

DISCOVERING MUSICAL CHARACTERISTICS OF CHILDREN'S
SONGS FROM VARIOUS PARTS OF THE WORLD

by

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Abstract

Children's songs are ubiquitous in every culture and every childhood. Children's songs — songs composed, sung, or heard by children — share many musical characteristics, such as short phrases and a large number of repetitions. These similarities could be due to children's external environment, including musical culture, and an internal impulse, or innate musicality. This study compares the musical characteristics of one hundred children's songs from various parts of the world to further understand what characteristics are shared and what are unique to a song or region.

Studies of children's music have been made by scholars from various fields, and hence different emphases: psychologists focused on the developmental process, ethnomusicologists studied children's songs as a cultural component, and music educators were interested in children's musical ability. Some studies also analyzed children's songs' structure, but often within the confines of a culture or even classroom. In this study, children's songs of various cultures are transcribed and analyzed.

The analysis uses a comparative method inspired by Alan Lomax's cantometrics. Five musical properties — tonality, meter, melody, structure and grouping, and means of ending — are analyzed in each song, and similar results are grouped and counted in order to have an idea of the abundance of a particular characteristic within the sample.

The results suggest that children's songs in general share certain characteristics, but there is also much dissimilarity. Scale and meter appear to have a strong regional distribution, and small range is possibly a result of developmental limitation. It is still impossible to clearly disentangle the effects of cultural style and biological factors, but investigating the exceptions from the general brings us closer to the answer.

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Chapter 1: Introduction

My encounter with children's songs as an adult started last summer when I was writing a term paper on the music of the Taiwanese Aborigines. The project was a re-exploration of the pros and cons of the then-hotly-debated cantometrics developed by Alan Lomax (1968). The Taiwanese Aborigines were chosen because of the small number of tribes and their historical significance in the language family.

Taiwan is suspected to be an explosion site for the Austronesian linguistic family (Diamond, 1998). On the main island alone, there exist three of the four subfamilies. The fourth subfamily is found on Orchid Island, on the southeast coast of Taiwan, and the language is still spoken by the Yami people today. Like the linguistic diversity, the musical characteristics were also diverse among the eight tribes¹, from what I have observed. The most striking contrasts are the text-music relationships and textures². About half of the tribes have a syllabic text-music relationship, while the other half have a melismatic one. The divide roughly corresponds to the geography, where the northern half is syllabic, and the southern half melismatic. Texturally, each tribe is distinctive on its own: Amis sing in polyphony, Bunun homophony, Atayal in canon, and Paiwan and Rukai in drone polyphony. Overall, Taiwan hosts a large amount of musical diversity, and each tribe has a distinctive combination of characteristics, which makes the tribal origin identifiable.

Most of the songs fall into the *tribal category*, in that they bear a combination of characteristics common to the tribe but distinctive from the others. There are two types of exceptions, however. The first one is songs associated with shamanistic rituals, which are

¹ The eight tribes are: Amis, Bunun, Tsou, Yami, Paiwan, Puyuma, Rukai, and Atayal.

² Here "texture" refers to the melodic and rhythmic relationship between voices.

metrically irregular and melodically sustaining on a few pitches. The second type is children's songs, either performed by children or adults. The children's songs, regardless of the tribal origin, all have a set of common features: repetitive, short-phrased, syllabic, and free from ornamentations. The commonality in children's songs struck me at the time. How does children's music sound more similar than their respective adults' music, if music was purely a product of culture? Since children and adults of a society share the same cultural environment, isn't it logical that they should share the same style of music?

There were two questions that I had in mind. The first was whether or not children's songs represent an "innate musicality." An "innate musicality" to me is the style of music that a person makes when s/he spends all of his/her life in isolation. This is to be distinguished from the external influence that we receive from the culture. Using the theory of biology, any external expression, or phenotype, is the outcome of the combining effect of genotype (internal biological factor) and environment (external cultural factor). Music making — as with speech — is a type of communication behaviour common and unique to all human populations³. As behaviour, music making is a phenotype that is subject to the influence of both internal and external factors, but what *aspects* of music making are we talking about? Here I am interested in the musical style, if it is influenced by both factors. If we could make a bold assumption that it is, then it is logical to say that the stylistic change from childhood to adulthood is due to the change of dynamics between the two factors. As a child grows up, s/he accumulates more

³ I use the word "population" to indicate a group of people who live geographically close to each other, and are separated from other populations. Here it is used without referring to "culture," a word I reserve for the common aesthetics or shared knowledge among a group of people.

experience with the musical style in his/her cultural surrounding; hence the influence of the external factor becomes stronger.

The second question was if the “innate musicality,” or the internal factor, is universal. The reason for asking this question is because of the cohesiveness that I observed in the children’s songs of the Taiwanese Aborigines. As we know, different cultures around the world have different musical styles, which means that the external factor has a great amount of diversity. Is there also individual or population differences in internal musical style, or are we more or less biologically programmed identically?

These two questions are very difficult to answer because no individual lives in a culturally vacuous environment, and hence there is no real way to know what an “innate musicality” is and if it is universal. However, under the assumptions that it does exist and has a stronger influence in children as opposed to adults, I would like to investigate the nature of it and its dynamic with cultural influence in children through analyzing children’s songs. The goal of this project is to start asking these questions, and to see what children’s songs tell us. Thus this study is a rough survey of the musical characteristics of children’s songs from various cultures around the world.

Before I introduce the chapters, I would like to discuss and define what “children’s songs” are exactly. “Songs,” or vocal music, will be the focus of this study. This is to be differentiated from instrumental music, which will not be discussed. I have chosen to focus on vocal songs because they are the most natural form of music that a person can make. Any instrumental music requires explicit learning, and hence is more bounded within the cultural understanding. Although songs could also be learned, they could also be improvised or made up without any explicit learning. Here I will also

include “spoken” songs, in which the proceeding of syllables has a sense of rhythm and the intonation is different from the everyday speech. “Children’s songs,” however, cannot be so easily defined. There are three places in which the word “children” could possibly apply. The first is the most apparent: singer or performer. The second is the origin of composition, and the third is the intended singer. In other words, a song could be called a “children’s song” if it was sung by a child, made up by a child, or composed for children to sing. It is not always clear where the word “children” fits in without conducting field research. For this study, I will accept something as a “children’s song” if it fits into any of these three categories.

This thesis comprises of five chapters. Chapter 2 will be a literature review of previous studies of children’s songs. The studies come from several fields with different emphases. Psychologists perceive music making as a biological phenomenon, and hence seek to build models that could best describe this behaviour. Ethnomusicological studies focus on the theoretical views of what children’s song are – a product of diffusionism, enculturation, child-culture autonomy, or cultural cognitivism (Minks, 2002). Music educators emphasize the process of music acquisition and influential factors bearing on it. The chapter will be divided into two sections: one will be a discussion of the various emphases from different camps, and the other a summary of the characteristics of children’s songs distilled from past studies.

In Chapter 3, I will present transcriptions of one hundred children’s songs, selectively chosen from various parts of the world. I will also discuss some pros and cons of various comparative methods, and issues of transcription. A guide to my transcriptions will be given to the readers to understand them. Through presenting the music on paper, I

hope to give the best sense of the music in the visual form, and a basis for the following analyses.

Chapter 4 will present the methods and results of the analyses. Five musical components will be analyzed: tonality, meter, melody, structure and grouping, and means of ending. For each component, I will define my approaches clearly and specify the elements investigated. The results will be presented in tables and graphs. Under tonality I will discuss the number of discrete pitches used in a song, the relationship (distance) between these pitches, and cadence. In the meter section, I will look at the metrical nature of each song and the frequency of specific meters in the selection of children's songs. Under the melody section, range, phrase length, and contour will be analyzed. A separate analysis will be dedicated to phrasing and structure, including the lengths of song cycle and section, as well as the inter- and intrasectional similarity of various elements. Finally, the means of ending in children's songs will be investigated.

In the last chapter, I will suggest what the songs tell us about the underlying influences of biology and culture through correlating the analyzed results with geographic areas. I hope the results will also reveal the dynamics between internal and external influences on musical style in children.

Chapter 2: Literature Review

Numerous scholars are interested in the musical activities of children. Among them, ethnomusicologists represent only a small portion. A lot of interest is generated from the fields of psychology and music education. These scholars take on very different aspects of children's music: some the physical ability of children to make music, and some the relationship of children's music and culture. The first part of this chapter will provide a general comparative review of the methods and emphases in different areas of research on children's music. This review is not meant to be exhaustive, but rather illustrate how each type of study contributed towards a more complete understanding of children's music. In the second part of this chapter I will summarize some characteristics of children's music found in past studies.

PART I – CHILDREN'S MUSIC IN PSYCHOLOGY, ETHNOMUSICOLOGY, AND MUSIC EDUCATION

Psychology, ethnomusicology, and music education are three disciplines with very different research goals and assumptions. Hence, the approach that each field takes towards the common topic, children's music, are also very different. Generally speaking, psychologists perceive music making as a biological phenomenon, which is shared by all members of our species. The research goal is to establish models that could describe the variations in this phenomenon. On the other hand, ethnomusicologists have a history of viewing music as a product of culture. Therefore, their works involve weaving music into the sociocultural context. Music educators “[have] been concerned with the musical achievement of children and adolescents, and the instructional procedures and curricular values of teachers within elementary and secondary school music courses and in tertiary

programmes of music and music teacher education” (Campbell, 2006, p. 418). Instead of developing novel models or theories, the research projects in music education focus on how to apply the existing ones to classrooms for more effective learning. These generalizations represent the emphases of each field, but they are not mutually exclusive. Increasingly, scholars have been more aware of works done in other fields, and there has been exchange between music education and psychology, and music education and ethnomusicology.⁴

A variety of research methods

The difference in research purposes result in differences in research methods. The research methods of the three fields differ in many ways: degree of specificity of the research question, the degree of manipulation of the subjects, location of the study, the role of the researcher, and the emphasis on analysis (Table 1). In the following paragraphs, I will summarize some of the research methods in each field and give examples.

In psychological studies, the methodology is often science-oriented. The researchers often have a clear hypothesis that they wish to test. To answer the question requires a controlled setting to eliminate as much undesired intervention as possible. As a result, the research is often conducted in laboratories. The role of the researcher is to give instructions to the participants, but no value judgments to the response. In publications, individual examples are generally not discussed, and the research question is answered through tendencies indicated by the statistics. A series of studies of children’s musical

⁴ Psychologist David Hargreaves expressed concerns about creating dialogue between psychologists and music educators to bridge the gap between theory and practice (1996). Music educator Patrician Campbell has written about children’s musical culture and its implication in classrooms (2006).

preferences by LeBlanc (1979, 1981, 1983, 1986, 1988) is typical of the experimental methods just described. In these studies, individual participants were asked to rate several musical excerpts of different styles based on their preferences. In the articles, statistical analyses were given, and the discussion was based on the general tendencies instead of individual examples.

<u>Example. Discipline</u>	<u>Place of study</u>	<u>Intervention</u>	<u>Individual vs. general</u>
Greer <i>et al.</i> , 1974. <i>Music ed.</i>	lab	instructions & tests given	general analyses
Bamberger, 2006. <i>Psychology?</i>	lab	instructions & tests given	individual examples
LeBlanc, 1981. <i>Music ed.</i>	lab	instructions & tests given	general analyses
Dowling, 1984. <i>Psychology</i>	home?	test on memory & ability	general analyses
Loane, 1984. <i>Music ed.</i>	classroom	initial instructions given	individual examples
Kratus, 1989. <i>Music ed.</i>	classroom	instructions, tests, & time limitation	general analyses
Swanwick & Tillman, 1986. <i>Music ed.</i>	classroom	sequential instructions	individual examples, general analyses
Davies, 1992. <i>Music ed.</i>	classroom	initial instruction	individual examples
Pond, 1981. <i>Composition</i>	room, outside of class time	minimal	general analyses
Harwood, 1998. <i>Ethnomusicology</i>	playground	minimal	individual examples
Merrill-Mirsky, 1986. <i>Ethnomusicology</i>	playground	minimal	individual examples
Dzansi, 2002. <i>Music ed., ethnomusicology</i>	playground	minimal	individual examples
Blacking, 1967. <i>Ethnomusicology</i>	community	minimal	individual examples, general analyses
Burnard, 2000. <i>Music ed.</i>	playground	minimal, interviews	individual examples, general analyses
Marsh, 1995. <i>Music ed.</i>	playground	minimal	individual examples

Table 1. Summary of research methods in children's music

In contrast, music educators are less concerned with statistical significance, but focus on individual examples. They generally collect materials from classrooms, where they give students clear instructions and evaluate their responses. The role of the researcher is thus one of both instructor and evaluator. The research questions are formulated towards a general direction, but have no specific hypothesis. Brian Loane's study of children's compositions is a classic example (1984). In this study, the children were divided into small groups of four to six, and Loane, as a teacher, instructed them to compose songs based on a musical idea that he suggested. In the article, he gave detailed discussion of individual examples, but no overarching observations.

Ethnomusicologists, and an increasing number of music educators, conduct their studies in the playground, where the researcher takes on the role of a participant observer, or simply an observer. In her study of girls' handclapping games in Los Angeles, Carol Merrill-Mirsky acted as an observer, recording the games that the girls played (1986). In this type of study, the researchers often do not intervene with the children's activities and give no instructions. They believe imposing strict parameters on children would inhibit their creativity (Burnard, 2000). In these studies, the research question is open-ended. What they learn from the studies depend on the observations. Analyses of individual examples often fill the body of the research paper, where the context is also described.

Models of children's musical behaviour: Studies in psychology

Taking the perspective of music as a biological phenomenon, psychologists believe that music is a behaviour subject to changes by a variety of factors. They seek to identify these factors and their exact influence on music making. The factors could be both internal and external. Internal factors are only characteristic of the subject itself,

such as age and personality. External factors include the child's musical surroundings and the influence of peers and family.

Generally, the topics that I have come across in psychological studies are concerned either with aesthetic preferences or developmental processes. Aesthetic preferences deal with finding out what musical characteristics appeal to children the most under specific circumstances, and developmental processes involve relating the musical ability of children with a specific age group.

Aesthetic preferences

A series of experiments conducted by Albert LeBlanc in the '80s attempted to measure the effect of various musical features on musical preferences in children. LeBlanc and several different colleagues tested the effects of musical style (1979), interaction between style, tempo, and performing medium (1981), tempo (1983), interaction between vocal vibrato and performer's sex (1986), and tempo correlated with age (1988) on children's music preference. In his mind, there were three major sources of input that influenced the musical preferences of the listeners: the physical characteristics of the music, the influence of the cultural environment, and the personal characteristics of the listener (1986). In the 1980 article, LeBlanc had already identified several factors within each of the three major sources. He constructed a hierarchical structure of eight levels of variables. Each level was influenced by the adjacent levels, and sometimes cross-levels. In this model, the variables "music" and "environment" were put on the same level at the bottom, and above were several levels of variables that belonged to the "listener." In his classification, the variable "music" referred to the physical qualities of the music. The "environment" included factors such as peer group, family, educators and

authority figures, and incidental conditioning, all of which involved personal and direct interaction with the subject. The variables classified under “the listener” involved mostly the biological status of the subject such as sex, personality, maturation, and memory. This model was presented again in several subsequent articles (1981, 1986, 1988) as a theoretical background. What was different about the newer versions compared to the original was the addition of the variables “ethnic group” and “socioeconomic status” under “the listener” category. LeBlanc did not specify whether “ethnic group” meant biological or cultural. Moreover, I would consider “socioeconomic status” an *external* factor, one that belonged to “the environment” as opposed to being an inherent quality of the subject.

Despite differences in specific details of the model, Hargreaves and his colleagues (2006) were in general agreement with LeBlanc. In their “Reciprocal Feedback Model of Musical Response,” they reduced the variables to three categories: listener, music, and listening situation, all interrelated and contributing directly to the response. Hargreaves further introduced two theories on the stimulating ability of the music. The first was led by Berlyne (1971), who suggested that preference was linked to the complexity of the music. On a continuous scale with familiarity and complexity on either end, preference peaked in the middle of the scale forming an inverted-U shape. Although Hargreaves was well aware of the effect of increasing age, which decreased the perceived complexity of the music; this model assumed that familiarity linked to simplicity, and unfamiliarity to complexity. In Blacking’s *Venda Children’s Songs* (1967), he stressed that the Venda “children do not necessarily learn the simple songs first” (p. 29), by which he meant they

did not learn songs in the sequence of increasing number of tones. This piece of evidence made the validity of the model suspect.

The other theory considered that musical excerpts that were most “representative” (or prototypical) of the genre had the most arousal potential. Specifically, the genre had to be significant to the listener, who “encountered [the music] during a *critical period* of development associated with late adolescence or early adulthood” (Holbrook, 1995, p. 57; italics in the original). In the study done by North and Hargreaves, they asked the participants to name the “most eminent pop musicians.” The selected musicians were the ones who enjoyed the most popularity at the time of the subjects’ adolescence/early adulthood (1995). The problem with this study was the legitimacy of linking “prototypicality,” essentially certain musical qualities, with “eminence,” which did not necessarily have to do with any musical characteristics. Here it was not clear if by “prototype” they meant a specific set of musical characteristics or a combination of elements that gave an impression of representation (*e.g.*, the Beatles = rock). There was also no indication of whether this prototypicality was a shared knowledge or a private decision.

Developmental processes

The purpose of developmental studies is to find out the relationship between musical ability and age. Because of the possible application in classrooms, many scholars in music education are also interested in this topic. At the end of their article presenting a novel development model, Swanwick and Tillman (1986), both music educators, stated that their research had implications in general curriculum planning, individual development, and the role of the teacher (pp. 335-8). Psychologist David Hargreaves also

suggested that “teachers have a clear need for some kind of theoretical framework for their work, preferably based on empirical evidence, which psychologists and other social scientists ought to be able to provide” (1996, p. 167).

The developmental model of Swanwick and Tillman (1986) was based on the theories of Jean Piaget. Piaget had the view that play was not an isolated function, but one of the aspects of many activities (1951). Swanwick and Tillman believed that “play... is intrinsically bound up with all artistic activity” (p. 306). There are three elements in play that could also be identified in musical activities: mastery, imitation, and imaginative play (Table 2). “Mastery” refers to the control of sound materials, “imitation” the act of copying behaviour, and “imaginative play” the behaviour originating from the child’s creativity. Further, Swanwick and Tillman added a fourth element, meta-cognition, in which a person “[became] aware of one’s own thought processes” (p. 330). The development of these elements is sequential, or in a particular order. Their “spiral model” illustrated the sequential development of these four elements with eight different modes. Each stage is correlated to a particular age.

Swanwick & Tillman (1986)		Hargreaves (1996)
0-4 yrs: mastery. Control of sound materials	sensory manipulative	0-2 yrs: sensorimotor. Practice and development of physical skills and co-ordinations
		2-5 yrs: figural. Able to symbolize things that are not physically present
4-9 yrs: imitation. Accommodation	personal expressiveness vernacular	5-8 yrs: schematic. Adaptation of adult convention without the full extent
10-15 yrs: imaginative play. Assimilation	speculative idiomatic	8-15 yrs: rule systems. Accurate use of adult conventions
15+ yrs: meta-cognition. Awareness of one's own thought processes	symbolic systematic	15+ yrs: professional. The transcendence of the conventions to freely express oneself

Table 2. Developmental models of age-related phases in musical expression by Swanwick & Tillman (1986) and Hargreaves (1996).

In a chapter from *Musical Beginnings: Origins and Development of Musical Competence*, David Hargreaves described the development of musical competence assessed by four different criteria: singing, graphic representation of music, melodic perception, and composition (1996). The development goes through five phases, namely sensorimotor, figural, schematic, rule system, and professional (Table 2). Through these phases, children learn to have control of their instrument (or voice), symbolize abstract concepts, adapt to the musical style of the adults, and possibly transcend the adults' musical style.

In this article, Hargreaves (1996) stated, “psychological study of musical development necessarily needs to take account of the social, cultural, and, in particular, the educational context in which it occurs” (p. 145). The importance of “situated meaning” of music is further stressed by what Hargreaves considered musical competence. A definition by Stefani (1987, p. 7), cited by Hargreaves, is “the ability to produce sense through music.” Under such a definition, “what constitutes music in one society may not necessarily do so in another, and our definition of musical competence correspondingly needs to be able to take into account the cultural, artistic, and educational traditions of particular societies” (p. 146). In agreement with Hargreaves, I still need to point out the unculturalism in his assessment of musical competence. In a large number of cultures around the world, music is an oral tradition, which does not involve any notation in the learning process. Yet, in Hargreaves’s model, “graphic representation of music” is an indicator of development. Considering the context of his research, which was done in Western countries, it was legitimate for Hargreaves to make this assumption.

Children, music, and culture – Paradigms in ethnomusicology

In *The Study of Ethnomusicology: Thirty-one Issues and Concepts*, Bruno Nettl stressed the importance of understanding music in its cultural context by referring to the perspectives of Alan Merriam, Charles Seeger, and John Blacking, who represent the “three different but equally emphatic ways of expressing the same principle: for understanding music, the significance of its relationship to the rest of culture is paramount” (2005, p. 215). Since the 1950s, the cultural context has become inseparable from ethnomusicological studies. In approaching the topic of children’s music, like other

topics in ethnomusicology, scholars take a cultural perspective. Instead of seeing children's music as a biological phenomenon, like psychologists do, ethnomusicologists searched for the cultural meaning behind children's music. What is atypical in this topic is that the subjects are children instead of adults. The positioning of the *child* in the triangular relationship between children, music, and culture becomes a new challenge for ethnomusicologists. By giving each element different emphasis and by weaving the relationships differently, scholars come to different paradigms of viewing children's music under the broader cultural context.

In her 2002 article, Amanda Minks gave a comprehensive review of the paradigms of children's music studies in ethnomusicology. The struggle was over the "representations of sameness and difference, society and the individual" (p. 379) in childhood. Her review, hence, was "partly an overview of many Western adult conceptions of childhood proposed in the past century as the result of encounters with the "other – either the Western or non-Western child" (p. 379). Minks summarized four paradigms: diffusionism, enculturation, child-cultural autonomy, and cultural cognitivism.

Diffusionism could be traced back to the nineteenth century. Minks emphasized the primitivist aspect of the diffusionist theory, which was tied to the theory of sociocultural evolution. Under this theory, cultures are on a unilineal evolution towards a *higher* culture, which implies the Western one. Children of Western and non-Western cultures are seen to be the remnants of primitivism. Hence the expressions of "primitive as child" and "child as primitive." In *Games and Songs of American Children*, children's song collector William Newell commented on the similarities between children's songs from different cultures as a result of both exchange and children's inherent primitivism

(1963, p. 29). Composer Donald Pond also expressed his view of the child as primitive in his study of songs made up by children. He said, “I studied [the chants sung by children] with care and great interest. I was delighted to discover that such practices are common in the group singing of primitive peoples” (1981, p. 9). George Herzog also viewed the characteristics of children’s songs, such as simple and limited melodies, simple rhythms, and large repetitions, as survivals of primitive traits (1944).

In *Venda Children’s Songs*, Blacking said, “the rhythmic patterns of the children’s songs are not typical of children’s music that has been recorded in other parts of the world; they are understood best as elementary *Venda* rhythms. Similarly, the melodies and the tonality of the songs can only be understood when their cultural background is known” (1967, p. 192; italics in the original). Such perspective is one of enculturation, which children acquire culture through the adults in their society. “[Enculturation is] a paradigm of difference, of socialization into particular music-cultural norms, and so there is an emphasis on the imitative, reproductive capacity of children’s play” (Minks, 2002, p. 385).

In contrast, cultural autonomy stresses the idea of a “universal child,” and “the idea of an autonomous, homogeneous child music culture that transcends differences in locality, socioeconomic class, and cultural background” (Minks, 2002, p. 390). By observing the children of the Pitjantjara people in Yalata, South Australia, Margaret Kartomi felt that children’s music was not entirely the result of enculturation, but “children had musical and social values of their own” (1980, cited by Minks, 2002). This point of view is reaffirmed by ethnomusicologist/music educator Patricia Campbell, who expressed, “Children constitute their own over-arching, all-encompassing folk group, in

that they share common traditions in language, values, and behavioral patterns... but children's culture is large, multifarious, and decidedly pluralistic" (1998, p. 43). Instead of seeing children as members of one homogeneous culture, Campbell believed children have their own "super-culture," "sub-cultures," and "intercultures," as Mark Slobin (1993) suggested.

The last paradigm recognizes individuality in musical expression. In the view of cultural cognitivism, "children's expressive practices [are considered] in terms of culturally shaped cognitive process... cognition, according to this view, is not a purely mental, individual feat, but rather a social outcome of a person acting in the world, interaction with other persons" (Minks, 2002, p. 393). In *Folk Song Style and Culture*, Barbara Ayres examined the effect of physiological stress — a factor that was cultural-specific — on vocal style (2000). According to her findings, a large range (*e.g.*, from the lowest to the highest pitch in a song) and strong accent are more commonly found in cultures that exert physiological stress on infants. Physiological stress is defined as physical pain such as piercing, circumcision, or stretching of body parts (p. 213). Physiological stress is possibly an extreme example of cultural-specific factors that affect individuals cognitively, yet this demonstrates that song learning is sensitive to various cognitive factors.

Other than these paradigms, scholars have considered other issues, such as gender, in children's musical culture. After observing girls' handclapping games in Los Angeles schools, Carol Merrill-Mirsky suggested the relationship between play and the dissemination of gender roles (1986). The handclapping games were predominantly played by girls, which were, in her opinion, "non-competitive, supportive and

cooperative in nature” (p, 48). In contrast, boys’ games were “individualistic, competitive and with an emphasis on physical strength and agility” (p. 48). These features provided a subconscious basis for traditional female and male roles. Kyra Gaunt also emphasized the importance of double-dutch as a marker of identity, both gender and race, and this children’s game has had a strong influence on American popular culture (2006).

PART II – MUSICAL CHARACTERISTICS OF CHILDREN’S SONGS FROM PAST STUDIES

Despite tremendous interest in the phenomenon of children’s music making, there are relatively few studies on what music children actually make. This part of the chapter will focus on the musical qualities, described in past studies, of songs made up by children and songs sung by children.

Songs made up by children

A variety of terminology belongs to this category: *spontaneous songs*, *children’s composition*, *improvisation*, and many more. Several scholars did differentiate the use of these terms to refer to different musical processes (Burnard, 2000). However, here I will discuss songs created by children, regardless of the processes.

Music educator Coral Davies spent 18 months with 32 children aged 5 to 7 (1992). She studied the songs that the children made up, and found several common features. First is what she called *narrative songs*, or *chant*, that have a vocal quality between sung and spoken. These songs often centered on one or two pitches, which she called the *home notes*. Second, the songs all have some means of closure. The closure, however, is not tonal cadence, which is the closure more commonly recognized in Western music. Davies described the closures as tailing off at the end, with a descending pitch. Although Davies

did not talk about beginnings separately, she did mention that most of the songs had rising pitches at the opening. Third, a four-phrase structure is also common in songs made up by children. Some songs with an AABA structure create musical tension on the third line (B section) by means of tonality. Other songs, structured ABAC or ABAB, do not have such tension, but the texts focus on “images of a single feeling or state of mind⁵” (p. 27). Davies also noticed that the songs that children made up often incorporated fragments of songs already known to them.

The observations of Donald Pond (1981) in a study of songs made up by children, strikingly coincide with some of Davies’s. Pond classified the songs into two categories, *chant* and *song*. He described the chants as “a reciting-note, repeated as many times as may be necessary, with a descending minor third at the end of the phrases” (p. 8). He further noted that all the chants have a common rhythmic pattern: long-short, short-long-long. In a group setting, when a child starts singing a *chant*, the others would join in, and alternate with the soloist forming an antiphonal relationship. What he called “song” is somewhat different. A *song* is often improvised by a child with more rhythmic and melodic variations. Rhythmically, songs do not have a classical rhythmic pattern as chants do, but have more variety. They are based on major or minor scales, and many show elements of aeolian and phrygian modes. Some songs are atonal, and microtones occur occasionally. The intervals are generally small, involving seconds or thirds. Fourths and fifths are rare, and still larger intervals are extremely rare. The text-music relationship is often syllabic, but melisma also occurs occasionally.

⁵ Here Davies gave an example, which had the following text: “I wish I had a puppy, and one of them was good. I wish I had a puppy to cuddle up in bed” (p. 29).

The study done by Eve Harwood (1998) concentrated on the improvisation of girls' hand-clapping games. The melodic improvisation that Harwood observed occurred when the girls sang what they called the "blues," a song with four lines of text, with the second and the fourth rhyming:

"My mama left me,
she left me here,
went to Chicago,
to drink some beer" (p. 20).

According to Harwood's description, at the beginning of each line is an introduction sung with a nasal voice, and during the song the soloist is accompanied by the group, who provides the pulses. Harwood indicated that the girls were "melodically adventurous" and followed no particular pattern during improvisation.

Songs sung by children

Some of the songs introduced in this section are speculated to have been made up by children, but there was no direct evidence. In this section, I simply called them *songs sung by children*, with no attempt to locate their creators. Unlike the studies in the previous section, which were mostly done in Western countries, here the songs were collected from different regions of the world.

John Blacking's work is a comprehensive analysis of Venda children's songs (1967). It goes against the grain of Blacking's thought to reduce musical characteristics and cross-compare them to characteristics from other cultures without giving sociocultural context. However, I will still do so here for reasons I stated in the introduction.

Venda children's songs, much like their adult songs, have the primary purpose of serving social functions. They are sung during social gatherings, exclusive to the

appropriate social group. Rhythmically, they are sung mostly in a 12/8 meter, accompanied by hand claps. The placement of the claps is not random, but is “intended not to agree with the accents of the melody, [in order to] establish a second counter-rhythm” (p.159). The text is almost always set syllabically to the music, except when producing certain meaningless sounds. Statistical analysis of the intervals reveals that the majority are seconds and thirds, and the larger the interval, the more rarely it appears. The songs use primarily 6 or 7 tones, with an emphasis on dorian and mixolydian modes. *Tsha-mavhende* is a song of mockery for boys. The text translates as “Mr. Gaps, the scrapper-of-pots,” and is sung to a boy who has lost his milk teeth (p. 63; Figure 1).

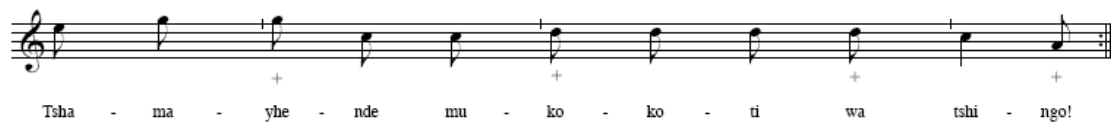


Figure 1. Transcription of *Tsha-mavhende*, from *Venda Children’s Songs* (Blacking, 1967, p. 69).

Observations of girls’ hand-clapping games from Los Angeles schools also showed strong cultural influences (Merrill-Mirsky, 1986). The children came from a background of mixed ethnicity and socioeconomic class, and the songs they clapped with showed both musical characteristics of African and European origins. The songs that have characteristics of African origin are based on three- or five-tone scales, without implied harmony. Further, the pattern of handclapping is cyclic, and staggers with the meter of the melody. Other songs showing more characteristics of European origin have a clear harmonic structure and the handclapping is in 4/4 meter, which coincides with the melody.

It seems that, in these studies, songs sung by children share a large amount of musical characteristics with songs sung by adults in their respective societies. In the Venda's case, the resemblance is not only musical but also functional. Because we do not know whether the composers of these songs are adults or children, we cannot know whether the resemblance represents the same origin (in the case of adult composer) or imitation (in the case of child composer).

SUMMARY

In this chapter I have introduced the main themes of children's music research in psychology, ethnomusicology, and music education. The differences in emphasis are tied to a fundamental belief of what music is. As scientists, psychologists generally see music as a biological phenomenon, and hence the research goal was to establish models that could best describe musical behaviour. Ethnomusicologists, interested in cultural factors, explore the relationship between child, music, and culture. Scholars in music education are more interested in applying psychological models and ethnomusicological theories in classrooms.

A close look at children's musical characteristics as analyzed by past scholars reveals similarities in songs composed by children but differences in the songs they sing. According to these authors, invented songs generally are half-sung, half-spoken, with relatively few pitches and a high degree of repetitiveness. Songs sung by children, but of unknown origin, often display features of adults' music.

Chapter 3: Transcriptions of One Hundred Children's Songs

ISSUES OF TRANSCRIPTION

In this thesis, I have chosen transcriptions as the major means of comparison. However, it has not been the choice from the beginning. In my previous comparative studies⁶, I used a scheme adapted from Alan Lomax's cantometrics (1968). Cantometrics is extremely useful in getting the impression of how a singing style sounds, particularly the vocal style, which is not conventionally notated in transcriptions. The down side of cantometrics is that it overlooks a lot of details that are characteristic of a *song*, instead of a singing style. For me, it is a struggle, as an ethnomusicologist, to find an appropriate comparative method for this study. As Bruno Nettl nicely pointed out, "Ethnomusicology has never had *a* comparative method" (2005, p. 71; italics in the original).

The choice of transcription provides tools and convenience for my analyses. In the article "The Musical Significance of Transcription," George List (1963) said,

Transcription is a prerequisite to certain types of ethnomusicological studies, but not necessarily to all types. It is a prerequisite when it is desired to make detailed comparisons of certain aspects of musical events. Among these are... mode, melody, form, etc... The value of a transcription lies not in its complete reproduction of all aspects of a musical event but in the fact that it facilitates the comparison of a number of individual and separable elements or aspects of the musical event. (pp. 193-4)

The purpose of making transcriptions that List described suits the purposes of this study.

In my study of children's songs, the different aspects of music — such as tonality and meter — are analyzed separately.

⁶ "Re-exploring Comparative Musicology through the Music of Taiwanese Aborigines," 2007; "Musical characteristics of children's songs: an innate musicality?" 2008 [Available upon request.]

Charles Seeger (1958) distinguished two types of transcriptions, namely prescriptive and descriptive. Prescriptive music writing is one where the music writer has intentions for the music in mind, and hence performative. Descriptive music writing is to record what happens in the music as faithfully as possible, and hence analytical. The distinction is a question of intention of the music writer. However, the product is up to the interpretation of the readers. When I transcribed the songs, I tried to be as faithful to the music that I heard as possible, but often I had to bring my own judgment when it was unclear. The transcriptions are not intended for performances, but I do encourage readers who do not have access to the recordings sing or play the songs for both the enjoyment and understanding of my analyses.

In the field of linguistics, scholars distinguish two types of transcriptions, broad and narrow, as extremes on a continuum. They differ in the amount of details in the transcriptions. The broad transcriptions include only the bare essence of a word or a sentence, which makes the initial learning approachable. The narrow transcriptions include details of the speech by adding diacritics on the phonemes. Narrow transcriptions could distinguish subtle cross-dialect, or even individual, differences that appear as the same on broad transcriptions. Musical transcriptions also differ in the amount of details. An extremely narrow transcription would differentiate repetitions of a song by a single performer when they are only subtly different from each other. In this study, I have mostly leaned towards a broader type of transcription for two reasons. The first pertains to the focus of the analyses, which requires only the prominent features of the song. The second is the clarity of broad transcriptions.

I have transcribed the songs in Western notation. Admittedly, Western notation carries connotations associated with Western music.⁷ Idealistically, I would like my transcriptions to be as *culturally neutral* as possible. However, at the moment there is not a single notation system that could accommodate and highlight the individual characteristics of all kinds of music. As Nettl mentioned, in the 1970s there was a tendency to create different kinds of notation in order to solve specific problems (2005, p. 77). Creating a notation for this project would be a possible idea, but also an unrealistic one. First, this project encompasses not only *one* cultural area, but several, which could potentially turn into a large number of musical characteristics specific to one cultural style. To create a notational system tackling one problem would hence omit others, and to tackle them all would only lead to a monstrous transcription. Second, this study is about children's songs, and not about developing a worldwide notational system. Such an attempt would require at least another project on a scale much larger than this one. Having stated the downside of Western notation, the use of it is not without advantages: for most readers, Western notation is possibly more familiar than any other notational systems. This will hopefully encourage the readers to sing or play the melodies, converting visual information back to auditory information.

SELECTION OF EXAMPLES AND SOURCE

The transcriptions were made from repeated listenings to recordings on compact discs. All examples, with the exception of the songs of the Taiwanese Aborigines, come from the series *Le chant des enfants du monde* (Children's Songs from Around the

⁷ An example is the precision of the pitch. In Western music, the tolerance for a pitch range is rather limited compared to many other cultures (Ellis, 1885).

World), produced by the Canadian ethnomusicologist Francis Corpataux with the French record company ARION. The examples of the Taiwanese Aborigines come from another series titled *Taiwan Yuanzhumin zi Ge* (The Songs of the Taiwanese Aborigines), produced by the ethnomusicologist Ron-Shuan Wu with WIND RECORDS, a record company based in Taipei. Corpataux and Wu, specialized in education and music of the Taiwanese Aborigines respectively, both did extensive field research in the process of producing the CD series. Hence, I believe the recordings were presented in the most authentic possible way.

I have selected mostly songs that are meant to be sung on playgrounds, such as game songs, or songs that are sung by really young children, because of the possibility that they were made up by the children, and hence less influenced by the cultural style.

The transcriptions are numbered from 1 to 100. There is no special significance in the ordering; it is merely the sequence of my processing. The examples from a single CD are grouped together:

- #1-11 – Nepal, Thailand, Malaysia, and Indonesia (Arion)
- #12-19 – the southern part of India (Arion)
- #20-30 – South America (Arion)
- #31-43 – Guinea-Senegal (Arion)
- #44-50 – Brazil (Arion)
- #51-58 – China (Arion)
- #59-60 – Bulgaria (Arion)
- #61-64 – Madagascar (Arion)
- #65-73 – Roman (Arion)
- #74-79 – Mauritania (Arion)
- #80-83 – Cameron (Arion)
- #84-88 – Paiwan (Wind)
- #89-90 – Puyuma (Wind)
- #91-96 – Pasu-Tsou (Wind)
- #97-98 – Atayal (Wind)
- #99-100 – Bunun (Wind)

These numbers will be referred to throughout this thesis in the discussion of examples.

GUIDE TO TRANSCRIPTIONS

During the transcription process, I encountered some difficulties of not knowing what to put on the staff paper. Because children have not have fully developed their vocal apparatus, I sensed there was sometimes a gap between what they intended and what came out. This gap created much ambiguity in pitch, rhythm, and meter. In the following paragraphs, I will explain the transcription process, the ambiguities that I have encountered, and how the music turned out on paper.

Meter

I started by tapping with the music, in order to find the tactus. Here my definition of the tactus is the pulsation which I could tap most comfortably. If a song was in duple meter, where the majority of the subdivisions was in multiples of two, I designate the tactus a quarter note, which becomes the basic unit of a beat in the time signature. If a song was in triple meter, and the subdivisions were in multiples of three, I designate the tactus with a dotted-quarter note, and the beat with an eighth note.

The number of beats in a bar is mostly determined by phrasing in instances where the phrase length was mostly consistent throughout the song. However, this was not always the case. In cases where most of the song followed one meter except a small part, I have put dashed barlines around the problematic area, but did not change the overall meter. In other cases where I could not sense an overall meter at all, I avoided putting time signature and barlines on the transcriptions altogether. In these cases, the songs are subdivided through breath marks.

Rhythm

Children's songs are melodically highly repetitive, and often through each repetition, different texts are sung. Because the texts have different lengths and syllables, the melody sometimes undergoes minor rhythmic variations. For the sake of simplicity, I have only transcribed the rhythm played in the first complete cycle in the recording. Rhythmic variations in the subsequent repetitions are omitted.

Repeat Signs

Songs that are repeated from the beginning to the end are given a backward repeat sign at the end of the song. This implies that it could be repeated any number of times. Songs that are only partially repeated are given repeat signs, and the number of repetitions heard in the recording is included. I have done this because the number of repetitions could have been important to the overall structure.

Pitch

For the transcriptions, I have written down the pitches closest to the pitches on a Western twelve-tone scale. Occasionally the pitches wandered by a semitone or a whole tone, as the singers got further into the song. For the sake of simplicity, I have stayed with the original scale by transposing the second part of the song. I have only done this if I sensed the shift was unintentional. The gradualness and small degree of change were taken as signs of unintentionality.

During transcription of the pitches, the most challenging part was songs or phrases that had both sung and spoken qualities. It was often difficult to determine the exact pitch of a syllable, but the syllables had nonetheless more tone differences than everyday speech. In these cases, I have put them on the staff notation with an "x" instead

of a solid oval as the head of the note. These pitches should only be taken as relative instead of absolute.

Key signature

I have generally used standard Western key signatures for songs that are seemingly based on a diatonic scale or pentatonic scale that require the full use of the accidentals. The key signature, however, should not imply tonality in some cases, as the accidentals are only included if the pitch appeared at least once throughout the song. For examples, *Balao Vermelho* (example #28) is analytically in B major, which has five sharps F#-C#-G#-D#-A#. Because A# never once appeared in the song, I have only put four sharps, excluding A#, in the key signature. Similarly, songs that have odd-looking key signatures, such as *Yau Yau* (example #20), only mean that they use those pitches (B^b, A^b, and D^b in *Yau Yau*) throughout the song.

Staff layout

The majority of the songs that I have transcribed are monophonic, and are transcribed onto one staff. Songs that contain two different parts — for example, call-and-response — have been transcribed onto two staves. Claps, foot stamps, or percussive sounds that make regular pulses are often transcribed as symbols below a single staff or between two staves. I chose not to transcribe them on a separate staff because they are not the focus of my analyses.

Text

I have omitted all the texts because the focus of this study is the analysis of the musical, and not the text, elements.

TRANSCRIPTIONS

1. ABANG BALIK KAMPUNG

Malaysia (Kelantan⁸)



2. MADE CENIK

Bali, Indonesia



3. JAWA LEJA

Lio, Indonesia



4. ANA ULE WENGO WEDHO

Lio, Indonesia



⁸ Songs sung in languages other than the predominant language of the region are indicated by including the language of the song in parentheses.

5. LAGU MEMBACA

Sikka, Indonesia



6. LEKALY GURANS

Gurung, Nepal



7. POO NOI MEU

Thailand



8. SIER PUNK

Thailand



9. KATAK LOMPAT

Malaysia (Kelantan)



10. MEONG-MEONG

Bali, Indonesia



11. GINANTI

Bali, Indonesia



12. KANNADA

Bangalore, India



29  

13. MARADALI MADIDA

South India

14. CARRAGIRUVA KAGE

South India

spoken, approximate pitches


15. UPPINATAI

South India

16. ADIGEYA BHATTA

South India

spoken, relative pitches



5

slowing down

Detailed description: This musical score is written on three staves in treble clef with a common time signature. The first two staves contain a series of eighth notes with accents, forming a rhythmic pattern. The third staff begins with a measure marked '9' and includes a section labeled 'slowing down' where the tempo of the eighth-note pattern is reduced.

17. CHUKKE HAKKI

South India



Detailed description: This musical score is written on two staves in treble clef with a common time signature. It features a sequence of eighth notes with accents, creating a steady rhythmic flow. The second staff continues the pattern and ends with a double bar line.

18. KAMANA BILLU

South India



Detailed description: This musical score is written on a single staff in treble clef with a key signature of two sharps (F# and C#) and a common time signature. It consists of a continuous line of eighth notes with accents.

19. UNDIR MAJEA MAMA

Goa, India



Detailed description: This musical score is written on two staves in treble clef with a key signature of two sharps (F# and C#) and a common time signature. The first staff contains eighth notes with accents. The second staff features a triplet of eighth notes, indicated by a '3' above the notes, and continues with eighth notes.

20. YAU YAU

Peru (Quechua)



Detailed description: This musical score is written on a single staff in treble clef with a key signature of two flats (Bb and Eb) and a common time signature. It features eighth notes with accents, including a triplet of eighth notes marked with a '3' above them.

21. PUNYA CUNA

Ecuador (Quechua)

spoken, approximate pitches

Musical notation for 'PUNYA CUNA' in G major, 2/4 time. The melody consists of eighth and sixteenth notes with triplets. The key signature has one sharp (F#). The piece ends with a double bar line.

22. EL PATO CUACUA

Peru

spoken, approximate pitches *half sung, half spoken*

Musical notation for 'EL PATO CUACUA' in G major, 2/4 time. The melody features many triplets of eighth notes. The key signature has one sharp (F#). The piece ends with a double bar line.

23. QUE ESTE RUIDO

Peru

Musical notation for 'QUE ESTE RUIDO' in D major, 2/4 time. The melody consists of eighth and sixteenth notes. The key signature has two sharps (F# and C#). The piece is divided into three systems, with measure numbers 4 and 7 indicated. The third system is labeled *spoken*. The piece ends with a double bar line.

24. LA MARIPOSA

Peru

spoken, approximate pitches

Musical notation for 'LA MARIPOSA' in D major, 2/4 time. The melody consists of eighth and sixteenth notes. The key signature has two sharps (F# and C#). The piece is divided into two systems, with measure numbers 7 and 14 indicated. The second system includes plus signs (+) under the notes, indicating claps. The piece ends with a double bar line.

'+' represents clap

25. EL CHINO CAPUCINO

Peru

Musical notation for 'EL CHINO CAPUCINO' in D major, 2/4 time. The melody consists of eighth and sixteenth notes. The key signature has two sharps (F# and C#). The piece is divided into two systems, with measure numbers 5 and 10 indicated. The piece ends with a double bar line.

31. SIGERETI

Sousou, Guinea-Senegal

solo

5

9

chorus

'+' represents clap

32. SENE DOUGA

Mandingue, Guinea-Senegal

choir 1

4

choir 2

choir 1

choir 2

'+' represents drum beat

33. N'TEROLE

Mandingue, Guinea-Senegal

solo

chorus

7

together

faster

34. GUINANDI

Bambara, Guinea-Senegal

35. N'DIAAYO-N'DIAYE

Serere, Guinea-Senegal

musical score for N'DIAAYO-N'DIAYE, featuring solo 1 and choir 2 parts. The score is in 4/4 time and consists of two systems of staves. The first system shows the solo 1 part on a treble clef staff and choir 2 on a bass clef staff. The second system shows solo 5 on a treble clef staff and choir on a bass clef staff. The key signature has two flats (B-flat and E-flat).

36. SALAMALEKUM

Ouolof, Guinea-Senegal

musical score for SALAMALEKUM, featuring a single melodic line. The score is in 4/4 time and consists of four systems of staves. The key signature has three flats (B-flat, E-flat, and A-flat). The melody is characterized by eighth and sixteenth notes.

37. BEMBEYA

Poular, Guinea-Senegal

musical score for BEMBEYA, featuring a single melodic line. The score is in 12/8 time and consists of one system of staves. The key signature has two sharps (F# and C#). The melody features triplet markings over groups of three notes.

'+' represents clap
'o' represents unmarked subdivision

38. D'ANYE BARA

Mandingue, Guinea-Senegal

solo

6

11 group

16

'+' represents clap

39. YAYE BOBO

Sousou, Guinea-Senegal

'+' represents clap

40. GBENGBE

Sousou, Guinea-Senegal

'+' represents clap

41. YOFO YO

Sousou, Guinea-Senegal

6

12 spoken, approximate pitches

42. NOUNKOU SIRA KENNIY

Mandingue, Guinea-Senegal



43. N'TOFANDE

Sousou, Guinea-Senegal



44. ADOLETA

Brazil



45. ENTREMOS

Brazil



46. CHAMADA DO INDIO

Brazil

Musical notation for 'CHAMADA DO INDIO' in 2/4 time. The piece consists of three staves of music. The first staff begins with a treble clef and a common time signature. The melody is characterized by frequent eighth-note patterns and some triplet-like groupings. The second staff starts with a measure rest followed by a '5' above the staff, indicating a fifth fingering. The third staff starts with a measure rest followed by an '11' above the staff, indicating an 11th fingering.

47. PO HAMEC

Brazil

Musical notation for 'PO HAMEC' in 2/4 time with a key signature of two sharps (F# and C#). The notation includes a treble clef and a common time signature. The melody features eighth-note patterns. Below the notes, there are symbols: '+' signs for foot stomping and 'o' signs for hand clapping. A legend below the staff explains these symbols: '+' represents foot stomping and 'o' represents hand clapping.

48. JACUQUARI

Brazil

Musical notation for 'JACUQUARI' in 2/4 time. The piece consists of two staves of music. The first staff begins with a treble clef and a common time signature. The melody is characterized by frequent eighth-note patterns, with a '5' above the staff indicating a fifth fingering. The second staff starts with a measure rest followed by a '4' above the staff, indicating a fourth fingering. The text '*spoken, approximate pitches*' is written above the second staff.

49. DE KEKEKE

Brazil

Musical notation for 'DE KEKEKE' in 2/4 time. The notation includes a treble clef and a common time signature. The melody features eighth-note patterns, with a '5' above the staff indicating a fifth fingering.

50. ONE, TWO, THREE

Brazil

Musical notation for 'ONE, TWO, THREE' in 3/4 time. The notation includes a treble clef and a 3/4 time signature. The text '*spoken, approximate pitches*' is written above the first staff. The melody consists of eighth-note patterns.

51. THE TEA PLANTATION

Miao, China



52. ON THE MOUNTAIN

Miao, China



53. THE FISH ARE FRESH

Dong, China



54. FRIENDSHIP

Dai, China



55. I AM LOOKING FOR A FRIEND

Miao, China



56. HANDKERCHIEF GAME

Miao, China



61. SOAMIDITRA

Feneriv, Madagascar

Musical notation for SOAMIDITRA. The first staff is a single melodic line in treble clef, key of D major, and 12/8 time. The second staff, starting at measure 6, is labeled "spoken, approximate pitches" and features a complex rhythmic pattern with many beamed notes and rests.

62. MAMAIVAY

Feneriv, Madagascar

Musical notation for MAMAIVAY. The first staff is a single melodic line in treble clef, key of B-flat major, and 4/4 time. The second staff, starting at measure 8, is labeled "(spoken)" and includes a key signature change to D major at measure 42, indicated by a double sharp sign.

63. AMINA

Feneriv, Madagascar

Musical notation for AMINA, featuring a choir and a clap part. The notation is organized into four systems. The first system is labeled "spoken, approximate pitches" and includes a choir part (measures 1-5) and a clap part (measures 1-5). The second system (measures 6-11) and third system (measures 12-17) both include a 20-second time signature. The fourth system (measures 18-23) includes a 15-second time signature. The choir part consists of a single melodic line, and the clap part consists of a rhythmic accompaniment.

23 36"

choir

clap

64. MINA MINA

Feneriv, Madagascar

65. HEI HEI

Brittany

66. HEI MA JAO

Brittany

67. A DADA

Wallonia

68. A DJUDJUT COLA ROBEN

Wallonia

69. QUAND M'GRAND'MERE

Wallonia



70. KOTTE KOTTE KOTTE

Basque



71. OHA DOUDIADIA

Corsica



72. ANDDERE KOTTA GORRI

Basque



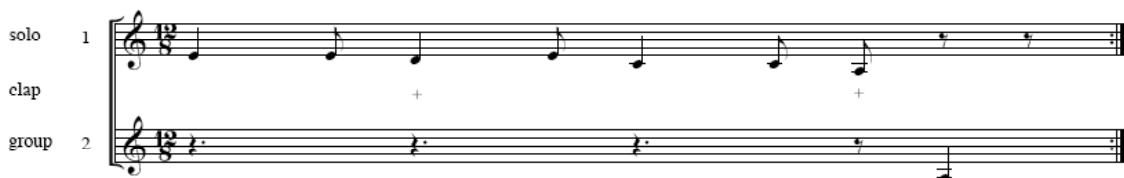
73. CIRIOLA

Corsica



74. SEEY

Mauritania



75. XOO WEL

Mauritania

sequence of repetition: AAAAAABACDDAA

76. HIRI

Mauritania

sequence of repetition: Ax2, Bx6, Ax2, Cx2, Bx4, ax2, Cx2, Bx2, Ax2, Cx2, Bx6, Ax2

77. BONDA BONDA

Mauritania

spoken, approximate pitches

78. PILI

Mauritania

Musical notation for 'PILI' in G minor, 4/4 time. The melody consists of eighth and quarter notes. The first staff contains the first four measures, and the second staff contains the next four measures, ending with a double bar line.

79. TILLO TILLO

Mauritania

Musical notation for 'TILLO TILLO' in D major, 4/4 time. The melody features quarter and eighth notes with accents. The first staff contains measures 1-6, and the second staff contains measures 7-10, ending with a double bar line.

80. DIKOLE

Camerou (Dii)

Musical notation for 'DIKOLE' in D major, 2/4 time. The melody is a continuous eighth-note pattern. The staff contains measures 1-8, ending with a double bar line.

81. DANTO MI DADA DANTO

Camerou (Dii)

Musical notation for 'DANTO MI DADA DANTO' in G minor, 8/8 time. It features a 'solo' part (1) and a 'group' part (2). The solo part has a melody of quarter notes, while the group part has a rhythmic accompaniment of eighth notes. The piece ends with a double bar line.

82. OH! MADELEINE

Camerou (Bamoun and French)

Musical notation for 'OH! MADELEINE' in G minor, 4/4 time. It features a 'solo' part (1) and a 'group' part (2). The solo part has a melody of quarter notes, and the group part has a rhythmic accompaniment of eighth notes. The piece ends with a double bar line.

83. GAGOU SAVITOU

Camerou (Dii)

solo 1

clap

group 2

84. TIQITIQLUILUI

Paiwan, Taiwan

wood pestles

85. CUKU NU

Paiwan, Taiwan

x 13

slowing down

86. QUEMAUQUAQAW

Paiwan, Taiwan

wood pestles

spoken

87. LIKILIKI

Paiwan, Taiwan

solo/group

wood pestles

*alternation between solo (s) and group (g): s, s, s, g, g, s, g, s, g

88. PIDOLO PIDOLOSMA

Paiwan, Taiwan

slowing down

x5

89. ISUBAI

Puyuma, Taiwan



90. BAIZAN KANADU AYAH

Puyuma, Taiwan



91. YANGO TAYOE

Pasu-Tsou, Taiwan



92. AKUVOVO

Pasu-Tsou, Taiwan



93. MATEKOLO

Pasu-Tsou, Taiwan



94. ANANO

Pasu-Tsou, Taiwan



95. APA APA TIOU

Pasu-Tsou, Taiwan



*the last phrase varied in rhythm and length in each repetition

96. EYA YONGO

Pasu-Tsou, Taiwan

Musical notation for EYA YONGO, featuring a melody in 2/4 time with a key signature of two flats. The piece includes a main melody and a variation starting at measure 9.

97. UYAS LAGI

Atayal, Taiwan

Musical notation for UYAS LAGI, featuring a melody in 2/4 time with a key signature of two flats. The piece is divided into three systems of measures, with measure numbers 6 and 12 indicated.

98. UYAS MIN LAGNI

Atayal, Taiwan

Musical notation for UYAS MIN LAGNI, featuring two vocal parts labeled 'singer 1' and 'singer 2' in 2/4 time with a key signature of two sharps.

99. KUISA DAMARON

Bunun, Taiwan

Musical notation for KUISA DAMARON, featuring a solo part and a group part in 2/4 time with a key signature of two sharps. The group part includes a repeat sign and a 'x4' multiplier.

100. NO IN DINA RONKO

Bunun, Taiwan

Musical notation for NO IN DINA RONKO, featuring a melody in 2/4 time with a key signature of two sharps. The piece includes two systems of measures with repeat signs and multipliers 'x5' and 'x4'.

Chapter 4: Methods and Analyses

In the analyses, I have used a hierarchical structure to categorize various musical characteristics. This hierarchical structure was only used for the sole purpose of the analyses, and did not in any way reflect the perception of the performers or the listeners. I will use specific terms to refer to different levels of musical characteristics. Musical “features” refer to categories, such as <tonality>. Musical “elements” are subsets of the “features,” which could be, for example, <number of pitches>. “Qualities” refer to the possible sub-types that an “element” could have. For the element <number of pitches>, the qualities could possibly be <heptatonic scale> or <pentatonic scale>.

This chapter will be subdivided into five parts — tonality, meter, melody, group and structure, and means of ending — each a musical feature. Under each feature, I will first introduce the elements being investigated, define the method of determining the quality, and then summarize the major tendencies found in the hundred children’s songs with tables and graphs. The numbers presented are not statistically significant, because of the lack of repetition. They represent the percentage or number of songs bearing specific features among the selected children’s songs. The figures in brackets represent percentage (p) and total number of examples (n). An overview of the features and elements is presented in Table 3.

FEATURE	ELEMENT	QUALITY
Tonality	Scale	pentatonic, diatonic,
	Cadence	X-X-X..., X...X, X....I, Xn Ym, XYXY
Meter	Meter	binary meter, meter with ternary subdivision, ternary meter, others
Melody	Range	<1 octave, ~1 octave, >1 octave
	Phrase length	# of beats (exact and standardized)
	Contour	bowl, umbrella, up, down, flat, wave, peak, staircase down
Structure & grouping	Song cycle length	# phrases per cycle
	Section length	# phrases per section
	Intra- & intersectional similarity	similar, slightly similar, different
	Exact structure	various
	General structure	A, AB, ABAB, ABA, ABC
Means of ending	Means of ending	cadence, contour, tempo, spoken text, ending section, rhythm, return to previous sections

Table 3. Overview of the analyses.

TONALITY

The focus of the tonality analysis will be determining the number of discrete pitches used in the songs, and the relationship, or distance, between them. Unlike Ellis (1885), my purpose is not to measure the exact cent differences between pitches, but to have a general idea of how children divide the octave. During the transcription process, I have approximated the pitches on the Western twelve-tone scale. As mentioned previously, this method brought in the Western assumption of where pitches lay and could possibly overlook some cultural peculiarities of the scales. It is, nonetheless, a simple and valid method for the purpose and scope of this study.

At the initial stage of the analysis, I have named the pitches on the absolute scale, such as <G-A-B-C-D-E-F#>. Subsequently, I have converted the scale into a relative scale with Western solfege, so the aforementioned absolute scale would be <do-re-mi-fa-sol-la-si>. On this scale, I have defined the relationship between the notes as:

$$\begin{array}{cccccccc} \text{do} & - & \text{re} & - & \text{mi} & - & \text{fa} & - & \text{sol} & - & \text{la} & - & \text{si} & - & \text{do}^1 \\ & & 1 & & 1 & & \frac{1}{2} & & 1 & & 1 & & 1 & & \frac{1}{2} & & (\text{tones}) \end{array}$$

The use of solfege here only provides a means to indicate the relationship between two or more pitches. For example, <do-mi> would mean that the two pitches are two and a half tones apart. In Western music, <do> also implies tonic. In this study I will address this issue separately and limit the application of solfege only to scalar degree.

The reason for converting absolute scales to relative scales was that only a small proportion of people have perfect pitch and could differentiate one major scale from another. For most of us, what is important is the relative distance between the pitches. A song sung in C major would sound the same as in B-flat major as long as the two events were separated and the listeners or singers had no pitch memory of the previous event.

Following the conversion from absolute to relative scale, the scale type was determined both by the number of pitches and the relationship between the pitches. First they were organized according to the number of pitches, such as tritonic, pentatonic, or heptatonic scale. Next, the scales that had common pitch relationship were grouped together. Certain groups of pitch relationships are common among the selected children's songs, namely diatonic and anhemitonic pentatonic scales. Diatonic scales refer to a seven-tone scale, which has the Western major or minor scale relationship. Anhemitonic pentatonic scales have the solfege <do-re-mi-sol-la> and this is to be distinguished from other pentatonic scales that do not have the same pitch relationship. *D'anye Bara*

(example #38) is based on a pentatonic scale of <mi-fa-sol-la-do> and hence cannot be classified as an anhemitonic pentatonic scale. An example of anhemitonic pentatonic scale would be *The Tea Plantation* (example #51), based on the pitch relationship of <sol-la-do-re-mi>. Anhemitonic pentatonic scales are further divided into rotations according to their respective *home note*, or the equivalent of *tonic* in Western music (Table 4).

Anhemitonic Pentatonic Scale Type	Sequence of Solfege
Anhemitonic I	do-re-mi-sol-la
Anhemitonic II	re-mi-sol-la-do
Anhemitonic III	mi-sol-la-do-re
Anhemitonic IV	sol-la-do-re-mi
Anhemitonic V	la-do-re-mi-sol

Table 4. Five possible rotations of an anhemitonic pentatonic scale.

The home note has special importance in the structure of the song, and often occurs at the end of phrases or the end of the song. It is not always clear, however, what the home note is in a particular song. In certain cases it is possible that all pitches held equal importance and there is no home note. In most cases when a home note was present in a song with an anhemitonic pentatonic scale, I have assigned a rotation for the scale type, with the first of the solfege the home note. Hence, in the example of *The Tea Plantation*, the fourth rotation was assigned, because <sol> holds important positions in the song.

For diatonic and anhemitonic pentatonic scales, occasionally the singers exploited fewer than seven or five pitches, possibly because of the range of the song. In these cases I have taken two approaches in the analysis of tonality. First, they were simply grouped according to the number of pitches. Second, if the scales were still recognizable as

diatonic or pentatonic scales, I designated them <diatonic> or <pentatonic> with a suffix of <-1>, <-2>, or <-3>, indicating the number of *missing* pitches. For example, *Gbengbe* (example #40) is based on the D-flat major scale, but lacks the pitch <C>, or the seventh position on the scale. In the scale classification, it was assigned <diatonic -1>, indicating the scale being recognized as a diatonic one but lacks one pitch. Furthermore, the missing pitches need not to be on the end of the scale, but could be in other positions. *Quand M'grand'mere* (example #69) was assigned <diatonic -2>, because of its pitch relationship of <do-re-mi-sol-si>. The presence of the pitch <si> gives the sense that the song is based on a diatonic scale.

Aside from diatonic and anhemitonic pentatonic scales, other scale types included hemitonic pentatonic scale, tetratonic, tritonic, and bitonic scales. A large number of songs were labeled <spoken> because of the spoken quality, which did not clearly match any particular pitch, but had intonation differences between the syllables. These songs have been labeled <N/A> as quality in the element of scale type.

Results

The majority of the songs employed either a diatonic scale (p=0.35, n=100) or anhemitonic pentatonic scale (p=0.37, n=100; Table 5).

Scale Type	Specifics	# Songs		Total # Songs
Diatonic	major	17		35
	minor	2		
	w/o 'home note'	2		
	diatonic -1	9		
	diatonic -2	3		
	diatonic -3	1		
	diatonic +	1		
Pentatonic	anhemitonic I	9	18	44
	anhemitonic I -1	8		
	anhemitonic I -2	1		
	anhemitonic III -1	1	1	
	anhemitonic IV	6	7	
	anhemitonic IV -1	1		
	anhemitonic V	8	11	
	anhemitonic V -1	2		
	anhemitonic V -2	1		
	hemitonic	7	7	
Others	heptatonic	1		9
	tetratonic	2		
	tritonic	5		
	bitonic	1		
N/A	'spoken' songs	12		12
Total = 100				

Table 5. Detailed breakdown of tonality in one hundred children's songs.

This result is based on the assumption that certain hexatonic, pentatonic, tetratonic, and tritonic scales had characteristics of either diatonic or anhemitonic pentatonic scale, and could be classified as either. Among these "incomplete" scales, diatonic scales that had only six pitches are missing **si** ($p=0.67$, $n=9$), **la** ($p=0.11$, $n=9$), or **fa** ($p=0.22$, $n=9$).

Anhemitonic pentatonic scales that have four pitches miss mostly **re** ($p=0.33$, $n=12$) and **sol** ($p=0.33$, $n=12$; Table 6).

Scale Type	Missing Note	# Songs	Total # songs
Diatonic -1	si	6	9
	la	1	
	fa	2	
Diatonic -2	la, si	1	3
	sol, la	1	
	fa, la	1	
Diatonic -3	sol, la, si	1	1
Anhemitonic Pentatonic -1	do	1	12
	re	4	
	sol	4	
	la	3	
Anhemitonic Pentatonic -2	sol, la	1	2
	do, re	1	
Total = 27			

Table 6. Missing notes of scales classified as diatonic or anhemitonic pentatonic.

The number of songs classified either as diatonic or anhemitonic pentatonic with missing notes is significant ($p=0.27$, $n=100$). The alternative analysis, as mentioned above, is to simply count the number of pitches used in a song (Table 7).

Number of Pitches Used in a Scale	# Songs
Heptatonic	23
Hexatonic	9
Pentatonic	33
Tetratonic	15
Tritonic	7
Bitonic	1
N/A	12
Total = 100	

Table 7. The distribution of number of pitches used in a hundred children's songs.

This table suggested that the majority of songs use mostly five ($p=0.33$, $n=100$) or seven ($p=0.23$, $n=100$) pitches, and a portion of the songs also use four pitches ($p=0.15$, $n=100$). Curiously, not so many songs are sung in a hexatonic scale.

CADENCE

In addition to scale types, I have also looked at cadences in all the songs. The cadences are determined by the relationship, or scalar degree, between the last pitch of each phrase or section to the home note. For example, if the home note was **F**, and the first phrase ended in **A**, the first cadence would be **III**. The cadence of each phrase was determined this way and connected sequentially by dash symbols. Because the songs have variable lengths, the length of the overall sequence of cadences also varied from song to song. I have deduced them to five general patterns.

The first cadence pattern, $\langle \mathcal{X}\text{-}\mathcal{X}\text{-}\mathcal{X}\text{-}\dots \rangle$ ⁹, was given to songs in which only one pitch could be found at the end of the phrases. It did not necessarily have to be the home note, but could be any pitch. *Undir Majea Mama* (example #19), which returns to the home note at the end of every phrase $\langle \text{I-I-I-I} \rangle$ is an example of this cadence pattern. The second pattern, $\langle \mathcal{X}\text{-}\dots\text{-}\mathcal{X} \rangle$, referred to the same cadence in the first and the last phrases. The middle part could be anything except the $\langle \mathcal{X} \rangle$ itself. *Ana Ule Wengo Wedho* (example #4) has a cadence pattern of $\langle \text{I-I-IV-I} \rangle$, which matches the description of this category. The third pattern, $\langle \mathcal{X}\text{-}\dots\text{-I} \rangle$, referred to songs that ended in the home note, but started with something else. In the middle the cadence could be anything. A representative example of this pattern is *Lagu Membaca* (example #5), which has a cadence of $\langle \text{V-IV-III-II-I} \rangle$. The next pattern referred to a two-part relationship, $\langle \mathcal{X} \text{ \& } \mathcal{Y} \text{ \& } \mathcal{X} \rangle$ where $\langle \mathcal{X} \rangle$ and $\langle \mathcal{Y} \rangle$ could each undergo different number of repetitions (e.g., I-I-I-I-I-IV-IV in *Oh! Madeleine*, example #82). In this pattern, the numbers of repetition could be the same ($n=m$), but the cadences have to be different ($\mathcal{X} \neq \mathcal{Y}$). In cases where $\langle \mathcal{Y} \rangle$ was

⁹ “ \mathcal{X} ” and “ \mathcal{Y} ” are used here to indicate *any* scalar degree, and “ \mathcal{X} ” does not represent the roman numeral ten “X.”

the home note itself, I have grouped them in the previous category, <X..I>. The last pattern was <xyxy>, where two different cadences alternated with each other from one phrase to the next, such as in the case of *Quand M'grand'mere* (example #69), in which the cadence patter is <V-I-V-I>.

In songs where there was an introduction or ending section, which was spoken or had significantly different cadence from the rest of the song, the determination of the overall cadence pattern did not take these sections into account.

Results

The distribution of the five major cadence patterns is shown in Table 8.

Cadence Pattern	Specifics	# Songs	Total # Songs
I-I-I	without change in cadence in the intro/ending section	21	24
	with change in cadence in the intro/ending section	3	
x...x	x..y..x	10	14
	x..y..z..x	4	
x...I	II...I	4	28
	iii...I	1	
	III...I	4	
	IV...I	3	
	V...I	12	
	VI...I	4	
x...y...	x...I...	2	5
	I...x...	3	
xyxy	II-I-II-I	2	6
	V-I-V-I	4	
Others		8	8
N/A		15	15
			Total = 100

Table 8. General cadence patterns, specific descriptions, and distribution.

The majority of the songs had a home note (defined as I), which was frequently found in the cadences. The two most common cadences, <I-I-I> and <x...I> had the home note in

the ending position. Songs that started and ended with the same cadence, *i.e.*, $\langle x \dots x \rangle$, except two examples ($p=0.14$, $n=14$), all else started and ended with cadence **I**. The significance of the cadence **I** was shown even in the less common cadence patterns, $\langle x \dots y \dots \rangle$ and $\langle xyxy \rangle$, where **I** substituted either $\langle x \rangle$ or $\langle y \rangle$.

METER

For the method of determining the meter of individual songs, please refer back to Chapter 3. The meters are expressed as time signatures in the transcriptions and analyzed as such. However, it is not always the case that they bear the same connotations as in Western music. For example, the meter 3/4 in Western music would imply a strong beat on the first one and weak on the second and the third one. Because the children's songs come from different musical cultures, it should not be assumed that they also bear these assumptions.

In the analyses, I have grouped the binary meters (*e.g.*, 2/4, 4/4), meters with ternary subdivision (*e.g.*, 12/8, 18/8), and ternary meters (*e.g.*, 3/4, 6/4) separately. In addition, there were also uncommon meter (*e.g.*, 5/4), sectionalized meter (where a song has a combination of more than two meter types), or unclear meter.

Results

The majority of the one hundred children's songs have 4/4 meter ($p=0.60$, $n=100$; Table 9). The next most common meter is the ternary 12/8 meter ($p=0.10$, $n=100$).

Type of Meter	Specifics	# Songs	Total # Songs
Binary Meter	2/4	9	69
	4/4	60	
Meter with Ternary Subdivision	12/8	10	11
	18/8	1	
Ternary Meter	3/4	2	4
	6/4	2	
Others	5/4	3	5
	sectionalized	2	
Unclear Meter	N/A	11	11
Total = 100			

Table 9. Types and distribution of meters used in a hundred children's songs.

In a number of children's songs ($p=0.11$, $n=100$), there is no clear meter. A representative example is *Friendship* (example #54), where the phrases vary in lengths from two quarter notes to four-and-a-half quarter notes. Two examples (#59, 97) appear as if they were each a collage of two or more completely unrelated songs together, and hence metrically sectionalized.

MELODY

Three elements were analyzed under the feature melody: range, phrase length, and contour. Range was measured from the lowest pitch to the highest pitch of a single singer in a song. I have categorized the range as <less than one octave>, <roughly one octave>, or <more than one octave>. Occasionally a song was sung by more than one singer, and the singers had different ranges (*i.e.*, one octave apart), but the range of a single singer remained the same.

To get a sense of the phrase length, I have first counted the number of beats in a single phrase of a song (*i.e.*, four quarter notes or twelve eighth notes). Often a song contained several different phrase lengths, such as two or four quarter notes. When there

was variation in the phrase length, I have used the more common phrase length when one was more dominant, or the mean when the different phrase lengths had equal occurrences for the averaged phrase length of the song. This was, however, not an extremely precise average of phrase length. A more precise method would be adding up all the beats in a song, and divide it by the total number of phrases. In *Pili* (example #78, Figure 2), the precise phrase lengths are (in sequence): 2 – 2 – 3 – 2 – 7.5 – 9.5 (in number of quarter notes). The precise mean of phrase length would 4.33 $(2+2+3+2+7.5+9.5 / 6)$. During my own calculation, I took the most common phrase lengths, so approximately 2 and 8 quarter notes in this case, and averaged them based on number of occurrences. Hence, $(2 \times 4 + 8 \times 2) / 6 = 4$ quarter notes. This is not as precise as the aforementioned method, but nonetheless gives a good approximation of the average phrase length in a song.



Figure 2. Analysis of phrase length in *Pili*.

Because the unit of a beat was inconsistent, in some cases quarter note and others eighth note, I have decided to standardize the unit in order to make all songs comparable. I have chosen the quarter note as a basic unit, and convert eighth notes to quarter notes. The songs that use eighth notes all have ternary subdivision, which means a tactus equals to three eighth notes. Hence, I set the “exchange ratio” of 3:1 for eighth to quarter, so every three eighth notes are converted to one quarter note.

Contour was defined as the shape of a melodic line. For the analysis of contour, I have separated the individual sections of the overall structure. Each section usually consisted one or two phrases, and the contour was determined by the shape of the melody within the section. In addition, I have also looked at the contour at the beginnings and endings of a song. Usually there was one, but occasionally two, phrases at the beginning and the ending. The beginning and ending contours were not necessarily contours of the <intro> or <ending> section, but could also be a part of lettered sections (Section A, B, C, *etc.*). They were simply contours where the song started and ended. A number of songs were sung in a circular manner. For these songs, the beginnings were where the singers started, and endings were just before the new cycle started again.

The qualities of contour were shapes of the melodic line. A <bowl> was when the melody first went down and then up, and an <umbrella> vice versa. A <down> phrase only went down and an <up> phrase the opposite. A <flat> phrase stayed at one pitch, and a <wave> phrase went up and down several times. A <peak> occurred when the melody jumped up several steps at a time. A <staircase down> referred to a phrase that first stayed at a pitch and then down, then stayed at the second pitch, and then down and stayed again.

To give an example, *D'anye Bara* (example #38, Figure 3) starts out with a fifth jump, which is categorized as a <peak>. The A sections have consistently <umbrella> shaped contours, and B sections <wave> shaped contours (down and up three times within each section). The ending section, which is the end of section A, only goes down, and hence a <down> contour.

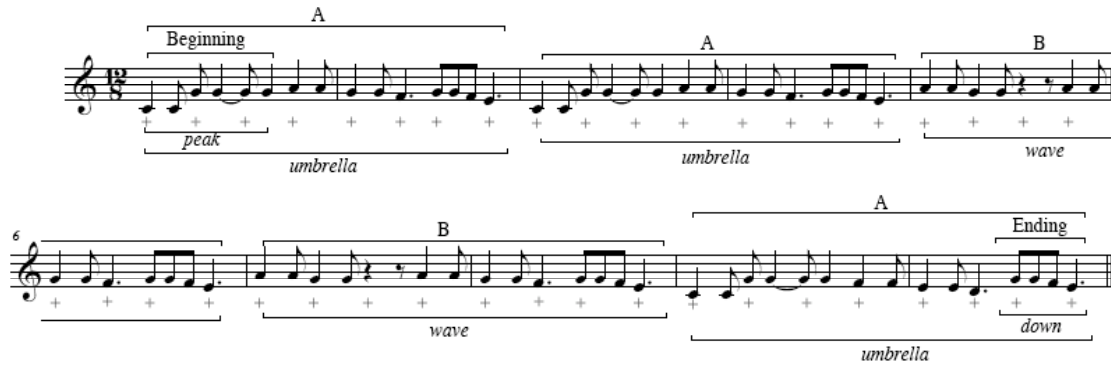


Figure 3. Analysis of contour types in *D'anye Bara*.

Results

The analysis of the vocal range showed that the majority of children's songs were sung within or approximately one octave ($p=0.93$, $n=88$). Relatively few songs exceeded one octave ($p=0.07$, $n=88$).

The graph of phrase length distribution (Figure 4) showed that over half of the hundred children's songs had on average four quarter-note- or twelve eight-note-beats in a phrase. Less than a quarter of the songs had phrase lengths between five to eight beats, and none exceeded nine beats on average.

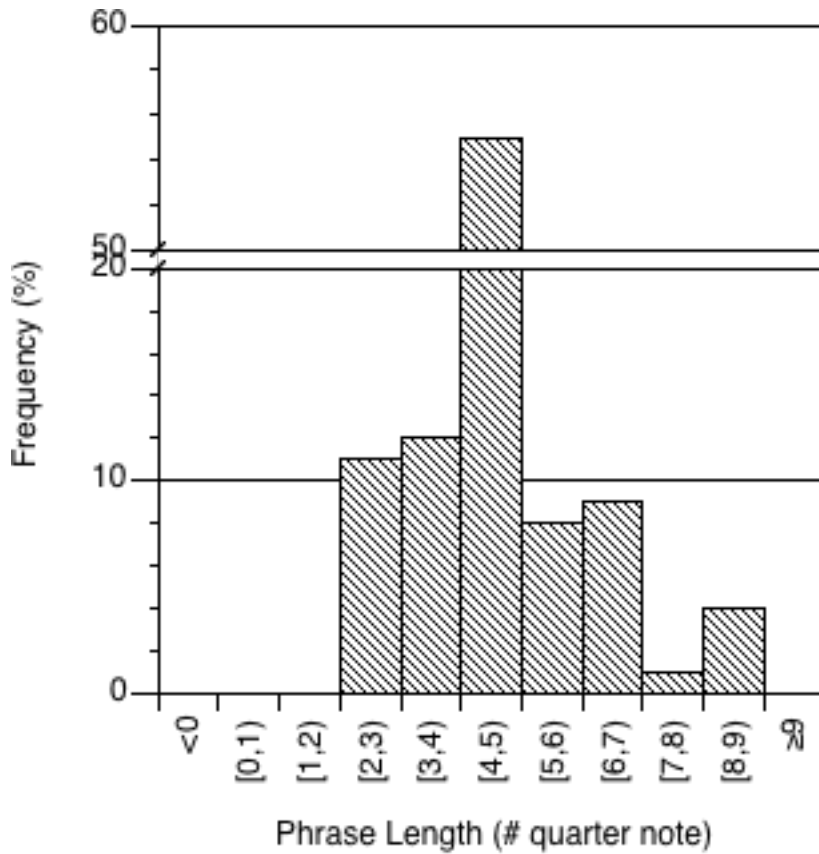


Figure 4. Distribution of average phrase length in children's songs.

A closer look at the songs with longer phrases (eight quarter notes or twenty-four eighth notes) revealed that they came from Indonesia (example #8), India (example #12), and Guinea-Senegal (example #38, 43), and highly resembled the adults' songs in their society. For example, *Kannada* (example #12) had the ornamentations rare in children's songs, but ubiquitous in classical Indian music.

A summary of the distribution of contour in different sections of the songs is presented in Table 10. Lettered sections after C were omitted because there were very few examples.

Contour	Beginning (%, n=100)	Section A (%, n=100)	Section B (%, n=80)	Section C (%, n=37)	Ending (%, n=100)
bowl	3	1		3	3
down	9	6	11	8	32
flat	7	2	1	5	10
flat + down	1	1	4		2
flat + wave	2	1	1		
flat + bowl		1			
flat + peak		1			
peak	8				
peak + down				3	1
umbrella	10	18	10	3	4
up	9			5	2
up + down flat	1				
up + flat	1				
wave	33	48	43	41	22
wave + umbrella	1	2			
wave + up	1				1
wave + down		5	5	5	2
wave + bowl			1		
wave + peak			1		
staircase down		2	1		1
staircase + wave			1	3	
N/A (spoken part)	14	12	20	24	20

Table 10. Distribution of contour types in various sections of one hundred children's songs.

This analysis showed that as the song progressed from one section to the next, the contour changed. Generally, the <wave> shape was common in all sections of the songs. In comparison to other parts of the song, the beginning had significantly more <peak> ($p=0.08$, $n=100$) or <up> ($p=0.09$, $n=100$) shaped contours. In the A section, the most common contour next to a <wave> was an <umbrella> ($p=0.18$, $n=100$). In comparison, the next section had more downward motion ($p=0.11$, $n=80$). The occurrence of the <down> contour was highest at the end of the songs ($p=0.32$, $n=100$), where a <flat> contour ($p=0.10$, $n=80$) also had its highest occurrence.

STRUCTURE AND GROUPING

Under the structural analyses, five elements are analyzed: song length, section length, intra- and intersectional similarity, exact organization of the songs, and general organization.

The length of a complete song was measured by counting the number of phrases. For songs that went through indefinite number of repetitions, only one complete cycle was counted. When there was an introduction or ending section that was “attached” to the song — everything else was repeated except this section — the number of phrases in the introduction or ending section was counted, and added to the number of phrases in a complete cycle. For example, the *Cuku Nu* (example #85, Figure 5) from Paiwan had a one-phrase repeating cycle with a three-phrase ending section¹⁰. Hence, the number of phrases in a complete song would be four (three non-repeating and one repeating). Section length was measured both as number of phrases and number of beats. The beat unit was standardized to quarter notes as mentioned previously. For songs that had various section lengths, the mean was taken.



Figure 5. Analysis of structure in *Cuku Nu*.

One of the most difficult things in structural analysis was deciding if two groups of phrases are variations of the same section, or if they were two separate sections

¹⁰ In the transcription section A is the repeating one. Section A1 appears only once near the end of the song, but is still considered a variation of A, instead of a distinct section, because of their high similarity.

altogether. There was no definitive answer to this question, and generally a new section was assigned whenever a *significant change* occurred. What constituted a significant change differed from song to song. I have, however, looked at four criteria: rhythm, contour, length, and cadence. For each of the criteria, cross-sectional and intrasectional similarity was compared.

To give an example in the rhythmic criterion, *Chukke Hakki* (example #17, Figure 6, Table 11) has the structure of section A repeated once followed by the one-phrased section B, also repeated once. The intrasectional analysis juxtaposed the rhythms of the two A sections and compared the similarity. In this case, although the melody was different, the rhythm was identical except the first beat. The same was done for section B, which was completely identical rhythmically. Hence, on the element of intrasectional rhythmic relationship it would be given a quality of <similar>. The intersectional comparison juxtaposed the rhythm of section A on section B. In *Chukke Hakki*, although section A was twice as long as section B, the rhythm of section B was almost identical with the second half of section A. Hence quality for cross-sectional rhythmic relationship would also be <similar>. Other possible qualities are <different>, <slightly different>, or <mixed>. The last one is only used in intrasectional comparison, when one section has a <similar> quality and another has a <different> one. Songs that only have one section are rated <N/A> for all cross-sectional comparisons.



Figure 6. Structure of *Chukke Hakki*.

	Intrasectional Comparison		Cross-sectional Comparison
	A1 – A2	B1 – B2	A – B
Rhythm	similar	similar	similar
Contour	similar	similar	different
Length	similar	similar	different
Cadence	different	similar	mixed

Table 11. Structural comparison of *Chukke Hakki*.

Although each song had a unique structure depending on song length and the organization of the sections, there were generally five types of structures in the selected children’s songs: <A>, <AB>, <ABAB>, <ABA>, and <ABC>. <A> referred to simple repetitions of a single section, in which all the repetitions had the same rhythm, highly similar contour, same length, but occasionally a change in cadence. <AB> was designated to songs that had basically two sections, A and B, and each could have a different number of repetitions, and hence different proportions. <ABAB> was distinguished from <AB> in the sense that each section did not repeat by itself, but rather was immediately followed by the other section. The songs that had an <ABAB> structure all had cadence change across sections, but remained similar within the section (*i.e.*, A and B had different cadences). The structural type <ABA> referred to songs that began and ended with the same section, and each section could undergo a number of repetitions, such as <AAAAaBA¹¹> in *Adigeya Bhatta* (example #16). Hence, the overall structure was not necessarily symmetrical in terms of proportion (*i.e.*, the length of the first A did not necessarily equal to the length of the last A). Generally, the last A acted as a closure, possibly by means of cadence. Another common type of structure was <ABC>, where each section could also undergo individual repetitions. In this type of structure, almost all

¹¹ the small “a” refers to partial repetition

the songs had changes in the cadence intersectionally. In certain instances, the C section felt like an ending section, but in general they were classified as <ABC> and not <AB+Ending> because of the relatively large proportion of the C section in the overall structure, and the continuity with the previous sections.

In the structural analysis, sometimes a section was not given a letter, but rather labeled an <intro> or <ending>. To qualify as an intro or ending section, it had to be either at the beginning or ending of the song, and a *one-time only* event. For example, in *Cuku Nu* (example #85), section A was repeated numerous times before coming to the B section, which happened once before the song ended. Because it was not repeated in the song cycle, it was considered an ending section. In songs that did not repeat in cycles, the ending or intro section had to be disjunct melodically, rhythmically, cadentially, or by other means, to be considered. The structural analyses only consider the *main body* of the song, and disregard the <intro/ending> sections.

Results

The majority of the songs ($p=0.86$, $n=100$) had less than or equal to ten phrases per complete song without repetition (Figure 7). The overall mean of the hundred children's songs was 7.00 phrases per song ($n=100$). When songs longer than ten phrases were excluded, the mean was 5.63 phrases per song ($n=86$). The most commonly occurred song length was four phrases ($p=0.15$, $n=100$), and the next was six phrases ($p=0.14$, $n=100$).

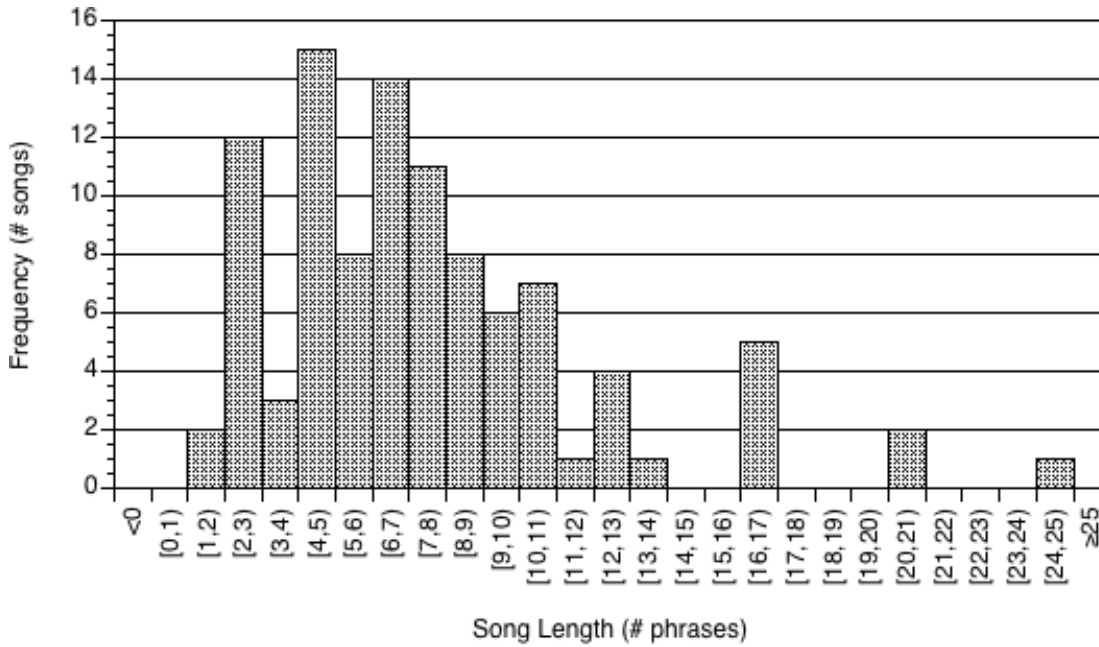


Figure 7. Distribution of the length of a song cycle in a hundred children’s songs.

The large majority of children’s songs ($p=0.93$, $n=100$) had sections composed of two phrases or less (Figure 8). A separate analysis of section length measured in standardized quarter notes. This analysis showed 88% ($n=100$) of the songs had on average between 4 to 8 quarter notes (equivalent of 12 to 24 eighth notes) in each section (Figure 9).

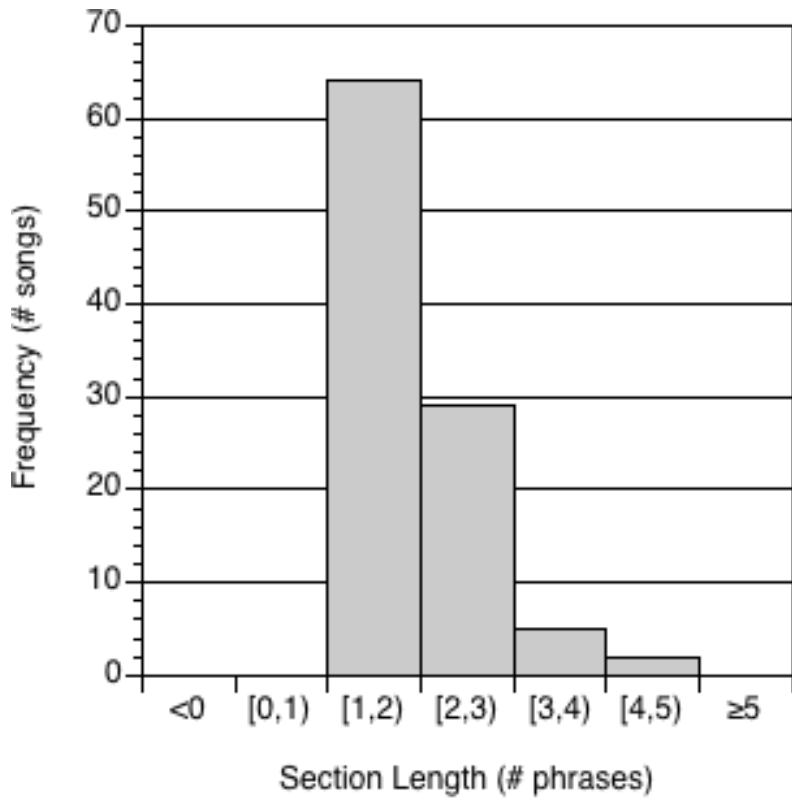


Figure 8. Section length (in number of phrases) averaged within song in one hundred children's songs.

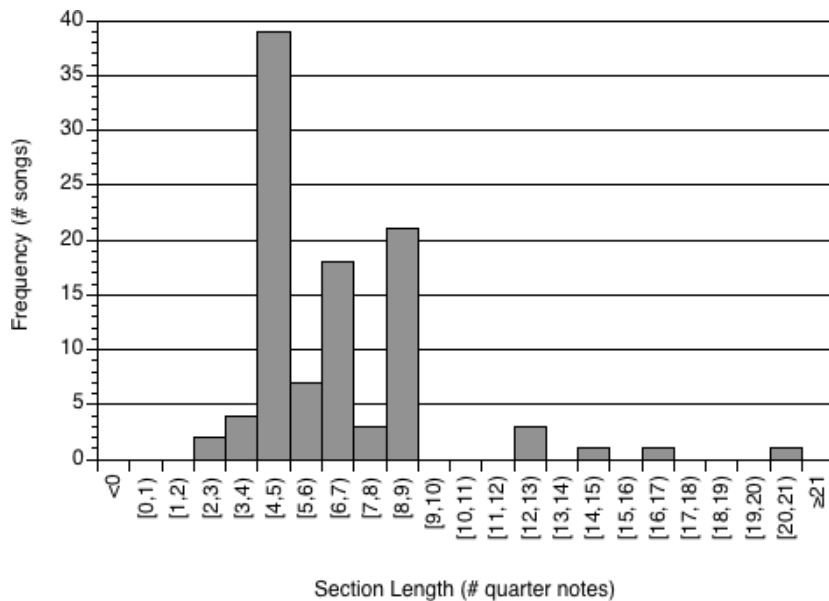


Figure 9. Section length (in number of quarter notes) averaged within song in one hundred children's songs.

Structurally, each song had its unique structure depending on length and organization of the sections. However, there were basic structural similarities, and the most common ones were <AB> ($p=0.30$, $n=100$), <A> ($p=0.20$, $n=100$), and <ABC> ($p=0.20$, $n=100$; Figure 10). A separate category <AA'> was created to accommodate songs with a two-phrase structure, where the two phrases were similar in length and rhythm, but had a slightly different contour or cadence. More complicated structures were categorized in the <others> category, in which half ($p=0.50$, $n=12$) of the songs returned to a previously occurred section as the song progressed. The other half always proceeded to a new section.

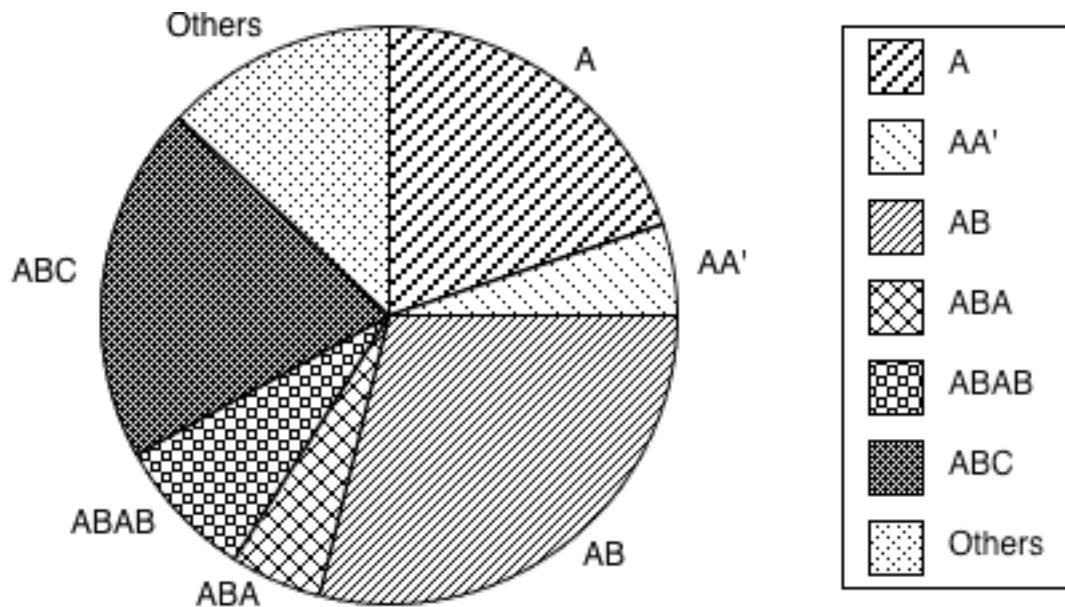


Figure 10. Relative proportion of basic structures found in one hundred children's songs.

The four elements of rhythm, contour, length, and cadence were cross-compared both intra- and intersectionally in each song for similarity. Intrasectionally, all elements were highly similar except for cadence (Table 12).

	Rhythm – intra (# songs)	Contour – intra (# songs)	Length – intra (# songs)	Cadence –intra (# songs)
Similar	96	91	96	55
Slightly different	3	2		1
Different	1	6	3	18
Mixed			1	12
N/A				14

Table 12. Similarity of intrasectional characteristics of children’s songs.

Intersectionally, all elements were at least 65% different, except for length (48.2%, n=85, Table 13, 14). The most intersectional differences were contour (95.2%, n=84) and cadence (87.9%, n=66).

	Rhythm – inter (# songs)	Contour – inter (# songs)	Length – inter (# songs)	Cadence –inter (# songs)
Similar	14	2	44	8
Slightly different	12	2		
Different	58	80	41	58
Mixed	1			
N/A	15	16	15	34

Table 13. Similarity of intersectional characteristics of children’s songs.

	Rhythm – inter (%)	Contour – inter (%)	Length – inter (%)	Cadence –inter (%)
Similar	16.5	2.4	51.8	12.1
Slightly different	14.1	2.4		
Different	68.2	95.2	48.2	87.9
Mixed	1.2			

Table 14. Similarity of inter-sectional characteristics of children’s songs. Converted to percentages after excluding the <N/A> category.

MEANS OF ENDING

A separate analysis was done to uncover how children ended the songs. An <ending> was to be distinguished from just *stopped*. Carol Davies (1992) had observed that in songs that children made up, they all had some kind of means of ending, instead of just stopping the song. She further described that the “ending” was often different from the formulaic cadence commonly known in Western music. In my analyses, I have found several ways by which the songs acquired a sense of ending.

Contrary to Davies, there were songs that ended by means of cadence (*i.e.*, return to the home note, but not IV-V-I, *etc.*). This was often combined with other means, such as a downward or flat contour, slowing down the tempo, prolonging the last note, changing to a spoken tone, or changing the rhythm. *My Little Basket* (example #58, Figure 11) is based on the anhemitonic pentatonic scale and the home note is on the <sol> position. The sense of ending is created by the return of the home note, combined with the <staircase down> contour.

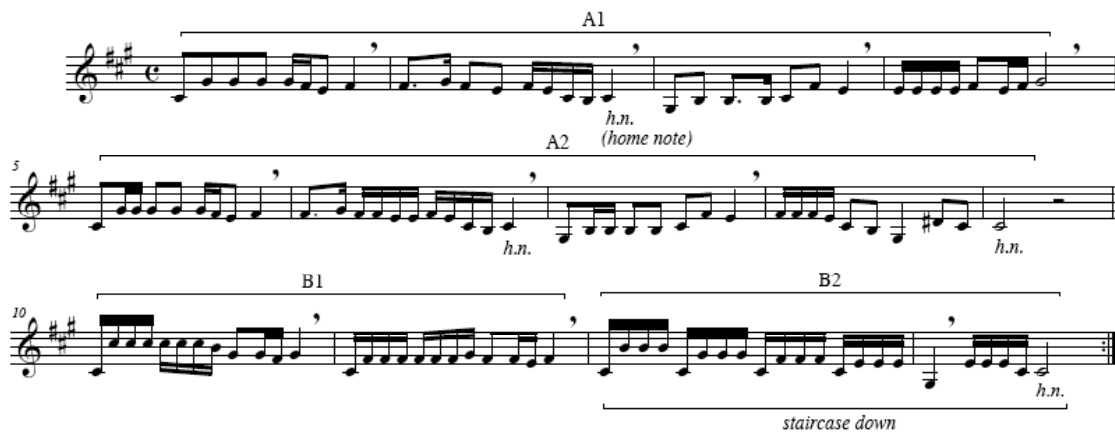


Figure 11. Analysis of means of ending in *My Little Basket*.

A large proportion of songs also had an <ending> section, which were separated from the rest of the song, as mentioned above. This ending section could also be combined with other ending qualities, such as spoken text in *De Kekeke* (example #49). Returning to a previously occurred section could also create a sense of ending.

The sense of ending, however, was not universal in children's songs. A portion of the songs are sung simply in cycles without an apparent end or this was not recorded in the sound examples. In these cases, I have rated them <none> as no means of ending under this feature.

Results

The songs had various means of ending, and often a combination of different elements. In Table 15, I have summarized the major elements which provided a sense of ending, rather than just stopping, and their distribution in the one hundred children' songs. Because of the concurrent use of different elements in some songs, the total number was more than 100.

Means of Ending	Number of Songs	Percentage (excluding “None” category)
Cadence	36	46.8
Repeating section	10	13.0
Returning section	6	7.8
Separate section	21	27.3
Spoken text	12	15.6
Rhythm/tempo	12	15.6
Contour	19	24.7
Others	3	3.9
None	23	N/A

Table 15. Various means of ending and distribution in one hundred children’s songs.

The number of songs that ended on the home note cadence was actually more than 35, but here only 35 were classified as using cadence to create a sense of ending. Although certain songs ended with the home note, there was either no sense of ending or with another mean. For example, in *De Kaka Ti* (example #60), all phrases ended with the home note. Hence, although the song ended with the home note, there was no true sense of ending.

Chapter 5: Discussion

The result of the analyses shows that a *typical* children's song bears the following features: either diatonic or anhemitonic pentatonic scale, in which a home note frequently appears at the end of phrases; 4/4 meter; melody ranges within one octave; four or six phrases per song cycle with each phrase four beats long; contour which has a wave or umbrella shape at the beginning and down shape at the end; overall structure of A, AB, or ABC; and ends through means of cadence, ending section, or contour. Although this description represents the most common characteristics of the hundred children's songs, looking back at my own data, there is not a single song that completely fits this description. Each song has a unique combination of characteristics that makes it distinguishable from others. Overall, there is a lot more diversity in musical style in children's songs than what I expected at the beginning. However, what are the sources of diversity? Do they come from cultural style, like I expected, or do they come from our "innate musicality" and that, after all, there is no universality in the inner musical style?

Rather than looking at songs that fit into the general category, here I will focus on the songs that *deviate* from the general category, and if these songs have anything in common, *how* do they deviate from the general profile. The purpose of this chapter is thus to interpret the meaning of the results, both general tendencies and exceptions. The songs will be compared to the "cultural" style, i.e., the musical characteristics of the adults' songs in their respective societies.

REGIONAL DISTRIBUTION OF SCALES

The most common scales in children’s songs are diatonic and anhemitonic pentatonic scales. According to Table 16, Southeast Asia and China, where the anhemitonic pentatonic scale is used in traditional music, have significantly more children’s songs sung in this scale than a diatonic one.

	Diatonic	Anhemitonic pentatonic	Others	Total
Southeast Asia ¹²	6	18	4	28
India	5	1	2	8
Africa	9	9	9	27
Europe	7	0	4	11
China	1	7	0	8
South America	7	2	9	18

Table 16. Preference of diatonic vs. anhemitonic pentatonic scale by region.

In Europe, on the other hand, which has a tradition of diatonic scales, most children’s songs are in a diatonic scale and none are in an anhemitonic pentatonic scale. This observation suggests that the use of scales by children is strongly affected by their cultural styles.

THE NON-RANDOM USE OF THE TRITONIC SCALE

While the majority of children’s songs has either five or seven tones, songs that have less than five tones tend to be short, repetitive, and structurally simple. Examples of these songs are: *Hei Ma Jao* (example #66), *N’diaayo-N’diaye* (example #35), and *Anddere Kotta Gorri* (example #72). Furthermore, almost all the tritonic scales ($p=0.80$, $n=5$) are the pitch collection of **do-re-la** (examples #24, 41, 48, 66). The use of this pitch relationship, I suspect, is not random. One possible explanation is through “spreading.”

¹² including the Aborigines of Taiwan.

“Spreading” is a term used linguists to refer to a sound trait, which moves from one population to another by means of contact. In other words, populations that are geographically close to each other share more sound traits because of contact. In this case, the origins of these songs are Peru, Guinea-Senegal, Brazil, and Brittany. Except Peru and Brazil, which are relatively close in geographic proximity, the others are geographically distant from each other. Hence, spreading is not likely to be the cause for the common use of the scale **do-re-la**.

The second possibility is contact through media, instead of physical contact. During the past century media has become a bridge between cultures, which makes sound exchange possible without physical contact. This is a highly possible scenario, *if* the songs were composed *after* the rise of media. If all these songs were composed *before* the use of media, the creation of each was independent, without the influence from the others. At this point, I suspect that since the CD series was meant to represent traditional children’s songs from the various regions, the compositions have a historical root deeper than the media.

The third possibility is that this pitch relationship is an innate, universal preference, so that it repeatedly and independently comes up in various cultures. At this point there is not enough evidence to prove which theory is correct, and to further explore this question, one would need a larger sample size, as well as date and origin of the compositions.

METER – CULTURAL AND INNATE INFLUENCES

Of the ten songs that were sung in 12/8 meter, nine of them have an African origin ($p=0.90$, $n=10$). The 12/8 meter is a prominent feature of African music. It is most likely that children's songs are influenced by adults' songs, and this suggests that meter could also be strongly influenced by cultural styles. Similarly, children's songs from other regions, which have a tradition of 4/4 meter, were sung mostly in 2/4 or 4/4 meter.

A closer look at the data reveals that although several songs of African origin have a 12/8 meter, close to half of them ($p=0.48$, $n=27$) have either 2/4 or 4/4 meter. In contrast, only 3% of the songs ($n=72$) from other region have 12/8 meter. The disproportionate use of meter uncommon in the cultural style suggests that despite the cultural influence, there is an innate preference for meter. The consistent appearance of 4/4 meter in children's songs, regardless of the cultural style, possibly indicates that there is a universal innate preference for it.

SMALL RANGE AS A RESULT OF PHYSICAL LIMITATION?

Only six out of the one hundred children's songs exceed the range of one octave. The songs are: *Kannada* (example #12), *The Tea Plantation* (example #51), *My Little Basket* (example #58), *Hei Hei* (example #65), *Isubai* (example #89), and *No In Dina Ronko* (example #100). Several of these songs bear musical characteristics common in the adult songs. *Kannada* has the use of ornamentations common in the adults' genre. *The Tea Plantation* and *My Little Basket* both use anhemitonic pentatonic scale, typical of Chinese music. The use of the fifth rotation of the anhemitonic pentatonic scale and wavering voice¹³ in *Isubai* are common in the Puyuma.

¹³ This characteristic is not transcribed. Please refer to the recording.

The fact that the majority of the children's songs are sung within one octave could have been a result of physical limitation. In *Music in Childhood – From Preschool through the Elementary Grades*, Patricia Campbell observed that children between the ages of seven to eight could sing approximately one octave, and by the age of eleven or twelve two octaves. Of the aforementioned songs, *Kannada* was sung by a group of children between age eleven and fourteen, *The Tea Plantation* by a twelve-year-old girl, *My Little Basket* by a nine-year-old boy, *Hei Hei* a child of unknown age, and *Isubai* and *No In Dina Ronko* by adults.

SYMMETRY IN CHILDREN'S SONGS

One observation that I have made about children's songs is that they are highly symmetrical. This symmetry is achieved through various means: contour, cadence, and structure. Within a phrase or section the symmetry is achieved through an umbrella-shaped contour, which frequently occurs, especially in the A sections. Overall, the contour symmetry is suggested by the upward motion (including <peak>, <umbrella>, and <up> shapes) at the beginning and by the downward motion at the end. Cadentially, the symmetrical ones that I have identified are either the unchanging <I-I-I...> or <X...X>. Structurally, a song could return to a previously occurring section to achieve symmetry.

BIOLOGICAL AND CULTURAL INFLUENCES OF MUSICAL STYLE

From the analyses of one hundred children's songs, we learned that there are certain musical characteristics that appear frequently. These characteristics are often

different from the characteristics of adults' music. Children worldwide do share some very basic musical characteristics. However, outside of these basics, there is in fact a large amount of variation in the musical styles. As we have observed, the songs that are most different from the basics often resemble the songs of the adults in their respective societies. However, could we equate these basic characteristics, which are common to the children, to "innate musicality," and adults' musical style to "cultural style?"

I am not sure if this project brings us closer to identifying the biological and cultural influences of musical styles. The problem is that if we could imagine each influence as a primary colour, and the observed musical style as a blend, what we have always seen is the blend but we do not know what the primary colours are. We have always seen the musical style as a combination of these factors, but never could we separate the two. Nor do we know the dynamic of the two factors behind the phenotype. I have suggested that in comparison to children, adults have stronger cultural influences in their musical styles, but could we really equate adults' music to cultural style? Behind the so-called "cultural style," is there a biological influence as well? This is, then, a question of perspective. Each individual receives stimuli from inside and outside, and the outcome is the musical phenotype unique to him/her. Through interacting and learning from each other, a group of individuals have phenotypes that are common to them, which become the cultural style. Hence, as adults we still constantly face the tension between inner and outer musical influences. As adults, the cultural factor does not always dominate the phenotype, and this is evident in innovative compositions.

In this study, I have made the assumption that children are subject to stronger innate influences. To a certain extent it is true that they are less influenced by the culture

as opposed to adults, but does it mean that they do not have culture? Ethnomusicologists such as Kartomi (1980) and Campbell (2007) tell us that children have a culture, a mutual musical understanding, of their own. With this knowledge, I ask myself if what I have observed — what I have inferred as “innate musicality” — is actually *children’s* cultural style? Then how is it that this style transcends locality, but the adults’ isn’t?

In conclusion, this study asks more questions than it answers about music making. What I try to understand are the similarities and differences of how and why we make music. Through analyzing children’s songs, I have come to understand that children share a great deal of musical similarities, but they also have a large degree of diversity which mostly comes from adults’ music. Whether we could call these similarities “innate” or “universal” requires further investigation, and I encourage readers to further explore this topic.

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