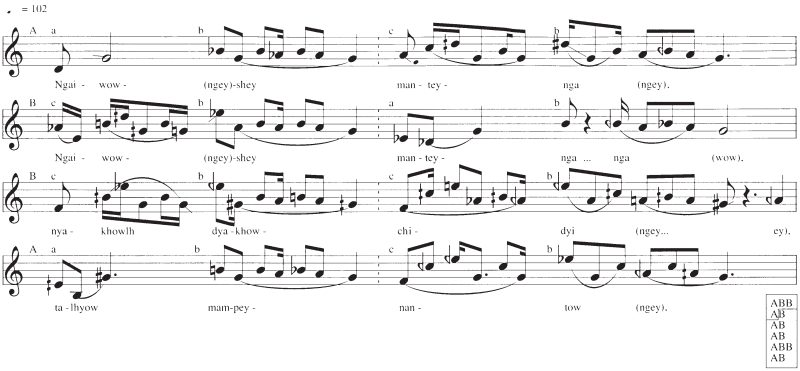
problem of additive structures? The extreme choices would be an "objective" visual graph representing the flow of a musical sound as registered and calculated by computer compared with a "subjective" use of the conventional notational system for the same musical sound. The computer-drawn graph should be thus more irreproachable to show what really is happening in the musical sound flow, whereas representing the same flow with the metalanguage of the conventional notation seems to be fraught with explicit or implicit compromises and possible misinterpretations of the original signal. However, there are great difficulties in reading the computer-drawn graph, whereas the conventional notation is, fundamentally, designed for easy reading.

The following initial four-line fragment of a Forest Nenets individual song (F Nen *kalhyita kinawsh*, 'own song') is represented both as a narrow range spectrogram (Ex. 1a) (which, because of its narrow range could be called only as a melogram) and as a conventional note transcription (Ex. 1b.)[2].

2. In all the transcriptions in this article, the actual performed tones sound an octave lower than what is written.



Ex. 1a. Igor' Wadyen-To Ngaiwashatang kinawsh. Perf. by Nina Okholevna Wella (née Pankhey Pya"k). Spectrogram.



1.	*Ngaiwow(ngey)shey manteynga (ngey),*	*Ngaiwashey speaks,*
2.	*Ngaiwow(ngey)shey manteynga (wow)*	*Ngaiwashey speaks*
3.	*– nyakhowlh dyakhowchidyi (ngey) –*	*– my three female reindeers –*
4.	*talhyow mampeynantow (ngey).*	*speak like this.*

Ex. 1b. Igor' Wadyen-To Ngaiwashatang kinawsh. Perf. by Nina Okholevna Wella (née Pankhey Pya"k), recorded in Tarko-Sale, 15.9.2003 and transcribed by J. Niemi.

This representation serves here as an illustration of the characteristics of the additive Forest Nenets singing style. What kind of information or analytical insight is it possible to retrieve from these representations, representing a typical example of Forest Nenets individual song form with two slightly varying melodic lines repeated throughout the song?

First, the graph gives an overall picture of a melodic style, the main orientation of which can be called horizontal. Here this means that although the melody itself consists of undulating movement of the pitch levels, the overall direction of the melodic structure consists of recurring undulation within the tonal range revealed during the first line of the song. An opposition to this structural principle can be found, for example, in the Turkic singing styles of southern Siberia, where the melodic structure is characterised by descending orientation within a group of melodic lines. While the graph could be called a detailed, exact representation of the movement of the melody, it is not meant for

reading and thus it cannot be used as a notational language. Reading this kind of graph together with listening at the corresponding audio recording may give new understanding to this representation. It may be heard that the additivity governs the pitch level structures, in that there seem to be considerable margins in the variation of the pitch levels – at structurally identical positions, as we remember that the performer repeats similar melodic lines throughout the song. Moreover, almost the entire graph consists of diagonal, zigzag fluctuation. The more slanting is the ascent or descent, the more continuous is the arrival at or leaving from the pitch peak. This is something that the conventional notation is not designed to illustrate.

Second, with the conventional notation it is possible to make a statement or an interpretation about the overall structure of the melody. It is possible to describe the peaks and dips of the melody with some accuration. However, it is more tedious to give a readable form to the continual pitch level movement, represented in the spectrogram graph as a slanted saw-tooth form. With the conventional notation it is easier to make a more explicit interpretation of the metrical structure of the melody, the more so if it is anchored in the interpretation of the metrical qualities of the song text.

Thus, a new perspective of reading emerges if we make both the conventional notation and the spectrogrammic graph. It becomes clear that conventional notation cannot fully account for this kind of continuous fluctuation of the melody. One possibility is to merge these representations together, where the conventional notation represents a kind of ideal and interpreted form and the graph merged into the same picture shows the "actual" form of the melodic progression.

Presented together or separately, analytic conclusions should be drawn and this represents yet another task worth designing. An adequate analytic conclusion should include the principle of the metrical structure of the melody, likewise a conclusion about the fundaments of the pitch formation. In the final account these two should be described together, as it is obvious that the metrical basis of this kind of elastic musical structure comes from the metrical fundament of the song text, as transformed

into an acoustic form. This sung text, in turn, is welded into the pitch fluctuation not in a random manner. Therefore, analytical conclusions of the present song are:

1) Metrical organisation

The typical Nenets hexasyllabic[3] and isometrical verse form is realised in this song in the following forms. The metrical basic forms of the verse form text consists either of words with

a) even number of syllables (S) (later referred to as "222" type) and with optional supplementary syllables ((S)), exemplified by line 4. in the following way. It has to be noted that the durations expressed with the notational symbols are rough approximations, presented so as to refer to the oppositional character of the real durations (as a continuum of short–long durations):

S	S	+	S	S	S	S	(S)
♪	𝅗𝅥		♪	𝅗𝅥.	𝅗𝅥.	𝅗𝅥.	(𝅗𝅥.)
ta -	lhyow		mam -	pey -	nan -	tow	(ngey)

or of words with

b) odd number of syllables (later referred to as "33" type) and with optional supplementary syllables, exemplified by line 1. as

S	S	(S)	S	+	S	S	S	(S)
♪	𝅗𝅥	(♪)	𝅗𝅥.		♪	𝅗𝅥.	𝅗𝅥	(𝅗𝅥.)
Ngai -	wow	(ngey)-	shey		man -	tey -	nga	(ngey)

Thus, the first methodical requirement in the structural analysis of a Nenets hexasyllabic song is to identify these two basic verse types and

3. Peculiarly, this hexasyllabic (trimetric) principle concerns only the Nenets *secular* songs. Most of the *sacred*, shamanistic songs are sung with an (octosyllabic) tetrameter (for more detail see Niemi 1998, 73–77).

to characterise their metrical realisation in a rhythmic form. During this phase of analysis, it is necessary also to identify the ways the supplementary syllables are placed in actual verse forms in these basic verse types, because they tend to be unique to each song.

As we are aware of the principle of word-initial stress in Nenets language, it is possible to postulate another metrical norm (obviously, not on the basis of this short example, but by analysis of larger song corpora (see Niemi 1998, 93–100)). This is the principle of the rhythmical realisation of the (word-initial) stressed syllables as short durations. Thus, the word stress tends to be reflected in a sung form *not* as a long or melismatic duration, but as a sharp, accentual short one.

2) Pitch organisation

The previous procedure for identifying the metrical fundaments of a single song is also an indispensable analytic phase in arriving at conclusions about the pitch organisation. The song example in question is an example of an additive pitch organisation, where the scheme constructed with conventional notation is hardly of any help if the basic principles of additive pitch organisation are not discussed.

The analyses of several Tundra and Forest Nenets song corpora revealed that the overall melodic orientation in the Nenets songs is horizontal. This means that the melody tends to undulate in a tonal space governed by one single pitch level that we call as a *primary constitutional tone* (much in a same way as Alekseev (1976)). A typical realisation of this phenomenon is that this fundamental support tone appears both as the initial and final tone of a song. In other song styles (as in Turkic southern Siberia or among the Selkup) the overall melodic orientation can be markedly descending, where the initial tone of a song can resound an octave higher from a final sound (usually in a structure consisting of a grouping of several melodic lines).

Thus, typical of the Nenets type of additive pitch organisation is that the actual pitch levels of a song can fluctuate quite freely. This feature is well exemplified in the notation example. The question is,

how to make an analytical statement about the internal order for these kind of tonal phenomena?

In this analytical phase the motif structure of the song is analysed. The results can be presented in the graphical form of conventional notation, as is done in the example. The crucial point here is to identify the recurring motif elements in a song and the way the whole lines are constructed of the motifs. The presentation of this phase can be done with conventional notation, but the syntactic features in common must be presented as motif segments aligned vertically in the notation. In the Nenets case, the isometric constitution of the (hexasyllabic) songs usually gives quite clear clues to the motif construction of the level of a melodic line, the more so, as we know that the isometrical principle of construction concerns both the melody and the text.

The notation example was presented for easy reading by minimising the amount of unconventional notational symbols. Still, no pitch level interpretation was made in order to exemplify the wide variation in the realisation of the tonal levels. Thus, what we have here may seem quite a disturbing note transcription of a musical phenomenon. However, a closer look may clarify the situation.

The next step in this phase of analysis is to identify the primary constitutional tone of the song. In the present song, the pitch level marked with the note g^1 seems to occur quite consistently in initial, medial and final positions. When its occurrences are examined in various places in recurring motif structures, it becomes evident that the additive tonal system of the present song allows this tonal level to be realised not only as g^1, but as a wider tonal pitch band encompassing pitch levels of f^1–$g\#^1$. Below the pitch level (band) of g^1, there is a pitch level (band) of d^1, which seems to occur primarily emphasising the line-initial g^1. It is a matter of interpretation whether this level should be considered as another constitutional tonal level.

The analytic process of identification of the pitch levels of the present song continues by examining the pitch levels above the primary constitutional tone (g^1). Again, by comparing pitch level phenomena occurring in structurally similar position, a pitch level stem of d^2–h^1–a^1–g^1

is discerned – with a considerable amount of fluctuation in pitch levels. Of these, an autonomous, descending melodic movement h^1–a^1–h^1–a^1–g^1 is presented in quite an emphasised melodic motif level movement. The highest pitch level peak is d^2, the function of which seems to be more for emphasis and opposition than for participation in the formation of the motif level melodic shape, as it is invariably followed by g^1. Because of similar kinds of functional restrictedness of the lower d^1, it could be reasonable to interpret both these extremes of the tonal range of this song as emphatic rather than constitutional tonal levels.

Thus, the fluctuating pitch band levels could be maintained to group in a form reminiscent of an anhemitonic modal structure of d^2–h^1–a^1–g^1–d^1 – with g^1 as the primary constitutional level, the motif movement between h^1–a^1–g^1 as the core of the melodic formation and the extremes of the tonal range d^1 and d^2 as emphatic, additional tonal levels in this song. However, the directions of a pitch level analysis of the additive tonal structure outlined here must obviously be carried out with a larger song corpus.

3) Correspondence between metrical and pitch level phenomena

A more profound understanding of the internal structural logic of a cultural phenomenon includes not only identification and argumentation concerning form, but especially an understanding of how the form functions as an organisation of internal logic of structural interrelationships. What makes the form tick, or reproduce itself, for that matter? A structural examination of functioning of a cultural phenomenon, such as a traditional song with its peculiar stylistical norms is largely evaluative of how the form fits together and what the possible norms of concatenation of its constituent parts might be. Fundamentally this aspect of the matter is about syntax. Are there discernible principles that imbue the form with order?

The Nenets song style is a beautiful, although at times quite tedious an example of the possibilities for studying syntactic formations in song structures. If we are aware of the principles of metrical and tonal

analysis (as exemplified in the previous phases), we should be more ready to proceed in examining if there is any correspondence between these fundaments of the structure, as we know that they coexist and interact in one – in an acoustic performance of the song.

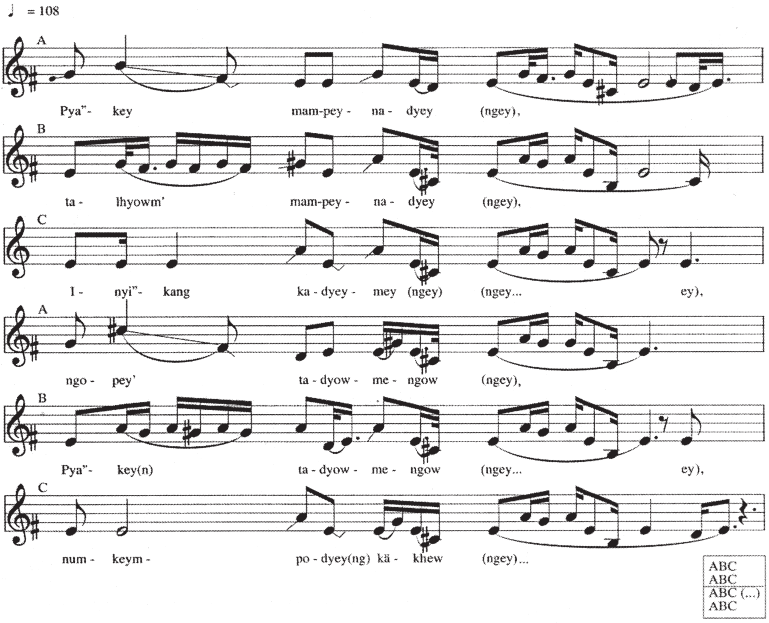
It was already noted that there seems to be a correlation between the accented syllables of a song text and their realisation as an acoustic flow of sound. The analysis of syntactic correspondence of metrical and pitch level phenomena should concentrate on this interrelation more closely. This is not possible in the context of this presentation, but even with this analytical example it becomes clear that there is a correspondence and with this kind of structural analysis it is possible to proceed to achieve an understanding of the structural and syntactic laws governing this kind of northern indigenous song style.

As a short summary of the questions to be solved, it seems that the word-initial syllabic *accentuation* often gives clues to the primary constitutional tones of a melody, whereas the melodic process proper is located in melismatic motif passages carrying the *unaccented* syllables. The next analytical question is how to use the analytical insights gained from this kind of structural analysis. One possibility is to proceed to examine the structural identity of individual songs, whether by comparing different songs on various levels of relatedness or variants of songs defined by the bearers of tradition as identical.

The question of structural identity of songs

Accounting for the structural identity of the individual songs is, as mentioned before, dependent on the availability of variants of a song. These are regrettably rare, but the next song example gives some directions toward the analysis of song variants. Furthermore, with this example it is possible to point to the larger question behind this kind of comparative structural analysis: what kind of acoustic performance form is considered to be "the same" or "identical" by the representatives of the local culture?

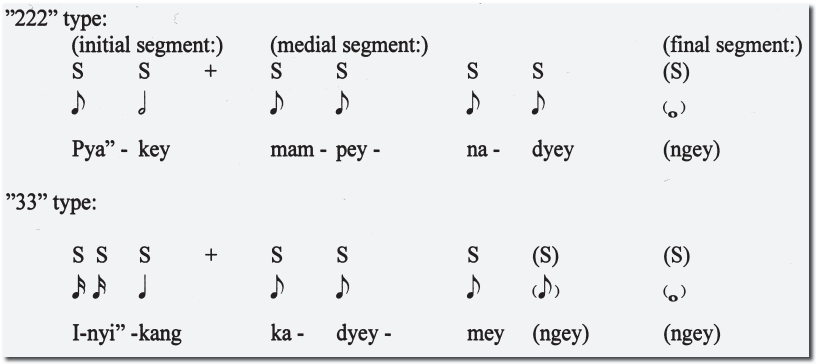
In the following examples (2a, 2b) variants of an individual song of one of the last seers of the Pur-Chasel'ka region Forest Nenets, Lyalya Inyi"kavich (Pankhey) Pya"k (b. 1941) are presented. The variants were recorded from the performances of two different singers on different occasions (with a five-year time gap between the recordings). Both singers belong to the next generation after L. I. Pya"k and have a distant relationship to him, either by blood (N. O. Wella) or by marriage (A. U. Ngaiwashata).



1. Pya"key mampeynadyey (ngey),	*Pya"k speaks,*
2. talhyowm' mampeynadyey (ngey):	*speaks like this:*
3. – Inyi"kang kadyeymey(ngey) (ngey),	*– The descendant of Inyi"ka,*
4. ngopey' tadyowmengow (ngey),	*the one there is,*
5. Pya"key(n) tadyowmengow (ngey).	*Pya"k there is.*
6. Numkeympodyey(ng) käkhew (ngey)...	*The heavenly spirit (shaman)...*

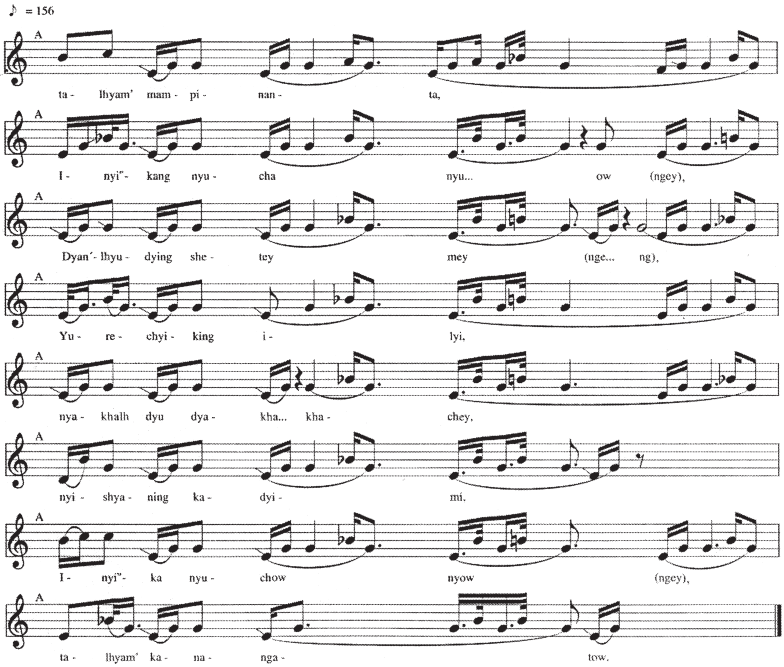
Example 2a. Lyalya Inyi"kavich (Pankhey) Pya"king kinawsh. Perf. by Aku Uchetatuvich (Dyangklhyota) Ngaiwashata (Upper Chasel'ka), recorded in Tarko-Sale, 1.9.1998 and transcribed by J. Niemi.

The metrical scheme:



A. U. Ngaiwashata's rendition is constructed by repeating of a string of three melodic lines (A, B, C) varying in their initial segments, but more similar in their medial and final segments. Rhythmic variation between "222" and "33" metrical types is realised by a typical way of locating a trisyllabic word (= *Inyi"kang* in the example) in the "33" type into the initial segment (and adding a euphonic *ngey* at the end of the medial segment).

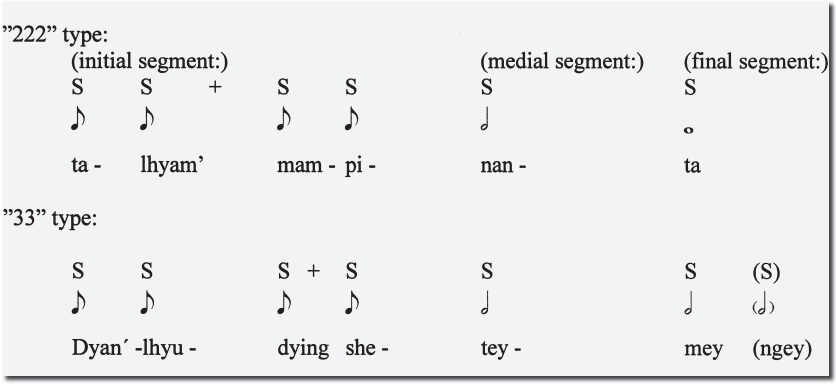
The modal centre is emphatically the primary constitutional tone (e^1 in the transcription), from which the melody leaps to the upper secondary level (g^1–$g\#^1$–a^1) or below the primary constitutional tone (to $c\#^1$–H). This modal construction is reminiscent of the La-anhemitonic root (h^1-a^1-g^1-$\underline{e}^1$-H), but with great fluctuation in pitch levels. One of the most characteristic parts of this melody is the initial motif of the melodic line A, which boasts the masculine energy of both the creator and interpreter of the song. Perhaps more the interpreter, because the performances of (other) individual songs by the very L. I. Pya"k were mostly characterised by his peaceful and serene low register voice.



1.Talhyam' mampinanta,	*He said like this,*
2.Inyi"kang nyucha nyu... ow (ngey),	*the youngest son of Inyi"ka,*
3.Dyan´lhyudying sheteyme (nge... ey).	*Dyan´lhyuy' gave birth (to him).*
4.Yurechyiking ilyi,	*Yurchyik's grandfather (or uncle),*
5.nyakhalh dyu dyakha... khachey,	*thirty female reindeers he has,*
6.nyishyaning kadyimi,	*left by his father (to him),*
7.Inyi"ka nyuchow nyow (ngey),	*the youngest son of Inyi"ka,*
8.talhyam' kanangatow.	*this is how he goes on (speaking).*

Example 2b. Lyalya Inyi"kavich (Pankhey) Pya"king kinawsh. Perf. by Nina Okholevna Wella (née (Pankhey) Pya"k), recorded in Tarko-Sale, 15.9.2003 and transcribed by J. Niemi.

The metrical scheme:



N. O. Wella's rendition sounds like an altogether different song. This is, by all means, also possible, since a prolific individual may have more songs – added to the fact that they can be multiplied into an even bigger grouping of songs by the performances and interpretations of these songs by other people.

The metrical scheme in Wella's rendition is even more elementary than in Ngaiwashata's variant. Here, to the "222" metrical type no euphonic syllables are added, whereas the "33" type is marked by a euphonic *ngey* in the end of the final part. Thus, this metrical scheme is in no way identical with that in Ngaiwashata's variant. The only resemblance is that the rhythmical pulsation of Wella's *initial* segment corresponds to Ngaiwashata's *medial* one, surrounded by the melismatic segment passages, as if in both renditions a similar segment structure was arranged into a different order in respect with the borders of melodic lines.

The modal centre and the primary constitutional tone in Wella's variant is g^1. (Note that these melodies are *not* transposed into the same tonality – Ngaiwashata's primary constitutional tone was marked with e^1 and Wella's with g^1.) It is also characteristic of this variant that the secondary constitutional tonal levels revolve around the primary one

– either upwards (a^1–b^1–h^1) or downwards ((d^1)–e^1–(f^1)). In Wella's rendition, the modal basic structure is yet more open to interpretation (h^1-g^1-e^1).

Thus, this brief structural analysis reveals that Ngaiwashata's and Wella's renditions are built of metrical and motif materials reminiscent of each other, but to an outsider there is no convincing way to maintain that these renditions are identical or even strongly reminiscent of each other. There is no point in this, but the future task for this kind of structural analysis is to continue discussion with the performers about the concept of identity reflected in the musical structure. This discussion is only at the beginning with Forest Nenets informants and it will open up intriguing views also adding to our European understanding of the inner qualities and the question of the identity of a musical structure.

The question of neighbouring styles

The second question in this paper concerns indigenous musical performances, which contain clues to explain the local understanding of different musical styles. Until the dawn of the revolutionary era of ubiquitous information, it used to be very rare for a tundra or taiga dweller to hear different indigenous musical styles. At best, people living in borderlands were more likely to have experience of musical styles other than their own. Among the indigenous people of western Siberia there are only few places where this kind of information flow is more expected, particularly those where the neighbouring musical styles have more or less pronounced differences in the constitutive principles of their musical structures.

One of those regions with interesting areal interaction in musical sense is the Pur River and especially its eastern tributaries. Here the Forest Nenets have had centuries of social interaction with the Taz River Selkup – ranging from tribal warfare to interethnic marriages.

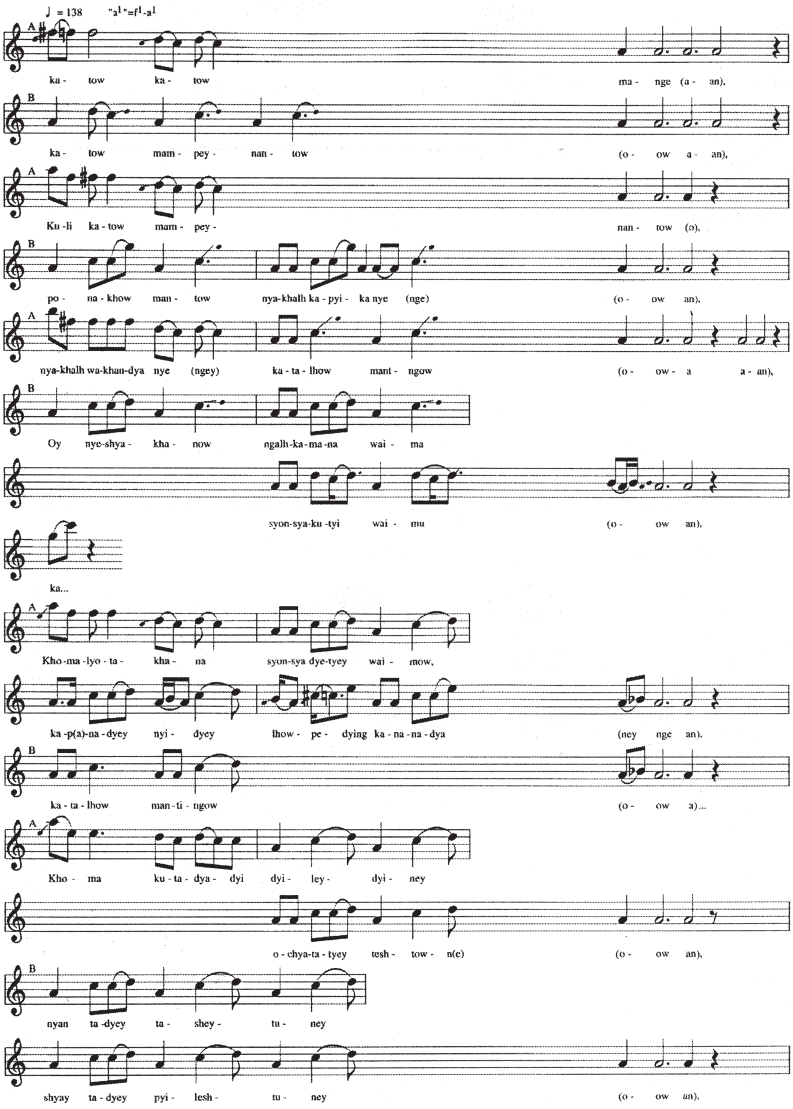
The constitutional principles of Forest Nenets and Selkup musical styles are quite different and are manifest in both the tonal and metrical structures of the songs. While the (Forest) Nenets song tends to occupy a *horizontal* overall profile in the fluctuation of the melody (governed by a strong presence and frequency of one primary constitutional tone), perhaps the most emphasised general characteristic of the Selkup songs is their *descending* melodic profile (on the (northern) Selkup melodies, see Niemi 2001, 2002).

Different construction principles are also discernible on the level of the metrical characteristics. Whereas the Nenets metrical unit is isomorphic: a hexasyllabic and trimetric unit of text and melody throughout the song (as in the previous Forest Nenets examples), the Selkup song has no such a solid structural formula. At best it can be said that the Selkup songs consist of smaller metrical units containing four-syllable units of song text, but with a greater freedom of combination with larger metrical groupings. This is also reflected at the level of language and its transformation into a song form language. This also includes the euphonic word forms: whereas the Nenets elementary euphonic word is *"ngey"*, the Selkups use either *"nay/näy"* or *"an"*. Although both the Nenets and Selkup languages belong to the linguistic group of Samoyedic languages and share some elementary lexical, morphological and syntactic features, there are great differences between these languages. For reasons not yet fully understood, these differences appear undisputedly in song language.

The last song example was recorded at the peaceful forest camp of Viktor Nya"kuchevich (Dyangklhyota) Ngaiwashata at Medvezh'e Gora near the village of Kharampur on a sunny autumn day. V. N. Ngaiwashata himself is a skillful singer and specialist in traditional knowledge. We recorded many interesting songs of a narrative character from his repertoire. (The recording session was made possible by the help of Polina Gilevna Turutina (née (Dyangklhyota) Ngaiwashata), one of the best known specialists in Pur River Forest Nenets folk traditions and songs).

Viktor Nya"kuchevich's wife Evdokiya Lyakatovna Ngaiwashata (née Pankhey Pya"k), also a profound connoisseur of the Kharampur region Forest Nenets traditions, had many interesting individual songs in her repertoire. One of the most interesting was the song of Galina "Sääsäy[4]", "Kuli" Kolokolets, a woman born probably during the 1920–1930's. G. Kolokolets was married to Nyach' Kolokolets, a Selkup, but having her native roots in the Forest Nenets kin of the Pankhey Pya"ks, she represented a fully bicultural person. Furthermore, she was said to master shamanistic skills of making a soul travel to the spirit world. These are reflected in the song of G. Kolokolets as allusions to themes of foretelling or soul-travel. I should like to present this extraordinary song in its entirety, also because it is easier to grasp its bicultural structural features (Ex. 3):

4. 'Eyeless' – meaning 'small-eyed' by her outer appearance – even by Nenets standards.



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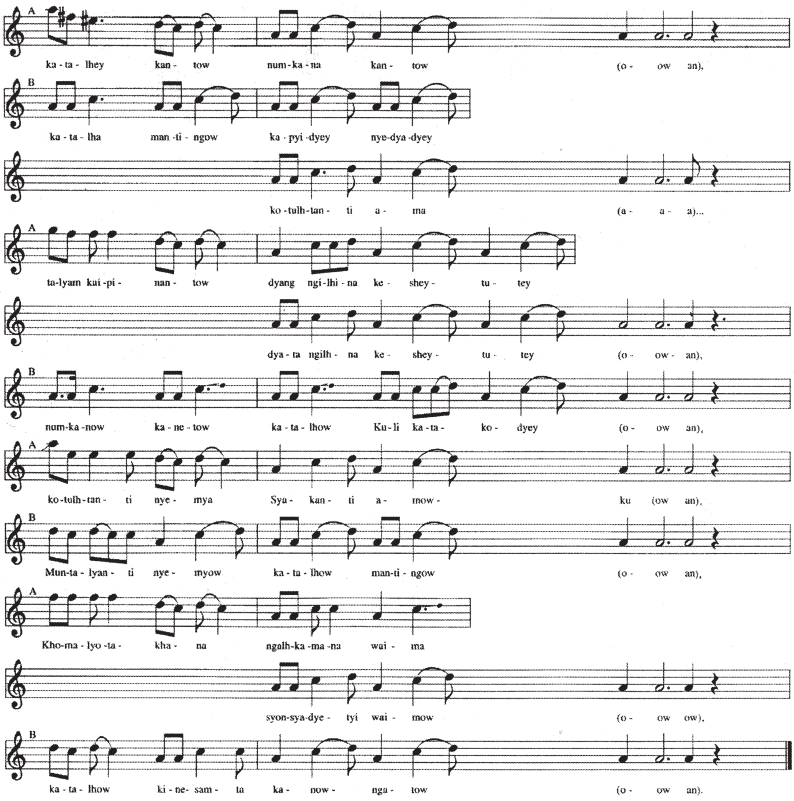

1. A Katow katow mange (a-an),	*Grandmother says,*
2. B katow mampeynantow (o-ow-a-an).	*grandmother speaks.*
3. A Kuli katow mampeynantow (o),	*Kuli-grandmother speaks,*
4. B ponakhow mantow:	*already a long time speaks:*
5. – Nyakhalh kapyika nye (ngey) (o-o-an),	*– Wife of the three Selkups[5],*
6. A nyakhalh wakhandya nye (ngey),	*wife of three Khantys,*
7. katalhow mantingow (o-ow-a a-an).	*your grandmother speaks like this.*

5. In Forest Nenets usage, the exoethnonym "Kapi" contains a reference to both 'Selkup', 'Khanty ', 'not us' and 'slave.' Interestingly, besides "Kapi", in the next line G. Kolokolets also refers to herself as "nyakhalh Wakhandya nye" 'wife of three Khanties', with probably also an exoethnonymic reference to the people of the River Vakh.

8. B Oy nyeshyakhanow	*Concerning father Oy*
9. ngalhkamana waima,	*I feel very bad,*
10. syonsyakutyi waimow (o-ow-an), ka...	*my inside feels bad,*
11.A Khomalyotakhana	*concerning Khomalyota (Oy's father)*
12. syonsyadyetey waimow.	*(I feel) bad inside.*
13. Kap(a)nadyey nyidyey,	*If I die, the children*
14. lhowpedying kananadya (ney nge-an),	*all I take with me,*
15.B katalhow mantingow (ow-ow-a...).	*your grandmother speaks.*
16.A Khoma, ku(p)tadyadyi	*Good, long*
17. dyileydyiney,	*live,*
18. ochatyatey teshtown(e) (o-ow-an),	*you shall pick berries for me,*
19.B nyan tadyey tasheytuney,	*bread you shall give me,*
20. shay tadyey pyileshtuney (o-ow-an).	*you shall make tea for me.*
21.A Katalhey kantow,	*Your grandmother drives,*
22.B numkana kantow (o-o-an).	*to the heaven drives.*
23. Katalha mantingow,	*Your grandmother speaks,*
24. kapyidyey nyedyadyey,	*the great Khanty wife,*
25. kotulhtanti ama (a-a-a)...	*mother of the coughing one.*
26.A Talyam' kaipinantow,	*As it happens,*
27. dyang ngilh(i)na kesheytutey,	*under ground I shall go,*
28. dyata ngilhna kesheytutey (o-ow-an).	*under ground I shall go.*
29.B Numkanow kanetow	*To the heaven travelling*
30. katalhow Kuli katakodyey (o-ow-an),	*your grandmother Kuli,*
31.A kotulhtanti nyemya,	*mother of the coughing one,*
32. Syakanti amowku (ow-an),	*Syaka's mother,*
33.B Muntalyanti nyemyow,	*Muntalyanti's mother,*
34. katalhow mantingow (o-o-an).	*your grandmother speaks.*
35.A Khomalyotakhana	*With Khomalyota*
36. ngalhkamana waima,	*(it is)very bad,*
37. syonsyadyetyi waimow (o-ow-ow).	*in inside bad.*
38.B Katalhow kin(e)samta	*Your grandmother to sing*
39. kanowngatow (o-o-a).	*prepares.*

Ex. 3. Sääsäyng kinawsh. Perf. by Evdokiya Lyakatovna DyangkIhyota Ngaiwashata (née Pankhey Pya"k), recorded in Medvezh'e Gora, 17.9.2003 and transcribed by J. Niemi.

This song with 39 text lines demonstrates a song structure on other than the (Forest) Nenets isometric (hexasyllabic) principle. It includes mostly hexasyllabic lines, but in another kind of metrical environment. In order to illustrate this, I have divided the song text (see above) with lines corresponding to musical line groups, marked with symbols A and B. Whereas the Nenets isometrical principle means that a melodic line has to correspond to a text line, here one melodic, recurring group of segments corresponds to *several* text lines. In this interpretation, "A" refers to descent from the upper limits of the melodic range to the final segment of the melody and "B" to the repetition of a segment (mostly in 5/8 time, furthermore in a rhythmical construction of 2+3/8 very typical to Selkup songs) from lower tonal level, also ending in the final segment.

It becomes clear that these "AB" groupings correspond to units of sentence meanings of the text, in some cases even extending this limit (ABAB). This is all due to the fact that the emphasised descending style within the tonal range of an octave (a^2–a^1 in the transcription) is a very persuasive structural element, which clearly governs the segmentation of the textual content.

Summarising the modal characteristics of this song also reveals principles not met in many (Forest) Nenets songs. Notwithstanding the tonal fluctuation of some tonal degrees, it seems that the modal structure is presented in general in a more stable constellation than in the previous Forest Nenets examples. The modal constitution of this song is interpreted here as one with clear La-anhemitonic structure a^2-(g^2)-e^2-d^2-c^2-$\underline{a}^1$, with realisation of the tonal level of, say, e^2 as a band of ($f\#^2$-$f^{2-}e^2$) and with some other minor fluctuations of tonal levels marked in the transcription.

The following presentation (Fig. 1) of the same song text examines the metrical properties of the whole song. This song is sung with a full Forest Nenets text, which, mostly, conforms to the general Nenets hexasyllabicism. However, there are some elements, which are rather unexpected in (Forest) Nenets song style. First, as already mentioned, the hexasyllabic line does not conform to one melodic line, but the

melodic grouping of line-scale motifs seems to absorb several (hexasyllabic) lines.

Moreover, as emphasised in the metrical text scheme with italics, there are also *other* than hexasyllabic lines in this song. They seem to be octosyllabic – or tetrametric, if we want to emphasise the principle, rather than the variation of occurrences. The scheme is divided so that the two first vertical lined areas correspond to the most general occurrence of the basic trimetric (hexasyllabic = Nenets secular) line. Some of the trimetric "Nenets" lines extend to the area of the third vertically delineated area. Most probably they are the result of the initial phase of the song performance with performer's efforts to stabilise the structure. The rest of the cases are those italicised: they are tetrametric (octosyllabic) by nature. Mixtures of trimetric and tetrametric principles in Nenets song forms are extremely rare, so that there seems to be a reason for this performance to contain both the Nenets metrical principles.

On the other hand, if we consider this song from the bicultural point of view, we could say that in this performance are included both Forest Nenets and Selkup principles of song construction. There are no clear distinction of secular and sacred genres in Selkup song versification – most of the available the Selkup song materials point to the existence of a tetrametric principle, whether realised in a full form or in a segmentary one. We could maintain that this peculiar song example consists of both the Nenets trimetric principle and the tetrametric – whether representing the sacred meter of the Nenets or the Selkup meter in general. The marker of the Selkup sacred meter, if any, could be the line-final segment with the euphonic syllables (*o-ow-a-an*), which mark the Selkup shamanistic genres (see Niemi 2001). These do not occur in any Forest or Tundra Nenets song materials.

1. A	Ka -		tow			ka -		tow		ma -	nge	(a -	an),		
2. B	ka -		tow			mam -		pey -		nan -	tow	(o -	ow	a -	an).
3. A	*Ku -*	*li*	*ka -*	*tow*		*mam -*		*pey -*		*nan -*	*tow*	*(o),*			
4. B	po -		na -	khow		man -		tow:							
5.	– Nya -	khalh	ka -	pyi -	ka	nye -		ngey				(o -	o -	an),	
6. A	nya -	khalh	wa -	khan -	dya	nye		(ngey),							
7.	ka -	ta -	lhow			mant(i) -		ngow				(o -	ow(-a)	a -	an).
8. B	Oy		nye -	shya -		kha -		now							
9.	ngalh -	ka -	ma -	na		wai -		ma,							
10.	syon -	sya -	ku -	dyi		wai -		mow				(o -	ow -	an),	
	ka...														
11.A	Kho -	ma -	lyo -	ta -		kha -		na							
12.	syon -	sya -	dye -	tey		wai -		mow.							
13.	Ka -	p(a) -	na -	dyey		nyi -		dyey,							
14.	*chow -*		*pe -*	*dying*		*ka -*	*na -*	*na -*	*dya*			*(ngey*	*nge -*	*an)*	
15.B	ka -	ta -	lhow			man -	ti -	ngow				(ow -	ow -	a...)	
16.A	Kho -		ma			ku(p) -	ta -	dya -	dyi						
17.	dyi -		lhey -			dyi -		ngey,							
18.	o -	cha -	tya -	tey		tesh -		town(e)				(o -	ow -	an),	
19.B	*nyan*		*ta -*	*dyey*		*ta -*		*shey -*		*tu -*	*ney,*				
20.	*shay*		*ta -*	*dya*		*pyi -*		*lhesh -*		*tu -*	*ney*	*(o -*	*ow -*	*an).*	
21.A	Ka -	ta -	lhey			kan -		tow,							
22.	num -	ka -	na			kan -		tow				(o -	o -	an).	
23.B	Ka -	ta -	lha			man -	ti -	ngow,							
24.	ka -	pyi -	dyey			nye -	dya -	dyey,							
25.	ko -	tulh -	tam -	ti		a -		ma				(a -	a -	a)...	
26.A	Ta -	lyam’	kai -	pi -		nan -		tow,							
27.	*dyang*		*ngi -*	*lh(i) -*	*na*	*ke -*		*shey -*		*tu -*	*tey,*				
28.	*dya -*	*ta*	*ngilh -*	*na*		*ke -*		*shey -*		*tu -*	*tey*	*(o -*	*ow -*	*an).*	
29.B	Num -	ka -	now			ka -	ne -	tow							
30.	*ka -*	*ta -*	*lhow*			*Ku -*	*li*	*ka -*	*ta -*	*ko -*	*dyey*	*(o -*	*ow -*	*an),*	
31.A	ko -	tulh -	tam -		ti	nye -		mya,							
32.	Sya -		kan -		ti	a -		mow -				ku	(ow -	an),	
33.B	Mun -	ta -	lyan -		ti	nye -		myow,							
34.	ka -	ta -	lhow			man -	ti -	ngow				(o -	o -	an).	
35.A	Kho -	ma -	lyo -	ta -		kha -		na,							
36.	ngalh -	ka -	ma -	na		wai -		ma,							
37.	syon -	sya -	dye -	tyi		wai -		mow				(o -	ow -	ow).	
38.B	Ka -	ta -	lhow			ki -	n(e) -	sam -	ta						
39.	ka -		now -			nga -		tow				(o -	o -	a).	

Fig. 1. The metrical scheme of the song text in the Ex. 3.

Finally, the discussion after the performance with E. L. and V. N. Ngaiwashata corroborates this:

E. L.: Like this! ...wife of the three Kapi, wasn't it?
V. N.: If translate it all, it is a very mournful song, you could even shed tears with it... As if she goes to the god. To the underground kingdom she goes.
E. N.: She was a shamaness... [sings] ow-a-an! She travels under ground and under water, also in the sky.
J. N.: Is this why the melody of the song sounds like something else?
E. N.: Yes, yes...
V. N.: Well yes, you could say that...
P. T.: (in Forest Nenets) Who were her parents? Whose child she was? This Kuli's...?
E. N.: (in Forest Nenets) About Kuli I don't know...

Conclusion

Addressing the question of the structural identity of variants of the songs claimed to be the same: (Forest) Nenets song style, as a representative of the zone of the northern indigenous peoples of the northern hemisphere, seems also to offer other than musicological solutions for choosing the parameters of their structural analysis. For example, the individual songs exist as separate songs realised as different interpretations by different performers, but also as a whole, creating an unseen network of social relationships. Perhaps the songs have a meaningful existence only in the context of the social network of songs (and corresponding individuals)? Perhaps it would be more important to concentrate on synthesis than analytic derivation? It is very likely that the question of musical reminiscences has to be integrated into a more extended discussion of formal identities concerning other than mere coincidences of modal or metrical characteristics.

Therefore, also in the present approach, the questions of relevant parameters in the analysis of musical structures are also sought with the help and ideas gained from insider knowledge, such as the genealogical approach. Perhaps the alleged family relationships between the authors and performers of the songs should be included in a discussion of the musical characteristics of related songs as a weighted argument for a musical identity of a song structure? In any case, the information gained form a genealogical investigation must be considered as a support to the musical one.

The framework of this kind of structural interest is twofold. First, it is designed to give solutions to more general areal problems of style. In the case of the singing style of the Nenetses, for example, the question is about the areal limits of the metrical system of the northern Samoyeds in the context of the song traditions of the indigenous western Siberia. Second, the structural analysis has to provide a perspective of placing the metrical system of the northern Samoyeds into a larger comparative Uralic context.

The problem of the approach of comparing the song variants is the uneven distribution of the knowledge of the song network, because of the gradual vanishing of the tradition of individual songs. Therefore, there are more and more white spots on the Nenets songmaps. In our understanding, however, any effort is welcome in this exciting and little studied area of northern indigenous traditions.

Literature

Alekseev, E. E. 1976. *Problemy formirovaniya lada (na materiale yakutskoy narodnoy pesni) [Problems of formation of mode (on the materials of Yakut traditional song)]*. Moskva: Muzyka.

Alekseev, E. E. 1986. *Rannefol'klornoe intonirovanie: zvukovysotnyy aspekt [Early folkloric intonizing: the aspect of pitch].* Moskva: Sovetskiy Kompozitor.

Hajdú, Péter (1978): The Nenets shaman song and its text. *Shamanism in Siberia*, ed. Mihály Hoppál. Budapest: Akadémiai Kiadó. Pp. 355–372.

Helimski, Eugene (1989): Glubinno-fonologicheskiy izosillabizm nenetskogo stikha [Deep-phonological isosyllabism of the Nenets verse]. *JSFOu 82.* Helsinki. Pp. 223–268.

Hood, Mantle 1971. *The ethnomusicologist*. New York: McGraw-Hill.

Lippus, Urve 1995. *Linear musical thinking: a theory of musical thinking and the runic song tradition of Baltic-Finnish people*. Tallin: AS Pakett.

Niemi, Jarkko 1998. *The Nenets songs – a structural analysis of text and melody*. Acta Universitatis Tamperensis 591. Tampere: University of Tampere.

Niemi, Jarkko 2001. A musical analysis of Selkup shamanistic songs. *Shaman Vol.9, No. 2 – Journal of the International Society for Shamanistic Research*, ed. Mihály Hoppál. Budapest: Akadémiai Kiadó. Pp. 153–167.

Niemi, Jarkko 2002. Tracing musical dialects in Selkup songs. *Lingvisticheskiy bespredel: sbornik statey k 70-letiyu A. I. Kuznetsovoy [The linguistic infinity: collection of articles for the 70th birthday of A. I. Kuznetsova]*, eds. T. B. Agranat, O. A. Kazakevich. Moskva: MGU. Pp. 179–193.

Niemi, Jarkko & Jouste, Marko 2003. Teesejä pohjoisen laulun analyysiin: tarkastelussa nenetsit ja saamelaiset [Theses on the analysis of northern singing: the Nenets and the Sami under scrutiny]. *Etnomusikologian vuosikirja 14*, ed. Antti-Ville Kärjä. Helsinki: Suomen etnomusikologinen seura. Pp. 161–209.

Niemi Jarkko & Lapsui Anastasia 2004. *Network of songs. Individual songs of the Ob' Gulf Nenets. Music and local history as sung by Maria Maksimovna Lapsui*. Mémoires de la Société Finno-Ougrienne 248. Helsinki: Société Finno-Ougrienne.

Ruwet, Nicolas 1987. Methods of analysis in musicology. *Music Analysis 1-2/1987*, pp. 11–36.(Originally published as: Méthodes d'analyse en musicologie. *Revue belge de musicologie. Vol.20*. 1966, pp. 65–90.)

Sachs, Curt 1953. *Rhythm and tempo – a study in music history*. London: J. M. Dent & Sons Ltd.

Commentaries on Altai Kizhi cattle incantations

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(University of Tampere)

Background

Nataliya Kondrat'eva and Vladimir Mazepus published an informative and interesting article (1993) entitled "Cattle Incantations in the Culture of the Altaians". It is the aim of the present author to revisit their thoughts and musical examples. It is difficult to encounter melodies like these in western sources. Therefore, their paper is valuable as a critically and professionally edited package of data of one tradition little known by western researchers. Their conclusions are valid. However, because I interpret the melodies in the light of a theory that I call Seeker Tone Theory, it may be of local interest to know about a new interpretation of these tunes.

The Altai Kizhis, who number less than 20,000, are a Turkic people living in the Altai Mountains in Central Asia. They form one population among the Turkic-speaking peoples from modern Turkey to eastern Siberia. The main branches of these languages are (A) Eastern, Northern, Southern and Western Turkic, and (B) Bolghar Turkic (See Fig. 1). Along with Yakut, Tuvin and Dolgan, Altai Kizhi belongs the Northern Turkic branch (Matthews and Polinsky 2003, 46–47). The Turkic language of the Altai Mountains is specifically

Map 1. Map of the Altai Kizhi homeland in the main massifs of the Altai Mountains where the borders of Russia, Kazakstan, China and Mongolia are close to each other. The scale at the top shows the distances of 300 kilometres (3) and 200 miles (2).

called Altai and is divided into the southern and the northern dialects. The Altai Kizhis speak the southern dialect (also known as Altai proper) as also do the Telengits, Tëlës, Teleuts, and the Maima Kizhis (Potapov 1964, 305–306. Vaba 1993, 30–34). The early Altaians were hunters and are known to have had contacts with the Early Proto-Indo-European (Tocharian) Afanas'evo culture (ca. 3500–2500 cal[ibrated years] BC), located in the Upper Yenisei. Later they were in contact with the Proto-Indo-Aryans via the Bronze Age Andronovo culture (ca. 1800–1200 cal BC) who lived on their western side. (Carpelan & Parpola 2001, 60–62; 128–129; 133–136; Potapov 1964, 306.) In those days they started to develop pastoralism and during the first millennium BC nomadism was their main system of subsistence. They also had contacts with the Finno-Ugric peoples of the Volga region and the early Proto-Samoyeds of West-Siberia via the international Bronze Age trading system of Seyma-Turbino. They were mentioned in early Chinese sources and around 500 BC they received Mongols in their neighbourhood (Carpelan & Parpola 2001, 99–111; Potapov 1964, 306–311.). The early Altaians were anthropologically of the European

type but it is not known since when they started speak Proto-Turkic. For instance, Juha Janhunen (1999, 27–36; 1996) has postulated that the speakers of Proto-Turkic were still living in East Mongolia and West Manchuria ca. 2000 years ago having the Proto-Mongolians and the Proto-Tunguses as their eastern neighbours.

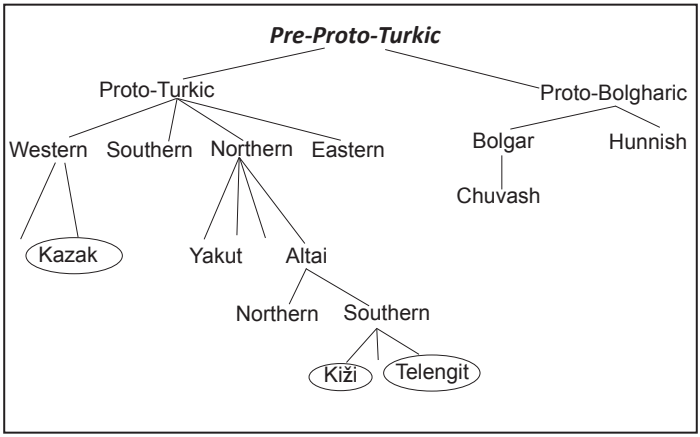

Fig. 1. Linguistic relations of Altai Kizhi, Telengit and Kazak mentioned in this text.

In spite of problems in the interpretation of the historical data, it is clear that the inhabitants of the Altai Mountains have been members of wide international networks of cultural exchange for millennia. The tradition of cattle incantations is closely connected to nomadism and it is obvious that this genre already belonged to the Proto-Turkic culture since, as Kondrat'eva and Mazepus mention, songs to the female animals are also performed by the Kirghizes, Kazaks, (W), Azeris, Turkmens (S), Khakases, Tuvinians (N), and the Uzbeks (E). All four main language groups referred to with letter (A) above, are represented in the list. Moreover, these incantations are also sung by the Mongolians and the Buryats. (Kondrat'eva & Mazepus 1993, 40; Kondrat'eva 2004, 347.)

Kondrat'eva and Mazepus were theoretically on the same track as researchers whose aim is to define the tonic of the melody, then to define the mode, and finally to analyse the tune in relation to the tonic. All this takes place through the analysis of physical tones that emerge when a person sings or speaks or plays a musical instrument. This method has been used for thousands of years in high cultures from Japan and China to Europe and all western cultures, but this is not the method used in this paper. The tonic is not too important in analysis. The dominant is.

The present theory is based on what occurs in the human brain. Gerald Langner, a German neurophysicist, has studied the auditory system of mammals (humans included) for almost 40 years. In the main exposition of his views Langner (2007) brought several important conclusions together. One of his conclusions is that the auditory system does not define the *pitch* by resolving a periodic tone to its fundamental tone and overtones. The sensation of pitch occurs in such a way that the auditory system measures the period of the fundamental tone. In other words, we experience the pitch because the auditory neurons define how long it takes for one vibration (periodic oscillation) to occur.

From the point of view of melodic analysis a much more important detail is Langner's notion that the fundamental tone activates the neuron which is tuned to its period. Thus, the overtones have no role in the neuronal process of definition of pitch. In other words, when oscillation occurs 440 times a second, it only activates the neuron, which is specialised to respond to its period. This activated neuron (or a narrow band of neurons) *co-activates* a cluster of other neurons according to the mathematical rule called *subharmonic* which is opposite to the *harmonic* rule. In the physical world the harmonic mathematical rule follows the pattern according to which the period of the fundamental tone occurs faster and faster *within* the period of the fundamental. This means that when the period of the fundamental tone occurs 100 times a second (100Hz), the following overtones are repeated 2, 3, 4, 5 etc. times faster,

corresponding to 200, 300, 400 and 500 Hz. However, in the neuronal world of the auditory centre the process takes place in reverse order. The fundamental tone activates the neuron that is tuned to it and this very neuron co-activates a group of other neurons so that the distances between them correspond to the subharmonic mathematical rule. The auditory centre defines the distances by *dividing* the tuning rate of the first activated neuron by whole numbers 2, 3, 4, 5, etc.

According to Langner, all harmonic tones activate a cluster of neurons according to this universal law. If the physical tone is g it activates the G neuron and this neuron immediately activates other neurons according to the pattern G/2, G/3, G/4 etc. Neuron G/2 is one octave apart from the G neuron, the neuron G/4 is two octaves apart from it and G/16 is four octaves apart from it. Moreover, neuron G/3 corresponds to the C neuron and G/6 corresponds to the C neuron that is one octave apart from it and neuron G/5 corresponds to the Eb neuron.

In this paper, I use this very part of Langner's harmonic theory. It is enough for the analysis of melody to study which are the first 12 auditory neurons that are activated by a physical tone (Fig. 2). It is the job of the analyst to define which neurons become activated by the sung tones in the melody.

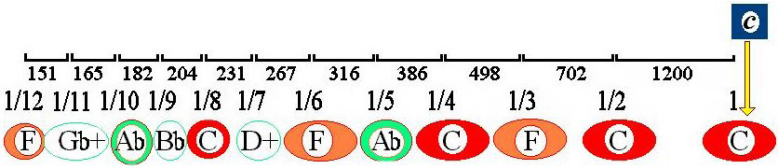

Fig. 2. Neuronal representation of the sung tone *c*. The figure will be read from right to left. The activated neurons are marked with subharmonic numbers 1, 1/2, 1/3, 1/4 etc. but they are also referred to with tone names C, F, Ab etc. The small digits (1200, 702, 498 etc.) refer to the distances between the neurons as intervals given in cents. One octave is 1200 cents. Normally a tone only activates neurons down to the sixth or the seventh subharmonic.

In the neuronal reaction to tone *c* the C neuron is activated in four loci, the F neuron in three loci, the Ab neuron in two loci, while the neurons D+, Bb, and Gb+ in one locus (Fig. 2). Thus, if the octave multiples are disregarded, there are only *six neurons* that are activated, and the collection of these six neurons is called the *neurochord*. The closer the neuron is to the primary neuron no. 1 (C), the stronger is its relative rate of activation. When the two least activated neurons are written with small letters these six neurons activated by tone *c* are gb+–bb–D+–F–Ab–C. When Fig. 2 is studied more carefully we may find that the neurons F-Ab-C-D form the *F minor chord* Fm5+6 while the neurons Bb-D-F-Ab correspond to the physical *Bb major chord* Bb7. Thus it is possible to form a universal pattern that reveals the neural representation of a physical tone as a neurochord:

c = Fm5+6 / Bb7.

When a melody is sung there are neurons which remain activated even if the sung tones vary. These activated neurons form neural *anchors* and the strongest of them corresponds to the physical tone known as the *tonic*. For reasons not discussed in this paper the next job of the analyst is to define the dominant tone. As seen in Fig. 2, when the tonic is tone c the neuron corresponding to the dominant tone *g* is not activated at all in this neurochord. This leads to the universal statement that no tone activates the neuron that is a fifth above it or a fourth below it. Instead of this, because of the subharmonic nature of neural processes, a tone always activates the neurons that are *a fifth below* it—as are the subharmonics F (1/3, 1/6) below C in Fig. 2.

As mentioned above, it is habitual in music analysis that a melody is analysed in relation to tonic or final tone. In the method introduced here the analysis occurs in relation to the tone which is a fourth below the tonic, that is, in relation to the dominant tone. The idea to use the dominant as the tool for analysis was originally adopted from two studies published by the Hungarian Gábor Lükő (1964; 1965). He

identified six modes that he interpreted to be Indo-European in origin (see Fig. 3a). Each mode is based on the dominant tone (degree 5) often with the tonic (degree 1) as the opening and closing tone of a melody. After testing his theory I noticed that these six modes are universal and that any melody in any culture can be analysed with their help. During these tests the present author realised that the dominant can function as a continuous drone below the melody.

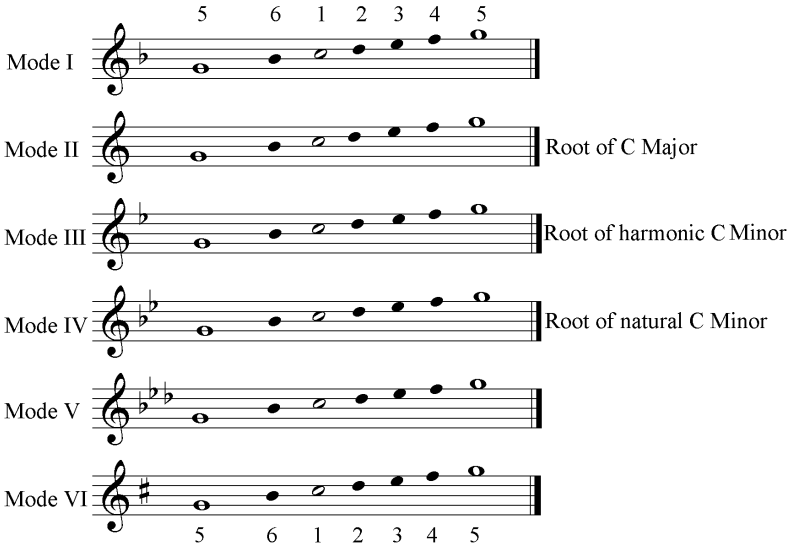

Fig. 3a. Six hexatonal modalities which were first identified and defined by Gábor Lükő (1964; 1965) as pentatonic because he interpreted tone *f* to be auxiliary in each mode. In the interpretation of the present author, because of the universal use of this degree, tone *f* (degree 4) is not auxiliary but an organic part of these modes. Lükő 's original numbering is changed so that Mode I is his mode VI and Mode II is his mode I, and mode VI is his mode II. Degree 1 is the tonic and degree 5 is the dominant. There is no degree between 5 and 6. Each mode is now on the G horizon, which means that degree 5 is g^1.

Moreover, one melody may certainly be based on one drone but usually melodies are constructed such that the drone is transposed to one or two

other places. This means that there are two or three active tonics that alternate above these two or three active drones, which correspond to the dominant tones. The great problem was, however, that there is no representation of this assumed dominant tone in the auditory system. This problem was resolved with Gerald Langner's neurophysiological theory. Each sung tone activates its neurochord. If we ask which *additional* tone has the power to support the melodic progression under analysis, the answer will be that it is the dominant tone. The reason for this is that the continuously sounding dominant tone keeps those neurons in a state of activation which are also activated by the sung tones. In other words, the reason is that the same neuron or neuron band is simultaneously activated by the stimulation from two sources, the drone and the sung tone. This is the key to understanding of the Seeker Tone Theory.

When the same neurons of the auditory centre are simultaneously activated by the stimulus coming from two or more sources, a listener experiences this as attractive and pleasant. (This neural fact is not discussed here.) To use the continuously droning dominant as an external tool in analysis of melody means that the first task in the method is to define the tonic with the help of neurochords and then to define the dominant tone, which is the fourth below the tonic. Because the identification of the tonic results automatically from the neurochords, this also holds for the dominant that does not necessarily even occur in the sung melody. If it is not sung in a melody, it can be theoretically defined in order to go on in analysis. In all cases, the actual or theoretical dominant tone functions as a research equipment because of which it is specifically nominated the *Seeker tone* and the logic below the method is called the *Seeker Tone Theory*. The Seeker is the tool with which the analyst searches for and defines the traits that explain the reasons for the stylistic qualities or features underlying a local genre and melody under analysis. The "reasons" mentioned above are given as specific *syntactic* patterns.

Fig. 3a introduced six hexatonal modalities on the G horizon. However, most human song is not based on hexatonal modes as such but on more simple tone selections that can be theoretically derived

from them.[1] In Seeker Tone Theory various tone selections have been divided into three universal classes. The first class comprises six *hexatonal modes* seen in Fig. 3a. The second class is composed of their *protohexatonal embryos*. An embryo may only have one, two, three or four degrees picked up by the singers from one of the hexatonal modes. If the analyst is able to identify on which mode the sung tones are based the modal (embryonic) definition is possible. For instance, if the singer uses descending tones *eb*^{2}-*c*^{2}-*b*^{1} *natural* on the G horizon with *c*^{2} as the tonic, there is no doubt that the tune is based on the protohexatonal embryo *g*-*III. These tones are its degrees 3-1-6 (see Fig. 3a). The embryo is called protohexatonal because it only has three tones added with the theoretical Seeker *g*. If not a single melody of a local region is based on any hexatonal mode, the general conclusion is that the syntax of this local grammar is protohexatonal. The variation of embryos is wide but in spite of this their number remains six.

If, however, the singer uses tones *eb*^{2}-*c*^{2}-*bb*^{1}, instead of former *eb*^{2}-*c*^{2}-*b*^{1} *natural*, the analyst has no way of defining the tones modally. In this case the tones may lead to various modalities that are locally used in other melodies under analysis. One possibility is that they are degrees 3-1-6 of mode *g*-IV. They can also be degrees 3-1-6 of mode *g*-V, or they can be degrees *do-la-sol* of the pentatonal LA mode on *c*. To avoid speculation, the tone collections that cannot be defined are called *pre-modal alleles* and each allele (allelomorph) is referred to with a Greek letter. So far I have identified eight world-wide alleles. In this case, tones *eb*^{2}-*c*^{2}-*bb*^{1} are degree 3-1-6 of *lambda allele g-λ*. It is worth noting that the tone collection still remains as the pre-hexatonal lambda allele even if the singer were also to articulate tone *g*^{1} or *g*^{2}, which is the dominant (the Seeker) of the melody in question. Thus, the addition of the dominant to the tune does not help the analyst. However, if the singer were also to articulate either tone *d*^{2} or *db*^{2} the definition would be successful because *d*^{2} is the second degree of *g*-IV and *db*^{2} is the second degree of *g*-V.

1. These six modes have a neuronal basis. However, it is always the researcher who may derive various tone segments from the hexatonal modes, not the singers.

The use of the term *allele* has two reasons. All humans represent one and the same species of the genus *Homo* and there is no reason to assume that the auditory system of Asians is different from that of Australians. This is to say that any natural melody (with the atonal excluded) can be analysed with the same logic. If there were two *Homo* species on the Earth, the concept of allele would not be possible.

The term allele is adopted from genetics in which it refers to a gene that carries one of a pair of alternating characteristics. In humans an allele in the ovum may lead to light or dark hair depending on the corresponding allele of the sperm. Analogically, tones *g—c-d-e* make up an allele. If it is combined with allele *g—bb-c*, the two lead to Mode *g*-I *(g-bb-c-d-e)*. If it is combined with allele *g—b-c* the result is Mode *g*-II (*g-b-c-d-e*). Tones *g*, *c*, and *d* are "germs" of several simultaneous modal options but the missing tone between *g* and *c* (i.e. either *b* or *bb*) forces the analyst to define the tone selection as allelic. The critical tone is *e* of the first allele that forms a pair either with *b* or *bb*. For example, *psi allele* has germs to lead to three modes (I, IV, V) and *theta allele* has germs to lead to four different directions, to modes I, II, III or IV. A specific group in the class of pre-modal alleles is composed of clusters of usually three or four tones whose structure corresponds to that of harmonics 6—8-9-10. On the G horizon the tones are g^1—c^2-d^2-e^2 with c^2 (the third multiple of the fundamental) as the tonic. This is *alpha allele* and its structure also corresponds to the descending neuronal subharmonics C/6—C/7-C/8-C/9 of c, that is, the neurons F-D-C-Bb.

The method will be explained with the help of the following figure (Fig. 3b). The tune has four tones that are now accompanied with their neurochords seen vertically below the sung tones. Horizontally is seen which neurons remain in a state of activation even if the tone changes. The C neuron is activated throughout the melodic progression and functions as the neural anchor (nexus) corresponding to the acoustic tonic. Thus, the dominant and the Seeker tone is g^1, whose neurochord is seen on the right. Because the modal analysis occurs in relation to the Seeker tone the descending tones *g—e-d-c* are degrees 5—3-2-1 either

of Mode *g*-I (with tone *bb* as the lacking degree 6) or Mode *g*-II (with tone *b natural* as the lacking degree 6), but it can also be pentatonal *c*-DO. Thus, it is impossible to define the mode. To avoid speculation this collection of tones is universally defined as pre-modal alpha allele g-α with the tonic (degree 1) as its opening and closing tone. This melody has a simple syntax[2]: $g\text{-}\alpha^{1\rightarrow1}$. Moreover, the melody is *pending* (P) because the upper octave of the dominant tone is the highest tone. Thus, the final syntactical pattern is $g\text{-}^{P}\alpha^{1\rightarrow1}$. The upper indices $^{1\rightarrow1}$ tell the reader that the opening and the closing tone is degree 1.

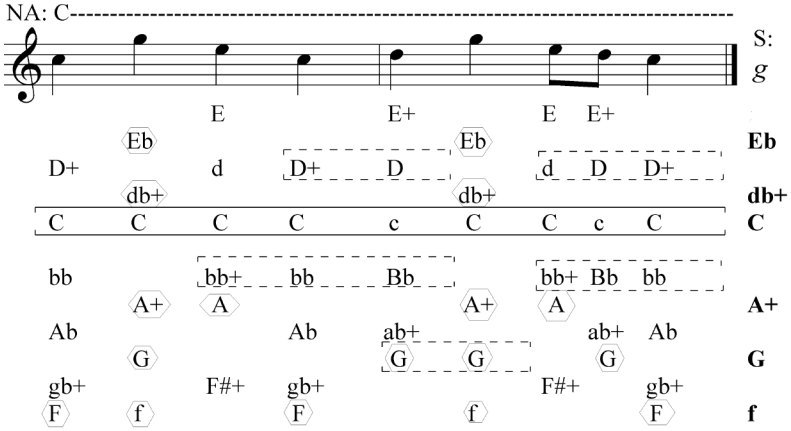

Fig. 3b. This simple melody cannot be modally defined because degree 6 is lacking. It is pending as the dominant tone (*g*) is the highest tone. The descending tones are degrees 5—3-2-1 of alpha allele $g\text{-}\alpha^{1\rightarrow1}$. The upper indices $^{(1\rightarrow1)}$ tell us that the melody is opened and closed with the tonic. The symbol NA above the stave refers to the neural anchor, which is the C neuron, that corresponds to the tonic on c^1. Below each tone is seen vertically its neurochord and horizontally is seen which neurons remain activated for a longer time. They function as the tying neurons. When the C neuron is not prominently active (c instead of C) it is also the G, D and Bb neurons that are tying the melodic progression. In spite of this it is the C neuron that functions as the anchor throughout the tune. Letter S on the right refers to the Seeker tone on g^1. The structure of its droning neurochord supports both the tonic and each of the other sung tones.

2. In this paper the term syntax refers to such an arrangement of consecutive tones in a melodic progression which shows the constructional relationships of these tones in relationship to the dominant, that is, to the Seeker tone.

This melody (Fig. 3b) can be harmonised in various ways but this deals with artistic activity based on creative speculation. It has nothing to do with the scientific analysis of this one-voiced melody. When the analysis is carried out as is done here, it is easy to search from the data bases in which parts of the world a melody obeys the parallel syntax $g\text{-}^{P}\alpha^{1\rightarrow1}$ and in which kinds of cultural surroundings they occur.

Altai Kizhi incantations

Music examples of this paper are calibrated to the G horizon with the opening tonic on c^1 and the opening dominant on g^1. Fig. 4 (Kondrat'eva and Mazepus 1993, 45: Music Example 6) is not a cattle incantation but a lullaby. The Altai Kizhis use expressions *balany jaikar* 'to rock a baby' and *balany uiuktadar* 'to lull a baby to sleep'. The term 'rocking' means a rhythmic continuity because of the regular movement of the cradle. Kondrat'eva and Mazepus tell us that "the same performers often sing [cattle] incantations and lullabies to similar tunes" (ibid., 45). They refer to their Note Example 2 that was sung by Tomon Sibirgiev, who also sang the lullaby (Fig. 4) in the present paper. It reveals that the melody is constructed in such a way that the main tying neurons (*neuronal anchors*) are C and Bb that alternate while the singer is rocking the cradle. Thus, the alternating Seeker tones are g^1 and f^1 and the alternation can be symbolised as $g\rightarrow f$. The opening tone c^2 is the tonic of the *g*-based mode and the final tone bb^1 is the tonic of the *f*-based mode. The question now is, what are the modalities?

The lullaby in the following figure (Fig. 4) will be analysed in order to establish its syntactic pattern. When the Seeker tone is on g^1 the sung tones are descending $d^2\text{-}c^2\text{-}bb^1$, which are degrees 2-1-6 either of Mode *g*-I or Mode *g*-IV (see Fig. 3a). A universally used[3] tone collection like this cannot be modally defined because of which it is called *beta allele* in Seeker Tone Theory. In this lullaby its syntactic symbol is *g*-β.

3. The term "universal" means that the object occurs in songs of all continents.

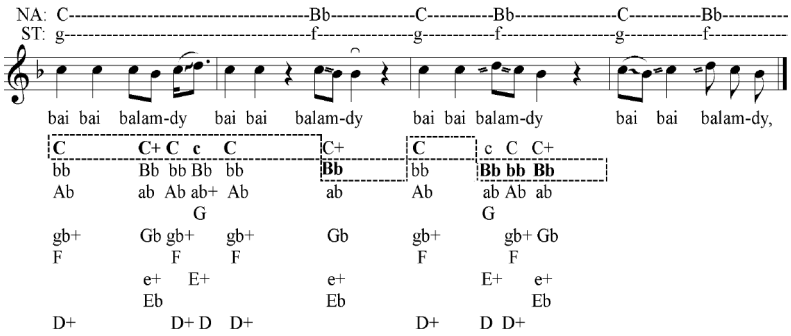

Fig. 4. A rocking lullaby calibrated to the G horizon. NA = neural anchor corresponding to the active tonic. ST = Seeker tone, that is, the dominant (which in this melody is purely theoretical since it is not sung). Below each tone is seen its corresponding neurochord as a vertical row. The tying neurons are in horizontal rows. The most prominent horizontal neurons C and Bb are in bold face and function as the alternating anchors (NA) seen above to notes. The duration of the double verse is 7 + 6 seconds. (Kondrat'eva & Mazepus 1993, 45, Ex. 6.)

When tone *f* functions as the Seeker the descending tones are the same d^2-c^2-bb^1 but they are organised differently in the melody. In relation to *f* these tones are degrees 3-2-1 either of *f*-I ***(d²-c²-bb¹***-ab^1—f^1) or of *f*-II (***d²-c²-bb¹***-a^1—f^1) but we have no means to decide. This is the universal *alpha allele f*-α. (already described above). When the opening tone and the closing tone are added as the upper cases, the syntax underlying this Altai Kizhi lullaby of Fig. 4 can be written as *g*-$\beta^{1\leftrightarrow}$*f*-α^1. Both alleles have the tonics (degrees 1) as the closing tone.

Because the ultimate aim of Seeker Tone Theory is the universal comparison and typologisation of song syntaxes, it will be now possible to search where else in Asia such syntax occurs. It is worth mentioning that performance style is irrelevant in typological comparison of syntaxes. This also holds for language: the syntax of a language remains untouched despite the way of uttering, which may be shouting in high or low register, whispering, smiling persuasion, angry cry, polite calmness, etc. The ways of performance are important to the study of song style but not to the study of song syntax.

There is now reason to compare the original Note Example (2) with Fig. 4 of the present paper (see Fig. 5a and 5b). This is a sheep incantation whose text is only composed of the "sound-symbolic" syllable ψō. This is a "semi-voiced labial vibrant" and may have been pronounced something like "pruu" with loosely trembling lips (without the r-sound). One might say that this uttering is like a humanly produced humming of the bull-roarer. In this paper, this kind symbolic syllable is called a *secreme* 'secret sound', from Latin *sēcrētus* 'set apart from the knowledge of others'. It has or once had meaning but, perhaps, is now forgotten by the singers. If the singers know its meaning, this knowledge is not delivered to outsiders to whom it remains a "meaningless syllable".

The song has 9 verses. The first of them is seen in Fig. 5a. In verses 2 and 3 the singer was obviously groping for the optimal melodic progression and in verses 4 and 5 he had it (Fig. 5b) and he repeated it to the end. Fig. 5a reveals that the Seeker tone *g* is in relation to the sung tones bb^1-c^2-d^2. This means that the tone selection is allelic: These tones can either lead to Mode *g*-I or to *g*-IV, both of which are used by the Altai Turkic singers. Because we are unable to identify the mode, the definition can be only beta allele *g*-β which is opened and closed with the tonic c^2.

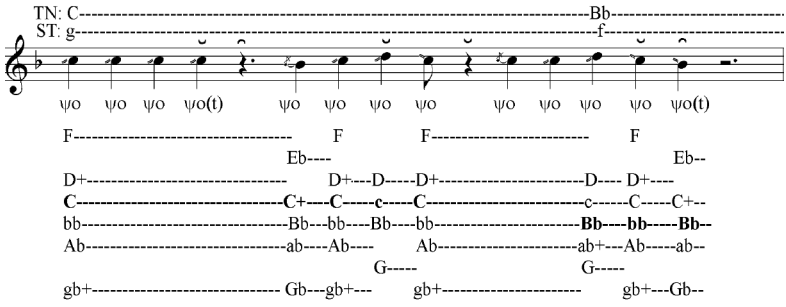

Fig. 5a. The long opening line of a sheep incantation according to Kondrat'eva & Mazepus 1993, 45: Note Example 2. Under the tones are seen the vertical neurochords *a*nd the tying neurons (TN) with C and Bb as the alternating anchors and *g* and *f* as the alternating Seeker tones (ST). The duration of the line is 17 seconds.

At the end of Fig. 5a the C neuron is weaker than the Bb neuron and the Seeker is now transposed down to *f*. Above it there are descending tones d^2-c^2-bb^1, which can be degrees 3-2-1 either of *f*-I or of *f*-II. Thus, this is again alpha allele *f*-α. The syntax of the first verse is *g*-$\beta^1 \rightarrow$ *f*-α^1, opened and closed with the tonic.

All this suggests that even if the sung tones are the same (d^2-c^2-bb^1) their treatment in the melody formation leads to various interpretations in analysis. This seems to explain why various melodies sharing the same mode "sound" differently. In other words, the tones in Fig. 4 and 5a are:

beta allele	*g*-β:	d^2-c^2-bb^1 = degrees 2-1-6 with *c* as the tonic and *g* as the Seeker;
alpha allele	*f*-α:	d^2-c^2-bb^1 = degrees 3-2-1 with *bb* as the tonic and *f* as the Seeker;

Thus, the order of these two alleles of Fig. 4 and 5a is the same: β→α . Fig. 5. reveals that the singer continued the order of alleles and kept it in such a way that each verse follows the syntax *g*-$\beta^1 \rightarrow$ *f*-α^1. When the syntactic processes of Fig. 5a and 5a are combined they can be simply written as: *g*-$\beta^1 \leftrightarrow$ *f*-α^1, in which the arrow ↔ refers to continuous repetition.

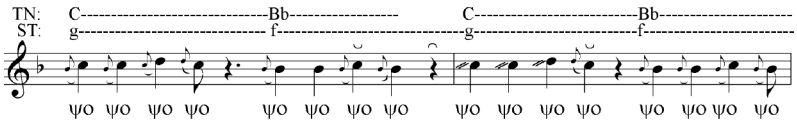

Fig. 5b. Verses 4 and 5 of the sheep incantation (Fig. 5a). The durations of verses are ca 6 + 7 seconds.

In light of the previous transcriptions, the original Note Example 1 (Kondrat'eva and Mazepus 1993, page 41) can now be analysed (see Fig. 6a). The tune itself is a sheep incantation with the syllable *ψo*. Original tones were *ab* and *f* with *ab* as the main tone. The idea is to

attack *ab* via the gliding ictus from below. It cannot be established whether tone *g* between tones *ab* and *f* was the target tone of the singer Tomon Sibirgiev, born 1910. However, according to the transcription, the attack started about minor second below *ab*, that is, roughly from tone *g*. If these tones are transposed to the G horizon, the tones might be *eb-d-c* but this is impossible because the neuronal reaction defines the Ab neuron as the anchor and tonic. When the melody is transposed a major 3rd higher the tones are *g-f#-e* in relation to the Seeker on *g*. This is also impossible because of the interval *g-f#* between degrees 5-4. Thus, the only possibility to calibrate the mode to the G horizon is to conclude that the descending three tones are degrees 2-1-6 of the protohexatonal embryo *g*-*VI (g^2-f^2-e^2-***d^2-$c\#^2$-b^1***—g^1). Because this mode and its embryo are always inverted, the tonic cannot function as the final tone because of which it is degree 6 (b^1) that functions as the final tone (Fig. 6a).

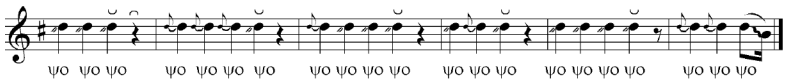

Fig. 6a. An Altai Kizhi sheep incantation on the G horizon. Originally published by Kondrat'eva & Mazepus 1993, 41: Note Example 1. See Fig. 6b. The duration is about 24 seconds.

The neural activation process of Fig. 6a is presented in Fig. 6b. Typically of inversions, the tonic (*c#*) is sporadically activated whereas the dominant (*g*) is continuously activated. When the Seeker is *g* it maximally supports the dominant but it also optimally supports all sung tones. Moreover, even if the Seeker does not activate the D neuron, the sung *d* prominently activates the G neuron and so supports the Seeker. To me it is obvious that the singer had a rough image of pitch $c\#^2$ in his subconscious and the glide to tone d^2 from below took place from a pitch closer to $c\#^2$ than to c^2. Thus the syntax of this tune is the embryo *g*-¿*$VI^2 \rightarrow^6$, in which the symbol ¿ stands for inversion.

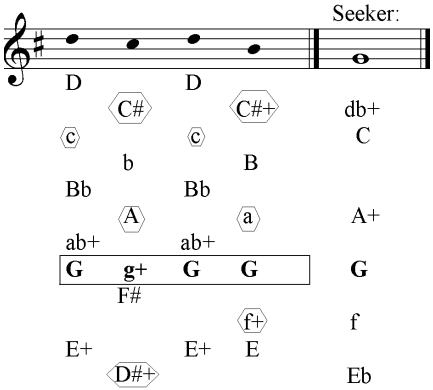

Fig. 6b. The neurochords (vertical) activated by tones *d* [2] and *b*[1] and the slurred *c#*[2]. The Seeker activates the neurochord seen on the right. Its neurons support the neurons of each sung tone (hexagons). As always in inversions, the dominant has the status of tonic: it remains activated throughout the melody.

The following figure (Fig. 7a) is a cow incantation performed by Vasiliy Tadinovich Terengin, born 1937 in the Onguday district. The original transcription comprises 10 lines but only four of them are given here because the syntax becomes obvious with their help. Only the first two verses are presented here. Transposing the melody to the G horizon is only successful when the opening tone is the 2nd degree *d* [2] meaning that the mode is inverted embryo *g*-¿*VI. Tones *d-c#-b* are its degrees 2-1-6. Because the main neural activation is directed at the G neuron, it assumes the status of the tonic even if tone *g* is the dominant tone. The change occurs at the beginning of the second measure. The G neuron remains activated but it is the A neuron that now assumes the status of the anchor—and the tonic. In other words there occurs a modulation from inverted *g*-¿*VI to natural allele *e*-α (*e*—*a*-*b*-*c*# = 5—1-2-3). Personally I am convinced that this tone selection is not alpha allele but embryo *e*-*I, but to avoid any speculation the definition will be *e*-α.[4] The syntax is *g*-¿*VI[2] →*e*-α[1].

4. In other words, if the 6th degree above the Seeker on *e* is *g*, the embryo is *e*-*I. If it were *g*# (what the writer doubts) the embryo is *e*-*II (*e*—*g*#-*a*-*b*-*c*#).

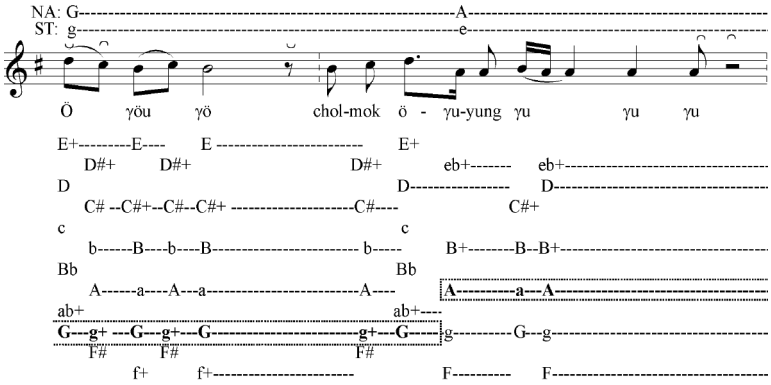

Fig. 7a. This cow incantation (according to Kondrat'eva & Mazepus 1993, 44, Note Example 5) is calibrated to the G horizon. Below the sung tones are the vertical neurochords. Horizontally they form the tying processes. At the beginning it is the G neuron that has the main activation but finally it loses its prominence to the A neuron (see NA = neural anchors above the stave). Even if the tune is on the G horizon, the C neuron is barely activated because the opening embryo is inverted *g-¿*VI. This double verse lasted 7 seconds.

After the verses seen in Fig. 7a the singer modulated to allele *e*-α with its tonic a^1 as the closing tone (Fig. 7b). There occurs one transient modulation in the 5th verse because the singer articulated *b#* instead of *b natural*, but this does not change the syntax—especially when we cannot say whether this was accidental. Thus, it is now possible to write out the syntax underlying this long incantation: *g-¿*$VI^2 \rightarrow e$-α^1. In other words, the singer defined the syntax already as in Fig. 7a.

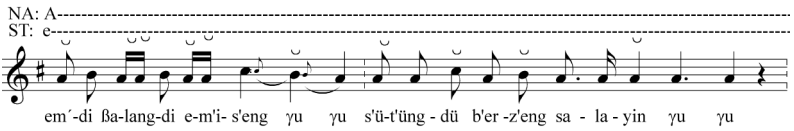

Fig. 7b. Verses 3 and 4 of the cow incantation of Fig. 7a. From now on the melody moves in allele *e*-α with tone a^1 as the neuronal anchor (NA) and tonic, and e^1 as the Seeker tone (ST).

In contrast to sheep incantations, this cow incantation has a poem with a content that clearly aims to manipulate the cow (named Cholmok) to look after its offspring. The poem is not a magical command but a magical allure and persuasion: what is good for a calf is a benefit to humans:

Ö γöu, γö,	*Ö γöu, γö,*
Cholmok öγuyung γu, γu, γu,	*Cholmo – öγuyung γu, γu, γu,*
Emdi balangdı emisseng γu, γu,	*Suckle now your young one – γu, γu,*
Südüngdü b'erz'eng saal alayin γu, γu,	*Let me milk you – γu, γu,*
Emis, emis balangdı, γu, γu, γu,	*Suckle, suckle your young one – γu, γu, γu,*
Südüngdü köp ekel γöu, γöu, ...	*Let down your milk – γöu, γöu, [etc.]*

The next song (Fig. 8a) is for a goat but it has also a text that is not magical but demonstrative in character, as Kondrat'eva and Mazepus state. It was performed by Jindi Ukarova (born 1915) and the translation of the text runs: "Chu, chu, chu, chu; born from your womb, was your young one; Chu, chu, chu, my nanny-goat – so it is sung."

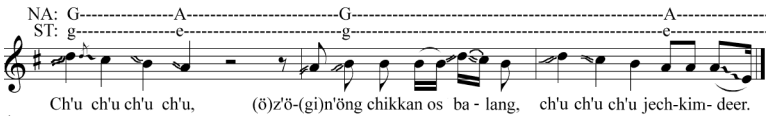

Fig. 8a. This goat incantation with three verses (Kondrat'eva & Mazepus 1993, 42, no. 3) turns out to share the same syntax with Fig. 6 except that the final tone is not the tonic but the dominant *e*[1].

Fig. 8a was not easy to calibrate to the G horizon until the analysis of the neural representation (neurochords) of the sung tones. It revealed that the melody is opened by the 2nd degree of the inverted embryo *g*-¿*VI which was quite soon modulated to the natural alpha allele *e*-α.

In this song this is repeated twice and the syntax is basically the same as in Fig. 7a and 7b but the treatment of tone clusters and the final tone e^1 force it to be written in a more extended form:

$$\{g\text{-¿}^*\text{VI}^2 \rightarrow e\text{-}\alpha\ ^1\} \rightarrow \{g\text{-¿}^*\text{VI}^2 \rightarrow e\text{-}\alpha_5\}.$$

One might assume that the melody is based on the hexatonal mode *e*-I, which is lacking its 6th degree and is opened on the 4th degree. One might also assume that the melody is based on the tonal mode A major, opened on the 4th degree and closed on its lower tonic. However, this is not how the melody is constructed and this claim leads to two interesting side tracks, one to modern Turkey (whose language belongs to the Southern Turkic branch: see Fig. 1), and the other to the Russian melody formation in chastushkas accompanied by the accordeon).

First, on a worldwide basis, (proto)hexatonal songs are never started on the 4th degree when interpreted with Seeker tone theory. The reason is simply in the fact that, on the G horizon, the fourth degree (f^2) does not have tone g^1 as its Seeker. It can only have c^2 as its Seeker, which means that the fourth degree of any hexatonal mode on the G horizon is the tonic of a *c*-based mode. For instance, the degrees of the *Hümâyun makamı* of Turkish classical music on *a* (a^1-bb^1-c^2#-d^2-e^2-f^2-g^2-a^2) has the hicaz tetrachord (a^1-bb^1-c^2#-d^2) as its degrees 1-2-3-4, but this is but a general agreement of local theoreticians. If the neurochords are studied, the only way to transpose this tetrachord to the G horizon is to lower it a second to g^1-ab^1-b^1-c^2: From the neural point of view, the opening c^2 is not the 4th degree but the tonic with g as the dominant. Thus, *Hümâyun makamı* is in the form g^1-ab^1-b^1-c^2-d^2-e^2-f^2-g^2 when transposed to the G horizon. What occurs in the melody is seen in Fig. 8b which is opened by playing out the hicaz tetrachord in measures 1 and 2.

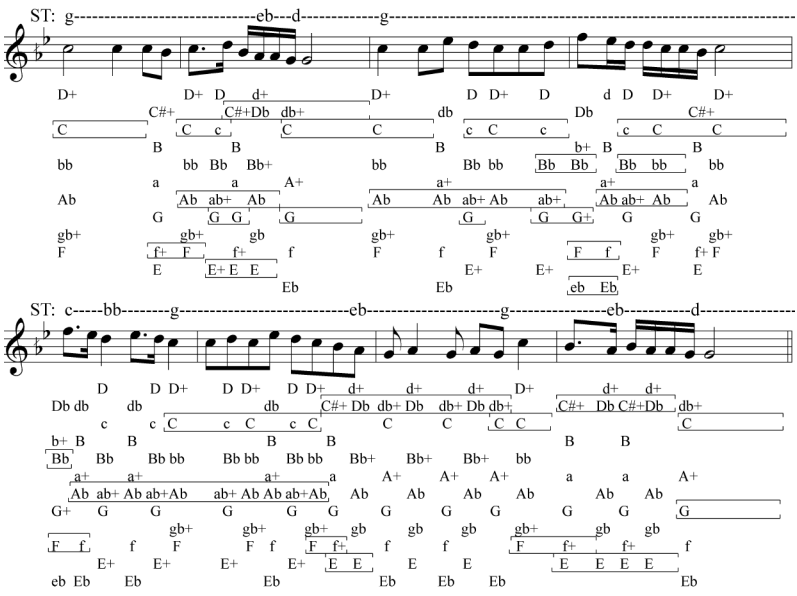

Fig. 8b. The beginning of the Turkish *Hümâyun makamı* on *g* activates the neurochords seen below each tone. Tying is presented by horizontal lines. The optimal Seeker tones (ST) are seen above the stave.

The *Hümâyun makamı* can naturally be presented as a scale, as has been done by Turkish theoreticians but it can also be seen as a process via Seeker tone theory and this process can be described with a syntactic pattern. In the upper line of Fig. 8b there occurs a descending progression *g*-*III^{1} →*eb*-*III→*d*-*V→*g*-*III^{1} in such a way that each section is opened or closed on its tonic (*c-ab-g-c*). The embryos mentioned (with their tonics in bold face) are:

*g-*III:*				*g*			*h*	**c**	*d*	*eb*	*f*
*eb-*III:*		*eb*		*g*	***ab***	*bb*	*cb*				
*d-*V:*	*d*		*f*	***g***	*ab*	*bb.*					

The lower line is different. There also occurs modulation but it usually takes place at the end of each measure. The opening tone *f*^{2} is the

fourth degree of embryo *g*-*III but in Fig. 8b this tone is studied more carefully with its neurochord and turns out to be the momentarily appearing tonic of embryo *c*-*IV. Because it is the opening tone it has a prominent role and the embryo is separately marked even if f^2 appears briefly. This embryo is soon modulated to *bb*-*II and then back to *g*-*III. This progression is dramatic. In tonal terms it can be described as a modulation from natural c minor to *eb* major and to harmonic *c* minor. The alternating embryos of the lower line are:

*c-*IV:*		*c*		*eb*	***f***	*g*	*ab*
*bb-*II:*	*bb*		*d*	***eb***	*f*	*g*	
*g-*III:*	*g*	***c***	*d*	*eb*	*f*		
*eb-*III:*				*eb*		*g*	***ab*** *bb cb*
*d-*V:*			*d*		*f*	***g***	*ab bb.*

It is now possible to write the syntax of Fig. 8b:

{*g*-*III^1 → *eb*-*III → *d*-*V → *g*-*III^1} → {*c*-*IV^1 → *bb*-*II → [*g*-*III ↔ *eb*-*III] → *d*-*V^1}.

This syntax is loaded with embryo III, which is genetically related to the harmonic minor. Embryo *V has no tonal equivalent even if it is universal and also present in tonal music. Humans seem to have mainly used it in songs reflecting melancholy and sorrow. This kind of syntax is markedly different from the Northern Turkic syntaxes of the previous cattle incantations and it goes back to the musical grammar of the Anatolian populations who occupied the area before adopting Turkish as their common language. To summarise, a hexatonal melody cannot start on the fourth degree because of which the mode of Fig. 8a cannot be hexatonal *e*-I. The main idea of Fig. 8a is to oscillate between the embryo *VI and allele α.

The first measure of Fig. 8a is an illuminating example of how a musical instrument affects the human auditory centre and may mislead the result of modal analysis of the *melody*. This can be understood with the help of Fig. 8c, which is based on the same melodic progres-

sion as the beginning of Fig. 8a, only repeated twice in Fig. 8c. It is accompanied by an accordion using the major triads D-A-E7-A. As a result we have the beginning of a popular Russian *chastushka* tune. The reason is not in the melodic progression itself but in the accompanying instrument. Each tone of each triad played by the accordionist activates a neurochord of its own and these result in different neural activation in the auditory system from that activated by the sung melody alone. Chord E7 activates 4x12 neurons instead of 12 and the tying process leads to different neural consequences. This means that if the aim of analysis is to study a tune the analysis must be only based on sung or played tones, not on tones that also are present because of the instrumental accompaniment. In other words, the simultaneously sounding three or four *different* neurochords lead us automatically to experience the descending tones *d-c#-b-a* as degrees 1-7-6-5 of D major. This is not what happens when an Altai Kizhi solo singer articulates the same tones in his specific local style.

Kondrat'eva and Mazepus tell us (1993, 46) that the Altai Kizhi borrowed the genre of Russian chastushka along with the Soviet system of collective farms. The collectives changed the classical system of cattle breeding and there was not room for traditional incantations as extensively as there used to be. The genre of chastushka is interesting. It is based on 8 morae and suddenly the genre became very popular in North-West Russian towns where these songs were sung especially by young people from the 1860's. Its metre corresponds exactly to what is known as the Proto-*Kalevalaic* metre still used by Baltic Finnic sing-

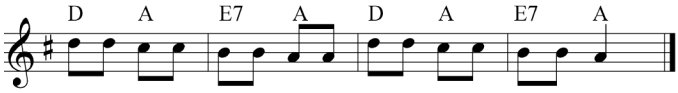

Fig. 8c. The first measure of Fig. 8a repeated twice. If the tune is accompanied with three major triads by the accordion the combination leads to a typical dance-like *chastushka* melody in D major.

ers. That is why the whole *Kalevala*, the Finnish-Karelian epos, can be performed by singing with any chastushka melody. Thus, it is possible that this metre became a part of Russian culture because especially the bilingual Veps and the Karelian working youth and soldiers started to use their domestic metre when improvising sung ditties in Russian language. Their ancestors had done the same when improvising songs in Baltic Finnic languages for more than 2000 years. Whatever was the true process, the fact is that when the Russians moved to southern Siberia they imported their chastushkas to the lands of the Turkic speaking peoples, who already knew the same metre of eight morae. Obviously the Turkic singers had also used this metre for at least two millennia, because of which the adoption of the Russian chastushka was quick and easy.[5] This is absolutely not to suggest that the tune of Fig. 8a is genetically related to the 20th century chastushka.

Fig. 9b represents a tune into which the old genre of incantations has adopted elements from the chastushka. The melody is sung in the Kizhi style, the eight-morae metre governs the poem and the form is made up of double verses. The example shows verses 1–2 and the closing ones 9–10 (Fig. 9b). Each double verse starts and ends with *g* as the Seeker and with the tonic *c* as the closing tone. Even if the poem follows the eight-morae metre in a regular way, the Turkic ideal for treating musical time causes each verse to last a different length. The metric division seems to be as follows and morae 5 and 6 make up one double-mora 5+6 (here are seen verses 1, 6, and 7):

1	2	3	4	5	6	7	8
Pa—lang–	*di*	*tash—ta—*	*pai*	*ol*	*– – –*	*al—*	*sang*
βa—lang–	*dı*	*al—*	*sang*	*ol*	*– – –*	*ko—*	*yem*
n'e—	*neng*	*u—*	*chung*	*al—*	*– – –*	*βai—*	*sung*

5. See Leisiö 2001. It is important to understand that Russian culture is a fusion of the Proto-Slavic culture *and* local cultures (Baltic, Finno-Ugric, Arabic, Turkic, Mongolian, Swedish, Dutch, French etc.) which were slowly absorbed into it. In the case of chastushka, the Baltic Finnic source is the most probable. See, however, Zemtsovsky 2000, 768–769.

In some verses the poem is replaced with the secreme *ψo* and the rhythmic treatment varies. In the closing measure of Fig. 9b the number of *ψos* is correctly 7 because one of them takes the time of a double mora. However, the singer also inserted an extra rest, as a result of which the length of this verse varies from 9/8 to 11/8 instead of 8/8. He even could shorten the line to 6/8.

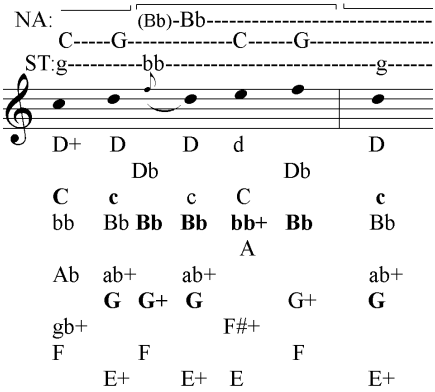

Fig. 9a. At the end of the opening verse there are several tying neurons (C, G, Bb, and F) so that the anchor (NA) is not easy to define. The tying reveals that the C neuron on the left loses its prominence and is briefly replaced by the Bb neuron.

To understand the modal syntax we need to study what occurs at the juncture of the opening and closing verse (Fig. 9a). The C neuron loses its status as tonic because the Bb neuron forms a new anchor on both sides of the barline. When tone *c* is the tonic the Seeker is on *g*. But when the Bb neuron is the neural anchor, what is the tonic and where is the Seeker?

The answer to these questions needs first the Seeker to be determined. If Bb is the neuronal anchor it also is the tonic, which means that the Seeker is *f*. However, this is not possible because the interval

between degrees 5 and 4 below it is always a major second. In this song the interval between *f* and *e* is a minor second. The only solution available is that the melody moves on the tones of an inversion: the tonic *bb* takes the role of the dominant and the hexatonal mode will be constructed *above the tonic*. The inverted mode appears natural (*bb—d-e-f*) but it cannot be natural because the Seeker on *bb* is unable to support the tonic *e*. The theoretical Seeker on *bb* only supports the dominant on *bb*, that is, itself. But what is the mode?

The main mode with *g* as the Seeker cannot be defined because of the lack of the 6th degree. Thus, the tones *c-d-e* are degrees 1-2-3 of the natural alpha allele g-α. When the Seeker is *bb* the ascending sung tones are d^{1}-e^{2}-f^{2}. In relation to *bb* they are degrees 6-1-2 of the embryo *bb-¿*VI that already has been met with above. In the case of Fig. 9b the hexatonal mode VI is of the form *bb—d-e-f-g-ab-bb*. This way we may define the syntax that controls each double verse: *g*-$\alpha_5 \rightarrow$ *bb-¿*VI$\rightarrow$*g*-α^1. Such syntax is profoundly based on the Kizhi tradition. As an outsider I ponder in which way is this melody related to Russian chastushkas?

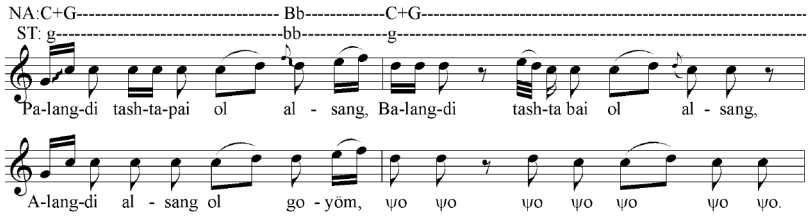

Fig. 9b. Opening and closing double lines of a sheep incantation originally published in Kondrat'eva & Mazepus 1993, 46, Ex. 7. NA = neural anchors and ST = Seeker tone.

Fig. 10b is a sheep incantation whose melody was a "borrowed chastooshka tune" (Kondrat'eva & Mazepus 1993, 47). It is not clear which melody was borrowed but this tune is no regular tonal tune. The singer used the secremes in the opening verse and added a poem to the closing verse. On the G horizon, verse 1, the main part of verse 2 as well as

verse 3 are based on degrees 5—6-1-2 of beta allele *g*-β because these tones may lead both to *g*-I or *g*-IV. The problematic phases are the juncture of measure 1 and measure 2, as well the 4th measure. Their neural activation will be studied in Fig. 10a.

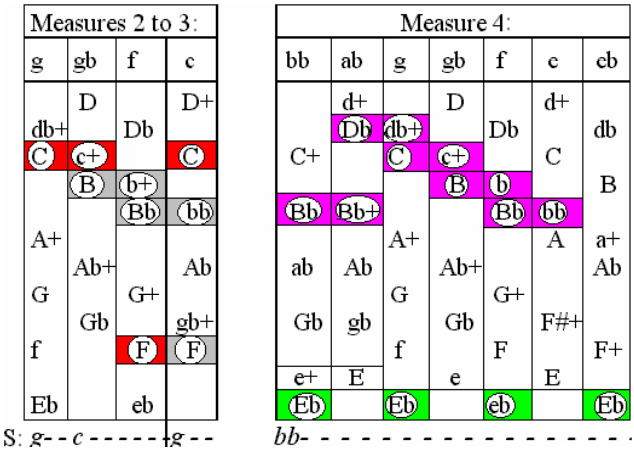

Fig. 10a. On the left are seen the three last tones *g*[1], *gb*[1], and *f* [1] of measure 1 and the opening tone *c*[2] of measure 2 in Fig. 10b. The C anchor is briefly changed to F via the descending tying neurons B, Bb, and F. During tones *gb* and f the Seeker (S on the bottom) is transiently *c*, which is turned back to g in the 2nd measure. Measure 4 is presented on the right. The descending series of tying neurons Db-C-B-Bb are in the middle. The Eb neuron is the prominent and tone *bb* functions as the Seeker of this 4th measure.

The sequence of the Seekers is *g-c-g-bb*. When the Seeker on *c* is active tones *gb* and *f* can only be degrees 2 and 1 of embryo *c*-*V (*c—eb-f-gb-ab*). It is Fig. 10a that defines tone *f* as the tonic. The closing Seeker is *bb* and, because of tone d^2 on the lower line, the mode can be defined as the hexatonal mode *bb*-II (*bb—d-eb-f-g-ab-bb*). Tones gb^1 and e^1 are auxiliary tones. Perhaps the fourth line was directly adopted from the chastushka written in Eb major. This Kizhi melody as such is not a major tune but has the syntax {*g*-β_5→*c*-¿*V[1]}→{*g*-β[1]→*bb*-II[1]}. An interesting detail is that the upper line comprises descending tones c^2-bb^1-g^1-f^1. They are not only

protohexatonal but also protopentatonal even if the definition is not possible. They can be either degrees *la-sol—mi re* of embryo *f*-*RE, or they can be r*e-do—la-sol* of embryo *f*-*SOL. Otherwise no trace of pentatonality was seen in these melodies.

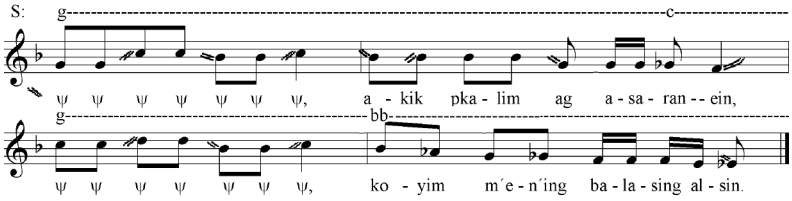

Fig. 10b. An Altai Kizhi sheep incantation set to a chastushka melody according to Kondrat'eva & Mazepus 1993, 47, no. 8 but transposed here to the G horizon. Letter S refers to the Seekers. The durations of lines are 5.5 and 5 seconds.

Reflections on Altai Kizhi syntax

The seven incantations reanalysed are syntactically more homogeneous than first expected (Table 1). The first surprise is the amount of the complex embryo VI appearing in 5 of 7 tunes. Neither was the prominence of alpha allele (5/7) expected. The presence of beta allele in connection with alpha allele (2/7) is encountered in several Siberian melody collections and no wonder that it is also present in these melodies (Fig. 4 and 5). The tonal parallel of the allelic alternation β↔α, found both in the lullaby and cattle incantation, is the modulation from the minor key to the major key.

g-β^1↔*f*-α^1	Lullaby	Fig. 4
g-β^1↔*f*-α^1	To sheep	Fig. 5a and 5b
g-¿*VI$^{2\rightarrow6}$	To sheep	Fig. 6a
g-¿*VI^2→*e*-α^1	To cow	Fig. 7a and 7b
{*g*-¿*VI^2→*e*-α^1}→{*g*-¿*VI^2→*e*-α_5}	To goat	Fig. 8a
g-α_5→*bb*-¿*VI→*g*-α^1	To sheep	Fig. 9b
{*g*-β_5→*c*-¿*V^1}→{*g*-β^1→*bb*-II^1}	To sheep	Fig. 10b

Table 1. Syntactic presentation of seven Altai Kizhi incantations analysed above.

More data is needed from Siberia and Central Asia, but what seems obvious is that Mode II (forerunner of the major mode) is either rare or non-existent, a trait that makes a clear difference between Europe and most of Asia. Mode II only appears once (Fig. 10b). It may be that its presence suggests a 20th century loan from Russian chastushka to Altai Kizhi syntax. If it is excluded, it is possible to state that the essence of their syntax is in the use of embryo VI alone or connected to alpha allele, which, on the other hand, may be connected to beta allele. The syntactic structures are symmetrical in one way or another even if long in structure (see Fig. 8a, 9b, and 10b).

The pentatonal elements seem to be missing but, because of proto-hexatonal embryos ¿*V and ¿*VI, the melodies are based on modal inversions. The question about the position of mode II in the local syntax remains open because alpha allele lacks degree 6 but has the degrees that can lead both to embryos *I and *II. However, Mode I is so general in the northern Turkic syntax (such as that of the Yakuts) that the singers treat allele *g*-α more probably by adding tone *bb* to it than tone *b*, the 6th degree of *g*-II.

Four more melodies

The final note example of the original paper is a sheep incantation of the neighbouring people, the Telengits of the Ulagan district (Fig.

11). Kondrat'eva and Mazepus (1993, 48) state that the treatment of rhythm and form as well as the tone collection parallels the Altai Kizhi incantations while the use of glides and mordents is more typical of the Telengit style.[6] However, it is obvious that both traditions spring from the common ancestral style of incantations. When this melody is interpreted with the Seeker tone the following conclusions can be drawn.

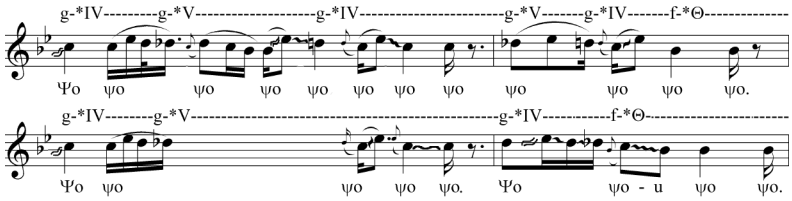

Fig. 11. Telengit sheep incantation according to Kondrat'eva and Mazepus 1993, 48, no. 9 on the G horizon. The durations of the measures are ca 7+4+4+3 seconds.

The Telengits speak the same southern dialect of Altai-Turkic as do the Kizhis and no wonder that the melodies are closely related. Typical of this tune is a glissando *eb-d-db-c*. When tone *d* is sung as a tone and not as a glide the modal embryo is *g*-*IV, whose tonic *c* opens the song. When tone *db* is prominent the embryo is *g*-*V. Tones *d* and *db* alternate swiftly. Each line is composed of two melodic verses. The former is closed with the tonic *c* of *g*-*IV, while the latter is closed with the tonic bb of theta allele *f*- Θ, which may indicate four embryos, *f*-*I, *f*-*II, *f*-*III, or *f*-*IV.

The lower line of Fig. 11 ends with the tonic *b flat* of muu allele *f*-μ if a listener recognises tone *db* as one pitch. But if *db* is only experienced as a very brief glide from *d* to *db* then the allele is theta allele *f*-Θ. On the basis of this transcription alone it is not possible to come

6. Kondrat'eva has published a detailed study on the Telengit incantations (1990) but I do not have it at hand.

to any firm conclusion. Therefore I assume that the four first tones of the last measure (*d-eb-d-db*) move in *g*-*IV while the end of this measure is closed in the same theta allele *f*-Θ as is the end of the upper line of Fig. 11. Hence, the general definition of the syntax underlying this sheep incantation is:

$$\{g\text{-}{*}\mathrm{IV}^1 \leftrightarrow g\text{-}¿{*}\mathrm{V} \rightarrow g\text{-}{*}\mathrm{IV}\} \rightarrow f\text{-}\Theta^1.$$

The syntactic trait that connects this song to Altai Kizhi melodies is the Seeker tone progression $g^1 \rightarrow f^1$ with the tonics as their final tones. What is different is the appearance of theta allele, which does not belong to Kizhi tunes. Moreover, beta allele of the Kizhis has transformed (enlarged) here to embryo *IV. This means that the Kizhi pattern $\{g\text{-}\beta_5 \rightarrow c\text{-}¿\mathrm{V}^1\}$ of Fig. 10b parallels the Telengit pattern $g\text{-}{*}\mathrm{IV}^1 \leftrightarrow g\text{-}¿{*}\mathrm{V}$, and the differences are merely dialectical.

There is a short extract of a Telengit sheep incantation in Fig. 12a. The melody proceeds in the style found in former examples and it keeps the C, Bb and Ab neurons in a state of activation throughout the verse. The D neuron also is active except when tone *bb* is sung. The main activation is on C defining tone *g* as the Seeker tone. Again, because of the lack of the third degree the mode cannot be defined, which leads to the allelic result in analysis. Because *g* is the only Seeker, the syntax is simply $g\text{-}\beta^{2\rightarrow1}$.

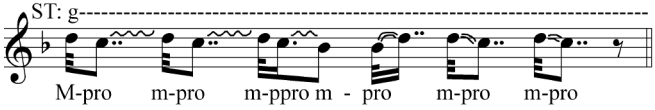

Fig. 12a. A verse from a Telengit sheep incantation according to Sheykin 2002, 553, No. 47:1. This is now on the G horizon. Allele is *g*-β.

The verse from a goat incantation in Fig. 12b is interesting. The sung tones are organised like the descending degrees 3-2-1-4 of embryo

*III. On the G horizon they are tones eb^2, d^2, c^2, and b^1 with c^2 as the tonic. However, there is no stable neural anchor (NA) and the main tying takes place as the alternation of G, Eb and C neurons and it is the G neuron that has the main rate of stimulation. If the melody were composed differently the main rate should be directed to c^2 as is the case in any natural materialisation of *g*-*III. Moreover, the melody is opened and closed with degree 2 (d^2). Thus, the tune is constructed in such a way that the dominant g^1 assumes the status of the tonic as is the case in all inversions. This tune also has only one Seeker but it functions differently from Fig. 12a. When the melody is studied one more time it turns out that the mode is inverted only in measures 1 and 4, which lack the tonic. Between them the mode is in its natural form *g*-*III. Thus the syntax is more complex than initially assumed: *g*-¿*III^2→*g*-*III→ *g*-¿*III^2. This melody is the only one in this collection in which embryo *III is to be found.

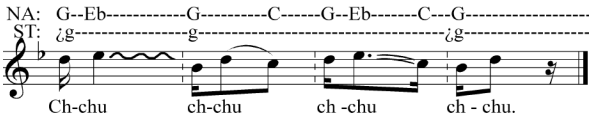

Fig. 12b. Verse from a Telengit goat incantation according to Sheykin 2002, 553, No. 47:2. This is now on the G horizon. The neural anchors (NA) alternate swiftly but tone g^1 remains as the Seeker tone (ST). Symbol *¿g* means that the mode on *g* is inverted.

Kondrat'eva (2004) published one more study on these incantations of the Altai peoples but this time on those of the Kazaks. The Turkic people of the Kazaks belong linguistically to western languages, as does Kyrgyz. The Kazak ethnos emerged after the Golden Horde was divided in three in the 1450's. In those days many Turkic clans (especially the Kypchaks) intermingled with Mongolian and Indo-Iranian elements of the former Horde in Western Asia and the Kazak fusion culture started to develop. Still today, some cultural traits are clearly ancient. For instance, the curvilinear patterns typical of the Altai, Kazak and Kyrgyz saddle blankets can be traced back to the archaeological findings of the

Pazyryk artefacts from the late first millennium BC. (Potapov 1964, 309; Okladnikov 1964, 71.) In the 20th century the Kazaks still sang these incantations to those female cows, sheep, goats and mares who did not feed their offspring or who were restless during milking.

The text of the incantation that Kondrat'eva (2004, 348) published was 'proi, my sheep'. Formally it is quite regular. The glide to d^2 from below continues as a two-tone motive $c\#^2$-d^2, and the same rhythmic configuration is repeated at the end on tone b^1 *natural*.

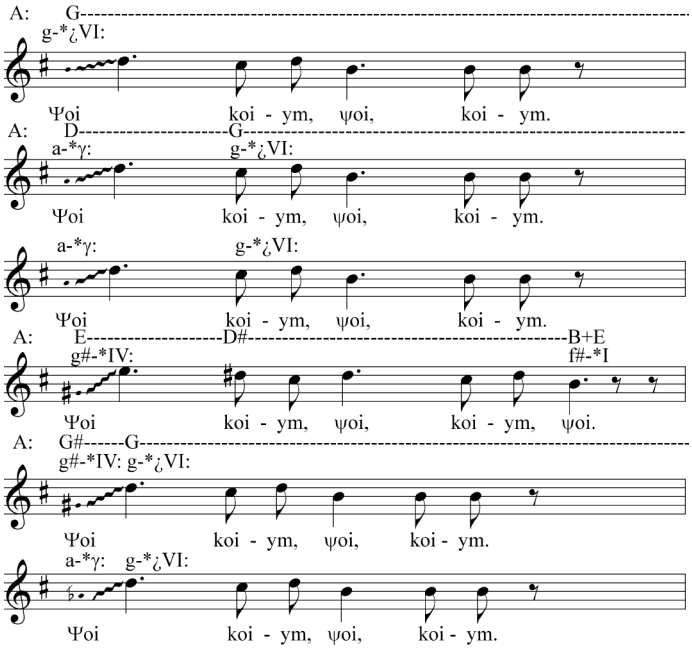

Fig. 13a. A Kazak sheep incantation from southern Altai according to Kondrat'eva 2004, 348 now transposed to the G horizon. See also Fig. 11b.

The main mode is the same as that already found in the Altai Kizhi incantations, embryo *g*-*¿VI having the structure g^1—b^1-$c\#^2$-d^2). In

this light the finale on b^1 is motivated because of the tritonic relation g^1—$c\#^2$ between degrees 5 and 1. However, the position of the brief embellished tone preceding the opening tone changes all the time following the sequence b^1-a^1-$g\#^1$-a^{-1}. When the singer articulated the opening embellishment $g\#^1$ for the first time in measure 4 the melody of the whole verse changed and so also the modality from *VI to *IV. Was that a mistake? It is difficult to find any motivation for the transition of the opening tone in the way it goes on in the transcription. If we assume that the opening target tones were not b^1-a^1-$g\#^1$-a^{-1} but b^1 and g^1, that is, degrees 6 and 5 of *¿VI, then the idea of the song is clear. This assumption may be supported by the pitch of the opening tone of the last verse in which it is only slightly higher than g^1. If this were the case, the syntax would simply be

$$g\text{-}*¿VI^{6\rightarrow6}\rightarrow g\text{-}*¿VI^{5\rightarrow6}.$$

When the analysis follows the transcription the result reveals that the neural anchor changes repeatedly (Fig. 13b) and the syntax of the tune is complex:

$$\{g\text{-}*¿VI^2\leftrightarrow a\text{-}\gamma\}\rightarrow g\text{-}*¿VI\rightarrow g\#\text{-}*IV\rightarrow f\text{-}*I\rightarrow\{g\#\text{-}*IV\leftrightarrow g\text{-}¿*VI^6\}\rightarrow a\text{-}\gamma\rightarrow\ g\text{-}*¿VI^6$$

Gamma allele *a*-γ has the germ to develop either to *a*-*II or to *a*-*III. However, one is forced to ask whether this was the intention of the singer. Specifically the structure of line 4 as well as the fact that other pitches than those of quite brief opening embellishments remain stable strongly suggest that other lines than number 4 share the same embryo no. *VI. It only is that the singer articulated the starting pitches arbitrarily. Thus, the syntax can be written as g-¿*$VI^2\rightarrow\{g\#$-*$IV_5\rightarrow f\#$-*$II^1)\rightarrow$ *g*-¿*VI^6. In this pattern embryo *g*-*IV is an extension of allele *g*-β and *f*-*II is very rudimentary. Therefore can be said that the Kazak $g\#$-*$IV_5\rightarrow$ $f\#$-*II^1 corresponds closely to the Kizhi g-$\beta^1\rightarrow bb$-II^1 and these two traits are also present in the Telengit tune in Fig. 11.

1 _____ 2&3_____ 4 _____ 5&6_____

G----------D-----G----------E----------D#----------B-----G#---G----------

b	d	c#	d	b	a	d	b	g#	e	d#	c#	d#	b	g#	d	c#	d	b
	D		D		D	D		D	d+					d+	D		D	
C#+		C#		C#+			C#+			c#	C#	c#	C#+	C#		C#		C#+
	c		c			c		c+	C						c		c	
B		b		B	B+		B	B		B	b	B	B			b		B
	Bb		Bb			Bb			bb+					A#+	Bb		Bb	
a		A		a	A		a		A	a+	A	a+	a			A		a
	ab+		ab+			ab+		Ab		G#		G#		G#	ab+		ab+	
G	G	g+	G	G	g	G	G				g+		G		G	g+	G	G
		F#						gb	f#+		F#			f#		F#		
				f+	F		f+			F+		F+	f+					f+
E	E+		E+	E		E+	E	E	E				E	E	E+		E+	E
		D#+			eb+					D#	D#+	D#				D#+		

Fig. 13b. Abbreviated presentation of the neural encoding of the sung tones of Fig. 13a. The alternation of neural anchors (physical tonics) is seen above the table. Corresponding Seeker tones are a fourth below these anchors. The topmost numbers 1–6 refer to lines 1–6 of Fig. 13a.

Conclusions

From the syntactic point of view these tunes suggest that they are mainly based on protohexatonal inverted embryos ¿*V and ¿*VI. Embryo *IV does occur while *II is rare and rudimentary. What is surprising is the lack of embryo *I (*g—bb-c-d-e*), that otherwise characterises the melodies of Northern Turkic singers. It may be that this embryo is present as beta allele (*g—bb-c-d*), which is used along with alpha allele (*g—c-d-e*). The main point is that the variety of the (pre-)modal elements is small and it is protohexatonal. In spite of the close relations to the Mongols and Chinese the pentatonal elements seem to be lacking. What also is prominently present is the frequent use of inversions. In other Turkic collections there are melodies in which modes other than ¿V and ¿VI may also be inverted. This is also the case in the Telengit example (Fig. 12b). This, along with the results of an unpublished analysis of Kyrgyz song[7], appears to mean that inversions are more typical of Turkic syntax

7. This study, "Proto-Turkic and Old-Iranian Basis of Kyrgyz Song", will be published later.

than of many other populations in Asia. In these melodies Mode III (the root of harmonic minor) appears in quite a rare form. This detail is one that clearly separates Northern Turkic syntax from Southern Turkic syntax in which Mode III is prominent (Fig. 8b). The Altai Kizhi melodies are usually started and ended with the tonic and only occasionally with the dominant. One reason for the latter is the narrow ambit of the tone selections.

If nomadism was established during the first millennium BC among the early Proto-Turkic people (Fig. 1) they may have performed cattle incantations already then. Singing with pre-linguistic secremes suggests a possibility that the tradition itself was based on a still older practice. However, we are unable to decide whether this still older practice was Proto-Turkic since they may have adopted it from some other population that cannot be identified any longer. However, the prominence of alleles α and β as well as the embryos ¿*V and ¿*VI suggests that they have been used for ages. The main function of these melodies was manipulative: The herders aimed to direct the dams to take care of their newborns. We may ask why the Turkic singers had chosen the ψ 'ppppuu' as their main secreme in this genre. The association to the bull-roarer may be misleading but to put the relaxed lips vibrate and to use this sound as the main mean of uttering strongly suggests that the Turkic nomads communicated interactively with their cattle. These songs represent a specific pre-linguistic code with and without magical overtones. Perhaps this tradition goes back to the time "when animals could talk".

Literature

Carpelan, Christian & Parpola, Asko 2001. Emergence, contacts and dispersal of Proto-Indo European, Proto-Uralic and Proto-Aryan in archaeological perspective. *Early contacts between Uralic and Indo-European: linguistic and archaeological considerations*. Mémoires de la Société Finno-Ougrienne 242. Helsinki: Société Finno-Ougrienne.

Janhunen, Juha 1996. *Manchuria. An ethnic history.* Mémoires de la Société Finno-Ougrienne 222. Helsinki: Société Finno-Ougrienne.

Janhunen, Juha 1999. Euraasian alkukodit [Homelands of Eurasia]. *Pohjan poluilla [On the paths of the North]*, ed. Paul Fogelberg. Helsinki: Finnish Society of Science and Letters. Pp. 27–36.

Kondrat'eva, N. M. & Mazepus, V. V. 1993. Cattle incantations in the culture of the Altaians. *Altaica* 3/1993, pp. 40–49.

Kondrat'eva, N. M. 2000. *Muzyka telengitskikh skotovovodcheskikh zagovorov [Music of the Telengit stock-raising incantations]*. Archives of the Mountain Altai Research Institute of History, Language and Literature.

Kondrat'eva, N. M. 2004. Skotovodcheskie zagovory v kul'ture altayskikh kazakhov i ikh yuzhnosibirskie paralleli [Stock-raising incantations in the culture of the Altai Kazaks and their South Siberian parallels]. *Muzyka i ritual: struktura, semantika, spetsifika / Musica e Rituale: Struttura, Semantica, Specificità*, ed. G. B. Sychenko et al. Novosibirsk: NGK – Rome: Università Degli Studi di Roma "Tor Vergata".

Langner, Gerald 1998. Neuronal periodicity coding and pitch effects. *Central auditory processing and neural modelling*, eds. P. W. F. Poon and and J. F. Brugge. New York: Plenum Press.

Langner, Gerald 2004. Topographic representation of periodicity information: the 2nd neural axis of the auditory system. *Plasticity of the central auditory system and processing of complex acoustic signals*, ed. J. Syka and M. M. Merzenich. New York – London: Plenum Press.

Langner, Gerald 2005. Neuronal mechanisms underlying the perception of pitch and harmony. *Annals of the New York Academy of Sciences 1050*, pp 50–52.

Langner, Gerald 2007. Die zeitliche Verarbeitung periodischer Signale im Hörsystem: Neuronale Repräsentation von Tonhöhe, Klang und Harmonizität. *Zeitschrift für Audiologie*, Vol. 46, No.1, pp. 8–21.

Langner, Gerald, Albert, Monika & Briede, Thorsten 2002. Temporal and spatial coding of periodicity information in the inferior colliculus of awake chinchilla (Chinchilla laniger). *Hearing Research* 168, pp. 110–130.

Langner, Gerald & Ochse, Michael 2005. The neural basis of pitch and harmony in the auditory system. *Musicae Scientiae Special Issue* 2005–2006.

Leisiö, Timo 2001. On the octosyllabic metric pattern and shamanism in Eurasia. *Bibliotheca Shamanistica* Volume 9: *Shamanhood, symbolism and epic*, ed. Juha Pentikäinen in collaboration with Hanna Saressalo and Chuner M. Taksami. Budapest: Akadémiai Kiadó. Pp. 89–134.

Lükő, Gábor 1964. Zur Frage der Musikkultur in der slawischen Urzeit. *Studia Slavica Academiæ Scientiarum Hungaricæ*. Tomus X, Fasciculi 3–4. Budapest: Akadémiai Kiadó. Pp. 237–289.

Lükő, Gábor 1965. Vestiges indo-européens dans le folklore musical des peuples finno-ougriens. *Études finno-ougriennes*. Tome II. Fasc. 1. Paris. Pp. 35–66.

Matthews, Stephen & Polinsky, Maria 2003. Europe and Eurasia. Comrie, Bernard,

Matthews, Stephen, and Polinsky, Maria: *The Atlas of languages. The origin and development of languages throughout the world. Revised edition.* New York: Facts On File, Inc. Pp. 36–55.

Okladnikov, A. P. 1964. Ancient population of Siberia and its culture. *The peoples of Siberia*, ed. M. G. Levin and L. P. Potapov. Translated by Stephen P. Dunn. Chicago and London: The University of Chicago Press. Pp. 305–341.

Potapov, L. P. 1964. The Altays. *The peoples of Siberia*, ed. M. G. Levin and L. P. Potapov. Translated by Stephen P. Dunn. Chicago and London: The University of Chicago Press. Pp. 305–341.

Sheykin, Yuriy I. 2002. *Istoriya muzykal´noy kul´tury narodov Sibiri [History of the musical culture of the peoples of Siberia]*. Moskva: Vostochnaya Literatura RAN.

Trubetzkoy, Nikolay 1987 [1927]. O metrike chastushki [About the metrics of the chastushka]. Republished in 1987 in N. Trubetzkoy: *Izbrannye trudy po filologii [Selected works on philology]*. Ed. V. A. Vinogradov and V. P. Neroznak. Moskva: Progress. Pp. 371–390.

Vaba, Lembit 1993. Altailased [The Altaians]. *Vene impeeriumi rahvaste punane raamat [The red book of the peoples of the Russian empire]*. Tallinn: Väljaandja a/s "Nyman&Nyman LNT". Pp. 30–34.

Zemtsovsky, Izaly 2001. Russia. *The Garland encyclopedia of world music. Volume 8. Europe*, ed. Timothy Rice, James Porter, and Chris Goertzen. New York and London: Garland Publishing, Inc. Pp. 754–789.

Examination of stylistic traits in sound production of the Veps *lühüd pajo* songs using computer-aided music analysis

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Introduction

Song and speech are based on man's ability to use his voice according to specific, learned cultural models. For many reasons, studying various models of sound production is not an easy task. First, every human being has a unique, personal voice quality, due to individual physiological properties of sound production. In a way, nature has thus provided for the identifiability of individual voices. Furthermore, it is often possible to identify sex and age group by the voice. Men tend to have lower voices than women, due among other things to men's longer vocal folds. Childrens' voices are often even twice as high as men's. Second, every individual uses his (particularly speaking) voice in a different way, even in the same culture. There are likewise differences in the fluctuation of pitches, in the loudness, in the use of different vocal registers, in speech articulation and so on. Yet people living in the same culture can understand each others' speech. This peculiar phenomenon is largely based on the emphases of certain partials – resonating pitches – which are also called *formants* (see e. g. Sundberg 1987, 1–3; 19–20; Laukkanen & Leino 1999, 52). The identifiability of different musical instrument sounds is also based on the variation of the formants in their

sound spectra, in other words, on the emphases of specific different vibrational pitches (Dodge & Jerse 1997, 52).

In the human voice, the emphases of the partial tones reveal how we have learned to use our speech organs and vocal tract for sound production. Because speech and song are based on learned cultural models, it is possible to learn to use the voice according to a certain style, in an entirely new way. It is also possible to learn new languages, singing techniques or styles or to imitate other individuals. In this connection, the concept of style describes the totality of various models of sound production. Style is an important factor, especially in the study of songs. It is possible for the members of a culture to recognize their own songs on the basis of a certain singing style. It is likewise feasible for the representatives of the same culture to know when a song, for example, is *not* performed according to the stylistic conventions (Lomax 1968, 12).

Although speech and song are related to each other, they tend to differ to different extents depending often on the genre of a speech or a song. It is possible to say that in the song, the organs of sound production function as the instrument of the singer. Consequently, it becomes important to have the ability to match one's (vocal) instrument to the musical style in question. In general, it can be said that the most important difference between song and speech is the control of the pitch level and the loudness, as well as the production of a certain sound colour. These often require the control of the air below the vocal folds (= the subglottal pressure). This is one of the reasons why singing more often requires practice than speaking. (Sundberg 1987, 48.) In general, singing can be thought of as a more specialized use of the voice than speaking. It is often also more formally organized, including its own use of speech – vocabulary, special effects etc. (Lomax 1968, 3).

The sound production of both singing and speaking has long been studied and with similar methods. The most important of all is the hearing analysis, due to the irreplaceability of the human ear. However, the presentation of such analyses becomes easier if the results can be represented in a visual form. There are plenty of computer programs

available today, with the aid of which it is possible to produce different visual representations. Among other things, visual comparison of these representations may be of help in identifying similarities in different kinds of sound production. Also, conducting hearing analysis simultaneously with graphs may reveal details possibly left unnoticed in the hearing analysis.

In this article, I shall examine the singing style of the Veps song genre called *lühüd pajo* (Veps., 'short song'). First of all, I shall compare two different *lühüd pajo* styles and the characteristics of their sound production and use of sound (the latter with reference to the relationship with the melody). My analyses are based especially on computer-aided methods and thus result in graphs. It is my purpose to identify the general stylistic characteristics of the *lühüd pajo* revealed in this kind of analysis. The object of the research is music in oral tradition and especially song. In my research, the musical analysis of the songs is divided into three parts: melodic structures, metrical structures and sound production. In the present article, I shall concentrate only on the problems of sound production.

My purpose is to describe and analyse the stylistical characteristic of the *pajo* songs of the Veps, an ancient group of Baltic Finns living in northern Russia. My research began on a comparative song style project of Eurasian peoples (EULA) in 2001. It is largely based on materials I collected during my field work in Veps villages (six trips 2000–2003). The tradition I am studying is a still living one. My fieldwork trips have oriented towards the regions of central and southern Veps living in Leningrad and Vologda regions in Russia. On the other hand, I rely on historical recordings I have had the chance to use. These materials are from the archives of the Research Institute for the Languages of Finland (KOTUS), the Finnish Literary Society (SKS), The Linguistic Institute of the University of Petrozavodsk and the Karelian Radio (Petrozavodsk, Republic of Karelia, Russia) and the Universities of Joensuu and Oulu (Finland). In addition, I have at my disposal field recordings by other reseachers visiting Veps villages (Markku Nieminen, Juminkeko Foundation, Kuhmo, Finland) and Viktor Lapin (Russian Institute of Art History, St. Petersburg).

On the concepts of style and singing style in studies past and present

As a concept, style has many meanings and is used in several different contexts, as in literature, art and music. The factor common to all styles is that they are products of a specific culture or social group. By its content, a style represents regularities, which are norms approved and adopted by a certain social group (a linguistically defined social group, for example). The emergence and progress of such norms are largely based on choices made by a social group or individual. The eventual style begins to form on the basis of the environment in which the language is used, in other words with the intentions and the function of the linguistic expression of the speaker or writer. The relationship between performer[1] and audience has an effect on the perspective that the performer of the message chooses. There are numerous options for this. The eventual expressive option merges both an internal, individual perspective and an external perspective of appropriateness. Style can be said to be a sum of or a compromise between these aspects. (Saukkonen 1984, 9–15.)

It is not an easy task to identify clear-cut stylistic genres from a spoken linguistic expression (Saukkonen 1984, 26). What is the case, then, with musical styles? Is it possible to define singing styles of specific cultures or societies? Why is it necessary to define styles in the first place? Especially in the culture tradition of Western Europe there has long been a need to define different musical styles – both familiar and exotic. I feel that analysing styles is a means to understand the culture studied. Thus it can be argued that the styles of singing or playing should be easier to define than speech styles, since music is a more specific product of culture. There is, however, a possibility of an intellectual illusion in this kind of thinking and there are numerous examples of this in the history of ethnomusicology, when various means have been adopted to define musical styles.

1. Saukkonen uses here the term "speaker", but it can be replaced by "singer", for example, because this role essentially concerns performance.

One of the orientative studies on singing style was the so-called Cantometric model of analysis by Alan Lomax (1968). It was also defined as a tool for comparing musics (Nettl 1983, 92). The purpose of this study was to understand the singing styles of different cultures. The idea of Cantometric analysis was to create a fast and coherent method for the definition of various singing styles, which was feasible in co-operation with different researchers. To accomplish this task, the method included comparative materials, on the basis of which it became possible for different researchers to formulate coherent parameters for the singing styles studied. The whole system consisted of 37 parameters, designed for defining singing styles. (Lomax 1968, 3–37.) The cornerstone of the project, as was later noted, was the Cantometric system and its parameters (Saha 1996, 56; Nettl 1983, 94), which came in for harsh criticism. The criticism probably originated in the active discussion in ethnomusicology about the fundamental problems of intercultural comparison of musical styles. However, I feel that comparative research can be very illustrative, although it is often thought to be loaded with value judgments. Thus, the aim of this article is a non-normative description of sound production in different styles of singing.

In ethnomusicological studies, the concept of style has been contextualized through periodical, generic, individual and geographical dimensions (Saha 1996, 39; 75). However, these are highly abstract definitions and they do not necessarily tell much about the style itself. Although the definitions of singing style by Lomax (1968) are on a very general level – as also noted by Saha (1999, 56) – there are some interesting and converging notions about style in the Cantometric method, also for the present study. The Lomax research group (1968, 34) discovered that in each culture there are certain favoured ways of controlling paramusical means of expression (i. e. sound qualities of the singing voice) and that they may be comparable with similar phenomena in other cultures. In addition, in the study of musical styles it is noteworthy that very few people can master several musical styles. This accords well with the study of singing styles. Usually it is left for the researcher to identify these paramusical means of expression.

Points of departure in the description of style

The problem in the description of singing styles of cultures other than that of the researcher is that it is not always so easy to understand which characteristics are relevant for a song to belong to a certain style. The traditional method of stylistic description in comparative musicology was to analyse only musical scores. The music belonging to an oral tradition, like Veps song, is not necessarily involved with musical notation. On the other hand, if it were so, even then the score alone would not be sufficient to express the core of the performance style. For this reason, the definition of musical styles cannot be based only on musical scores, if the goal is an all-inclusive stylistic description. Furthermore, the music of oral tradition often contains very delicate expressive nuances, which are difficult, at times impossible to describe in a musical score. And in addition, the musical score is a reflection of its transcriber's own experience, education etc. (Jouste & Niemi 2003, 170–171; 188–189.) In the music analysis of Western musicology, the role of a music transcription is, nevertheless, important, in spite of its limits as a means of analysis (cf. e. g. Salavuo et al. 2003, 330). However, the musical score continues to be an indispensable part of the description, comparison and analysis of different kinds of music. On the other hand, it is easier to understand the musical score if it is made from a musical style familiar to the transcriber.

At a general level, it can be said that style is all that is perceptible – the rest is abstraction (Saukkonen 1984, 91). According to this thought, a song as a concept is an abstraction and the way it is produced represents the style. What, then, is the perceptible part of a song? As a song is largely a phenomenon of sound, its perceptibility centres on audibility. This audible part of the song represents the surface level and style. Quite often this surface level allows variation and this is more likely if the song tradition is governed by loose social stylistic norms. Consequently, these norms condition individual styles (Saukkonen 1984, 10). Studying a song style involves observing this variation. However, there may be also visible domains involved in a singing style,

like those reflected in singing technique, i. e. voice production and the physical context of a performance. Usually the whole body participates in voice production. For this reason, other than audible sense domains may be of additional help in the analysis of voice production.

I shall concentrate on the properties of voice production in the description of a singing style, in other words on vocal sound and timbre. It is of great relevance from the perspective of a singing style how the song is performed. The members of a culture will recognize immediately if a change in the vocal quality leads to a violation of stylistical norms. On the other hand, a song sung with a different sound quality may be associated with another stylistic genre (Mantere 2002, 7; Lomax 1968, 12). This way, a song having the same melody and content may be used in different performance contexts. Often the purpose and performance context are connected to the voice production. In these cases the different emotional states are substantial, being attached to the performance situations of the songs and having their effect on the use of the voice (Sundberg 1987, 146–156).

My own approach is based, in a way, on the functional examination of style. So-called functional stylistics examines alternative modes of expression of content in varying communication situations, where important factors are perspective, contextual properties associated with content and the situational system (e. g. Saukkonen 1984, 111; 163). In the present article I shall not concentrate on content so much as on the situational system of the songs.

In the examination of style it is also relevant to consider the historical factors in the formation of a style, if only possible. The point of departure in the examination is that singing and speaking are learned behaviour and they conform to certain patterns (see e. g. Laukkanen & Leino 1999, 55). Seen in a historical perspective it is conceivable that in the course of time certain local styles or models have developed in a society. However, these styles are not stable and eventually they begin to evolve into new forms. A new style appears when members of a social group begin to imitate the innovative behaviour of an individual (see Saha 1996, 81).

Quality and timbre of the voice and various graph forms

In different fields of science there are different concepts in use for the description of vocal characteristics. Sometimes the meanings of these concepts are almost identical or they have a similar semantic flavour. There have been many studies of singing, for example, in the fields of speech studies and in medicine. In several publications of these disciplines the concept of *tone quality* has been used to describe voice qualities. As such, "quality" also has connotations of an ideal, desirable voice. True, in speech studies the aim is hygienic voice production, which should be minimally strenuous and economical. Here the concept of voice quality is associated with the problems of description of voice: pressed, nasal, raspy etc. The aim in these studies is to look for reasons for the voice to have different qualities. Consequently these concepts have a normative, value-oriented meaning. In music studies and in singing pedagogy the quality of the voice refers to the nature of the voice, which can be seen as more connected with performance interpretation. Thus, a voice can be described as "light" or "dramatic". Nevertheless, the ultimate aim also here is to give a verbal description of how a voice quality is thought to be produced (Slawson 1985, 19; Laukkanen & Leino 1999, 56; Hemsley 1998, 59–66).

It can be said that all three properties of voice – pitch, loudness and register – are included in the concept of voice quality. Voice quality is, in essence, an auditory impression, which is created by the amplitudinal relationship of the partial tones of a voice. In turn, these relationships vary according to pitch, loudness, register and relative degree of adduction[2]. With the concept of voice quality is associated the concept sound colour or timbre, which is affected by the voice quality, as well as resonance (see e. g. Laukkanen & Leino 1999, 202–206). Voice timbre is an abstract concept and refers more to the general "sound"

2. Degree of adduction refers to tension of the adductor muscles pulling the vocal folds towards each other. Consequently, the abductor muscles pull the vocal folds from each other, thus opening the glottis (Laukkanen & Leino 1999, 37).

of a voice. The sound of a voice may, for example, be croony, metallic, "rear one" etc. (Laukkanen & Leino 1999, 56).

I shall examine the quality of voice with different graphic representations and with auditory impression (timbre). Two kinds of graphs are used. The first is a *long term average spectrum* (LTAS) and the second is a *spectrogram*. Both types of graphs have been used in speech and song analysis. The purpose of the LTAS graph is to present some general features of voice production or voice quality present in singers' performances. When reading the average spectrum, attention is turned towards *formants*, i. e. emphases, which are connected with amplitudinal relationships in different pitch sections. A crucial factor in the LTAS graph is the general shape of the graph, instead of the single "peaks".

LTAS analysis yields information about average pitches or resonance, with which it is possible to discern differences in voice qualities. The first analyses with LTAS graphs were made by Jansson and Sundberg (1974) and by Leino (1975). LTAS graphs have been used to study, for example, the voice production of opera singers, professional actors and orators.

How appropriate is the average spectrum for the analysis of song? One of the problems is that in traditional singing the basic pitch level tends to fluctuate all the time. Consequently, when this happens, the complexes of partial tones, that is the resonating pitch complexes also tend to change. An example associated with speech will clarify this. In speech, too, the basic pitch level tends to vary, according to speaker, style, situation etc. Usually the alteration ranges approximately an interval of a fifth below or above the basic pitch level. However, a speaker's individual voice sound remains almost the same and it is thus possible for the listener to identify the speaker from the voice. There is a substantial amount of sound energy in speech at the lower pitch regions and less at higher pitches. The intensity of the decrease in sound energy is meaningful for the sound quality (Laukkanen & Leino 1999, 170–171). Hence, single peaks in the LTAS graph are not themselves as meaningful as the overall shape of the graph and the energy concentrations reflected in it.

A crucial factor in the examination of voice quality is the phenomenon of resonance[3]. It is the very resonance on which the individual sound timbre of human voice and musical instruments depend. Resonance is co-vibration. If, for example, the sound cavity does not receive sound corresponding to the specific pitch of the cavity, there will be no resonance. In the context of singing, this means that singing a specific pitch in a specific vocal style, there will be no resonance. Consequently, using another singing style or technique the vibrating air can be channelled to such a location within singer's body where the resonance can be realized. This kind of case is associated with the use of different vocal registers. It is noteworthy that it often happens to singers that they cannot raise the pitch level of their singing above a certain limit without having to change their vocal register (Laukkanen & Leino 1999, 44).

Singers can also take advantage of resonance. If a singer is able to utilize the specific pitch levels of his sound cavity, he will be able to produce a loud sound with less energy, because of the resonances strengthening the basic sound (cf. opera singing)[4]. This is also heard in the voice timbre or sound. This phenomenon is taken into account in the structures of acoustic musical instruments. Consequently, those partial tones that are not supported by resonance are bound to weaken. This is the reason why there are always peaks and valleys in the spectrum (ibid. 74–75). Using a specific technique, the sound cavity also assumes a specific form, which amplifies only those partial tones which are supported by the phenomenon of resonance. These partial tones and sonoric emphases are presented in the LTAS graph.

3. If a singer does not produce pitches that do not converge to his sound cavity, resonating pitches are not realized. This also happens when pronouncing unvoiced consonants (e. g. obstruents), because the glottis is open. Consequently, the sound cavity does not receive any air, which would be vibrating because of the glottal activity (Laukkanen & Leino 1999, 38; 87) and no resonance is produced. This is why it is usual in the analysis of singing and speech to concentrate on vowels or voiced consonants.
4. The resonance of the voice is utilized in many ways. The fundamental method is to "locate" sound in different parts of the body or to change the vocal register. This makes the voice sound or resonate, for example, in the head or chest.

About earlier studies

During the last 30 years there has been increasing interest in the acoustic research of singing. Primarily the research object has been singing in the European classical tradition, but lately other genres of vocal styles have been objects of sound research, like, for example, pop music (Fig. 1), jazz, blues (see e. g. Thalén & Sundberg 2001) and country (see Cleveland et al. 2001). Quite often these studies have adopted methods of speech analysis, using average spectra and spectrograms. The same methods have also been applied to studies in the vocal production of traditional singing (see Ross 1992; Lindestad et al. 2001; Mantere 2002; Kovačić et al. 2003).

In these studies it has been observed that there are certain properties in common in the graphs taken from the voices of professional vocalists, which are particularly associated with formants. Formants can be defined as strengthened zones of partial tones (Suomi 1990, 98) or realized resonating pitch levels of the sound cavity (Laukkanen & Leino 1999, 76). In Sundberg's (1980; 1987) studies there emerged the so-called singer's formant, which distinguishes itself as a strong emphasis in the average spectrum at about 3 kHz (Sundberg 1980, 86–89; 1987, 118–119). A so-called actor's formant has also been identified to approximate pitch level of 3.5 kHz (Laukkanen & Leino 1999, 171–175).

There are slight problems with the usage of the concept of formant. It is often used inaccurately also to signify the single peaks of the spectrum of the sound produced (Laukkanen & Leino 1999, 76). It is possible that this kind of usage can be explained by the fact that the studies in question belong in the discipline of voice research, which, in turn, is influenced by linguistic studies. In point of fact such single peaks represent rather a kind of emphasis in the spectrum than a formant. However, the concept is established in this context. (Sundberg 2004.) In phonetics the formants are presented beginning from the lowest one (F1, F2, F3 etc.), while the basic pitch is marked as F0 (Suomi 1990, 98).

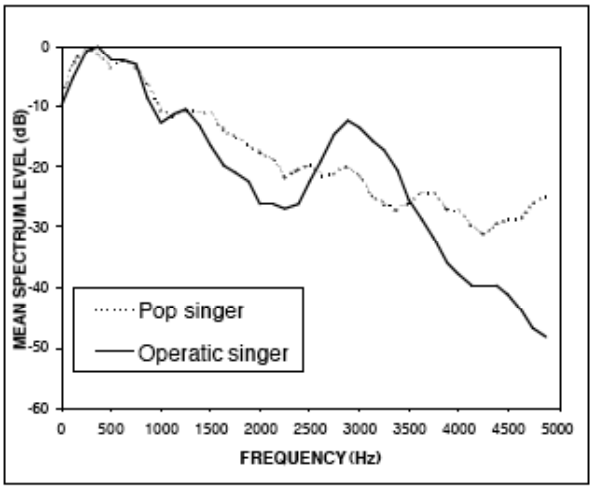


Fig. 1. LTAS of a pop singer and an operatic tenor who sang the same excerpt in the same key (Borch & Sundberg 2002, 33).

It is worth mentioning that all these emphases – formants – have their reason. First, they have appeared as a result of training and learning. Second, the training has had a distinct aim: to result in a voice production which is best suitable in a specific context of voice usage.

However, a substantially less studied area is the voice production of non-professional singers, especially folk singers. Studying traditional singing poses problems in the sense that the variety of different styles, substyles, cultures, subcultures etc. is enormous. On the other hand, it seems that the research of singing styles is still primarily associated with traditional methods of analysis, based on notated music materials, where the main interest is attached to analysing single tones. However, many singing styles are characterized by a specific overall timbre, which is usually left largely unnoticed in music analysis.

The quality and selection of the source material

The songs examined in the present article are from field materials recorded by the present author. The selection of these specific songs is a result of many things. First, analysing songs entails certain requirements of quality from the material and these are not always met in my materials. This has been one reason for selecting these specific songs. For example, it is often not possible to choose the best possible environment for recordings in the field. The overall timbre of the recordings is also influenced by the presence of other people in the recording situation and for this reason many recordings had to be excluded from the computer-aided analysis, since the computer cannot distinguish the analysed voice from others present. For this reason I made a preliminary qualitative analysis of the material and after that made the selection of materials best suited for the analysis. Thus, the qualitative prerequisites effect the selection of the material analysed. For example, this is the reason why the analysed material consists of unaccompanied singing, because the computer cannot distinguish the human voice from the accompanying instrument. On the other hand, it is possible to apply auditory analysis to the excluded material and compare the results to those made by computer analysis. This comparison is important throughout.

I started to study Veps songs from the perspective of individual performance. This is due to the prominent performance conventions: the songs are mostly sung alone. This is also one of the factors defining a singing style. On the other hand, even if the songs were sung ensemble, it would not be possible to analyse the voice production by examining the vocal sound of the group, at least this kind of analysis would be not very reliable. Yet the results of analyses of solo performances may be biased due to various psychological factors in the performance situation and they must be also considered in the final conclusions. First, some singers are inspired by the presence of other people: it is often the case that it is easier to sing with friends present. There were occasions in southern Veps when performers insisted on having their friends present during the singing.

When our fieldwork team visited the village of Haragl, we met a singer who agreed to sing in a private home during a village festivity. We asked her to sing the songs again at her home, in a more peaceful atmosphere suitable for successful recording. However, she had lost her mood for singing and did not want to perform her songs again. The presence of an audience may well have the effect that the performer needs to show she is able to sing well. Consequently, those criteria that are valued in a certain style are more clearly present, as for example singing with a great volume. From the standpoint of the quality of recording, the best situation is without extra people, but this may change the voice production of the performer substantially.

An important question in the selection of song data for analysis is whether the songs studied are supposed to be sung alone or in a group. The songs analysed here are usually performed alone, but I have heard them performed in a group as well. Studying unaccompanied soloistic singing I also have tried to take into account psychological factors effecting voice production. For example, if a song is usually performed *with* accompaniment, it may sound different *without* accompaniment. It seems to be likely for the singers performing in a conventional situation with accompanying instruments that their voice production is very pressed and the voice quality could be defined as shouting. The reason for this is often that in such performance situations the singers have to compete with the loudness of the accompanying instrument. When the singer performs the same song without an accompaniment, there is usually a change in the voice production. This may possibly be due to a learned, conventional and stylistically conforming way to perform certain kinds of songs. The accompanying instrument is usually an accordion or its Russian version, the *tal'yanka*, with its very loud sound, with which it is easy to cover the human voice.

Another notable factor in the field recordings is the recording environment, which usually cannot be optimised in all field work situations. Different indoor acoustics and the presence of other people have an affect on the overall performance sound and thus on sound production. These factors have psychological effects on the singers as well.

In my field recordings further problems are posed by the fact that I was not always able to control the distances of the microphones. It would have been an ideal situation if all the singers had sung from a standard distance (approx. 40 cm) into a standard microphone. For this reason, too, my field materials will not yield a fully reliable result, at least concerning the fluctuations in voice pressure.

I have chosen the sample songs for the analysis on the basis of subjective hearing analysis, which conforms to the criteria presented above: an unaccompanied performance, a recording of good quality, song performance in a conventional, traditional style. In addition, I wanted to select the sample so that it would contain samples from different Veps regions.

All the songs are sung by women. Their age range is between 60 and 80 years. This has an effect on the overall sound of the performances and it has to be taken into account in the final conclusion of the analysis results. On the other hand, the fairly homogenous age group of the performers may give an advantage in identifying the general characteristics of performance style.

Veps *lühüd pajo* songs

According to Rüütel (1990) and Salve (1998, 127), the Veps define their songs either as *pajo* 'songs proper' or as *voik* 'lament'. In my experience the Veps mostly define their songs as *lühüd* ('short') or *pitkä* ('long') *pajo*[5]. Salve adds that in modern Veps *pajo* means, in fact, *chastushka*[6]. In my field experience this has not always been entirely clear. In interviews with the singers I have encountered different definitions of the style genres and often these definitions have been

5. Note the etymological connection with the Veps *pajo* (pronounced *páyo*) 'song' to Russian *pet'* 'to sing'; *poyot* (pronounced *payót*) 'sings S3'.
6. *Chastushka* 'a small piece' (Russ.) improvised song form in Russian folk music (Editor's note).

confusing for me because of the semantic ambiguity and parallel use of the terms *lühüd pajo* and *chastushka*, especially when in reality the *lühüd pajo* is strongly reminiscent of the originally Russian *chastushka* in its auditive structure.

There is much variation in Veps *lühüd pajo* songs, because these songs are an oral tradition. This variation is not always stylistically intentional. A very important factor defining the style is the emotional content of the songs, which tends to change according to the performance situation. Because of the loose stylistic norms the songs are multifunctional and can be performed in various situations. The *lühüd pajo* songs are performed as children's lullabies, work songs or during festivities. The songs often have the same texts, but they are performed in different singing style, rhythm, tempo and volume. According to Sundberg (1987, 152), in a song, tempo and volume are controlled by emotion. Fear makes tempo slow down and voice softer. Anger raises tempo and volume.

I gained new insight with the question of style when I visited Mariya Semënovna Trishkina (b. 1927) with researchers from Petrozavodsk in Päzhjärvi, Vologda region in July 2003. She sang us a *lühüd pajo* which was used as a song for driving away bears. We discussed the song genre and asked her whether she would label the song as a *pitkä* or *lühüd pajo*. She replied it was a *lühüd pajo*. In addition, I asked whether it could have been called a *chastushka*. Trishkina, and also her son, joining in the discussion, did not agree with me, replying it was definitely a *lühüd pajo*, because of the length and tempo of the song. Thus these structural elements marked it as different from *chastushka*. Trishkina also identified the Veps language of the song particularly with the genre of *lühüd pajo*, but not *chastushka*. She also said that this song was performed during work (see Eerola 2003b, 104–105).

Improvisation is also often mentioned as a stylistic characteristic of the Veps *pajo* (Hakamies 1994, 80–81). In my opinion, the concept of improvisation is possibly not the point here, in which I agree with Saha (1996, 75), who speaks about improvisation in terms of idiosyncratic variation in the surface level of the musical structure.

For example, Makar'ev (1931, 33) has a description of the song performances of Veps men and women. According to him, during the *beseda* gatherings[7] usually "the boys and girls danced in silence, because they considered dancing with the accompaniment of singing as degrading". I have heard my informants telling, though, that men also used to sing in the old times. Some of these informants (women) even remembered the songs the men used to sing.

Still in the 1960s and in 1970s, singing was a part of everyday life in Veps villages. Songs were sung in fields during work, in the village street, at weddings and at various festivities. Nowadays it is only the oldest generation who can perform songs in Veps, especially the women. Most of my informants were able to sing *lühüd pajo* songs. However, very few could remember *pitkä pajo* songs. This is one reason why I have concentrated here on *lühüd pajo*. They are quite multifunctional songs and this property may in fact have been a crucial factor in their survival. Usually the singers have performed songs both in Russian and in Veps. Sometimes they can change the language even during the same song, sometimes the singers have intentionally sung the Veps couplets first and the Russian ones at the end. Sometimes Veps and Russian merge in a song into a mixed language, although this possibility often is a reflection of performers' difficulties in remembering Veps texts.

The textual contents of the songs are mostly associated with a woman's life. The song texts may tell about how a girl (usually the singer herself) was married to an unknown groom in an unknown family. Very often the textual themes touch upon humorous teasing songs in a dialogue between girls and boys. As an example, these songs may boast about the boys of the singers' own village and compare them with the "inferior" boys of the neighbouring village. In some songs there are often maxims for a young girl or suggestions about the arriving groom.

Maybe the most known *lühüd pajo* (Ex. 1.) tells about a boy and a girl. It is spring time because the cuckoo sings in a tree. The girl (*nietšukaine*) cries because her boyfriend or husband has to leave the home village. It is very ordinary among Veps that men have to leave the

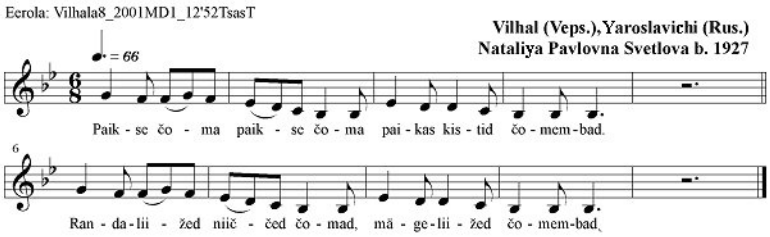
7. *Beseda* 'conversation' (Russ.) – an informal or festive gathering of people of the neighbourhood in traditional Russian village life. (Editor's note.)

villages and go for work in bigger towns. There may be other reasons too why the girl is crying and one is that the boy is leaving to join the army. So the song can be sung in different situations too. There are many variations of this song and here is one which was collected by Lauri Kettunen in 1935.

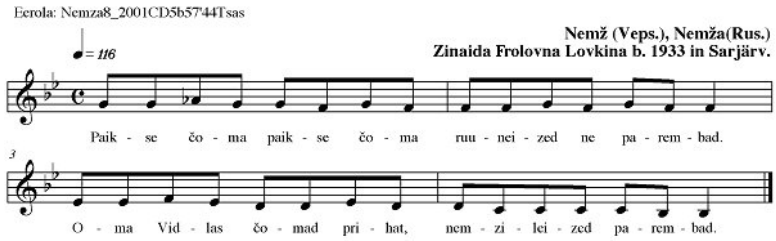
Kukku kukku kägoihut,	*Cuckoo, cuckoo little cuckoo,*
sures kuze ladvaižes,	*at the top of a tall spruce tree,*
voika voika neitšukaine,	*cry, cry little girl,*
tšomal prihal kaglaižes.	*on the neck of a handsome boy.*

Ex. 1. Song text example of a *lühüd pajo*. Village of Noidal/Noitala. Kettunen & Siro 1935, 140.

By their melodies, *lühüd pajo* songs divide into two groups: those of faster ones and those of slower, which are usually work songs. In songs of the faster type, the tempo varies (♩. = 70–140) and the meter is usually 4/4. In the work song type, the tempo is slower (♩. = 50–80) and the meter usually 3/4 or occasionally 6/8. See the following examples of these stylistic variants of *lühüd pajo* songs (Ex. 2. and Ex. 3.):



Ex. 2. Work song.



Ex. 3. Faster *lühud pajo.*

Prerequisites of the analysis

On the basis of the auditory analysis only it is possible to say that the songs of the faster *lühüd pajo* and work song style differ from each other. The voice production is also clearly different. In faster style the singing is much louder than in work song style, where the voice production is reminiscent of that of speech.

The auditory analysis is an obligatory initial phase for the computer analysis. However, it is not possible to present more detailed analytic results only by hearing, but on the other hand, the computer-aided analysis supports and possibly helps to explain the results of the hearing analysis. It is possible that the analyst's interpretative framework changes after seeing graphs from the computer analysis (see e. g. Mantere 2002, 75) or examining them simultaneously with hearing. For example, a small and subtle vibrato may be perceptible only in the graphs made with the computer.

With the analysis I shall search for explanations for differences in the voice production in these two singing styles. How do the singers arrive at the tones or how do they perform them? What effects are used in the songs? I have defined no sound features in advance to be analysed from the material. Instead I shall examine the voice production of the songs directly with the LTAS graphs (see e. g. Kovačić et al. 2003, 5).

The range for the lengths of the songs is from 30 seconds to two minutes. Making an LTAS graph requires a coherent passage of recording for at least one minute in order to disperse the effect of single vocal sounds (Laukkanen & Leino 1999, 170). For this, some examples are slightly too short. However, I believe that the short duration does not substantially affect the results of these songs. I have added an additional trend line to the graphs, showing the curves in the graphs. In these I have used settings of 600–6000 Hz. I have used the computer program called Praat, which calculates the audio signal with the method of Fast Fourier Transform.

All the graphs were produced with the program PRAAT v5.0.03, meant for speech studies and developed by Paul Boersma and David Weenink (see http://www.praat.com). In the LTAS graphs I have used a pitch band of 200 Hz. If the value had been greater, the graphs would have assumed a "rounder" form and the single peaks would have been flattened. As I tested different values I found that with values greater than 300 Hz the graph result seemed too "round". On the other hand, values below 100 Hz would have been too detailed. LTAS with a ratio of 1:1 was substantially slower to count and draw and I deemed it unsuitable in the absence of any relevant information. In speech analysis a (large scale) pitch band of 0–5000 Hz is common, because partial tones exceeding the upper limit are usually already too weak. The partial tones are usually considered to reflect singer's individual voice timbre. As I wanted to examine this also, I decided to make the (large scale) pitch band graphs with the limits of 0–8000 Hz, after several preliminary experimentations, as in many songs there were pitches and emphases in many songs that exceeded 5000 Hz.

The LTAS and spectrogram graphs of the songs

I made a preliminary grouping for the songs according to the description or definition of the informants. On this basis I selected 13 *lühüd pajo* songs. Of these, nine are faster *lühüd pajo* and four work songs. The examples were chosen to represent different Veps regions: the central and southern Veps (Leningrad region) and eastern Veps (Vologda region) (see Heikkinen & Mullova 1994, 10–12).

I chose a representative sample of the songs (Fig. 1–13) so that the energy concentrations, i. e. formants would emerge in the graphs more clearly. Namely, the formants are not necessarily seen directly from the spectra, but their locations and pitches must be estimated. The formants are more easily discernible in a spectrogram with a wide pitch range. However, the overall shape of the graph together with the points of emphasis are the most relevant features.

The LTAS graphs are on the left and the wide range spectrograms on the right.

Faster lühüd pajos:

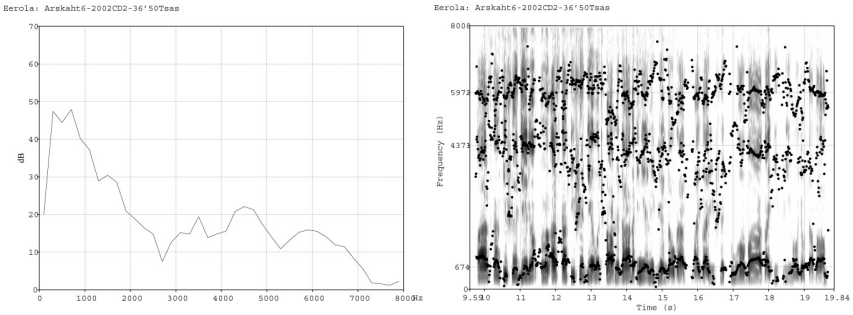


Fig. 1. Roza Nikolaevna Veselova, b. 1935, Arshkaht' (Russ. Radogoshcha). Recorded in Arshkaht' 3.6.2002 by Jari Eerola. Eerola: Arskaht6_2002CD2_36'50Tsa

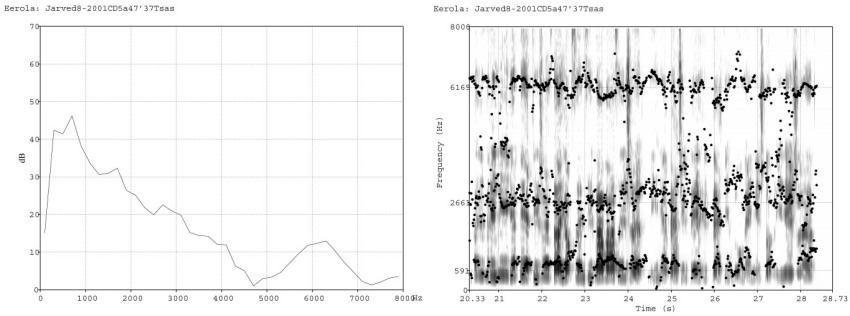


Fig. 2. Evgeniya Stepanovna Maksimova, b. 1941, Järved (Russ. Ozëra). Recorded in Järved 23.08.2001 by Jari Eerola. Eerola: Järved8_2001 CD5a47'37Tsas.

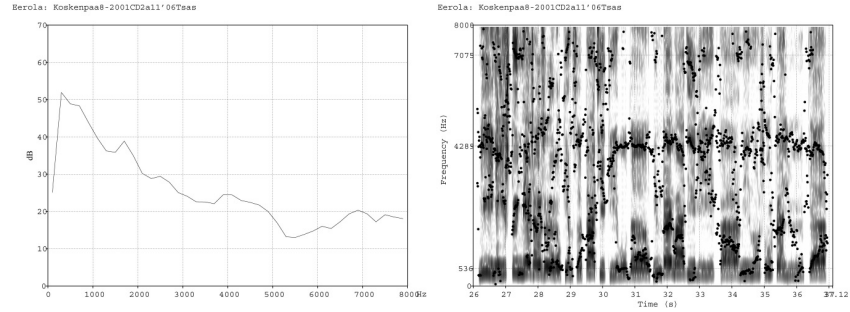


Fig. 3. Anna Aref'evna Shul'gina, b. 1941, Koskenpää (Russ. Nadporozh'e). Recorded in Koskenpää 9.8.2000 by Jari Eerola. Eerola: Koskenpää8-2000CD2a11'06Tsas.

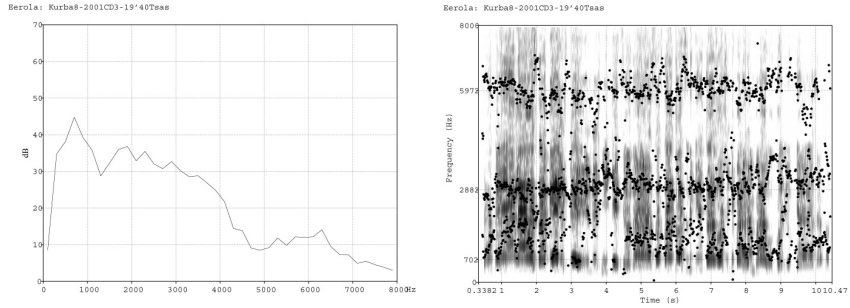


Fig. 4. Anna Ivanovna Tsaretskaya, b. 1931, Kurba (Russ. Kurba). Recorded in Kurba 22.08.2001 by Jari Eerola. Eerola: Kurba8-2001CD3-19'40Tsas.

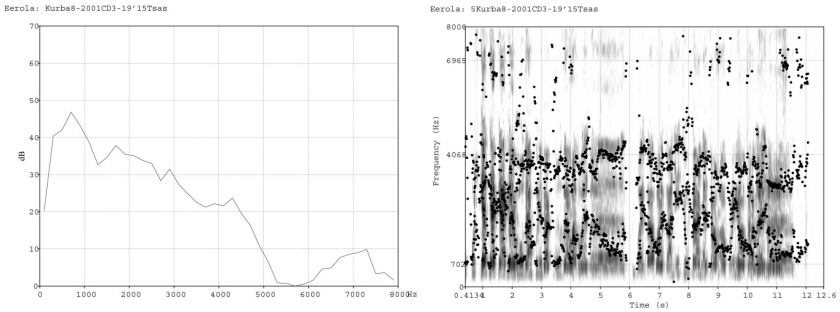


Fig. 5. Mariya Petrovna Andreeva, b. 1916, Kurba (Russ. Kurba). Recorded in Kurba 22.08.2001 by Jari Eerola. Eerola: Kurba8-2001CD3-19'15Tsas.

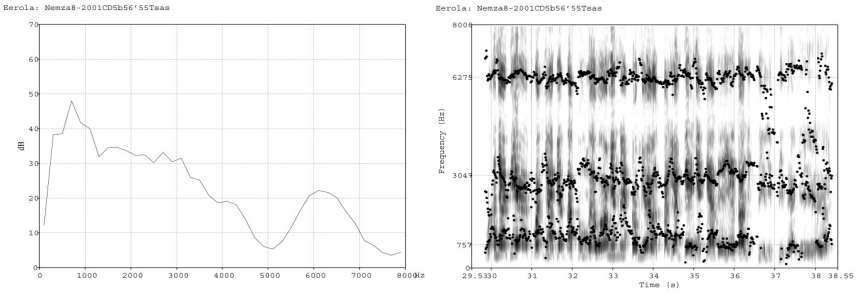


Fig. 6. Zinaida Frolovna Lovkina, b. 1933, Nemzh (Russ. Nemzha). Recorded in Nemzh 25.08.2001 by Jari Eerola. Eerola: Nemza8-2001CD5b56'55Tsas.

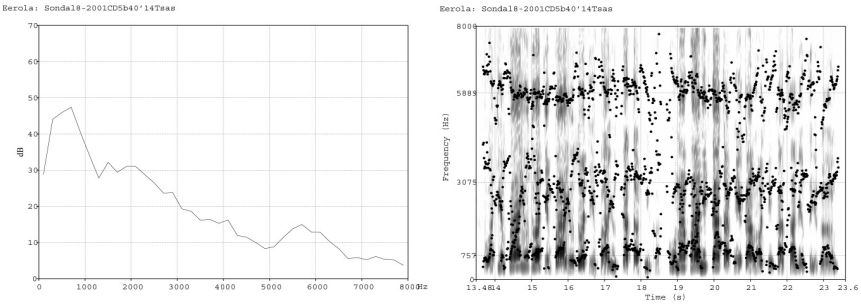


Fig. 7. Lidiya Nikolaevna Lukina, b.1934, Sondal (Russ. Shondovichi). Recorded in Sondal 25.08.2001 by Jari Eerola. Eerola: Sondal8-2001CD5b40'14Tsas.

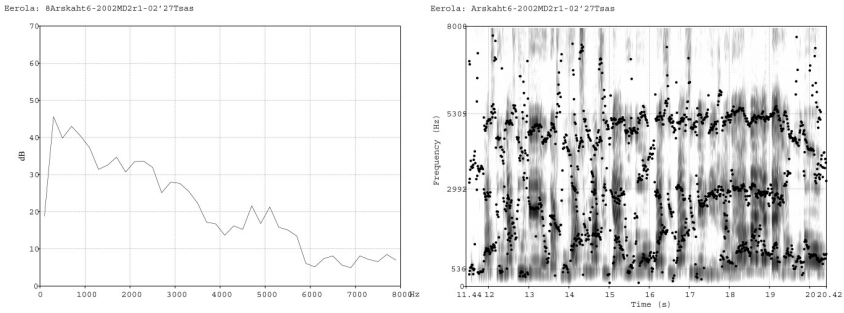


Fig. 8. Lyudmila Vasil'evna Semechkina, b. 1952, Arshkaht' (Russ. Radogoshcha). Recorded in Arshkaht' 3.6.2002 by Jari Eerola. Eerola: Arskaht6_2002MD2r1_02'27Tsas.

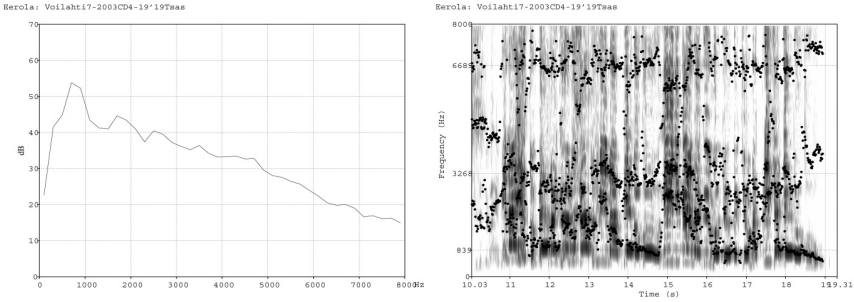


Fig. 9. Valentina Pavlovna Eraticheva, b. 1927, Voilaht (Russ. Voylakhta). Recorded in Voilaht 5.7.2003 by Jari Eerola. Eerola: Voilahti7-2003CD4-19'19Tsas.aif

Lühüd pajo songs of work song type:

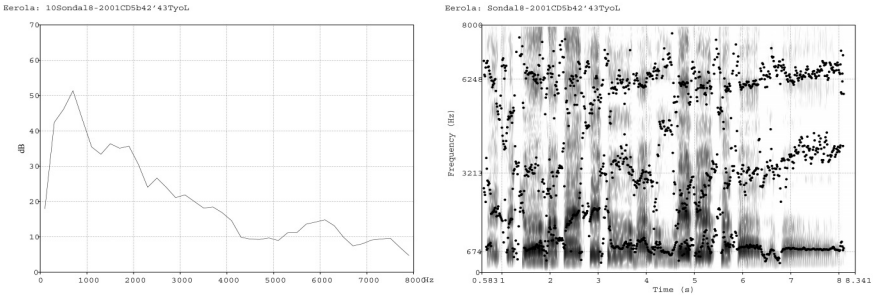


Fig. 10. Lidiya Nikolaevna Lukina, b. 1934, Sondal (Russ. Shondovichi). Recorded in Sondal 25.08.2001 by Jari Eerola. Eerola: 10Sondal8-2001CD5b42'43Työ.

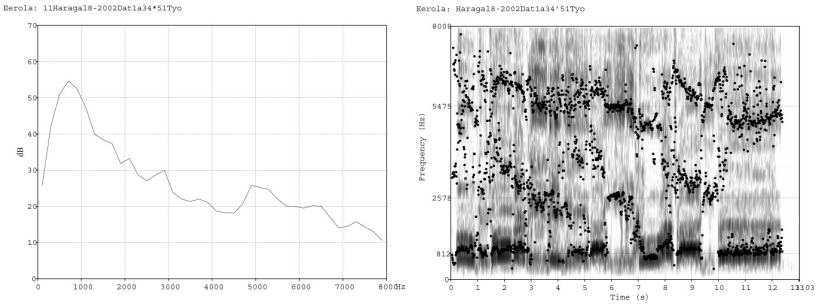


Fig. 11. Antonina Osipovna Bogdanova, b. 1932, Haragl (Russ. Kharagenichi). Recorded in Haragl 27.8.2002 by Jari Eerola. Eerola: Haragal8-2002 Dat1a34'51Tyo.

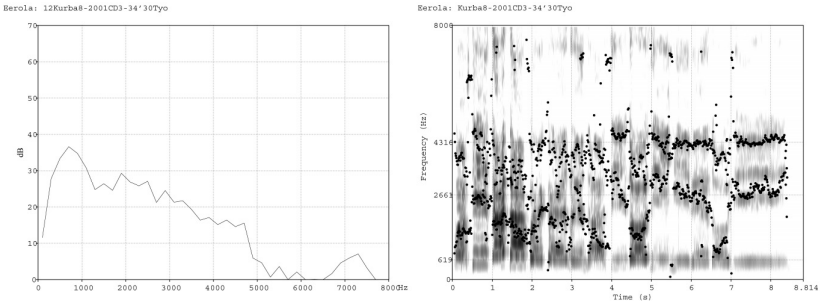


Fig. 12. Mariya Petrovna Andreeva, b. 1916, Kurba (Russ. Kurba). Recorded in Kurba 22.08.2001 by Jari Eerola. Eerola: Kurba8-2001CD3-34'30Työ.

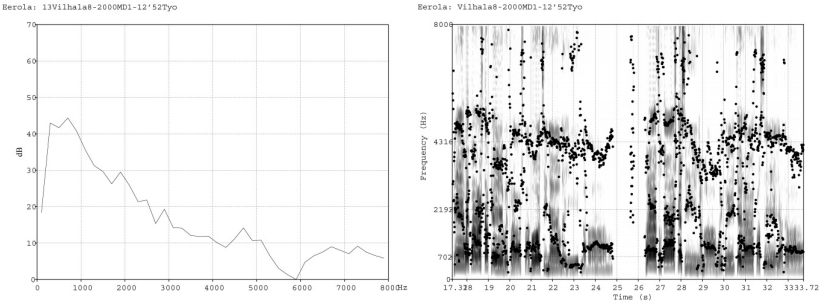


Fig. 13. Nataliya Pavlovna Svetlova, b. 1927, Vilhal (Russ. Yaroslavichi). Recorded in Vilhal 6.8.2000 by Jari Eerola. Eerola: Vilhala8-2000MD1-12'52Tyo.

In both song styles the strongest peak in the spectra is located in around 400–1000 Hz. In the faster *lühüd pajo* style, pitches following this pitch range die away more slowly and the graph is not so steep as in the work songs. In the faster *lühüd pajos* there are also a clear energy concentration at about 500 Hz to 3000–4000 Hz. This can be seen in the spectrogram as a dark region indicating that the lower partial tones gain more energy – most clearly in Fig 4, 5, 6, 8 and 9. It is possible that the stronger voice production and pressure raises the pitches of the formants (Mantere 2002, 54; see also the spectrograms).

According to the auditory analysis, there is less "metallic" and more "creaky" sound in the timbre of the faster *lühüd pajos*. These timbres can also be described as tense and pressed and are probably due to raising of the larynx. In the graphs this is reflected in the relationship of the basic pitch level (the first peak in the graph) to the following peaks.

Singing with open mouth tends to halve the distance between formants, which, in turn, increases loudness. In the faster *lühüd pajo* style, the singers sang comparatively loudly, they had a clear articulation with the mouth fully open. In the graphs this is shown in the emphasis of the first pitch zones.

The curve of the spectrum is also connected with the relationship of the voice and its sonoric background. A steep curve is a reflection of the merging of the voice into its sonoric background (Laukkanen & Leino 1999, 176). In all songs of the faster *lühüd pajo* style, the curve is weaker than in the work songs. It is the purpose for a faster *lühüd pajo* to stand out from its background, whether it consists of sound from the accompanying instrument or from the voices of the audience. This kind of vocal sound is specifically intended to catch the attention of the audience. It is therefore natural that the faster *lühüd pajos* are rather performed alone, whereas the work songs are often performed in a group.

There is a marked emphasis in the spectra around 6000–7000 Hz. This emphasis is most marked in the faster *lühüd pajo* style in Fig. 6, but also in Fig. 2 and Fig. 5. There were similar emphases in Mantere's (2002, 53–54) analysis materials on the traditional singing

of the western Russians. Mantere concluded that this was due to the pressed vocal quality which lead to emphasis of pitch level above 5000 Hz. On the basis of earlier studies, the highest formants of the spectrum result rather from the individual physical formation of the performer's sound cavity and this is why the highest formants are interpreted as having more effect on the vocal timbre than on the vocal quality. In any case, this emphasis is discernible in the spectra of every singer analysed here. Furthermore, the sample of these singers was also homogenous regarding the factors of social environment, age group, sex and singing styles used. There was crack or rasp in many singers' voices due to exhaustion of the voice (especially in Fig. 6, sung by Z. F. Lovkina). The cracky vocal sound is not, in my opinion, intentional, and thus it has to be excluded from the description of the vocal style.

For the sake of comparison, I made a sum average spectrum from both singing styles. This spectrum combines average values of all the LTAS graphs from both styles. The spectra show how the summed average styles differ from each other (Fig. 14).

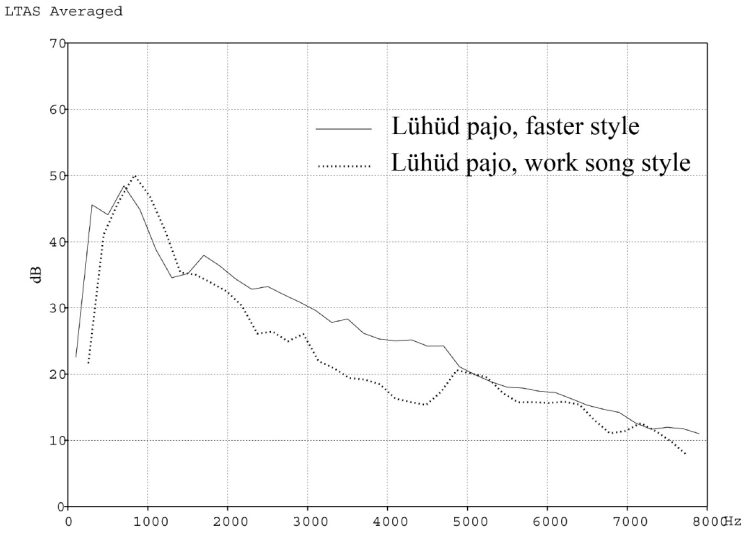


Fig. 14. LTAS averaged, sum of LTAS spectra of both *lühüd pajo* styles.

The differences between these two singing styles are most clearly seen between 1500 and 5000 Hz. In the faster *lühüd pajo* style, the pitch region of the basic pitch zone gains less energy than in the work songs. This may be caused by more pressed quality of the vocal production, as also indicated by relationship between the energy peak around 1000–2000 Hz and the highest peak. The smaller the inclination of the peaks, the less pressing in the voice (Mantere 2002, 65).

Comparing song and speech leads to similar conclusions: in a song the curve of the spectrum is less steep and the partial tones are stronger (Laukkanen & Leino 1999, 174). The style of the work songs is, indeed, closer to speech sound.

Discussion on the results of the spectral analyses

It was interesting to observe that the graphs were quite similar in Mantere's (2002, 52–62) analysis. The graphs of Veps faster *lühüd pajo* style are reminiscent of those made from cattle calls of Swedish Dalarna, whereas the graphs of Veps work songs are reminiscent of traditional songs from western Russia. Similar graphs can be found in other studies as well. For example, Kovačić, Boersman and Domitrović (2003) compared two singing styles, the Croatian *klapa* and *dozivački*. In the *dozivački* style, where voice production is reminiscent of shouting, there were similar emphases in the spectra than in the Veps faster *lühüd pajo* style. Furthermore, the curves and emphases were similar. They likewise found no singers' (3000 Hz), speakers' (3000–5000 Hz) or actors' (3500 Hz) formants, as were found in earlier studies of speech and song (Laukkanen & Leino 1999, 170–176). Consequently, they suggest that in the acoustic studies of speech a kind of shouters' formant should also be included. They consider it possible that the voice production of traditional singing style is based largely on other factors than on those associated with the ways professional singers or orators control their voices.

A characteristic in common in the faster *lühüd pajo* style and the phenomenon of the singer's formant is that both are motivated by a strong sounding and distinct voice quality. The singer's formant is, thus, evolved for the purpose of voice production audible over the sound of the accompanying musical instruments.

The differences between the graphs of the *same* singing style are due to various reasons. One factor is connected with the performer's individual competence within the style in question. This competence is naturally defined and evaluated by the norms of the society in question. Another factor is how the members of the society define the competence and reputation of a singer (Virtanen 1968, 8–15). This has an effect on the formation of a style as normative and an object for imitation. Most of the singers presented here represent that category of singers. This is also reflected in the spectra, where there are many features in common within a singing style.

The description of the voice timbre in a singing style contains some factors causing bias. The resonating pitches are dependent on individual physical structures of sound cavities. The voice timbre and quality are dependent on how a performer uses his/her voice. Aging brings loosening of the muscles as well as loosening of the vocal folds. This results in extra resonances, which are possibly those reflected in the emphasis at 6000 Hz (see Fig. 6). The deterioration of muscular and overall physical condition accompanies aging. There may be songs, which require great physical exertion and the faster *lühüd pajos* seem to be such songs. In my fieldwork I have observed how the singers have been exhausted after their performances. Furthermore, some of them may not be able to perform in the way they used to do, the way in which they still remember the songs were performed. As regards a singing style, it is important to consider these things in the analysis of the voice timbre. If, for example, a sample consists of singers of various age groups, the results may be biased.

Examination of the songs using spectrograms

For the spectrogram analysis I chose two songs from each of the style groups mentioned above. The first song, a *lühüd pajo* reminiscent of the faster *lühüd pajo* type was recorded in the village of Voilahti (Vologda region), among the eastern Veps (Fig. 15). The song was performed by Valentina Pavlovna Erotiseva (b. 1927). Her voice production results in a strong, pressed voice, reminiscent of shouting. In a narrow-band spectrogram it is possible to discern the partial tones from the songs and examine the actual way the voice is used there.

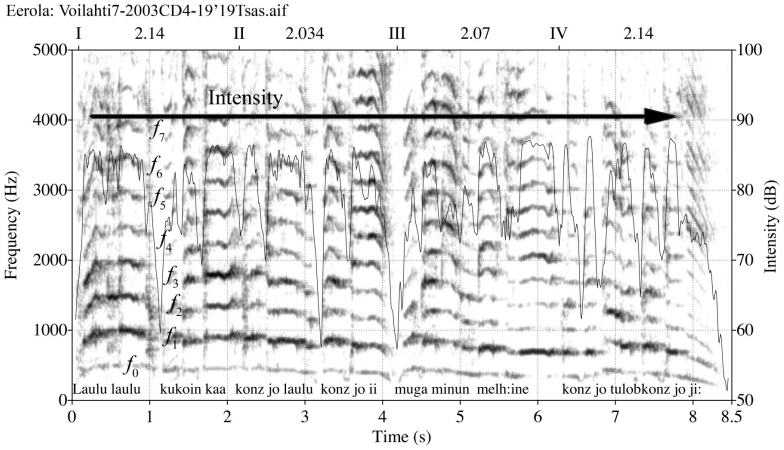


Fig. 15. Faster *lühüd pajo* style. Performed by V. P. Eraticheva, b. 1927, village of Voilaht (Russ. Voylakhta). Recorded in Voilaht, 5.7.2003 by Jari Eerola. Eerola: Voilahti7-2003CD4-19'19Tsas.aif.

The vertical axis of the graph shows pitches (Hz, left), intensity[8] (dB, right), the horizontal axis (below) shows duration (seconds) and the location of every other barline (of 4/4 metre). The value between the

8. Intensity is the acoustic analogy for the concept of stress, defined in everyday usage as loudness. Intensity reflects the strength of the signal, while amplitude shows the amount of air pressure in a given time unit.

Roman numbers there shows the duration of two bars. The graph shows how the basic pitch level (*f*0) gains only a small amount of energy (the lowest line in the graph). By contrast, the first, second and third partials are very well emphasized, likewise, to some extent, the fifth, sixth and seventh partials[9]. The graph also shows a strong region around 1.8 sec and at 2000 Hz, where the singer prononunces a syllable "*-kaa*".

The singer moreover sang with exceptional force, with almost a physical effect on my ears. This may have been due to her technique, where the resonating pitches coincided well with the resonance pitches of her voice cavity, thus strenghtening her voice. This way, the singer can be thought to have achieved an ideal way of voice production. The weak basic tone level reflects a pressed voice. The strong pressure of the voice is also reflected in the overall stability of the intensity level of the voice. Examining the performance on the video demonstrates how the singer uses her abdomen in order to have a good muscular support for her voice. This also results in the pressure well heard in the singing voice. Perhaps this is why the performance was a physically demanding task for the singer, although the duration of the verses was only some ten seconds.

Professional singers and teachers of singing use the concept of "support", referring to characteristics of "good" singing voice and its prerequisites. Support is defined as "intentional slowing down of exhalation" and is thus associated with control of breath during pronunciation with coordination of the breathing muscles and throat. (Laukkanen & Leino 1999, 30).

In the second example (Fig. 16) there is no vibrato, or no other voice effects. The words are pronounced with a strong separation, which is reflected in sharp little drops in the graph showing intensity. At the end there is a sharp decrease in the intensity. At this point in

9. There are differences in registering the partial tones. Usually a pitch is symbolized with *f*, but there are different conventions in marking the subindices of the basic pitch level. Sometimes the basic pitch is marked as *f*1 (Rossing 1990, 28) and especially in the field of phonetics and vocology with *f*0. I have conformed with the latter usage and I shall mark the basic pitch level as *f*0 and correspondingly the partial tones as *f*1, *f*2 etc. (see, e. g. Fig. 4.).

the song there is a kind of noise mark, which corresponds to a kind of sighing sound. Possibly this is a reflection of a local style, because I have not observed it among the central or southern Veps. The conclusion of the graph also shows how the basic tonal level bends together with the other partial tones. At this point it is impossible to identify the melodic progression.

The third example is a work song recorded in the village of Haragl in 2002 (Fig. 17). The performer was Antonina Bogdanova, who was in her sixties. She was from the neighbouring village of Jogenz (Russ. Ust'-Kapsa). This example is interesting in the sense that she sang the first two verses in Russian but then changed into Veps. She planned to sing the whole song in Veps, but accidentally began the song in Russian.

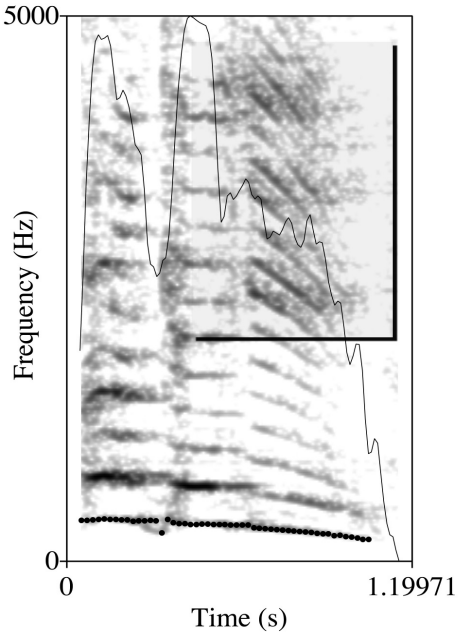


Fig. 16. A local way of concluding a faster *lühüd pajo*.

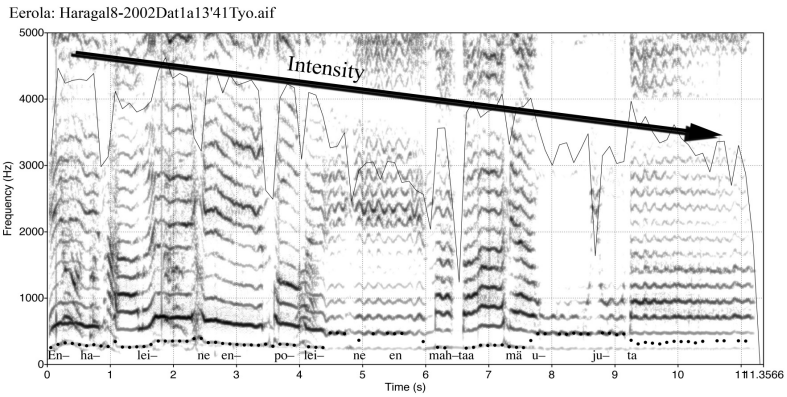


Fig. 17. Work song. Performed by Antonina Osipovna Bogdanova, b. 1932, village of Haragl (Russ. Kharagenichi). Recorded in Haragl 27.8.2002 by Jari Eerola. Eerola: Haragal8-2002Dat1a34'51Tyo.

The figure shows the spectrogram made from the work song. There is a remarkable difference from the previous song. The intensity decreases steadily towards the end of the song. The intensity line does not show such dramatic drops as in the faster *lühüd pajo* style. In the work song the tones are tightly woven together and a vibrato is also discernible in the voice. There were also slightly more little nuances in the melodic movement of the song. The intense binding of the words or syllables also has its effect on the overall vocal sound, because usually it is possible to stretch only vowels or voiced consonants. The vibrato moreover adds to the original flavour of the sound. The vibrato is modest here, but persists throughout the song in places where it is possible to sing with vibrato. These sections can be found especially in the border areas of the melodic lines (around 5 sec and 8–10 sec) and at the end. One of the stylistical peculiarities of this singing style is the maximal elongation of the final syllable (depending on the air capacity of the lungs). This elongation often makes the border area of the melodic lines of undefinable length. This kind of durational freedom is possible in the absence of accompanying instruments that may have had a controlling effect to the pulse of the song.

In this example, too, the region of the basic tonal level gains only a small amount of energy. The second and the third partials are most strongly emphasized. The higher partials weaken steadily. This was also shown as a slow descent of the spectral graphs.

Conclusion

In almost all the faster *lühüd pajos*, the voice quality can be described as pressed. Otherwise, timbre description is more difficult. The pressed voice is reflected in the graph as the weak position of the basic tone and in the emphasis of the nearest higher partials, whereas in a normal (speech) sound the basic tone and the upper tone are relatively strong. (Laukkanen & Leino 1999, 163.) The pharynx of a non-professional singer easily rises together with the pitch and the vocal folds collide with excessive force, which increases the pressure on the voice. On the other hand, this can be seen as a natural way of producing higher pitches. (Mantere 2002, 20–21.) According to Laukkanen and Leino (1999, 56) a metallic timbre is also associated with pressed voice. However, I did not observe this in these examples. Perhaps the singers could no longer achieve the pressure they could formerly achieve. I would describe the quality of their pressed sound as some kind of piercing hollow sound.

There was some sort of rasp, crack or hoarseness in the voices of all the singers, which may be due to their high age. Only two singers sang in a standing position (examples from Voilahti and Nemzha), while the others sang sitting in a chair. This may also have had an effect on the result, since those who sat could not achieve the full extent of voice production. Thus it is difficult to estimate how the different registers used by the singers differ from each other. With some examples it is possible to clarify this by examining the video recording of the performance.

The work songs are clearly calmer in nature. It is as if they reflect the overall nature of hard work. The voice production reminiscent of speech seems to be a reflection of the fact that it is not essential for the individual to be discerned or heard in these songs. On the other hand, this tells about the context of use or performance. There were no accompanying instruments available during the performance and everybody joined in the singing.

Singing, like other learned behaviour, contains internal references about how to do it "right". Different societies have different criteria for singing well and for who can be deemed as a good singer. These criteria are the fundament on which evolve different ways and stylistical norms of singing.

I divided the songs into stylistic genres largely depending on the use of the songs. It is also possible that in the past there was only one style or way of singing the *lühüd pajo* songs. Both the faster *lühüd pajo* and the work song style of singing are still called *lühüd pajo* songs. They have in common only the song texts and metrical basic structures (see Eerola 2003b). The social group may also have adopted new foreign influences and they may have started to perform their songs in a new manner and gradually new stylistical forms evolved according to different contexts of performance.

Literal sources

Cleveland, Thomas F., Sundberg, Johan & Stone, R. E. 2001. Long-term average spectrum characteristics of country singers during speaking and singing. *Journal of Voice*, v*ol 15, no. 1*, pp. 54–60.

Eerola, Jari 2003a. Laulujen kuvaajat. Spektrianalyysiohjelmat kansanlaulujen tutkimisen apuvälineinä [Song graphs. Programs for spectral analysis as an aid in folk song research]. *Musiikin suunta 3/2003*, pp. 33–44.

Eerola, Jari 2003b. Vepsäläisten lyhyiden pajojen metrinen malli ja sen toteutus. [The metrical model of the Veps lühüd pajo and its realisation] *Etnomusikologian vuosikirja 14*, ed. Antti-Ville Kärjä. Helsinki: Suomen etnomusikologinen seura. Pp. 101–130.

Dodge, Charles and Jerse, Thomas A. 1997. *Computer music. Synthesis, composition, and performance*. Second edition. Macmillan: New York.

Hakamies, Pekka 1994. Vepsäläisten suullisesta perinteestä [About Veps oral folklore]. *Vepsäläiset. Vepsäläiset tutuiksi. Kirjoituksia vepsäläisten kulttuurista [The Veps. Getting to know the Veps. Writing on the culture of the Veps]*, eds. Kaija Heikkinen & Irma Mullonen. Joensuu: Joensuun yliopisto. Pp. 73–86.

Heikkinen, Kaija & Mullonen, Irma 1994. Esipuhe. *Vepsäläiset [Foreword. The Veps]. Vepsäläiset tutuiksi. Kirjoituksia vepsäläisten kulttuurista [The Veps. Getting to know the Veps. Writing on the culture of the Veps]*, eds. Kaija Heikkinen & Irma Mullonen. Joensuu: Joensuun yliopisto. Pp. 10–12.

Hemsley, Thomas 1998. *Singing and imagination. A human approach to a great musical tradition*. New York: Oxford University Press.

Karlsson, Fred 2003. *Yleinen kielitiede [General linguistics]*. Revised edition. Helsinki: Yliopistopaino.

Kettunen, Lauri & Siro, Paavo 1935. *Näytteitä vepsän murteista [Samples of Veps dialects]*. Helsinki: SKS.

Kovačić, Gordana & Boersma, Paul & Domitrović, Hrvoje 2003. Long-term average spectra in professional folk singing voices: a comparison of the Klapa and Dozivački styles (ks. http://www.fon.hum.uva.nl/paul/papers/CroatianFolk_IFA25.pdf, downloaded 16.4.2004). *IFA Proceedings* 25, ed. E. H. Berkman. Amsterdam: University of Amsterdam. Pp. 53–64.

Laukkanen, Anne-Maria & Leino, Timo 1999. *Ihmeellinen ihmisääni. Äänenkäytön ja puhetekniikan perusteet, arviointi, mittaaminen ja kehittäminen [The wonderful human voice. The basics, assessment, measurement and development of voice usage and speech technique]*. Helsinki: Gaudeamus.

Lindestad, Per-Åke, Södersten, Maria, Merker, Björn & Granqvist, Svante 2001. Voice source characteristics in Mongolian 'throat singing' studied with high-speed imaging technique, acoustic spectra, and inverse filtering. *Journal of Voice, vol. 15, no. 1*, pp. 78–85.

Lomax, Alan 1968. *Folk song style and culture*. New Brunswick, NJ: Transaction publishers.

Makarjev, S. 1931. *Vepsäläiset. Lyhyt kansatieteellinen kuvaus [The Veps. A concise ethnographic description]*. Leningrad.

Mantere, Elina 2002. *Äänenlaatu neljässä perinteisessä laulutyylissä [Voice quality in four traditional singing styles]*. Unpublished master's thesis. Tampereen yliopisto, musiikintutkimuksen laitos.

Niemi, Jarkko & Jouste, Marko 2003. Teesejä pohjoisen laulun analyysiin: tarkastelussa nenetsit ja saamelaiset [Theses on the analysis of northern singing: the Nenets and the Sami under scrutiny]. *Etnomusikologian vuosikirja 14*, ed. Antti-Ville Kärjä. Helsinki: Suomen etnomusikologinen seura. Pp. 161–209.

Ross, Jaan 1992. Formant frequencies in Estonian folk singing. *The Journal of the Acoustical Society of America, vol. 91, no. 6*, pp. 3532–3539.

Rossing, D. Thomas 1990. *The science of sound*. Second edition. Reading (Mass.):Addison-Wesley.

Rüütel, Ingrid 1990. Vepsäläinen kansanmusiikki [Veps traditional music]. *Kansanmusiikki 3/1990*, pp. 30–32.

Saha, Hannu 1996. *Kansanmusiikin tyyli ja muuntelu [The style and variation in traditional music]*. Kaustinen: Kansanmusiikki-instituutti.

Salavuo, Miikka, Toiviainen, Petri & Välimäki, Vesa 2003. Teknologia musiikintutkimuksessa [Technology in music research]. *Johdatus musiikintutkimukseen [Introduction to music research]*, eds. Tuomas Eerola, Jukka Louhivuori & Pirkko Moisala. Helsinki: Suomen Musiikkitieteellinen Seura. Pp. 327–336.

Salve, Kristi 1998. Vepsäläisten kansallisesta identiteetistä [On the Veps national identity]. *Ison karhun jälkeläiset. Perinne ja etninen identiteetti yhteiskunnallisessa murroksessa [The descendants of the Great Bear. Tradition and ethnic identity in social transformation]*. Ed. Pekka Hakamies. Helsinki: SKS. Pp. 119–140.

Saukkonen, Pauli 1984. *Mistä tyyli syntyy [Where does style come from]?* Juva: WSOY.

Slawson, Wayne 1985. *Sound color*. Berkeley: The University of California Press.

Sundberg, Johan 1980. *Röstlära. Fakta om rösten i tal och sång*. Stockholm: Proprius.

Sundberg, Johan 1987. *The science of the singing voice*. DeKalb, IL: Northern Illinois University Press.

Sundberg, Johan 2004. *My research on the singing voice from a rear-view-mirror perspective*. Voice Research Centre. Department of Speech Music Hearing, KTH, Stockholm (ks. http://www.med.rug.nl/pas/conf_contrib/Sundberg/Sundberg/Sundberg_bio_touch_Groningen+figures.html, luettu 18.4.2004).

Suomi, Kari 1990. *Johdatusta puheen akustiikkaan [Introduction to speech acoustics]*. Publications of the Dept. of Logopedics and Phonetics no. 4. Oulu: University of Oulu.

Thalén, Margareta & Sundberg, Johan 2001. Describing different styles of singing: a comparison of a female singer's voice source in 'Classical', 'Pop', 'Jazz' and 'Blues'. *Logopedics Phoniatrics Vocology 26: 2*, pp. 82–93.

Virtanen, Leea 1968. *Kalevalainen laulutapa Karjalassa [The Kalevalaic singing style in Karelia]*. Helsinki: SKS.

Zangger, Borch Daniel & Sundberg, Johan 2002. Spectral distribution of solo voice and accompaniment in pop music. *Speech, Music and Hearing, vol. 43*. Stockholm: KTH. Pp. 31–35.

Analysis of timbres in ethnomusicology: the articulatory tension and its acoustical correlates[1]

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Problems in description of vocal timbres in ethnomusicology

For quite a long time – at least from the beginning of the 20th century – it has been clear that the accurate fixation of vocal timbres is crucially important in the study of traditional music. Indeed, in many cultures vocal traditions can be found in which particularly the play of timbres leads to the completion of that musical shape, which at a general level is characterised by other expressive means. Examples of these are the North Russian laments or song, epic and ritual traditions of northern Asia and many others.

Inasmuch as timbre, as a subjectively perceived property of sound, correlates with an objective acoustic character – the spectrum, the experiments were initiated for a description of vocal timbres on the basis of the corresponding spectra, simultaneously with the development of machines capable of describing the spectral composition of sound. These experiments became especially purposeful after the popularisation of personal computers, with the help of which the study of sound spectra became dramatically easier and more convenient. The alterna-

1. This work was accomplished with the support of the Russian Foundation of Fundamental Research (RFBI), grant 01-06-80389.

tive approach, connected with various instrumental methods defining the position of the speech organs – such as palatography, myography etc. – did not become widely distributed in ethnomusicology because of notable distortions of the timbres, when sonds were placed in the vocal-speech channel, while the application of computer tomography, which is the most effective of the instrumental methods, was substantially limited due to radiation safety requirements.

Usually, following the example of experimental phonetics, the timbre of a sound is determined with formant analysis, where the pitch zones with the maximal sound energy are selected (Kent & Read 1992). It has to be emphasised, however, that sung sounds, not articulated, in many cases differ only slightly from each other in their formant distinctions. Moreover, the spectrum of sound gives no clues of the articulatory mechanism used to produce the sound. Finally, the spectra of sounds with different timbral colour differ from each other in many numeric parameters, which have no clear-cut articulatory, and therefore, culturological interpretations. This creates substantial problems in establishing the distinctive characteristics of the system of timbres appropriate to the culture studied.

With the aim of removing these obstacles, at the beginning of the 1990's I proposed an articulatory classification of vocal sound phenomena characteristic for a wide array of ethnomusicological traditions, primarily of Europe and Asia (Mazepus 1995). This classification is a summary and a substantial extension of the classificatory scheme, developed (and having been developed up to today) in phonetics, and based on the identification of the positions and movements of the speech organs: vocal cords, different zones of the pharynx, uvula, tongue etc. This articulatory classification has clearly shown its efficiency all the way: it was successfully applied in the description of the articulatory and timbral phenomena of some musical cultures in Siberia (see e. g. Skvortsova 2001) and in its context were established articulatory mechanisms of several quite original phenomena found in the intonational cultures of northern Asia, China and Japan. An example is the epic singing style of the southern Altayans, the *kay*, which also has close parallels with that

of other Siberian peoples. Furthermore, this classification was complemented with a comprehensive system of notation of the timbres, in the framework of the traditional staff notation (Mazepus 1998).

At present, when the articulatory classification of ethnomusicological vocal timbres has been largely established and successfully applied, establishing also acoustic, i. e. objective identificatory parameters, not connected with the auditory experience of the researcher becomes more and more topical. With these parameters, it is possible to identify the whole of the articulatory and timbral phenomena which really exist in intonational cultures. Identifying such parameters is of great importance from the methodological point of view, since it solves the problem of objectivity and reliability in defining timbres. This is also substantial from the practical viewpoint. Indeed, the experiences of applying the articulatory classification showed that some articulatory types, which are principally different in nature, generate timbres which with difficulties can be identified by ear, especially if the audiogram with which the researcher is working contains more or less noise (which is usually more like a rule than an exception). When the articulatory parameters are added to the acoustical, a kind of "safety stockpile" is created in connection with the whole system of description of the timbres which doubtless helps in solving the problem of identifying the articulations of concrete examples of folklore.

The task of establishing acoustic characteristics which could differentiate the articulations becomes more complicated if one takes into account that the rich experience of experimental phonetics is applicable for the description of singing only to a limited degree. The main reason for this kind of situation (and, correspondingly, the main problem in building the system of acoustic differences that would be effective in ethnomusicology), seemingly, is related to the fact that the characteristics of timbres representing expressive means of music should not be dependent on the sung verbal text, i. e. from verbal articulations, which are regulated by the system of the language. In other words, the characteristics of the "musical" timbres stratified on the sung text should be all the same, notwithstanding the formant scheme of this text.

At present, such acoustic characteristics have been established, at least for basic (i. e. not combined) articulations (Mazepus 2004). It is clear that they are not limited by frequencies of standard (lower: from the first to the fourth) formants.

In particular it turned out that several articulations – like nasalisation, r-colour, narrow-slit (i. e. singing with the vocal cords close to each other) phonation – differ from each other with the help of a generalised variant of formant analysis, where not only the frequency position but also the relative intensity of the formant regions is calculated. In other cases – as for example in palatalisation (raising of the central part of the tongue towards the hard palate) – the formant scheme is not informative, but some single harmonics are greatly intensified (in general, those between the seventh and twelfth). While we identified the falsetto, the most informative feature turned out to be the form of the oscillations; this feature also served to identify two previously unknown medial timbral forms. An important characteristic, defining such articulations as different types of pharyngalisation (contraction of the pharynx), vertical shifts of the larynx and other laryngeal phenomena, is the spectrum of the purely noise components of the sound, detached with special filters of the type of D/Noise[2]. Finally, some short duration articulations (different types of glottalisation, i. e. sharp approximation or collision of the vocal cords) can be identified only by the characteristics related to the phase map of the spectrum (Kondrat'eva & Mazepus 2002); here we emphasise that previously phases of spectral components of sound were not accounted for at all in the acoustic analysis.

Attempts at a description of timbral tension

There is, however, an acoustic category of *tension*, the direct fixation of which is not possible with any of the existing methods – neither by

2. From the company Fast Mathematical Algorithms and Hardware Corporation.

acoustic analysis nor by instrumental measurements. Here, the question is about the degree of tension of the vocal cords, as also of the tissues covering the walls of the cavities of the vocal channel. When the tension is increased, these cavities become good resonators with excellently formed properties of selectivity of frequencies which define the timbre; when they are substantially slackened, the resonating properties of the cavities deteriorate, and the vocal timbres become less contrastive.

It has to be emphasised that for the ear the differences in articulatory tension are quite appreciable. At least, relating a timbre during auditive analysis to one of the three basic gradations – strong, moderate or weak tension – usually does not evoke problems, especially in the case of a high-quality recording or directly listening to a performer. The characteristic "metallic" colour of tense timbres and the somewhat "soaked", "dim" sound of the non-tense or slack articulation are not only reasonably clearly heard, but they can also, apparently permit semantic interpretations contrasting in the system of the culture.

The oppositions marked by the degree of articulatory tension are widely distributed, for example, in many intonational cultures of Siberia and the Russian Far East. In some of them (for example, among the Yakuts and Dolgans), this parameter is shown as an ethnolocal or generic marker, in others as a bright medium of creating a timbre palette, as in the shamanistic traditions of southern Siberia, where the degree of tension can vary sharply and repeatedly during even a small fragment.

The possibility of an auditive distinction of more and less tense articulations proves the acoustic characteristics of sound to be sufficient to define the articulatory tension. Indeed, from the general principles of physical acoustics (more precisely, the branch thereof known as the theory of resonators) it follows that more tense articulations produce sounds which are enriched with high-pitch components. This is the reason why an indirect way of defining the articulatory tension is theoretically possible. It is based on measuring sound energy, which appears in the high-pitch region in the spectrum. In particular for periodical sound oscillations – that is, for example for vowels – the energy of high harmonics (overtones) in the spectrum are to be measured. However, it

has to be emphasised that although such an idea was frequently evinced and there have even been attempts to apply it in practice (perhaps one of the most advanced attempts of this kind is that presented by Budaev (1981)), sufficiently correctly and in its entirety it seems to have not been realised this far.

No doubt the difficulty in the realisation of such an idea is associated with the situation that a substantial level of high pitches in the sound complex can result not only from tense articulation, but also from sufficiently great general loudness. In addition, normalisation of the mean loudness to some previously defined level does not solve the problem. Indeed, a real, timbrally uniform sound segment is usually notably heterogeneous in its loudness, and the normalisation of the mean value of this parameter leaves its local, instant levels not normalised. As a result, the sound segments corresponding to a certain stable level of tension will differ in energy, appearing in the high-pitch region of the spectrum.

Thus, the task entails finding a quantity which would reflect the relative part of the high frequencies in full energy of sound with constant pitch so that the mean value of such a quantity on a certain segment of short duration should not be dependent on the profile of loudness during that segment. Such a quantity, obviously, could serve as an indirect – given the peculiarities of the spectrum – quantitative indicator of the degree of articulatory tension. In particular, this way it could be possible to establish objective acoustic characteristics of its three basic gradations: tense, neutral (moderately tense) and slack (i. e. non-tense or slackened) articulations.

Energetic intervals as parameters reflecting the articulatory tension

The quantitative parameter, which fulfils the given conditions, can be defined in the following way. Let Γ be the loudness of the sound signal

at some point in time, expressed in logarithmic units – decibels (dB). Then, let Γ_L be the loudness of the same signal, but driven through a filter of low frequencies (in computerised analysis, for this purpose the best suited is Chebyshev's digital filter, which is integrated in latest versions of the sound editor Cool). Next we define the upper energetic interval I_H as the difference of $\Gamma - \Gamma_L$. As proved in laboratory experiments, the quantity I_H has a stable correlation with the articulatory tension, which is discernible by ear (in fact, half-intuitively). The greater values of tension correspond regularly to the greater values of the I_H. The quantity I_H depends directly on the ratio of the sound energy of the high frequency part of the spectrum to that of the low frequency part.

In quite an analogous way the lower energetic interval I_L is defined: if Γ_H is the loudness of the signal driven through the filter of high frequencies, then I_L is the difference $\Gamma - \Gamma_H$. The quantity I_L, correspondingly, reflects the ratio of the energy of the lower part of the spectrum to the energy of its upper region and anticorrelates with the tension. In other words, when the tension increases, the I_L decreases.

It can be proved that the average meanings of both of the energetic intervals in the sound segment, which is uniform by pitch, do not depend on the loudness of the signal – neither on the mean loudness, nor on the local loudness, in other words – on the dynamic profile of the segment.

In the case of ideal rectangular filters with identical frequency thresholds, the quantities I_H and I_L are connected with the functional relationship

$$10^{-\frac{I_H}{10}} + 10^{-\frac{I_L}{10}} = 1,$$

and, consequently, knowing the value of only one of them is sufficient for the unambiguous definition of the other. If, however, the filters are not ideal, which corresponds to real practice, such a relationship exists only approximately. Thereby the upper and lower intervals are to a certain extent autonomous, and for a reliable evaluation of tension, it is useful to pay attention to both of them.

The definition of energetic intervals depends, obviously, on the threshold frequencies of the corresponding filters (we suggest that these frequencies are close or coincide). Experimentally it has been established that the degrees of tension are best distinguishable if one chooses the threshold frequencies between the third and fourth harmonics of a periodic signal. The degree of Chebyshev's filters should be as large as possible – however, not such as to cause a substantial distortion of the short sound segments; the tenth degree seems to be acceptable. It should be noted that the lower interval I_L is, usually, more convenient for distinction, because the range of its numeric meanings for articulations met in reality are wider than that of the interval I_H.

Preliminary regions for the values of the energetic intervals (in dB) for three basic gradations of tension are shown in Table 1.

	Tense articulation	Neutral articulation	Slack articulation
I_H	3–1.2	1.2–0.3	0.3–0.04
I_L	3–6	6–12	12–20

Table 1. Values of energetic intervals for the basic gradations of tension.

Strictly speaking, the data in Table 1 correspond to the "normal" vocal sound, namely loud phonation; for the other vocal timbres, the limit values of the energetic intervals, corresponding to the auditive estimation, may differ somewhat from those presented here. Thus, for tense pharyngalisation, the values of the upper interval often lie in the region of 7–3 and for the lower one in the region of 1–3; for tense narrow-slot phonation, these regions are defined as 3–2.2 and 3–4, respectively, etc. However, as a whole Table 1 reflects the intuitive notion of the three gradations of tension fairly well.

The measurement of the energetic intervals in examples of various musical traditions has shown that there is a set of phenomena which can be classified as a special category of *supertense* articulations, for which the value of the I_L does not exceed 3 dB. A typical example of

such an articulation is the Tuvin, Mongol and Kalmyk "throat singing" (also known as two-voiced solo or overtone singing). The characteristic values of the I_L in this case lie at 0.3–0.6 dB. In all likelihood, the supertense articulation is one of the conditions which makes possible the phenomenon of two-voiced solo singing.

It is necessary also to point out the following circumstances. In the case of noisy sounds, the threshold frequencies of the filters differentiating degrees of tension are located much higher – in the region of 3–6 kHz, which makes it more difficult to describe uniformly the tensions of periodical and non-periodical signals. Fortunately, the general tension of ethnomusical intonations is defined first of all by the vowels; this makes it possible to exclude the noisy sounds altogether. Furthermore, in the case of falsetto, the present method of evaluation of the tension seems to be inapplicable, because the falsetto sound includes practically no admixture of harmonics higher than the first – at the same time as the high tension of this articulation seems to be quite obvious. Thereby at the evaluation of total tension of the ethnomusical phenomena, the falsetto (which is rather rare in folk singing anyway) has to be excluded, too.

Towards quantitative models in the identification of the types of intonations

An important problem in ethnomusicology is the strict definition of the *type of intonation*, in other words the summing up of different sound segments into a total intonational episode. I have proposed (Mazepus 1998) a classification of the types of intonation by two empirical characteristics discernible by the ear – the mean value and the standard deviation in values of the articulatory tension. This way, the basic types of intonations can be described: speech, vocal and signal intonations, and also the fourth type, conditionally and not entirely

accurately named as toned speech. Furthermore, the existence of hybrid or mixed types can also be established. The approach presented above allows the evolution of a much stricter quantitative model in classification of the types of intonations by two directly observable parameters which correlate with the half-intuitive parameters of the initial classificatory scheme, by the averaged lower energetic interval and its mean square deviation.

In practice, these quantities can be defined in the following way. The sound file is cut into segments, roughly uniform in pitch, timbre and loudness. Very short (less than 70 ms) and also noisy (corresponding consonants or especially noisy vowels) segments are excluded. The remaining segments are normalised by the mean square magnitude on a level of 15% from the level of the clipping of the signal by the sound card of the computer, then the filtration described above is applied (Chebyshev's eighth degree filter in the editor Cool Pro is applicable). After this, the loudnesses of filtered and non-filtered signals are compared. On the basis of the finding values of the lower energetic interval for the separate segments, the average (on all set of segments, taking into account, of course, their durations) lower interval $<I_L>$ is calculated, as well as its mean square deviation σ_i.

The ranges (in dBs) of the mean interval and its mean square deviation shown in Table 2 correspond approximately to different types of intonations.

Types of intonations	$<I_L>$	σ_i
Speech	10–13	2–5
Signal	4–7	2–5
Vocal	4–7	0.8–1.5
Tonal speech	10–13	0,8–1,5
Signal-speech	7–10	2–5
Vocal-signal	4–7	1,5–2
Vocal-tonal	7–10	0,8–1,5
Speech-tonal	10–13	1,5–2
Vocal-speech	7–10	1,5–2

Table 2. Types of intonations and corresponding regions of the mean lower interval and the mean square deviation.

A special type of supertense vocal intonation corresponds very probably to the phenomenon of supertense articulation discussed above. The preliminary results of a study of this type of intonation on material of the Tuvin song tradition consist, specifically, in the fact that its region can be sketched as $\langle I_L \rangle = 0.3 - 3$ and $\sigma_i = 0.8 - 1$ dB.

Literature

Budaev, B. Zh. 1981. *Aktsentuatsiya buryatskogo yazyka. Slovesnoe udarenie v khorinskom dialekte [Accentuation in Buryat language. Lexical accentuation in the Khori dialect]*. Moscow: Nauka.

Kent, Ray D. & Read Charles 1992. *The acoustic analysis of speech*. San Diego: Singular Publishing Group.

Kondrat'eva, N. M. & Mazepus, V. V. 2002. Artikulyatsionno-akusticheskoe opredelenie nekotorykh segmentnykh tembrov v muzykal'nykh kul'turakh sibirskikh narodov [Articulatory and acoustic definiton of some segmental timbres in the musical cultures of the Siberian peoples]. *Muzykal'naya kul'tura kak nacional'noe i mirovoe yavlenie: Materialy mezhdunarodnoy konferentsii [Musical culture as national and global phenomenon. Materials of an international conference]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 111–113.

Mazepus, V. V. 1995. Artikulyatsionnyy printsip opredeleniya tembrov pri opisanii etnicheskikh artikulyatsionnykh fenomenov [Articulatory principle in the identification of the timbres in defining ethnic articulatory phenomena]. *Aborigeny Sibiri: problemy izucheniya ischezayushchikh yazykov i kul'tur, ch. 1 [Aboriginals of Siberia: problems of the study of disappearing languages and cultures, part 1]*, ed. by the editorial group of the IF SO RAN. Novosibirsk: Institut filologii Sibirskogo otdeleniya Rossiyskoy Akademii Nauk. Pp. 10–13.

Mazepus, V. V. 1998. Artikulyatsionnaya klassifikatsiya i printsipy notatsii tembrov muzykal'nogo fol'klora [Articulatory classification and principles of the notation of timbres of musical folklore]. *Fol'klor. Kompleksnaya tekstologiya [Folklore. Complex textology]*, ed. V. M. Gatsak. Moscow: Nasledie. Pp. 24–51.

Mazepus, V. V. 2004. Akusticheskie priznaki osnovnykh tembrov narodnogo peniya. [Acoustical characteristics of the fundamental timbres in folk singing]. (Manuscript.)

Skvortsova, N. M. 2001. O muzyke traditsionnykh nenetskikh pesen [About the music of traditional Nenets songs]. *Fol'klor nentsev. Pamyatniki fol'klora narodov Sibiri i Dal'nego Vostoka, ch. 23 [Folklore of the Nenets. Monuments of folklore of the peoples of Siberia and Russian Far East, part 23]*, ed. B. M. Putilov & V. M. Gatsak. Novosibirsk: Nauka. Pp. 50–86.

About two types of texts in the shamanic traditions of Southern Siberia

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Heterogeneity of the traditional South Siberian Turkic shamanic performance forms

The indigenous peoples of Southern Siberia[1] master or previously mastered shamanic traditions, which, in all different cases represent autonomous subcultures within the traditional culture. From the point of view of sonoric expression, 'shamanic intoning' (Sychenko, 2004a) represents at least a separate stratum within the intonational culture[2] as a whole.

As the research shows, the shamanic musical and poetic traditions of the peoples of Southern Siberia are not internally homogeneous. This heterogeneity concerns different levels of organisation: verbal and musical, instrumental and vocal. Because the instrumental level is

1. The majority of them are ethnic groups speaking Turkic languages: the Altayans (Altay-Kizhi, Teleuts, Tëlës, Tubalars, Chalkans, Kumandins), Shors, Khakases (Kachas, Sagays, Kyzyls, Beltirs and Koybals) and Tuvins (including the Todzha Tuvins). In neighbouring regions, which do not necessarily belong to Southern Siberia proper live the Chylum Turks, Tofalars and Soyots (who nowadays speak Buryat language).
2. The concept of the "strata" is an important constitutional element in the theory of the intonational culture of an ethnic group and is related to the type of the grammatical structure of the group of texts, which belong to one of the strata. It is not equivalent to the concept of "genre" (Kondrat'eva et al. 1999).

little represented in audio collections, we shall concentrate our attention on the vocal level, which implicitly includes verbal and musical components.

We shall turn our attention to that musical and poetic heritage which is accessible to research at the present moment. This includes recordings made by persons who practice shamanic activities and maintain the authentic traditions[3]. These materials are archived at the Phonogram archive of the Pushkin House (St. Petersburg), at the Archive of Traditional Music of the Novosibirsk Conservatory, at the Institute of Altaistic named after S. S. Surazakov (Gorno-Altaysk, the Republic of Altai), at the Institute of the Humanities of the Republic of Tyva (Kyzyl), as well as in private collections.

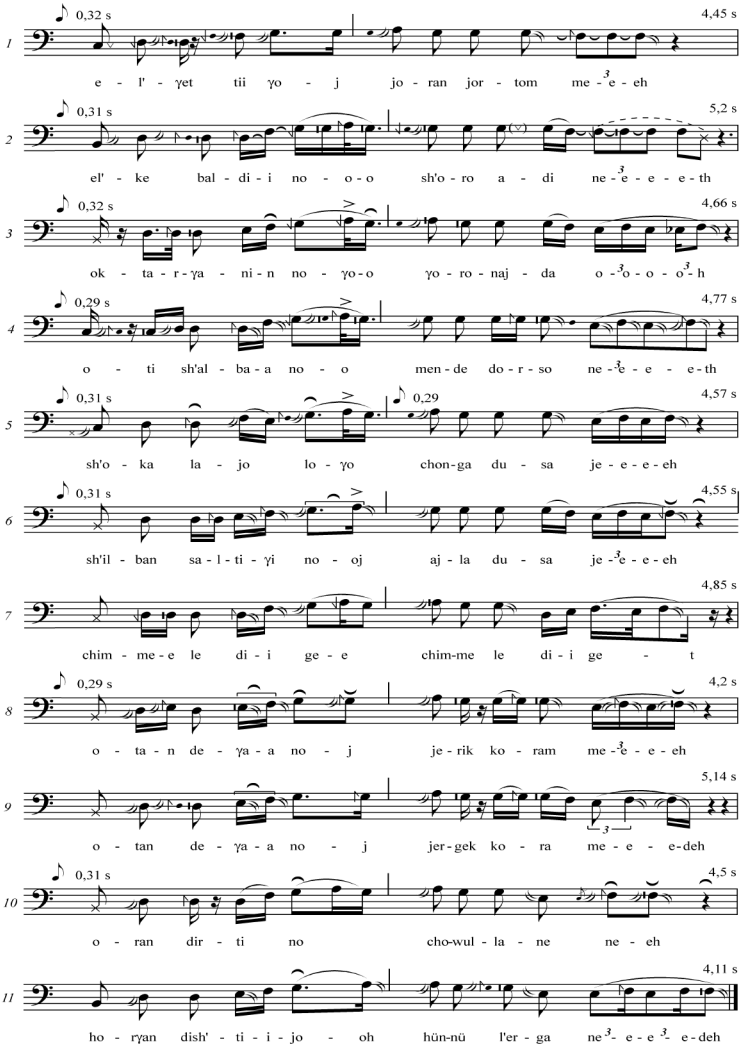
The analysis shows that the people of the region in question conceptualize and organize, most of all, the generic space of the shamanic tradition in a different way. The fundamental difference is, in our opinion, that some ethnic groups differentiate the genre of "shamanic song", whereas others do not. Thus, among the Todzha Tuvins and Tofalars, there is a concept of *kham yry*, which means literally 'shaman song' and which exists in their culture as a separate, completed text, reminiscent in many aspects of the other song genres. There is also the concept of *kham algyzhy* 'shamanic incantation' as a general term for the genres of shamanic folklore of the Tuvins.

Example of Todzha Tuvin *kham yry*

During an expedition to the Todzha Tuvins in 1997, I recorded three *kham yry* from Chorgaday Baraan, who was a ritual specialist in escorting the soul of a dead person, and who had the reputation of a shaman.

3. At this phase of the research, those materials are excluded from the examination which, in one way or another, are connected to the phenomenon of the so-called "neo-shamanism", because from the point of view of the level of expression, it is characteristic for them to be freely related to the traditional norms.

The first two were dedicated to the description of the places where the shaman travels and the third for the shaman's drum (Ex. 1):



Example 1. Todzha Tuvin *kham yry*, perf. by Chorgaday Baraan.

In the structure of their poetic text, these songs were very close to the lyric song tradition, characterised by a syllabic text line 4+4 and a strophic type of composition. I shall represent the text in the form it was transcribed from the point of view of a linguist:

1.	*Äleges dep oran-čurtum*	*To my dear home woods Äleges*
2.	*äzip alïyn, čortup alïyn.*	*I travel.*
3.	*Oktargayïng oruunayda*	*Along the road of the universe,*
4.	*ottug šolban mende turzun.*	*let there be with me a bright star.*
5.	*Šokar-tayga čonga turza,*	*If the people will have a Šokar-tayga,*
6.	*Šolban sïldïs ayga turza.*	*If the moon will have the Venus star.*
7.	*Čime-le-dir, čime-le-dir,*	*Something is standing, something is standing,*
8.	*kodan teveng ärgip körem.*	*your herd of camels go around, please.*
9.	*Oran čurttung Čoodularnıng,*	*The home territory of the Čoodus,*
10.	*oran čurtu xünnüg irgin.*	*the home land is sunny and bright.*[4]

Notwithstanding a similar four-stress recording, where in the present text there turned out to be 2.5 strophes, it is easy to notice that in fact the poetic strophe consists here of two text lines, which is clearly emphasised with alliteration. A similar structure can be found in various texts of shamanic *algysh*es recorded from different groups of Tuvins and published by M. B. Kenin-Lopsan (1992), although the majority of them is also presented in the form of four-line strophes.

The examples recorded from Ch. M. Baraan differ from the song texts not only in the two-line strophe, but also in the supplementary element of the type of prosodic syllables "*oy*" (after the first half-line) and "*ey*" (after the second half-line). As a result, the text seems to adopt a slightly differing appearance, which makes it different from the song

4. The recording and translation into Russian of the Todzha text was made by the linguist (Candidate of Philology) Z. B. Chadamba. (The Latinisation of the song texts differs slightly from the principles applied generally in this text. Furthermore, author's text transcriptions in music examples present the sung word forms yet with a modified Latinisation. Editor's note)

texts. The poetic strophe has two lines and the structure of the line is 4+(S)+4+(S), where the S is the supplementary interjection.

1.	*Äleges dep, oy*	//	*oran-čurtum, ey*
2.	*äzip alïyn, oy*	//	*čortup alïyn, ey.*
3.	*Oktargayıng, oy*	//	*oruunayda, ey*
4.	*ottug šolban, oy*	//	*mende turzun, ey.*
5.	*Šokar-tayga, oy*	//	*čonga turza, ey,*
6.	*Šolban sïldïs, oy*	//	*ayga turza, ey.*
7.	*Čime-le-dir, oy*	//	*čime-le-dir, ey,*
8.	*kodan teveng, oy*	//	*ärgip körem, ey.*
9.	*Oran čurttung, oy*	//	*Čoodularnïng, ey,*
10.	*oran čurtu, oy*	//	*xünnüg irgin, ey.*

Represented this way, the division into two half-lines becomes clear and is further strengthened by musical means. The melodic strophe encompasses here not two lines of text, but one. Thus, two half-lines correspond to two musical periods (*a*: ascending movement, *b*: descending movement; both periods end to rhythmical stop), which form the musical strophe (see Ex. 1):

1.	*Äleges dep, oy*	//	*oran-čurtum, ey*
	a		*b*

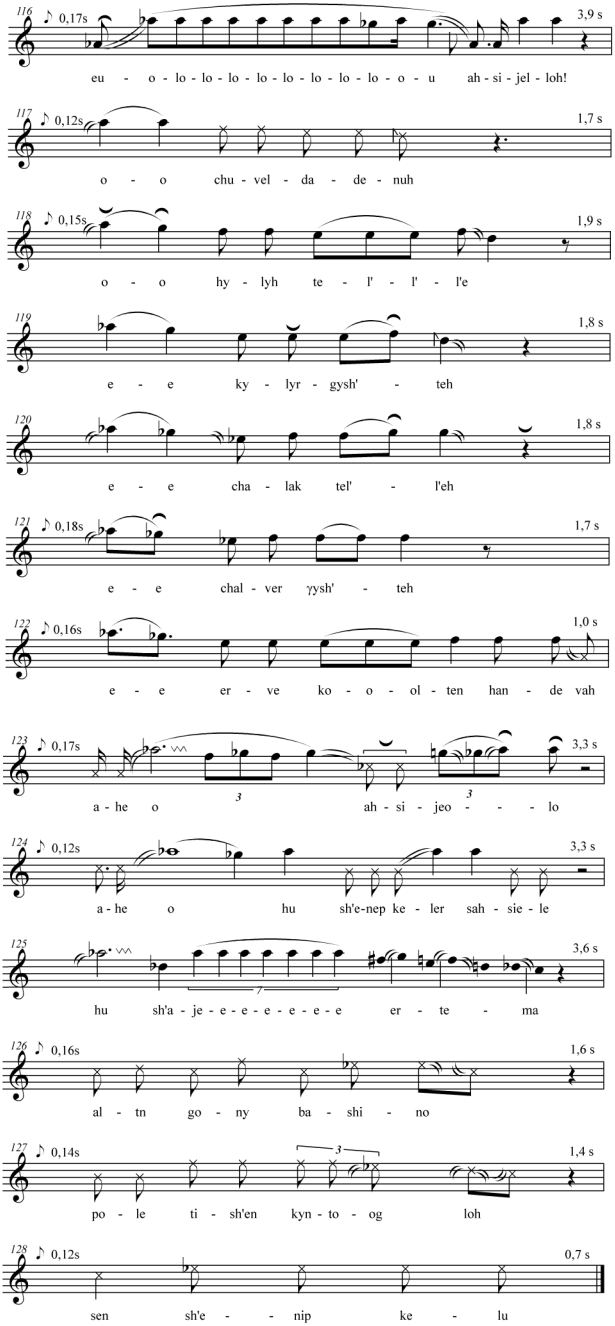
A similar situation can be observed in the music examples of shamanic singing published by A. N. Aksënov (1964, 23–24, Ex. 10.–11.). Some texts from the collection of Kenin-Lopsan (1992, 127–128; 130–131; 134, 186) are characterised by a similar, although not completely identical poetic structure. All in all, there are very few texts of this kind in this collection (five out of 281), which may be proof either that in many cases in linguistic publications it was not possible to find examples of the structure of sung texts, or that most of the *algysh*es of this

collection were not sung, but dictated in speech form. Nevertheless, the texts from Kenin-Lopsan's collection demonstrate, as a whole, quite multi-faceted structures of verbal texts. A notable part of them differs in their structure from sung texts, although in quite a large number of *algysh*es the structure is, if not completely identical, at least very close to sung structures. However, even in the first case, there is an indirect connection with the sung tradition (as, for example, in the Todzha example presented).

In any case, it is possible to conclude that the Tuvin tradition as a whole is characterised by the presence of some separate, small, complete texts of shamanic folklore and their connection at the level of meter of the text with the sung tradition. From the generic viewpoint, such texts are defined with the concepts of *yr* 'song' and *algysh* 'incantation'.

Example of North Altayan (Chalkan) *kamnapche*

The shamanic traditions of the North Altayans (the Chalkans and Kumandins) and the Shor – geographically and culturally close to each other – are of a different character. As it seems to me, the presence of separate, complete texts with a corresponding terminology is totally uncharacteristic of them. The shamanic texts are not defined, they only have a general notion for the shamanic séance – *kamnapche* (or, in a Russified variant: *kamlat'* / *kamnat'* 'shamanize', 'to have a shamanistic séance'). In this case, the texts are quite large, composed forms, which correspond to the whole ritual or fragments thereof. It is appropriate to call this type of text not "shamanic song" but "shamanic séance". By their structure, they are of quite different shapes. Thus, for example, with the Chalkan performer A. K. Kandarakova, the text is built from alternation of episodes of a few different types, between which are placed lines functioning as leitmotifs (see Ex. 2). In general I call this type of structure "the block type of composition".



Ex. 2. Fragment (lines 116–128) of Chalkan shamanistic séance, perf. by A. K. Kandarakova.

This example begins with two leitmotifs (LM-1 and LM-2), having a stable one-line structure from the viewpoint of their verbal-semantic and melodic-rhythmic perspective (lines 116–117[5]), which are shown in the poetic text below in semibold characters. Next comes a formulaic episode based on the vocal type of intonizing. This is characterised by four-syllable lines with an obligatory initial interjection in each line (lines 118–121). This episode is separated typographically (with an indentation). The next type of episode is defined as polymorphic (lines 122–125), also including two leitmotifs (LM-1: line 123; LM-3: line 125). The last episode in the present example is again based on a formulaic principle. It is intoned with tonal speech and it contains two seven-syllable lines and one five-syllable line (lines 126–128). They are underlined in the text:

116. *– Au, o-lo-lo!* Aksïyalug!	***– Au, o-lo-lo!* Aksïyalug!**
117. *–O-o!* Jug pold[ï], Adanïg?	***–O-o!* What happened, Adanïg?**
118. – O-o! Künük tille –	*– O-o! During daytime to speak –*
119. E-e! Külvüreš'te,	*E-e! Talked loud,*
120. E-e! Čalïk tille –	*E-e! Ask during daylight –*
121. E-e! Čalvïr küš'te.	*E-e! Prayed-incanted.*
122. E-e! Ervek kelten andïg va?	*E-e! It will be a conversation, won't it?*
123. *A-xe, o!* Aksïyalug!	***A-khe, o!* Aksïyalug!**
124. A-xe, o-o-xu! Seni keler, Aksïyalug!	*A-khe, o-o-khu! You will come, Aksïyalug!*
125. Xo! Šayïk irtema!	**Kho! I am making *šayïk*!**
126. Altïn-Kölning bažïnï	*In the beginning of the Altïn-Köl*
127. Pöle tüšken Kan-Tovlok!	*separating-releasing the Kan-Tovlok!*
128. Sen šenep kelgen?	*Did you come to trial?*[6]

In speaking about formulaic utterances, I refer to musical, or, more accurately, to intonational formulaic patterns. Verbal, in turn, represents

5. The whole text consists of 224 lines; it is published in Sychenko 2004b.
6. The initial transcription of the text and its translation into Russian from Chalkan was made by E. P. Kandarakova (Candidate of History) and this text was prepared for the present publication in a notably edited form by G. S.

a collection of different kinds of formulae, analysis of which is not included in the tasks of the present article. The three types of episodes presented here – two formulaic ones (A – performed as tonal speech and B – vocal) and one polymorphic (C), the composition of which includes leitmotifs, but also fast spoken half-speech phrases, interjections etc. – appear many times alternating during the séance and they also have an introductory vocal part (D). The Chalkan text gives an impression of a block type of composition of the séance. Its overall scheme is the following (in parentheses are numbers of the leitmotifs which appear in corresponding polymorphic episodes and with double slashes (// ... //) the fragments that are presented above as examples):

I part: **D C** (*1, 2, 3*) **A C** (*3*) **A C** (*2, 3*) **A C** (*2, 1*)
II part: **B C** (*2, 1, 1*) **A C** (*2, 3, 1, 2, 1*) **B C** (*1, 1*) **B** // **C** (*1, 2*) **B C** (*1, 3*)
III part: **A** // **C B C** (*1, 3*) **A C** (*1, 3, 2, 3*) **A C** (*3*) **A C** (*1, 3*) **A C** (*3*) **A C A C A C** (*3*)

All examples of shamanic séances recorded from A. K. Kandarakova's sister, A. K. Abasheva, an active shamaness, have a similar structure. Altogether, there are five texts of this kind (see Sychenko 2000 about the circumstances of the work with the sisters).

In some South Siberian traditions, the shamanic texts are formed of some non-recurring parts, each one of which has a structure of its own. This is especially characteristic of Shor shamans V. S. Adïyakov, K. N. Adïyakova and A. O. Kuspekova. Parts of their texts are based on voluble, strophic or composed compositional principles. Thus, for example, the text of V. S. Adïyakov forms a three-part whole: A B C. The first part (A) is based on the principle of volubility, the second part (B) on the composed form and the third part (C) on the strophic form. In this case, the parts are naturally much more drawn-out, as in the case of the block type of composition[7].

From the Kumandin shamaness S. P. Pelekova only fragments of two parts of the shamanic séance were recorded (for more about the

7. The Shor text, recorded from V. S. Adïyakov, is analysed in detail in Sychenko 2002.

details of the circumstances of this recording, as also about the analysis of the first part, see Sychenko 1997; 1998). Therefore, it is not possible to talk in great detail about the type of the composition. It is possible only to make a grounded suggestion that the structure of the Kumandin texts is close to the "Chalkan" or "Shor" types, but not to "Tuvin".

Among the Sagay Khakases both these generic principles are known. Thus, the performance of the shamaness S. R. Maynogasheva is associated with the first type, separate shamanic songs – although she does not call them "songs". The shamaness T. S. Burnakova uses both types. At first, she performed shamanic songs of a special type. They are songs which belong to the structural type of shamanic storytelling (narrative). When she told a legend about the spirit-masters of the mountains, she performed songs of the mountain spirits, with different melodies. When she performed the shamanic ritual, she used the same songs. In this case they were transformed into the second type and represented shamanic séance characterised by a more complex three-movement structure A B C. In my opinion, this kind of phenomenon is connected to the domain of the generic intersection of the shamanic and storytelling traditions.

Concluding remarks

Thus, we shall return to the initial hypothesis about the heterogeneity of the shamanic traditions in Southern Siberia. There are two prevailing basic generic types, which we shall call "shamanic songs" and "shamanic séances". "Shamanic songs" prevail in the eastern area of the Sayan-Altay mountain system, among the Tuvins, Todzha Tuvins and Tofas) and the "shamanic séances" prevail in the northwestern area of the region – among the northern Altayans and Shor. Sagay Khakases have both forms, while data from the other groups of Khakases and South Altayans has not yet been thoroughly analysed.

At this phase of the research on the shamanic traditions of Southern Siberia it is possible to raise several questions. For example, is it possible that these two generic types I have sketched in the shamanic traditions of Southern Siberia may correlate 1) with different types of rituals (discrete and non-discrete ones); 2) with different tendencies of the ethnocultural connections between the South Siberian ethnic groups (especially considering the parallels of the eastern areal with the Samoyedic ethnic groups); 3) with the absence or presence of the shamanic trance, as well with the different techniques of reaching the state of trance; 4) with the presence or absence of the explicitly expressed and institutionally formulated traditions of teaching of shamanic activities; 5) with the presence or absence of the "temple" (in this case, Lamaistic) forms of the ritual, which are by definition discrete and so on.

It is also very likely that in earlier times, when shamanic traditions were still intact, these two types coexisted in all shamanic cultures. In other words, inside each shamanic subculture there were separate, complete texts, which were passed on as a heritage from one shaman to another. During the course of the shamanic ritual, such complete texts were radically transformed, as affected by the course of the ritual, which resulted in the development of new, musical and ritual forms which had a more complex organization. At present, however, it happened randomly that in one place, one type of text survived, whereas in other places another type. This question requires further gathering of data and rigorous reconstructions.

Literature

Aksënov, A. N. 1964. *Tuvinskaya narodnaya muzyka [Folk music of Tuva]*. Moskva: Muzyka.

Kenin-Lopsan, M. B. 1992. *Tyva khamnarnyng algyshtary [Song-incantations of the Tuvin shamans]*. Kyzyl: Tyvanyng nom ündürer cheri.

Kondrat'eva et al = Kondrat'eva, N. M., Mazepus, V. V., Sychenko, G. B. 1999. K teorii intonatsionnykh kul'tur: intonatsionnaya kul'tura telengitov [Towards a theory of intonational cultures: the intonational culture of the Telengits]. *Voprosy muzykoznaniya [Questions of musicology]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 212–225.

Sychenko, G. B. 1997. Melodicheskie parallely kumandinskogo shamanskogo obryada [Melodic parallels of the Kumandin shamanic ritual]. *Narodnaya kul'tura: Materialy VI Vserossiyskogo nauchno-prakticheskogo seminara po fol'kloru [Folk culture: Materials from the 6th All-Russian scientific seminar on folklore]*: eds. N. V. Leonova, B. A. Shindin. Novosibirsk. NGK. Pp. 95–98.

Sychenko, G. B. 1998. Muzykal'naya struktura kumandinskogo shamanskogo obryada [The musical structure of the Kumandin shamanic ritual]. *Traditsionnyy fol'klor v polietnicheskikh stranakh [Traditional folklore in polyethnic countries]*, eds. R. I. Pshenichnikova et al. Ulan-Ude: ESSACA Publishing Center. Pp. 175–178.

Sychenko, G. B. 2000. Ul'gen', T'yazhin, Kyrgys i drugie (zametki o chalkanskom shamanstve) [Ul'gen, T'azhin, Kyrgys and others (Notes about Chalkan shamanism)]. *Chelkantsy v issledovaniyakh i materialakh XX veka. [Chelkans in the studies and materials of the 20th century]*, ed. D. A. Funk. Moskva: IEA RAN. Pp. 114–127.

Sychenko, G. B. 2002. Korrelyatsiya verbal'noy i muzykal'noy struktur shorskogo shamanskogo teksta [Correlation of verbal and musical structures of the Shor shamanic text]. *Gumanitarnye nauki v Sibiri [The Humanities in Siberia]*, № 4/2002. Pp. 60–65.

Sychenko, G. B. 2004a. "Shamanskoe intonirovanie": istoriya i fenomenologiya termina ["Shamanic intoning": the history and phenomenology of the term]. *Istoriya i teoriya kul'tury v vuzovskom obrazovanii: mezhvuzovskiy sbornik nauchnykh trudov. Vyp. 2 [The history and theory of a culture in a high-school education: interuniversity collection of scientific works. Vol. 2],* eds. N. A. Khokhlov and E. M. Tazieva. Novosibirsk: Novosibirsk State University. Pp. 174–180.

Sychenko, G. B. 2004b. Poetika i struktura chalkanskogo shamanskogo teksta [Poetics and structure of the Chalkan shamanic text]. *Yazyki korennykh narodov Sibiri, vyp. 15.: Chalkanskiy sbornik [Languages of the indigenous peoples of Siberia. Vol. 15.: Chalkan collection],* ed. N. N. Shirobokova, Novosibirsk, Institute of Philology SB RAS. Pp.73–101.

Intonational models in pentatonic traditional songs of the Buryat

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Intonational models in traditional songs of various Buryat groups

In musicology there is a widespread understanding regarding the melodic progressions that construct the basis of modes and that are specific to each mode. However, there are extremely few works that are dedicated to identifying modal formulae in concrete monodic styles. In the present article 284 traditional songs of the Buryat are examined from this point of view. The modal constitution of all the songs examined is based on anhemitonic pentatonics, which is the most widespread modal system among the southern Buryat (also called Shenekheng Buryat) in Chinese Inner Mongolia (Numaa (ed.) 2003), as well as among the eastern Buryat (the Selenga River Buryat and the Khori Buryat, who occupy large territories in the Republic of Buryatia and the Chita region) in Russia (Dugarov 1964; 1969; Khaltaeva (ed.) 1999).

These songs are based on stable pitch progressions that are called here *intonational models*. In the songs of each of the dialectal groups, one specific intonational model occurs in songs representing various genres and recorded in various territories and from various performers. The number of these models is relatively small.

For example, in the songs of the Khori Buryat, the fifth anhemitonic pentatonic mode[1] can be divided into 23 models according to the criterion of the repetitiveness (tones, which may be absent in the variants of the model are given in parentheses) (Fig. 1.):

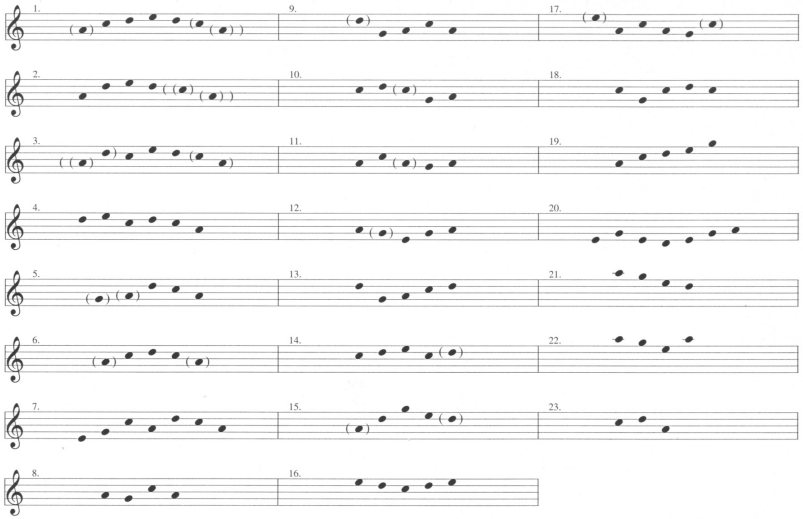


Fig. 1. 23 intonational models in the fifth anhemitonic pentatonic mode of the Khori Buryat.

In the songs of the fifth anhemitonic pentatonic mode of the Selenga Buryats, 28 models are found (Fig. 2.):

1. d-e-g-**a**-c'-d'-e'-g'-a', with ***a*** as the basic tone. (This "fifth" mode corresponds to the anhemitonic pentatonic "La-mode". Editor's note.)

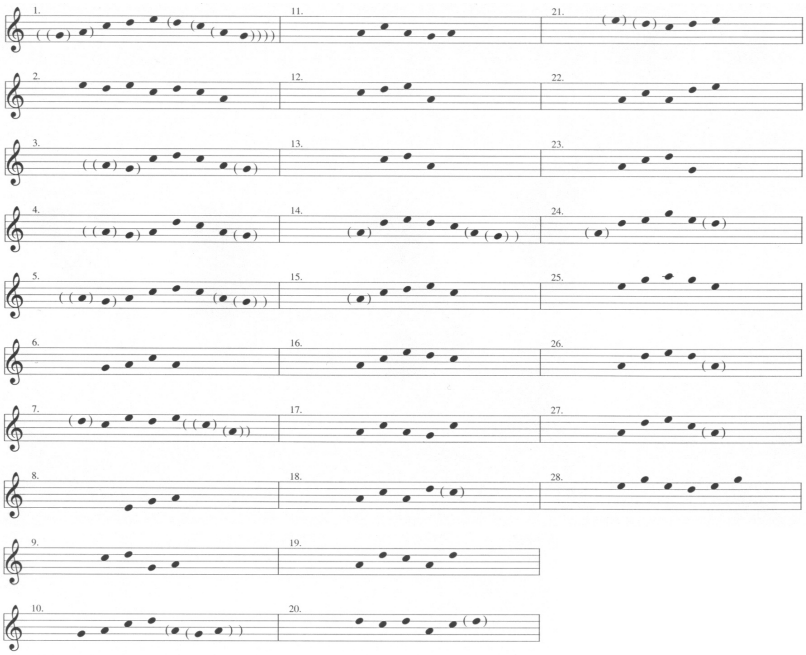


Fig. 2. 28 intonational models in the fifth anhemitonic pentatonic mode of the Selenga Buryat.

In addition to these intonational models, among the Khori and Selenga Buryats is found a rare model (Fig. 3):

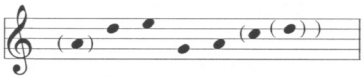


Fig. 3. An additional intonational model in the fifth anhemitonic pentatonic mode of the Khori and Selenga Buryat.

Among the Shenekheng Buryats are found 48 models of the fifth anhemitonic pentatonic mode (Fig. 4.):

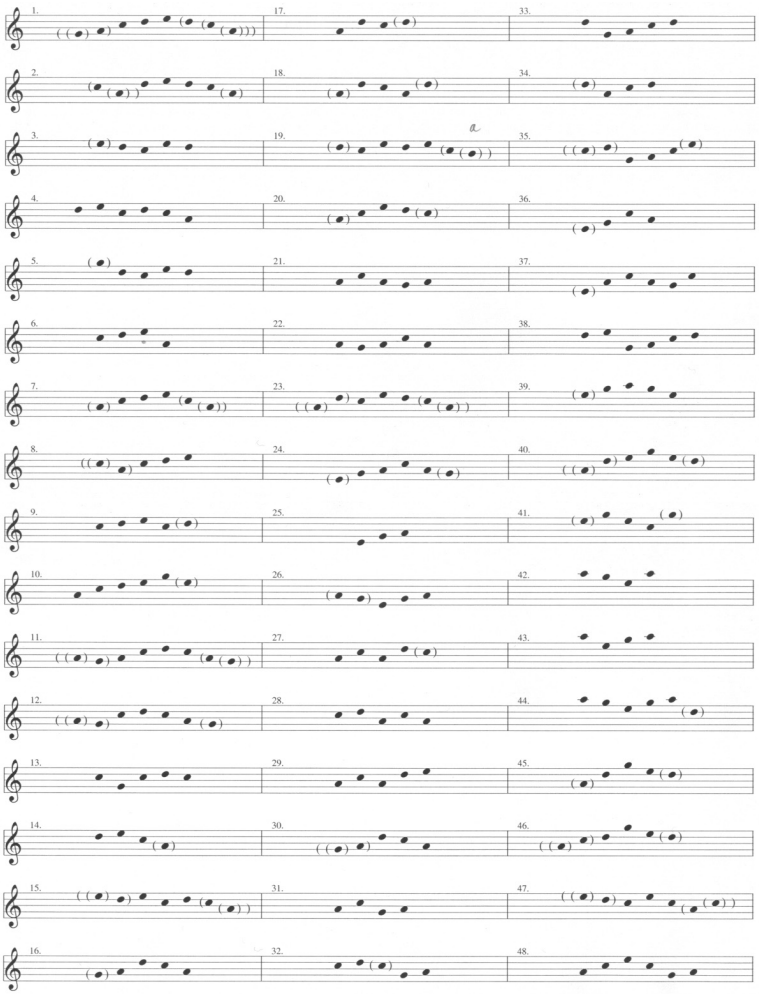


Fig. 4. 48 intonational models in the fifth anhemitonic pentatonic mode of the Shenekheng Buryat.

In actual songs, different intonational models combine with each other and encompass nearly the total space of the melody. At the same time, intonational models from each of the dialectal groups that are found

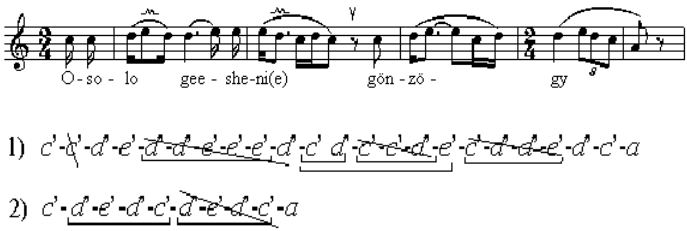
in the fifth mode can also be observed in songs in other modes by this group[2]. Thus, the collection of intonational models defines the intonational basis of each of the local pentatonic styles practically in its entirety.

Buryat intonational models in the internal melodic structure

As regards the internal structure of the intonational models – as can be seen from the modal lists presented – the melody in them is mostly constructed in a stepwise movement, with rare leaps through a step and even more rarely through two or three steps; progressions consisting of several leaps are also avoided. At the same time, on the borders of the models, even within confines of one melodic line are frequent leaps of as much as an octave.

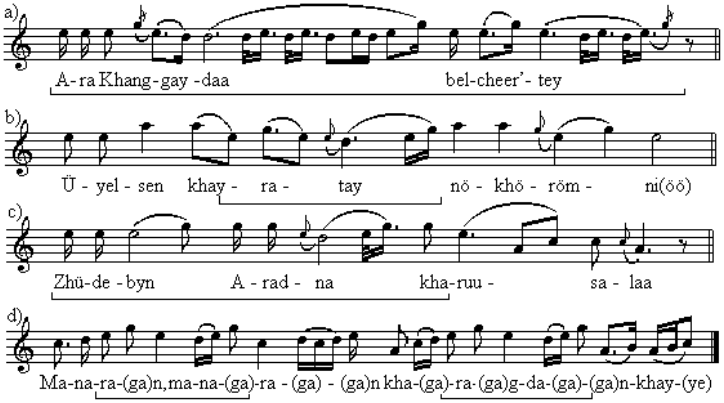
Many of the intonational models have variants which result from exclusion of the bordering tones or, more rarely, from the omission of a medial tone. For example, in one line of a song, the model ((*a*)-*g*)-*a*-*d*'-*c*'-*a*-(*g*) can be reminiscent of *a*-*d*'-*c*'-*a*-*g* and in another line as *g*-*a*-*d*'-*c*'-*a*. Furthermore, repeats of single tones or short patterns of the model are also possible, enabling "stretch" on a desired number of text syllables. The first example (Ex. 1) presents the model *c*'-*d*'-*e*'-*d*'-*c*'-*a*, occupying the first line of a Selenga Buryat wedding song (Dugarov 1969, 29). Below is the procedure of the reduction of the model and transformation of it into a standardised, i. e. abbreviated form.

2. The first mode: *G*-*A*-***c***-*d*-*e*-*g*-*a*-*c*'-*d*'-*e*'; the second mode: *G*-*A*-*c*-***d***-*e*-*g*-*a*-*c*'-*d*'; the third mode: *A*-*c*-*d*-***e***-*g*-*a*-*c*'; the fourth mode: *d*-*e*-***g***-*a*-*c*'-*d*'-*e*'-*g*'-*a*'. The bold letters indicate the basic tone – the final tonal degree.



Ex. 1. The beginning of a Selenga Buryat wedding song.[3]

Intonational models are not connected or loosely connected with any concrete rhythms: usually the rhythmic patterns of the same specific model differ essentially in different songs. The second example (Ex. 2) presents lines of three Selenga Buryat songs from different regions of Buryatia (see Dugarov 1969, 55; 82; 102) and of one Shenekheng Buryat song (Numaa (ed.) 2003, 134), with the model *e'-g'-e'-d'-e'-g'* in various rhythmic configurations.

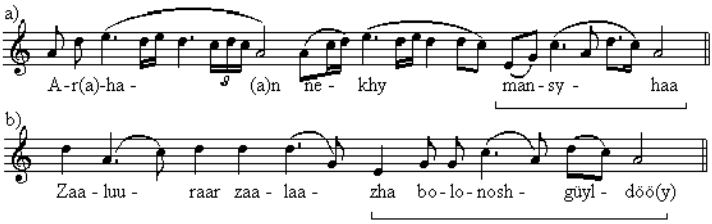


Ex. 2. Lines of three different Selenga Buryat (a, b, c) and one Shenekheng Buryat song (d).

3. The transliteration of the Cyrillic orthography of Buryat, Altayan and Tatar involves some different characters. In Buryat and Tatar, the letter y stands both for glide (syllable-final) and middle-i (syllable-central), in Altayan the middle-i is marked with "ı", and an affricative j with "j". Editor's note.

The models in question differ to some extent from each other by their compositional functions. The majority of the intonational models can be located in any position of the melodic line, but some of them, probably, have fixed positions. Thus, the following Khori Buryat models occur exclusively in initial and medial (but not in final) segments of the line: *a-c'-d'-e'-g', c'-d'-e'-c'-(d'), (e')-a-c'-a-g-(c'), c'-g-c'-d'-c'*; Selenga Buryat: *a-d'-c'-a-d', a-c'-a-d'-e', a-c'-a-d'-(c'), d'-c'-d'-a-c'-(d'), a-c'-d'-g, (a)-d'-e'-g'-e'-(d'), a-d'-e'-d'-(a)* and *a-d'-e'-c'-(a);* and Shenekheng Buryat: *a-c'-d'-e'-g'-(e'), a-c'-a-g-a, a-c'-a-d'-(c'), a-c'-g-a, (e')-g'-a'-g'-e', (e')-g'-e'-d'-e'-(g')*. Only in medial and final (but not in initial) segments of the line occur Khori intonational models of: *e-g-c'-a-d'-c'-a, a-g-c'-a, a-(g)-e-g-a, (d')-g-a-c'-a, d'-g-a-c'-d', e'-d'-c'-d'-e'*; Selenga models of: *c'-d'-g-a* and *c'-d'-e'-a*; and Shenekheng: *e'-d'-c'-d'-e'-(d'), g-a-c'-a, d'-g-a-c'-d', (e)-g-c'-a*. For some Shenekheng models, the connection of the model with its location in a melodic line is not quite fixed, but statistically predictable. Thus, the tendency for the initial-medial location in a line has the following models: *(a)-d'-g'-e'-(d')* (in 31 out of 32 songs), *((g)-a)-c'-d'-a* (19 out of 20) and *(a)-d'-g'-e'-(d')* (31 out of 32); for medial-final location: – *a-c'-d'-e'-c'* (29 out of 31), *((a)-g)-c'-d'-c'-a-(g)* (7 out of 8) and *(d')-c'-e'-d'-e'-((c'-(a))* (9 out of 10).

We note that in medial-final intonational models a tendency can be observed for rhythmical uniformity of their final parts: the same model which occurs in different songs, takes a similar rhythmical pattern of three-four final tones. The following example (Ex. 3) presents lines of two Khori Buryat songs (Dugarov 1964, 174; 189), with the intonational model *e-g-c'-a-d'-c'-a*. This same regularity can be discerned in the initial phase of the initial-medial intonational models of the Khori, Selenga and Shenekheng Buryat songs. It is important that rhythmically similar intonational models are found in songs performed by different singers and recorded in different villages. It is possible that the further evolution of the song traditions of the Buryat leads to "petrification" of the rhythmic structure of the intonational models and their transformation into melodic-rhythmic formulae.



Ex. 3. Lines of two Khori Buryat songs (a, b).

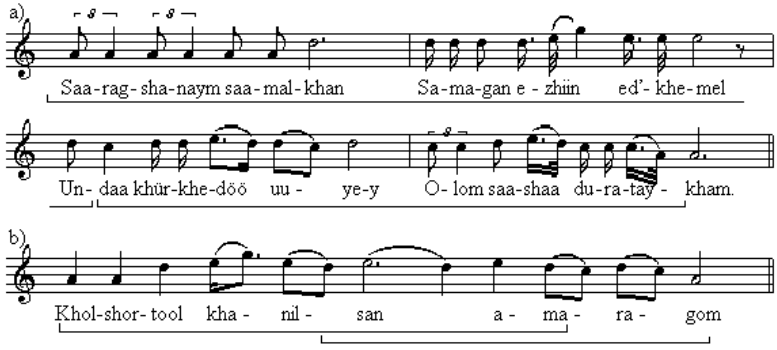
Apparently, for different intonational models and mostly for the initial-medial or for the medial-final ones, a location is also defined in the total composition of the melody. This becomes most obvious with the analysis of songs, the strophes of which are based on interchange of two different melodic lines (of the type of ABAB or ABABAB). Thus, for example, the Shenekheng models (*c'*-(*a*))-*d'*-*e'*-*d'*-*c'*-(*a*-), *a*-*c'*-*a*-*d'*-(*c'*), *d'*-*g*-*a*-*c'*-*d'*, (*e'*)-*g'*-*a'*-*g'*-*e'*, (*e'*)-*g'*-*e'*-*d'*-*e'*-(*g'*) and (*a*)-*d'*-*g'*-*e'*-(*d'*) appear only in odd-numbered lines of a song of this type, whereas models (*a*)-*c'*-*d'*-*e'*-(*c'*-(*a*)), ((*a*)-*g*)-*c'*-*d'*-*c'*-*a*-(*g*) and *a*-*c'*-*g*-*a* appear only in even-numbered lines of this kind of composition[4].

As a whole, one melodic line in a song can contain 1–9 intonational models and, in addition, all the models are located within a line. In other words, the border between melodic lines cannot be located within a model. We note that in epic forms (*uligers*), differing from the song forms proper, these same intonational models ignore the borders between the lines and one model can be stretched over a whole melodic strophe, which contains 3–5 melodic lines.

Fairly characteristic is the case when D. S. Dugarov recorded an *uliger* (Ex. 4a) and a song form (Ex. 4b) melody from a Selenga Buryat performer (Dugarov 1969, 20; 96). In the song there is a line in which the models *a*-*d'*-*e'*-*g'*-*e'*-*d'* and (*c'*)-*d'*-*e'*-*d'*-*c'*-*a* are joined together. In

4. Among all the Buryat groups song strophes are also widely distributed with one-lined melodic structure (of the type AAAA or AAAAAA). In the framework of this kind of composition, any of these models can appear as well in even as in odd-numbered lines.

the *uliger*, the progression of these same models is stretched on a four-line strophe. This became possible as a result of multiple repetition of sounds and short patterns within each model. The functioning of the melodic formulae in songs and *uligers* serves as an important and, perhaps, also the only musical criterion for the formal differentiation of these genres in the tradition.



Ex. 4a and 4b[5]. Fragments of a Selenga Buryat epic melody (*uliger*) (a) and of a non-epic traditional song form (b).

The compound character of the intonational models is noteworthy. In practice, they are composed of a "root" with "affixes" added to their initial and final parts. A root is a central and unaltering part, while an affix refers to mobile parts, the total or partial omission of which is allowed by the tradition. On the grounds of the similarities of the central, constant parts – "roots" – the Khori, Selenga and Shenekheng models can be combined as summary intonational models. Thus, for example, one East Buryatian summary intonational model with a "root" of *c'-d'-e'* also included Selenga models ((*g*)-*a*)-*c'-d'-e'*-(*d'*-(*c'*-(*a*))), (*e'*)-(*d'*)-*c-d'-e'*, *c'-d'-e'-a*, (*a*)-*c'-d'-e'-c* and Khori models (*a*)-*c'-d'-e'-d'*-(*c'*-(*a*)), *c'-d'-e'-c'*-(*d'*), *a-c'-d'-e'-g'*, *e'-d'-c'-d'-e'*. The "roots" were

5. The bar lines in example 4a show the borders of the melodic lines.

therefore identified by the criterion of maximal statistic weight, i. e. by their greatest frequency[6].

As an example we present a list of the summary intonational models for East Buryatian songs in the fifth mode (there are 16 of them altogether) (Fig. 5.)[7].

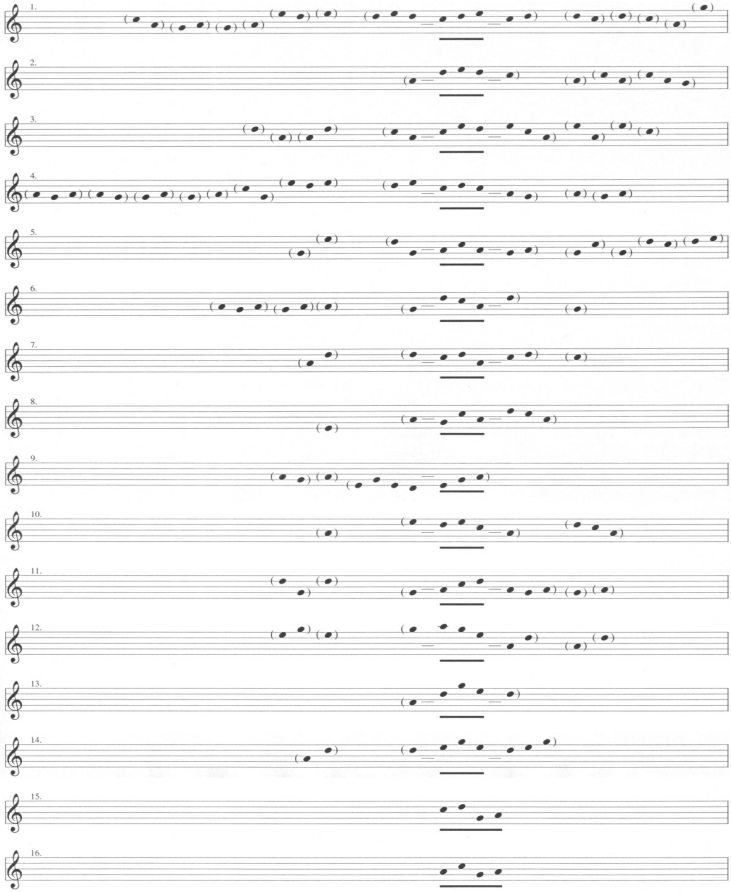


Fig. 5. Summary intonational models for East Buryatian songs.

6. Because of this, some summary intonational models were complemented with new "affixes", which were observed only after the analysis of the one-moded songs of the Khori and Selengan songs in their totality.
7. The "roots" are underlined and separated from the "affixes" with a dash (–) and this entity is written in parentheses; the possible "affixes" are all written in separate parentheses.

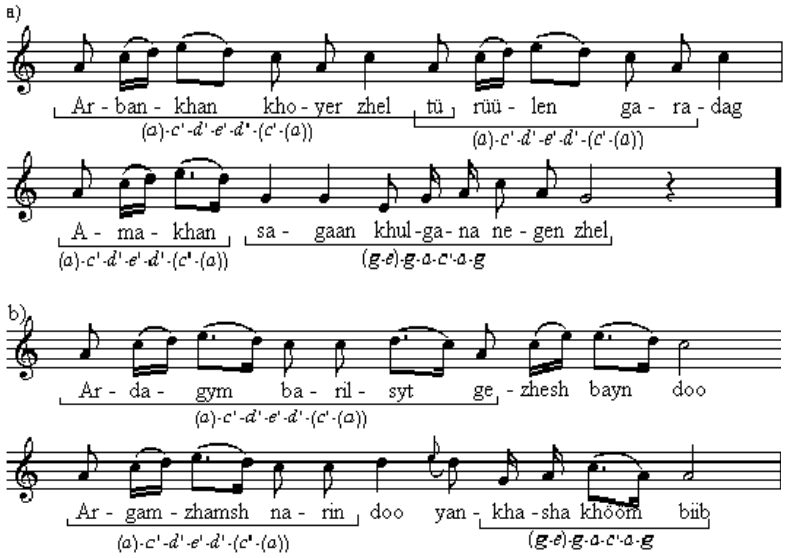
All the East Buryatian summary intonational models are also observed among the Shenekheng Buryat. We note that the procedure of combining intonational models into categories of summary intonational models not only allowed us to lucidly demonstrate the deep-level similarity of the models of different dialectal traditions, but also gave us grounds to consider the trichordal "root" intonational models found in several songs without their "affixes", as autonomous models (otherwise they would not have received attention due to their brevity).

This way, on the level of the intonational models, the Khori, Selenga and Shenekheng traditions are quite similar to each other. Thus, in all three traditions, the principles of the internal structure of the models coincide – this primarily concerns their compound character and the possibility for the "affixes" to vary. To a remarkable extent, the listed intonational models characteristic to each of these ethnic traditions also coincide. In particular, among all the three groups of the Buryat, it is possible to observe the same models (for example the Khori (*a*)-*c*'-*d*'-*e*'-*d*'-(*c*'-(*a*)) – Selenga ((*g*)-*a*)-*c*'-*d*'-*e*'-(*d*'-(*c*'-(*a*-(*g*)))) – Shenekheng ((*g*)-*a*)-*c*'-*d*'-*e*'-(*d*'-(*c*'-(*a*))); Khori *e*'-*d*'-*c*-*d*'-*e*' – Selenga (*e*')-(*d*')-*c*-*d*'-*e*' – Shenekheng *e*'-*d*'-*c*-*d*'-*e*'-(*d*') etc.); less similar models have their "root" in common (for example, the Khori *c*'-*d*'-*e*'-*c*'-(*d*') – Selenga (*a*)-*c*'-*d*'-*e*'-*c*' – Shenekheng ((*c*')-*a*)-*c*'-*d*'-*e*' etc.). In addition, melodic progressions, which have been identified as models only among the Khori, can also be observed among the Selenga – at least once. Conversely, all Khori-Selenga models can be observed among the Shenekheng Buryat. Finally, the models of different Buryat traditions, which resemble each other by their tonal constitution, tend very often to have the same compositional function.

The greatest extent of similarity is observed between the Khori and Selenga traditions. Insignificant differences between them are associated with the presence of preferred variants of the models (i. e. "affixes") among each of these groups. We must add that on the grounds of linguistic, ethnographic and musicological data, the Khori and the Selenga Buryat are also very close to each other, forming together the East Buryatian regional group (Dugarov & Kunitsyn 1997).

Differences that are somewhat more notable are observed between the eastern and southern – Shenekheng – Buryat. Thus, the melodic lines of the East Buryatian songs mostly contain 1–3 models, whereas the lines of Shenekheng melodies contain 4–9 intonational models. The Shenekheng intonational models quite often have "affixes", not found in the analogical models of the eastern Buryat (e. g. "prefixes" *g'-d'* and *e'-d'* in the general Buryatian "root" of *c'-e'-d'* or "suffixes" *g'-a'-d'* and *g'-a'* for the "root" *a'-g'-e'*). Moreover, models are found in Shenekheng songs ((*e'*)-*d'*)-*c'-e'-c'*-(*a*-(*c'*)) and *a-c'-e'-c'-g-a*, which are not found in East Buryatian songs. These differences between the southern and eastern Buryat can be explained by the establishment of the border between Russia and China in 1727, which made contacts between these groups decidedly more difficult.

It is necessary to note that among each of these three dialectal groups of the Buryat there are preferred combinations of summary intonational models (some of them common to the Khori, Selenga and Shenekheng Buryat). Because the total number of intonational models is relatively small, in different songs melodic lines resembling each other are often met. Thus, the Example 5 presents a Khori Buryat song in the fourth mode (a: Dugarov 1964, 59) and a Selenga song in the fifth mode (b: Dugarov 1969, 89). In these songs, there are not only the same intonational models, but their progression is also the same.



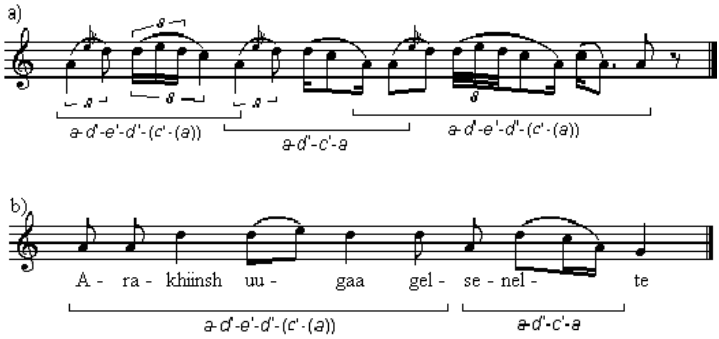
Ex. 5. Fragments of a Khori Buryat (a) and a Selenga Buryat song (b).

South Siberian Turkic intonational parallels

Such similarities in separate melodic lines in different songs bring Buryat traditions closer to some Turkic song cultures areally associated with the Buryat traditions. These are the Tofalar, Altayan, Tuvin etc. traditions, where, as is well known, there is the phenomenon of standard melodies (i. e. melodies that can be associated with different texts).

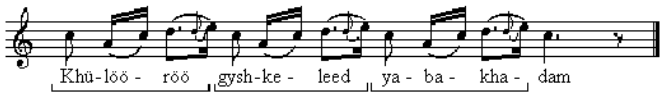
It is quite important that the similarity between the Buryat pentatonic songs and the Turkic samples can also be discerned on the level of the melody. For example, they are obvious when comparing Buryat and Tofalar song traditions: the melodic variants of the Tofalar songs are constructed on intonational models of the Buryat type. Example 6 presents the first melodic line of a Tofalar standard melody (a: Skvorts-

ova 1997, 305) and the initial melodic line of a Selenga table song (b: Dugarov 1969, 40), repeating the progression of models *a-d'-e'-d'-(c')* and *a-d'-c'-a*[8] popular among the Buryat.



Ex. 6. Initial fragments of a Tofalar standard melody (a) and a Selenga Buryat table song (b).

In most of the cases, a recurring melodic motive in the Tofalar song corresponds to a word in a melodic line. The same phenomena of correspondence of intonational models to a word – as a kind of repetition of the rhythmic beats of the melody – are often also observed in our Buryat example (Ex. 7 (Dugarov 1969, 60)).



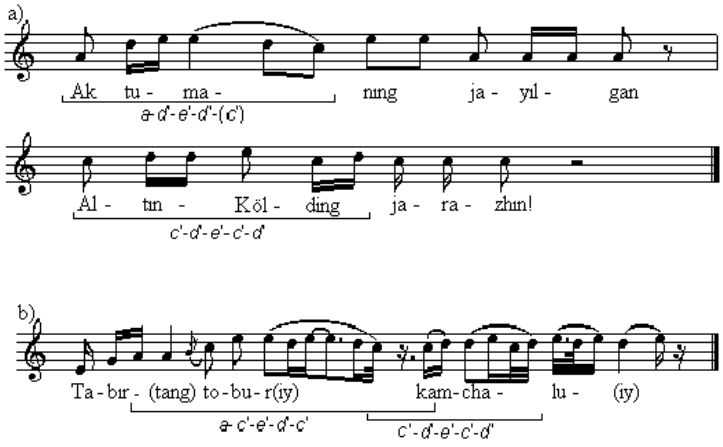
Ex. 7. Fragment of a Buryat song.

The similarities of fragments of melodic lines with the Buryat intonational models can also be found in Tuvin songs. As an example of this

8. However, we note that between the Buryat model of *a-d'-e'-d'* and the Tofalar melodic type of *a-d'-e'-d'-(c')* there is a difference, because in the Tofalar melody the grace note *e'* is not counted, whereas in the Buryat tradition, the grace notes, along with the other durations, are equal members of the intonational model.

is we refer to songs no. 4 (with Buryat intonational models *g-a-c'-a* and *a-c'-d'-e'-c'-d'*), no. 13 (*g-c'-d'-c'-a*), no. 18 (*a-c'-d'-e'-c'*), no. 24 (*a-c'-d'-c'-a*) and others in A. N. Aksënov's collection (1964).

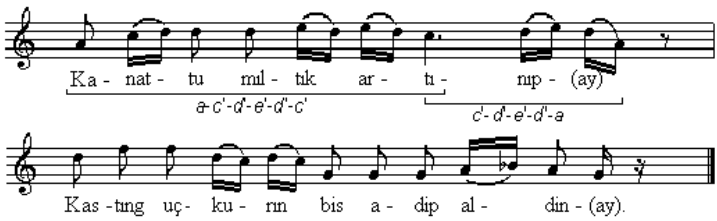
Similarities are also clearly observable with other Altaian traditions, as for example the Teleut-Buryat and Tubalar-Buryat parallels. Thus, the melodic contour of the first melodic line of a Tubalar song (Ex. 8a (Kondrat'eva & Sychenko 1997, 249)) parallels with the Buryat model *a-d'-e'-d'-(c')*, whereas the second line is analogical with the Buryat intonational model *c'-d'-e'-c'-d'*. The first melodic line of a Teleut song (ibid., 256 (Ex. 8b[9])) is partially reminiscent with the Buryat intonational models *a-c'-e'-d'-c'* and *c'-d'-e'-c'-d'* (without taking into account the grace note *h*).



Ex. 8a and 8b. Initial fragments of a Tubalar (a) and a Teleut song (b).

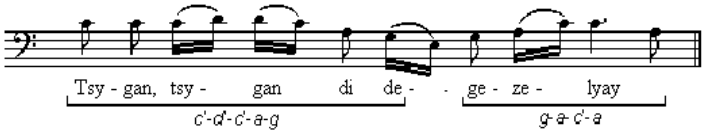
Crossovers with Buryat models can be observed even in non-pentatonic songs. For example, the first line of a Teleut wedding song is associated with the Buryat models *a-c'-d'-e'-d'-c'* and *c'-d'-e'-d'-a* (ibid., 257, Ex. 9.).

9. Examples 8b and 9 present one vocal part of a two-performer performance.

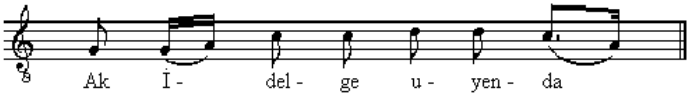


Ex. 9. Initial fragment of a Teleut wedding song.

Melodic contours of Buryat models can be traced even among people that are geographically remote to Buryat, for example in Siberian Tatar musical forms recorded in the Tomsk region. Thus, in the first melodic line of an epic song (Kapitsyna & Kondrat'eva 2002, 106), the tonal steps of a pentatonic mode form a progression, which corresponds to the Buryat intonational models *c'-d'-c'-a-g* and *g-a-c'-a* (Ex. 10.); the first melodic line of a so-called short song (Ex. 11. (ibid., 107)) demonstrates a step contour equalling the Buryat model *g-a-c'-d'-c'-a* etc.



Ex. 10. Initial fragment of a Siberian Tatar epic song.



Ex. 11. Initial fragment of a Siberian Tatar short song.

At the same time, the analogues of the Buryat intonational models can be found not indeed in every Turkic song tradition in Siberia. For example, models of the Buryat type are absent in Khakas song traditions.

On the principles of generic and ethnic distribution of intonational parallels

The principal appears to be the fact that intonational crossovers can be observed mostly in song traditions. Other traditions – as, for example, Turkic shamanistic melodies, even if they are pentatonic – represent another sphere of intonation. As such, it is not impossible that intonational analogies can be observed in the comparison of Turkic shamanistic melodies not with song, but with the shamanistic traditions of the Buryat.

To what extent are the similarities represented not random? It seems that in this case, when the question is about multiple parallels encompassing a whole group of related cultures, coincidences of a random nature are excluded. At least, we can talk about an obvious tendency which expresses itself in particular in that the intonational models defined in the Buryat material are found in some Turkic song traditions.

It is most probable that Turkic-Buryat intonational parallels are associated with an areal relationship between Buryat and Turkic song traditions. In fact, the observations presented corroborate once again the hypothesis, evinced earlier (see, for example, Mazepus & Novikova 2002; Skvortsova's article in the present publication), about deep-level relationships between the Turkic peoples of Siberia and the Buryat. Characteristics of these relationships, which are vaguely notable externally and which appear only as a result of a special analysis, can be observed not only in the intonational sphere, but also at the level of the verse structure and musical rhythm.

It has to be emphasised that the existence of the parallels between the musical cultures of the Buryat and Turkic peoples means not only areal closeness of the Buryat and Turkic peoples, but also a similar kind of closeness between Siberian Turkic cultures themselves. If the geographic distance between, say, the Siberian Tatars and the Buryat is not taken into account, one can posit the existence – at least some centuries ago – of a strong, connected cultural union, in the framework of which we have also evolved the similarities observed today.

Literature

Aksënov, A. N. 1964. *Tuvinskaya narodnaya muzyka [Tuvin traditional music]*. Moskva: Muzyka.

Dugarov, D. S. 1964. *Buryatskie narodnye pesni. Pesni khori-buryat [Buryat traditional songs. Songs of the Khori Buryat]*. Ulan-Ude: BKNII SO AN SSSR.

Dugarov, D. S. 1969. *Buryatskie narodnye pesni. Pesni selenginskikh buryat [Buryat traditional songs. Songs of the Selenga Buryat]*. Ulan-Ude: Buryatskoe knizhnoe izdatel'stvo.

Dugarov, D. S. & Kunitsyn, O. I. 1997. Buryaty [The Buryat]. *Muzykal'naya kul'tura Sibiri (v 3-kh t. – t. 1, kn. 1) [Musical culture of Siberia (in three volumes – Vol. 1, book 1)]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 366–404.

Kapitsyna, N. S. & Kondrat'eva, N. M. 2002. Traditsionnye muzykal'nye zhanry eushtintsev [Traditional musical genres of the Eushta] *Muzykal'naya kul'tura kak natsional'noe i mirovoe yavlenie [Musical culture as national and global phenomenon]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 104–110.

Khaltaeva, L. A. (ed.) 1999. *Pesni khori-buryat [Songs of the Khori-Buryat]*. Ulan-Ude: VSGAKI.

Kondrat'eva, N. M. & Sychenko, G. B. 1997. Altaytsy: altay-kizhi, telengity, tëlësy, teleuty, tubalary, chalkantsy, kumandintsy [Altayans: Altay-kizhi, Telengit, Tëlë, Teleut, Tubalar, Chalkan, Kumandin]. *Muzykal'naya kul'tura Sibiri (v 3-kh t. – t. 1, kn. 1) [Musical culture of Siberia (in three volumes – Vol. 1, book 1)]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 209–283.

Mazepus, V. V. & Novikova, O. V. 2002. Muzykal'no-ritmicheskoe voploshchenie buryatskogo pesennogo stikha [Musical and rhythmic realisation of the Buryat song verse]. *Muzykal'naya kul'tura kak natsional'noe i mirovoe yavlenie [Musical culture as a national and global phenomenon]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 88–103.

Numaa, A. A. (ed.) 2003. *Buryad-mongol araday duun [Traditional songs of the Buryat-Mongols]*. Ulan-Ude: Buryad unen.

Skvortsova, N. M. 1997. Tofalary [The Tofalar]. *Muzykal'naya kul'tura Sibiri (v 3-kh t. – t. 1, kn. 1) [Musical culture of Siberia (in three volumes – Vol. 1, book 1)]*, ed. B. A. Shindin. Novosibirsk: NGK. Pp. 301–316.

Traditional melodic types in the music of the Sámi in Finland

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Background for the study of musical traditions of the Scandinavian Sámi

In this text I discuss my conceptions of the analysis of Sámi music. Sámi is a general appellation for various local groups of indigenous people of northern Scandinavia and the Kola Peninsula. Although all the Sámi groups have many general cultural traditions in common, which is reflected, for example, in their languages, in sources of livelihood and in some basic principles of musical thinking, there are enough varying elements to define several Sámi local cultures.

Sámi languages can be divided into southern, northern and eastern groups. Only representatives of the northern and eastern groups live within the borders of Finland. These are the northern Sámi, the Aanaar Sámi and the Skolt Sámi. The history of studies on these different groups and their musical cultures is varied, but this can be discussed here only briefly.

From the beginning of recorded history, some mention has been made of the musical aspects of the Sámi cultures. There exists a notable collection of traditional Sámi song texts, which were collected from the end of the 17th century onwards. The earliest musical transcriptions

were made in 1799 by the Italian traveller G. Acerbi and his Swedish companion A. F. Skjöldebrand. They both transcribed the same Northern Sámi *yoik* melody in a Sámi village called Guovdageaidnu located in Northern Norway (Acerbi 1963; Skjöldebrand 1986). During the 19th century the interest in Finno-Ugric peoples assumed the status of scholarly research in many European countries, including Russia and Finland.

However, the modern history of the collecting and research of Sámi music began in the early years of the 20th century, when the Finnish musicologist Armas Launis and the folklorists Väinö Salminen and T. I. Itkonen collected music from Russian, Finnish, Swedish and Norwegian Lapland. In 1908 Launis published the *Lappische Juoigos-Melodien* collection, in which the musical examples were organised in the framework of European major-minor tonality, although Launis made some efforts to describe the cultural system of the *yoik*. The musicologist A. O. Väisänen continued the work. His main contribution to the research on Sámi music consists of nearly 200 recordings but only little analytical writing. In Sweden Karl Tirén collected a notable collection of *yoik*s which was published in 1942 under the title *Die Lappische Volksmusik*. A period of "mass collections" of the Sámi languages and music began in the 1950s and this lasted until the 1970s, but it was not until the mid-1970s that new analytical research began. Although new research perspectives had emerged along with the arrival of American ethnomusicology, they had only a slight impact on the theoretical and methodological conventions of musical analysis. The transformation of the analytical viewpoint from the major-minor tonal system to universal pentatonicism was presented with a pronounced emphasis, although even Launis had discussed the pentatonic character of north Sámi *yoik* melodies as early as in 1909. It can be said that the process of understanding the Sámi musical cultures and their similarities and differences began with the groundbreaking work of the mentioned scholars, but as they did not manage to publish the data they gathered, it is only now due to the rediscovery of the historical archive materials that we are given the opportunity to reveal their importance in the history of Sámi research.

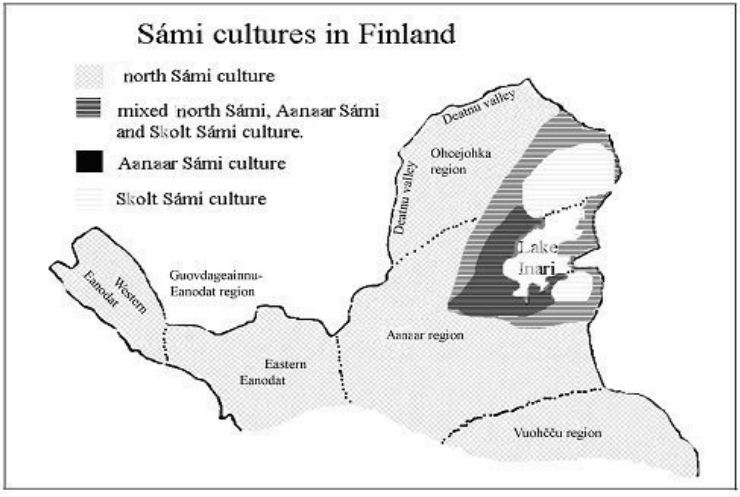
Nevertheless, the understanding of the Sámi music is often challenged by many of the conventional methods of musical analysis which are based on assumptions created for Western musical thinking and for the traditions of European art music. These methods tend to reveal –with practically any research data – only such information which seems to be already inherent in the very principles of the analysis. For example, the idea of a "universal pentatonic tonal structure" contains an untested premise of the non-existence of any tonal functions in the melodic style under study. However, it has never been proved that the northern Sámi *yoik* – or many other musical traditions based on anhemitonic pentatonic tonal structures – do *not have* any tonal functions. The idea that semitones (in diatonic tonal systems) have more inherent centripetal force than larger intervals (in anhemitonic pentatonic tonal systems) – is a premise of European art music. Thus it is doubtful whether this principle should be used as a basis of analysis in any other musical tradition. Using this principle, the analyst is able to address only the question of the definition of a pentatonic tonal structure in a song, but not to reveal any information of the logic of the actual melodical movement, if with this premise we exclude the possibility of a melodic syntax having other possible rational design or conscious architectural principles than mere random pentatonicism.

Another common conception in the early research is the premise of primitive music being the opposite of Western developed music. On the structural level this meant that the primitive form had to be simple, contrary to the developed complex forms; also, the primitive music was thought to be formless in contrast to the advanced forms of developed music. The overall notion is that these prejudices have made it difficult for scholars to find any real answers to explain the essence of Sámi music. One way of understanding this is the notion that music is fundamentally an aural phenomenon. It is transmitted and also learned through hearing. In many cultures musical principles have never been articulated and this knowledge has never been transformed into a literate form. In the traditional Sámi culture people do know how to produce music but rarely have they verbalised on it. One of the present Skolt Sámi tradition

bearers, Elias Mosnikoff, recalled that in the old days people who knew the musical tradition were careful not to actively teach too much of the *leu´dd*s to the younger generations. The purpose of these restrictions was that the principles of *leu´dd*s must be found by performing, as the *leu´dd* culture was part of everyday life. (Mosnikoff 2009, interview).

However, by a thorough analysis of the modal syntax of the data, it is possible to discuss the existing principles in Sámi music. From this point, the researcher is able to proceed in the evaluation of the relevance of further methods of analysis. This is achieved by engaging in a constant dialogue between the analysed data, the methods of analysis and the results of the analysis. Here I present examples of the analysis of the various Sámi melodies as an additive and resilient tonal system, which, from the point of view of the insiders of the culture, still has the dimension of a symbolic system for family melodies.

In the following I discuss in more detail the differences and similarities of the northern Sámi, Aanaar Sámi and Skolt Sámi music traditions and specially the general principles of phrase system used. These peoples live in northern Finland both in mono- and multiethnic population areas (see Map 1).



Map 1. Sámi cultures in Finland.

The northern Sámi *yoik*

The northern Sámi (*Sápmelaš, Sápmi*) are the largest group of the Sámi peoples and inhabit three Nordic countries: Finland, Sweden and Norway. The northern Sámi music culture consists of several musical genres of which the *yoik* tradition is the most prominent. Besides *yoik* there are also other genres. The singing of the Lutheran hymns has been known to Sámis from the 17th century onwards and in many regions there have developed unique styles of singing hymns with the voice production of the *yoik*. The music of the neighbouring peoples has likewise had an impact to the northern Sámi music culture. It must be emphasised that the Sámi have a history of being multilingual – they usually know at least one of the Scandinavian languages (Swedish, Norwegian), Finnish and even Russian besides Sámi language spoken as their mother tongue. (Jouste 2006, 280–289.)

There is a notable number of local styles of *yoik*s, which represent the genre of "owned songs" of the northern Sámi. In northern Sámi language local styles are often referred to by the term *juoigansuopman* 'a *yoik* dialect' (Hirvasvuopio-Laiti 2008, 43). It is important to point out that the fundamental principles of *yoik* as an owned singing tradition are similar to all northern *yoik* styles. The northern Sámi *yoik* styles can be roughly divided into two main categories by the general principle on which the melodies are constructed and by the common *yoik* repertoire shared by the people of a certain region.

The western style is typical of the Eanodat region, where traditional reindeer herding has been preserved most. This region can be divided to two subcategories, the western Eanodat and the eastern Eanodat. The style is somewhat harsh and loud and the *yoik*ers particularly use the overtones as a key part of their voice production. Usually men *yoik* in a low voice but women *yoik* in a very high register. The *yoik* melodies of the Eanodat region usually occupy a very wide tonal range, even though there are seldom diatonic movements in the melody. The movement consists mainly of large upward and downward interval leaps.

The western style melodies are reminiscent of a tone system described as pentatonic. However, the use of the concept pentatonic is not without problems. First, pentatonic refers to a five-note scale and often *yoik* melodies employ less than five different notes and the scale degrees can be compensated by other degrees. Still, there are clear tonal functions in *yoik* melodies. The overall scale structure is not constant and it must be emphasised that there are often notable differences in scales of the variants of the same melody even with the same performer. As the *yoik* belongs to a monochronic musical style (see Jouste & Niemi 2003), there are no fixed scales other than the one that the performer produces. Nevertheless, a notable problem is that the pentatonicism is far too general a model and does not give enough information about the essential nature of a particular *yoik* melody. The overall tradition may be analysed generally as pentatonic but at the same time there is no real information of how the *yoik* melodies are constructed.

The eastern style of the northern Sámi *yoik* is found in the regions of the Karašjok, the Deatnu river valley and in Aanaar district, where people have a long history of not being exclusively reindeer herders but of having hunting and fishing as their main source of livelihood. The *yoik* melodies of the Deatnu river valley Aanaar are often performed with a much softer voice than those of the western style. There are numerous diatonic movements in the melodies.

There are also many well known ethnotheoretical definitions given by numerous Sámi of the differences between the western and eastern styles. For example, the westerners refer to the eastern style as (Lutheran) hymn singing and the easterners consider the western style to be shouting. Furthermore, the divergence has been explained by the differences in the landscapes of these two areas: on the vast mountains people *yoik* loud while in the river valleys people *yoik* in a gentle voice. The historical reasons for these differences of style are unknown but at least we can suggest that the neighbouring Finns and Norwegians and their singing traditions have had a greater impact on the people of the Deatnu Valley than on the herders of the Guovdageaidnu-Eanodat region. The role of the Lutheran Church is also prominent.

The Skolt Sámi *leu´dd*

The original homeland of the Skolt Sámi (*Sä´mmlaž*) is located in around the border areas of Finland, Norway and Russia. Until the Second World War the traditional Skolt Sámi society was organised through a system of *sijdd*s (Lapp villages). A *sijdd* consists of the inhabitants of a village and the area owned by them. Although the Skolt Sámi share the same language and culture, there were some local and specific characteristics in various *sijdd*s, mainly because of the local environment, because of the main sources of livelihood and because of contacts to neighbours. For example, the people of *Suõ´nn´jel sijdd* lived in an inland forest area, made their living by reindeer herding and lake-fishing, and had close contacts with the people of Inari. The neighbouring *Peäccam sijdd* (Finn. Petsamo) was located on the mountainous shore of the Arctic Ocean and therefore sea-fishing was a natural source of income that supplemented reindeer herding. There was also a strong Russian element in their local culture, evidencing the influence of a Russian monastery nearby. After the Second World War, the Skolt Sámi of Petsamo became refugees because Finland had to cede the Petsamo area to the Soviet Union. As Finnish citizens, the Skolt Sámi of Petsamo decided to move permanently to Finland. Resettling the ancient homeland, which was once again a part of the Soviet Union, would have been impossible. The people were relocated to the new home areas of *Njeä´llem* (Finn. Nellimi) and *Če´vetjä´urr* (Finn. Sevettijärvi) in the district of Inari. (Jouste & Mosnikoff & Sivertsen 2007, 13–14.)

The traditional musical culture of the Skolt Sámi consists of several genres: *leu´dd*s, songs, laments and instrumental music. At the core of the musical tradition is the genre of vocally performed individual songs called *leu´dd*s. According to Vä´ss Semenoja, one of the *leu´dd* performers, "*leu´dd* is a description of the way in which someone has lived" and it is presented in the form of musical expression. Generally, *leu´dd* is a form of narrative art which expresses the oral history of the *Sä´mmlaž*. (Jouste & Mosnikoff & Sivertsen 2007, 13–14; Jouste 2006, 295–301.)

A typical *leu´dd* melody employs a descending pentachord. *Leu´dd*s are of two basic melodic types. The first type consists of relatively short and metrically fixed melodic phrases, which are repeated. The phrases end with a cadence to the basic tone of the melody. The second melodic type employs long additive phrasing. The metrical structure is based on the alternation of stressed and unstressed beats. The general metre used in *leu´dd*s resembles one found in the northern Russian *bylinas*.

The Aanaar Sámi *livđe*

The Aanaar Sámi (*Sämmilâš*) are the smallest group of Sámis in Finland living around Lake Aanaar in the district of Aanaar (Finn. Inari). Nowadays there are approximately 900 Aanaar Sámi individuals of whom some 350 speak Aanaar Sámi language as their mother tongue. Due to the limited number of the population the traditional music suffered a notable decline during the 20th century although some attempts have been made at revitalisation. However, there are some 150 examples of Aanaar Sámi traditional music in sound archives in Finland which give us the basic information of the historical musical culture.

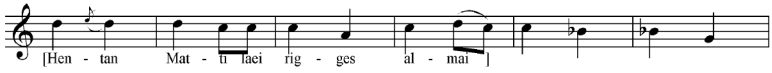
The Aanaar Sámi musical tradition consists of several genres. The genre of owned songs is called *livđe* and it is in many ways comparable to the northern Sámi *yoik*. The *livđe*s have people or animals as their objects. The latter group is characteristic of the Aanaar Sámi tradition. Besides *livđe*s there are songs (*laavlâ*), which have been influenced by the Norwegian and Finnish song traditions as well as by the use of the Lutheran hymns (*salmâ*). The Aanaar Sámi have been documented as early as the beginning of the 19th century by priests and travellers as having an excellent talent for hymn-singing. In addition an interesting part of the musical tradition is composed of various signals and herding calls associated with the traditional sources of income – lake fishing and reindeer herding. (Jouste 2006, 290–294.)

The *livđe* melodies are based on a model of two phrases. Even though the individual melodies have special and distinguishable characteristics, there are some features which are common to all melodies. There is a certain fixed melody referred to in this paper by the name "Aanaar melody" and it is used both in the individual songs and songs of animals. There are some melodies which have some of the features also found in the Skolt Sámi melodies like the descending melody contour and additive metrical structure. In general the voice production in the Aanaar Sámi *livđe*s is quite close to singing.

Heendâ Matti *livđe*

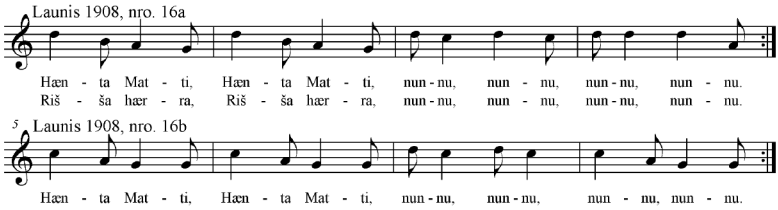
The point of departure in the analysis of the owned songs of the Sámi is that the basic information of the songs must be available; it must be stated of what particular performance of *yoik*, *livđe* or *leu´dd* the analysis is made. Only in rare cases is a single recorded performance enough to understand the essence of its melody. The following analysis of Heendâ Matti's *livđe* illustrates this phenomenon.

The first example of Heendâ Matti's *livđe* is performed by Inkeri Saijets (Ex. 1). The phrase form is AB. In the first phrase there is a cadence on the second degree while the second cadence ends the melody on the first degree. The melody apparently follows the model of cadence form and dynamic metre. It must be noted that the performer originates from the eastern Aanaar area, adjacent to the Skolt Sámi area and this melody also has phrase structure similar to that of most of the Skolt Sámi melodies.



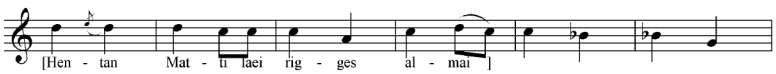
Ex. 1. An Aanaar Sámi *livđe* of Heendâ Matti performed by Inkeri Saijets in 1913.

When the melody is compared with the same *livđe* collected from the performers of the western Aanaar area, at first sight it seems to be a totally different melody. The second melody (Ex. 2) is performed by an Aanaar Sámi, Matti Mattus, (Launis 16a) and the third by a northern Sámi Jouni Aikio (Launis 16b).



Ex. 2. An Aanaar Sámi *livđe* of Heendâ Matti performed by an Aanaar Sámi Matti Mattus (Launis 1908, 16a) and by a northern Sámi Jouni Aikio (Launis 1908, 16b).

The fourth version of the same *livđe* is performed by Anna Briitta Mattus (Ex. 3):



Ex. 3. An Aanaar Sámi *livđe* of Heendâ Matti performed by Anna Briitta Mattus in 1946.

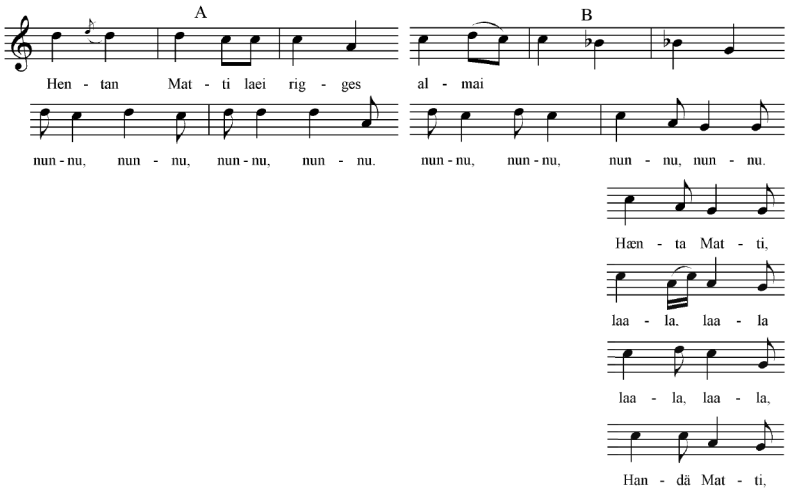
Variation pervades almost every level of the melody: the total structure, the phrase structure, the cadential structures, the tones available, the interval structure and the type of metre (dynamic/static). It can be seen that in these variations the phrase structure forms a static model with four phrases instead of two, added with phrases that have been shortened. The total structure has been altered so that in variations 2, 3 and 4 the melody is started with phrase B instead of phrase A, even though the name of the person *yoik*ed (Heendâ Matti) is mentioned,

which often still adds to the structural variation. Versions 1 ja 2 have similar cadential structure (A: V-II, B: V-I). These are pointed out in the next table (see Table 1).

1.	Phrases	A	B
	Cadences	V-II	V-I
	Tones available	d^2-c^2-a^1	d^2-c^2-bb^1-a^1-g^1
2.	Phrases	BB	A
	Cadences	V-I V-I	V-II
	Tones available	d^2-b^1-a^1-g^1	d^2-c^2-a^1
3.	Phrases	BB	B
	Cadences	V-I V-I	V-I
	Tones available	c^2-a^1- g^1	d^2-c^2-a^1-g^1
4.	Phrases	BB	BB
	Cadences	V-I V-I	V-I V-I
	Tones available	c^2-a^1- g^1	d^2-c^2-a^1-g^1

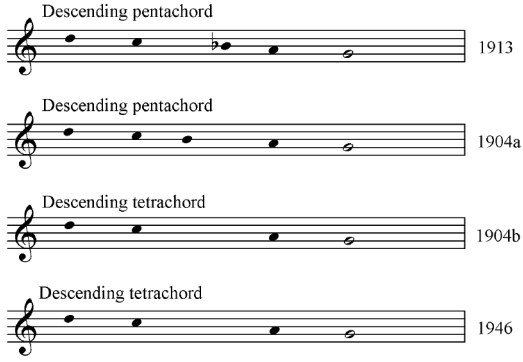
Table 1. Comparison of the structural elements of the above (Ex. 1–3) versions of Heendâ Matti's *livđe*/*yoik*.

Without the additional knowledge of the owner of this *livđe* and the close relation of all these melodies, we could not treat these melodies as one and the same. It is obvious that the concepts of similarity and difference in the Sámi musical culture differ from the notions manifested in the conventional analysis of European music. Thus we must adjust the model of analysis in order to reach valid conclusions. The main assumption is that dynamic models must be used in the analysis of all musical parameters.



Ex. 4. Comparison of the above (Ex. 1–3) versions of Heendâ Matti's *livđe*/*yoik*.

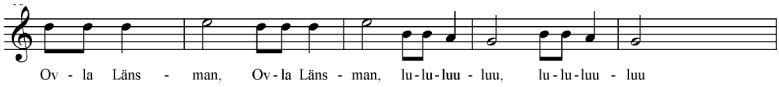
Addressing the idea of a melodic identity of this owned song, we have to consider three possibilities. First, if all variations are considered as reflecting the same melodic identity and the same tonality (see the comparison of the tonal complexes in Ex. 5), there must be agreement that there is a Sámi tonality that embraces both the major and the minor pentachord and also the anhemitonic pentatonic scale (of a Sol-type).



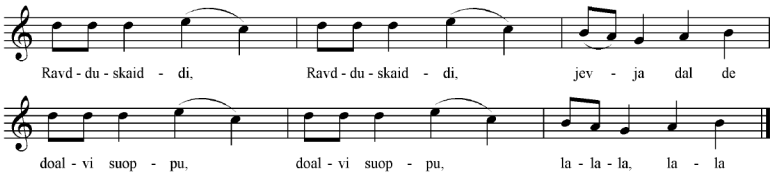
Ex. 5. Comparison of the tonal complexes of the above (Ex. 1–3) versions of Heendâ Matti's *livđe*/*yoik*.

Second, we could consider that variations represent different tonalities. In this case a melodic identity cannot be dependent on a fixed tonality but on some other musical or even extramusical principles. The third option is to accept theoretically that in Sámi music different intervals in performances by different performers can, nevertheless, represent the same melodic identity.

Another example of similarity in the owned melodies can be studied with the next two melodies (Ex. 6 and 7). The first is the *yoik* of a northern Sámi called Ovllá Länsman and the second is the *yoik* of the place where he lived in Ohcejohka region, Ravddoskáidi. One can easily see that the melodies are similar though with some variation.



Ex. 6. *Yoik* of Ovllá Länsman performed by Piera Porsanger in 1904.



Ex. 7. *Yoik* of Ravddoskáidi performed by Ovllá Láide in 1904.

Melodic types of Sámi music

While the Sámi musical cultures are in many ways quite distinctive, there are some common melodic features that can be organised into the following typology, which is an attempt to outline a hypothetical system of the melodical thinking of the Sámi.

A comparative study on the structures of melodic types of Sámi music reveals some general features, given that the melody is just one of the numerous parameters (e. g. voice production, performance, communication) which as a whole can be called a musical style. I shall consider here only to the main differences which can be investigated by two main concepts of the principal musical structures. First, there is a structure which can be defined as *static*. In the general construction of a static musical performance the elements retain their original structure. The variation does not have an effect on the structural level. This stability contains the intervals and the metrical structure.

The second model can be called *dynamic*, in which musical elements vary constantly so that the general structure of a performance changes. The term dynamic model is needed when no clear symmetrical and permanent structures such as syllabic or durational metres or precise and continuous intervals can be found in the music. However, a dynamic model has a structure but there is a certain amount of variability in the structure itself. A well known dynamic structure is the northern Russian *bylina* formula in which the stressed syllables form a constant metre although there may be a variable number of unstressed syllables between the stressed ones.

Even though these definitions are universal and can be applied to every musical tradition, they help to focus our attention on the unique structural features of Sámi music. It is crucial to examine closely in which parts of the music and to what extent static and dynamic principles operate.

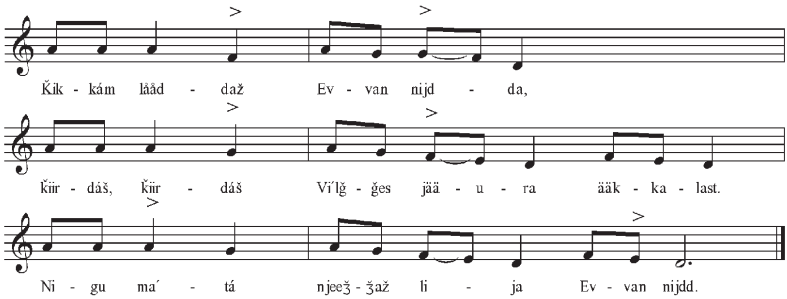
The metre of the Skolt Sámi music is a good example of a dynamic structure. However, in the northern Sámi *yoik*s one can find a notable variation in the interval structure of the melodies while the metrical structure remains static. If we cannot address our attention to the precise aspects in the music, we cannot understand where there is a variation and where some elements have simply been replaced by other features. The difference between changing and merely varying musical elements is fundamental; no first and original melody of a certain *yoik*, *livđe* or *leu´dd* can be found for comparison. There are only variations of a certain melodies which may have histories of hundreds of years.

Melodies of the cadential type in the Sámi musics

The melodies of the cadential type consist of a certain melodic movement (see Ex. 8). A phrase begins usually with a leap from the first degree to the highest part of the melody, often the fourth or the fifth degree. After the first leap the melody descends gradually to the first degree. At the end of the phrase there is a recognisable melodic cadence and a lengthening of the individual tones on the first degree. The cadential type exists in a one-phrase type and in a two-phrase type. In the one-phrase type the melodic movement can be demonstrated with the following diagram.

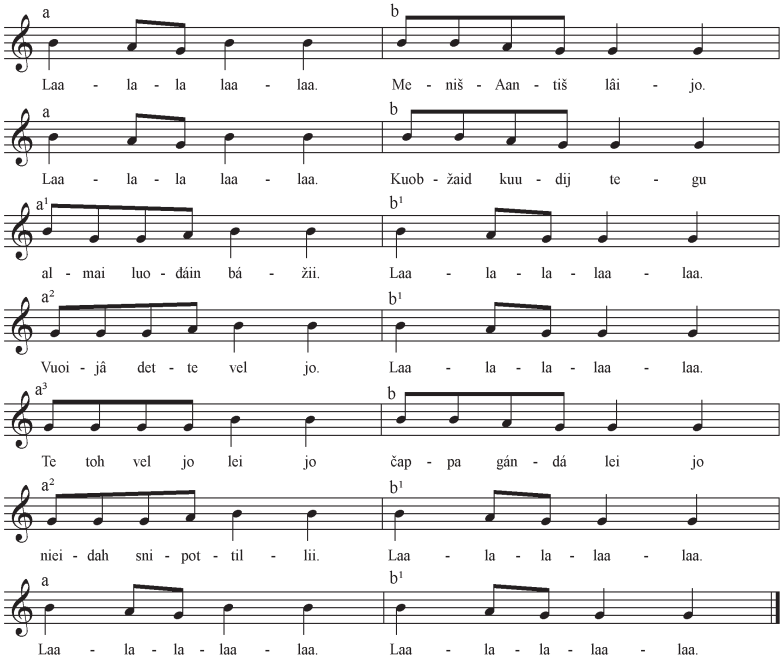
Ex. 8. A diagram of the one-phrase cadential type.

This melodic type can be found from a Skolt Sámi leu´dd *Ǩikkâm* 'A Tern' (Ex. 9). The model for the metre of this melody is clearly dynamic as the amount of syllables varies constantly.



Ex. 9. A Skolt Sámi leu´dd Ǩikkâm 'A Tern' performed by Näskk Mosnikoff in 1961.

The next melody is an Aanaar Sámi personal *livđe* of Meniš-Aantiš (Ex. 10). The overall melodic structure is similar though the melody and its intervals are different. The metre in this melody is static. There is some variation at the beginning of each line but none of this really affects the basic metrical structure.

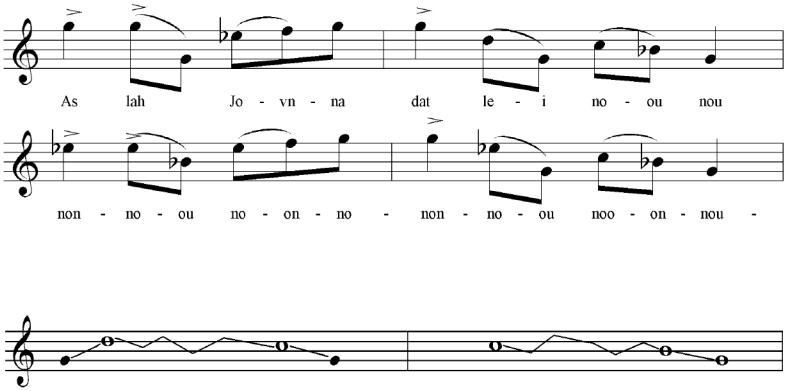


Ex. 10. An Aanaar Sámi *livđe* of Meniš-Aantiš performed by Anna Briitta Mattus in 1946.

The third example is a northern Sámi *yoik* of Áslat Jovnna (Ex. 11). Here again the melody consists of one descending cadential phrase with a static metre. However, this time the intervals are much wider than in the previous examples.

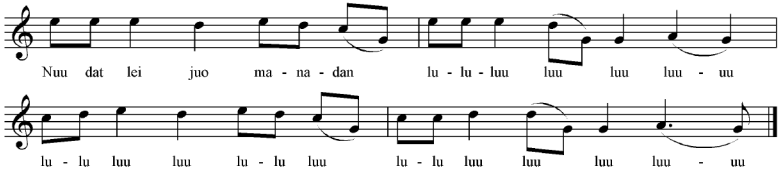
Ex. 11. A Northern Sámi *yoik* of Áslat Jovnna performed by Uula Aikio in 1961.

The cadential type with two melodic phrases is more common than the one-phrase type. In the two-phrase type (see Ex.12) the phrases are clearly distinguishable by their melody and there is also a cadence in both phrases. The lengthening of the individual tones on the first degree occurs only in the second phrase. The melodic movement can be demonstrated with the following diagram.



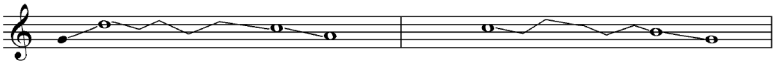
Ex. 12. A diagram of the two-phrase cadential type.

The next example (Ex. 13) is a northern Sámi *yoik* of an elk with the two-phrase cadential type.



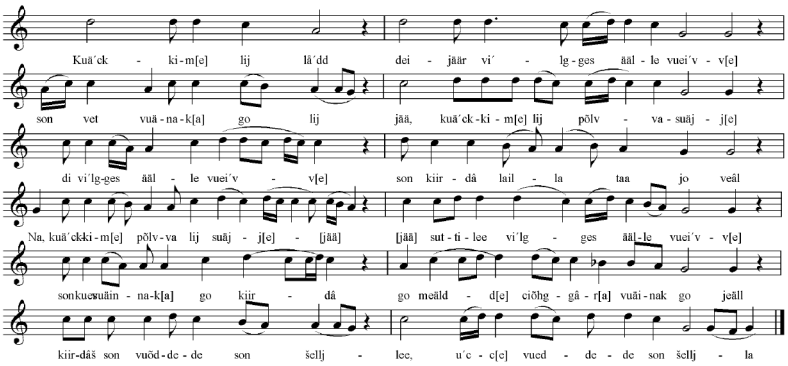
Ex. 13. A Northern Sámi *yoik* of an elk performed by Uula Jomppanen in 1961.

The cadence of the first phrase can also end at the second degree (see Ex. 14). This is the model which can be applied to the Heendâ Matti *livđe* discussed above.



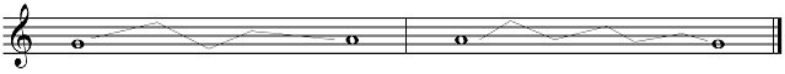
Ex. 14. A diagram of the two-phrase cadential type.

This type of melody is found in the following Skolt Sámi Kuä´cǩǩim *leu´dd* (Ex. 15).



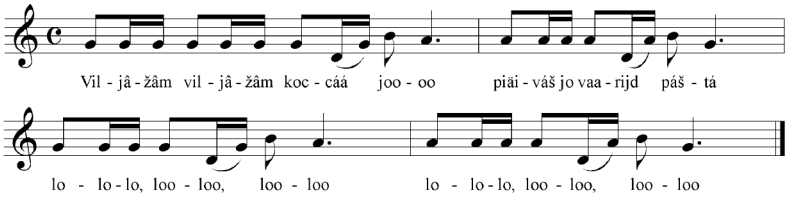
Ex. 15. A Skolt Sámi Kuä´cǩǩim *leu´dd* ('A *leu´dd* of an eagle') performed by Kaisa Gavriloff in 1961.

There is a characteristic "Aanaar melody" in the *livđe* melodies which is used in both the individual and animal *livđe*s. The first phrase begins from the first degree and makes a cadence to the second degree, after which the second phrase returns to the first (see Ex. 16).



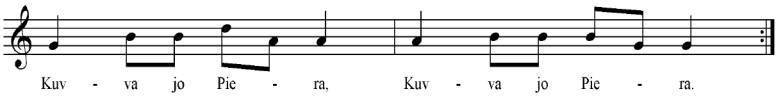
Example 16. The structure of the "Aanaar melody".

The "Aanaar melody" can be observed in the following *livđe* of Kuobža (Bear) (Ex. 17).



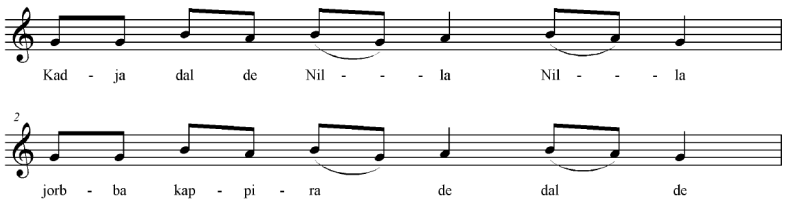
Example 17. An Aanaar Sámi *livđe* of Kuobža (Bear) performed by Anna Briitta Mattus in 1946.

An Aanaar Sámi *livđe* of Piera Kuuva uses the same form of the "Aanaar melody" (Ex. 18).



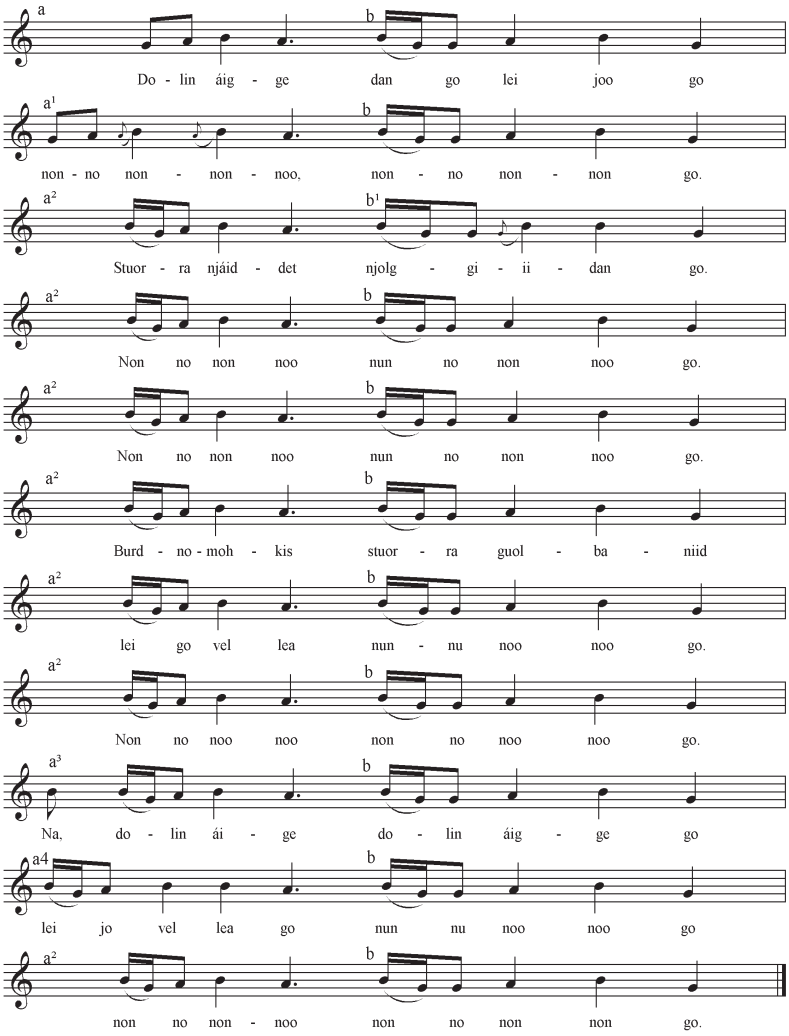
Example 18. An Aanaar Sámi *livđe*/*yoik* of Piera Kuuva performed by Jouni Aikio in 1904 (Launis 1908, 421).

A similar melodic structure is occasionally found in the northern Sámi tradition as in the following *yoik* of Gádjá-Nillá (Ex. 19).



Example 19. A northern Sámi *yoik* of Gádjá-Nillá performed by Ovllá Láide in 1904 (Launis 1908, 611c).

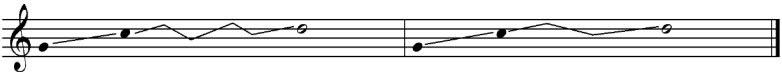
Yet another example of this is a northern Sámi *yoik* of Lars Nikodemus (Ex. 20).



Example 20. A northern Sámi *yoik* of Lars Nikodemus performed by Niillas Magga in 1961.

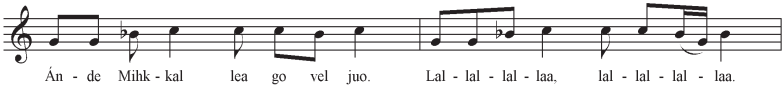
The melodic type of ascending phrases

There are also melodies that are clearly different from the cadential melodic type. These can be said to consist of ascending phrases because the melody rises and remains high at the end of each phrase (see Ex. 21)



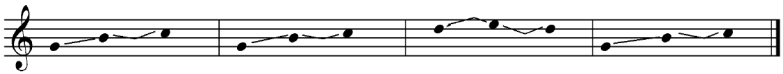
Example 21. Diagram of the melodic type of ascending phrases.

The melodic type of ascending phrases is typical of many melodies in the Aanaar Sámi and northern Sámi traditions. In the Skolt Sámi leu'dds the ascending phrases are rare. The melodic type of two ascending phrases can be observed in the *yoik* of Ánde Mihkkal (Ex. 22).



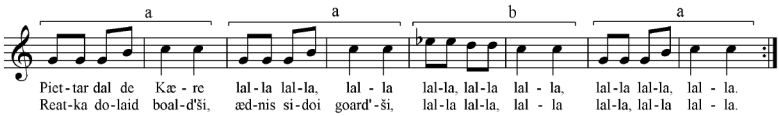
Example 22. *Yoik* of Ánde Mihkkal performed by Anna Briitta Mattus in 1946.

Typical phrase structure consists of four phrases of which the third rises higher than the others (see Ex. 23). This can also be analysed as a two-phrase structure A [a-a] B [b-a] where phrase B has some contrasting features to the phrase A.



Example 23. Diagram of the melodic type of ascending phrases which has four phrases.

This is shown in the northern Sámi *yoik* of Biehtár Káre (Ex. 24):

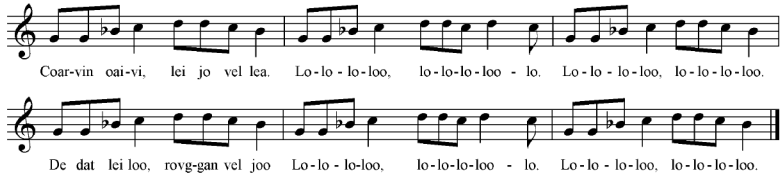


Example 24. *Yoik* of Biehtár Káre performed by an anonymous performer in 1904.

Naturally there is considerable variation in the general structure. For example, Armas Launis (Launis 1908, XXXIII) formulated the following list of phrase structures in the northern and Aanaar Sámi melodies he collected in 1904 and 1905:

aa – aa	ab – ab	ab – cc
aa – ab	ab – aa	ab – ab
aa – ca	ab – ba	ab – cb
aa – cc	ab – bb	ab – bd
aa – cd	ab – ca	ab – cd

There are also structures of three phrases as in the next *yoik* of a reindeer (Ex. 25). The melody follows a structure ABA.



Example 25. *Yoik of a Čoarveoaivvi (reindeer) performed by Margit Aikio in 1961.*

Conclusion

The Sámi cultures in Finland consist of three different local cultures, the northern Sámi, the Aanaar Sámi and the Skolt Sámi. Although there is a difference in many musical and extramusical features between these, they do have certain elements in common. The importance of the owned melodies cannot be underestimated as it reveals the answer to the question of what is considered to be the same or different in the musical thinking of the Sámi.

However, it is possible to understand the general characteristics of the Sámi melodies only through the perception that the additive and monochronic principles create special musical characteristics. There are no instruments to provide the reference tones for the singing. Due to this, the intervals cannot be analysed as constant as in Western music, as seen in the example of Heendâ Mattis *livđe*. This notably affects the analysis of the tones available or scale analysis. It is misleading to stress the importance of a certain type of tones available as the intervals can vary widely in the different variants of the same *yoik*, *livđe* or *leu´dd*. Therefore earlier attempts to analyse the tones available have yielded only a limited amount of valuable information on the general principles of the Sámi music. The additive and monochronic principles apply equally to the metrical analysis. Obviously the Skolt Sámi melodies have ample variation in the duration of the individual tones, while the northern Sámi and Aanaar Sámi melodies tend to use a fixed metrical order.

It would be an exaggeration to claim that Sámi music has no universal principles in its melodic structures. An owned song is primarily a symbol of its object. It is vital to keep in mind that a melody is only one constituent part of a certain *yoik*, *livđe* or *leu´dd*. The essence of all Sámi music is that it is mainly communication and much of this is also carried by the extramusical features of the performances.

In this paper I have proposed a general model for the analysis of the phrase structures of Sámi melodies. The melodic phrases are either cadential or ascending. Even though this is a very general and probably

universal phenomenon, it gives us a tool for the analysis of Sámi music as these melodic types are in many ways opposite to each other. The most important result is that through these two melodic types we can understand how certain melodies known to represent the same object are indeed similar. In the future I shall integrate the information of the locality and certain owned melodies into the analysis of the melodic types, hoping to ascertain how these are distributed over various geographical areas.

Literature

Acerbi, Giuseppe 1963. *Matka Lapissa v. 1799 [Travel in Lapland in 1799]. (In: Travels through Sweden, Finland and Lapland to the North Cape).* Helsinki: WSOY.

Hirvasvuopio-Laiti, Annukka 2008. *Gárddi luhtte lávddi ala – Poroaidalta esiintymislavalle. Saamelaiset elementit tenonsaamelaisessa musiikissa kolmen sukupolven aikana [Gárddi luhtte lávddi ala – From the reindeer corral to the stage. Sámi elements in three generations of Teno Sámi music]*. Master's thesis. Tampereen yliopisto, musiikintutkimuksen laitos.

Jouste, Marko 2006. Suomen saamelaisten musiikkiperinteet [The musical traditions of the Sámi in Finland]. *Suomen musiikin historia: Kansanmusiikki [The history of Finnish Music: traditional music]*, eds. Asplund, A. et al. Helsinki: WSOY. Pp. 272–307.

Jouste, Marko & Mošnikoff, Elias & Sivertsen, Seija 2007. *Mââddar ååjji lee'ud – Historiallisia kolttasaamelaisia leu'ddeja [Mââddar ååjji lee'ud – Historical Skolt Sámi leu'dds].* CD + book. Inari: Saamelaismuseosäätiö - Kansanmusiikki-Instituutti - Kolttien kyläkokous.

Jouste, Marko & Niemi, Jarkko 2002. Monochronic and Additive Principles in North Eurasian Song Styles. *Etnomuzykovedenie Povol'zhya i Urala v areal'nykh issledovaniyakh [Ethnomusicology of the Volga and Ural regions as areal studies]*, ed. I. M. Nurieva. Izhevsk: UIIYaL UrO RAN. Pp. 250–282.

Launis, Armas 1908. *Lappische Juoigos-Melodien. MSFOu XXVI.* Helsinki: Société Finno-Ougrienne.

Launis, Armas 1909. Die Pentatonik in den Melodien der Lappen. *Haydn-Zentenarfeier. III. Kongreß der Internationalen Musikgesellschaft*. Wien: Antaria & Co. Pp. 244–252.

Skjöldebrand, A. F. 1986. *Piirustusmatka Suomen halki Nordkapille 1799 [Sketching trip through Finland to Nordkapp].* Porvoo: WSOY.

Tirén, Karl 1942. *Die Lappische Volksmusik*, ed. E. Manker. Stockholm: Hugo Gebers förlag.

Sources of the music examples

The Finnish Literature Society, The Folklore Archives, collection of A. O. Väisänen: the *livđe* of Heendâ Matti performed by Anna Briitta Mattus in 1946 (Prl 5g);

the *livđe* of Meniš-Aantiš performed by Anna Briitta Mattus in 1946 (Prl 5g);
the *livđe* of Kuobža 'A Bear' performed by Anna Briitta Mattus in 1946 (Prl 1c);
the *yoik* of Ánde Mihkkal performed by Anna Briitta Mattus in 1946 (Prl 3b).

The Research Institute for the Languages of Finland, collection of T. I. Itkonen:

The *livđe* of Heendâ Matti performed by Inkeri Saijets in 1913. (The original recording is missing but a musical notation made by A. O. Väisänen can be found in the box of wax-cylinders.

The University of Tampere, Folklore archives, collection of Erkki Ala-Könni:

the *leu´dd* of Ǩikkâm 'A Tern' performed by Näskk Mosnikoff (AK/0548);
the *yoik* of Áslat Jovnna performed by Uula Aikio in 1961 (AK/0547);
the *yoik* of of an elk performed by Uula Jomppanen in 1961 (AK/0538);
the *yoik* of Čoarveoaivvi performed by Margit Aikio in 1961 (AK/0539);
the *leu´dd* of Kuä´cǩǩim 'An eagle' performed by Kaisa Gavriloff (AK/2066);
the *yoik* of Lars Nikodemus performed by Niillas Magga in 1961 (AK/0544).

The "Lappische Juoigos-Melodien" -collection by Armas Launis (1908):

the *livđe* of Heendâ Matti performed by Matti Mattus in 1904 (Launis 1908, 16a);
the *livđe* of Heendâ Matti performed by Jouni Aikio in 1904 (Launis 1908, 16b);

the *yoik* of Ovllá Länsman performed by Piera Porsanger in 1904 (Launis 1908, 40);
the *yoik* of Ravddoskáidi performed by Ovllá Láide in 1904. (Launis 1908, 78);
the *yoik* of Biehtár Káre in 1904 (Launis 1908, 37);
the *yoik* of Gádjá-Nillá performed by Ovllá Láide in 1904. (Launis 1908, 611c);
the *livđe*/*yoik* of Piera Kuuva performed by Jouni Aikio in 1904 (Launis 1908, 421).