Toward a Musical Analysis of World Music

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Introduction

Despite the popularity of “world music” and the many studies related to it, there is not always agreement as to what this term means, and to what it refers. Sometimes, the same music CD will be categorized differently by different stores. The blurring of boundaries between the different stylistic frameworks also characterizes post-modern Western art music; however, this is not considered world music unless the mixture includes non-Western styles.

Here, we focus on the blending of different stylistic sources, such that subtle characteristics unique to a particular musical tradition, generally not perceived by outsiders to the tradition, are blurred; such blends, however, also present new options for musical organization. Interestingly, most studies of works that combine styles from different traditions do not engage in musical analysis. In our opinion, any analysis of such compositions—on all levels of analysis, from momentary occurrences to various types of repetition to different kinds of overall structure—must consider universal factors. In the present paper, this is what we will attempt to do. For comparison’s sake, we will also analyze specific examples of traditional folk songs: “Western” and “Oriental” (Arab). We realize that extramusical factors are involved in characterizing a mixed style, and these in fact have been analyzed from psychological and sociological standpoints. Here, we shall focus on the musical factors that have not been analyzed in detail.

The first question that arises is the principles characterizing the standard contrast between “East” and “West.” Although the difference between them has become less distinct than it used to be, it still represents a significant point of reference. We chose to analyze and compare Western and Oriental (Arab) folk music, because, in folk songs, the basic principles are manifested in an extreme form. In reality, no binary distinction exists between two poles that represent extreme virtual cases. However, in light of the concept of binary distinctions, we can examine realizations of music that range from one pole to the other.

Basic Assumptions

1. The musical stylistic framework of any culture, period, region, or composer is based on certain “schemata” (Leman 1995), some of which (e.g. musical scales and rhythmic patterns) are learned and are culture dependent (but not necessarily arbitrary), and others that are “natural” and universal (e.g. contours). The selection of schemata reflects the aesthetic ideal of the framework. This relationship is universal.

2. Among the most important characteristics of the aesthetic ideal of a particular culture are the type of directionality and complexity of the music. The type of directionality represents our perceptions and experiences with respect to the flow of musical time: a focus on momentary occurrences or on the superstructure; clear or unclear flow with momentary or overall complexity. In addition to directionality, there is the principle of separation, which is manifested in various realms: separation between form and various parameters (tempo, meter), between scale and musical and extramusical factors, between the piece and the performance, between text and music, between various factors within a unit, between units, and so on. In the most general terms, we can say that overall directionality with overall complexity are of great importance in Western tonal music, as is the principle of separation, whereas in non-Western music there is more of a focus on the moment and a lack of separation in various respects.

3. The main variables for any kind of musical organization are different/similar (Tversky 1977), salient/non-salient (Huron & Royal 1996), expected/unexpected (e.g. Meyer 1956; Carlsten 1990; Yeger-Granot 1996; Krumhansl 1997; Repp 1998; Huron 2006) and defined/undefined (Rakowski 1990; Balzano 1980; Agmon 1989; Cohen & Wagner 2000). To some extent, these variables are interdependent. The way we perceive these variables is universal for “natural
schemata” (e.g. kinds of curves of change, cognitive operations, and normative ranges of occurrence), but not for “learned schemata” (e.g. scales). Since the learned schemata are culture dependent, subtle changes that are considered significant by people from that culture are not discernible by people from other cultures who have not internalized the schemata.

4. As stated above, world music combines schemata from various cultures. The schemata, however, are treated with some flexibility and subtle differences between schemata within each tradition are ignored. Thus, in world music, the above variables also largely address cultural differences, which can readily be discerned regardless of one’s own culture.

Method: The Musical Material Selected for the Study and the Method of Analysis

1. Musical Material

We chose to focus on an analysis of world music in Israel, which abounds in a variety of musical styles and genres: musical traditions—religious and secular—of different Jewish communities (Gerson-Kiwi 1972; Shiloh & Cohen 1982; Sharvit 2002; Seroussi 2002); songs termed “Israeli,” a type consciously created in order to reinforce the national identity (Smoira 1968; Cohen & Katz 1977; Shahar 2006; Eliam 2006; Bayer 1968); the age-old Arab folk music tradition (Cohen & Katz 2006); and relatively new Arab music. These cover the entire spectrum from popular music to art music. All these, including pop, rock, and other genres, exist side by side and influence each other in various ways (Adoni 2002; Horowitz 2002; Flam 2002; Seroussi 2002; Halper, Seroussi, & Squire-Kidron 1998; Belkind 2008; Braun & Sharvit 1998). Most of these studies also refer to Eastern versus Western musical characteristics. This variety forms the setting for our study, which focuses on frameworks based on a combination of traditions, the specific characteristics of which become blurred.

Here, we have chosen to focus on two frameworks. One of them—the so-called Oriental one—is generally manifested in solo vocal music with instrumental accompaniment, in which the text is important, many people are involved in shaping the piece, and the framework seems more “closed.” The other framework is more open (i.e. it combines a wider selection of styles), and is manifested mainly in instrumental music performed by ensembles of Arabs and Jews playing instruments from various cultures. These ensembles have meaningful names, sometimes combining Arabic and Hebrew words. This second framework is generally more complex than the popular Oriental one. In many cases, it involves theoretical awareness with the intention of creating art music. This requires that the audience listen attentively and forgo participating in the performance. In most cases, this music is partly composed in advance and partly improvised.

To illustrate these two frameworks, we chose to analyze in detail two compositions that exemplify them. One is “Haperah Begani,” an Oriental song that is very popular even among non-Orientals (Horowitz 2002). From the second framework, we chose an instrumental piece, “Jazz Kar-Kurd,” which is closer to the “art music” pole and is bona fide world music. The former represents a blend of traditional Middle Eastern styles, but with an eye to being accepted by Westerners as well; the latter blends styles from both East and West, including jazz.

As a first stage, in order to clarify the difference between Western and Oriental principles (which will serve as a frame of reference for our examination of world music), we will analyze folk songs (Western and Oriental) based on universal natural schemata. Five well-known songs in major keys that have been adopted in Israel, and given Hebrew texts, represent Western music. Representing Oriental music are some summaries of analyses of hundreds of songs from the age-old Arab folk tradition in Israel (Cohen & Katz 2006). One particular category of these songs has had a strong influence on Israeli music (Cohen & Katz 1977).
2. Method of Analysis with “Natural” Schemata

Our analysis rests largely on natural schemata that are not culture dependent. They are also familiar to us from outside music; they contribute to types of directionality and complexity, and make possible a comparison of different styles.

The main categories of natural schemata we employed are as follows: curves of change of various parameters (e.g. sudden changes versus gradual changes or lack of change, ascent versus descent, convexity versus concavity [Dowling 1978; Edworthy 1985; Huron 1996]); the range of occurrence, with attention to the normative range for various parameters (Hargreaves 1986); and principles of familiar cognitive operations, such as contrast (of various kinds), expansion and reduction, shifts, segregation and grouping. The last-mentioned operation includes types of repetition (which are significant with respect to types of directionality, as they determine the form, i.e. how the piece is organized in terms of same/different),\(^1\) symmetry on various levels, and hierarchical categories. Another kind of natural schema is the degree of definability, which has to do with the degree of categorization (e.g. Rakowski 1990; Cohen & Katz 2008), concurrence/non-concurrence (Cohen & Wagner 2000), and degree of separation.

Using all these, we will show the principles of organization that differentiate between Western and Oriental folk song. We will also try to determine what contributes to the general concept of “Oriental” that was selected in Israel to describe “Haperah Begani”; what contributes to the designation “Western,” which is manifested in a clear structure that enhances the popularity of the song among various audiences; and how the Oriental and Western can be combined. We will also attempt to characterize the more complex blending, as in “Jazz Kar-Kurd.”

The analyses of Arab folk song, which is an oral tradition lacking clear separation between the composition and performance stages (in contrast to the West), will be based on performances represented in transcriptions of Western musical notation, and in the records produced by the melograph. We will not deal with the interesting phenomenon of “types of performers” (Cohen & Katz 2006, 294 – 323).

Below, we present analyses of (I) Western and Arab folk songs, (II) “Haperah Begani,” and (III) “Jazz Kar-Kurd.”

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\(^1\) Among them is the schema represented by \(2^n\), in which a unit is divided into two equal subparts that are related to each other by some operation; each is then further divided into two equal parts. This schema is familiar from biology and inanimate nature, and is extremely efficient in terms of clear, complex organization.
Analysis and Comparison

I. Comparison of Bona Fide Western and Arab Folk Songs

I.1. Western Musical Elements in Western Folk Songs

As stated, we chose to analyze five Western folk songs in major keys. They are popular in the West (and in Israel) and exemplify Western characteristics that do not exist in Oriental music (irrespective of performance, which may make a piece sound “Oriental”). In addition, the mixtures included under the heading “Oriental” do have certain Western characteristics that contribute to overall directionality (without complexity), which facilitates perception of the music. The analysis is shown in Figure 1 (a–c).

We can see from the figure that the folk songs contain important Western characteristics that contribute to clear directionality on several levels, all the way up to the superstructure of the songs. The following is a general summary of these characteristics, which may be realized in various ways by means of selected principles (in italics), in addition to the principle of separation:

- Clear, well-defined, disjunctive units on several levels, including the immediate level, with clear relationships between them. The schema 2\textsuperscript{nd} predominates on the immediate level as well.
- The melodic units (shown graphically in the figure with almost all the notes) are concurrent with the beats, appear without ornamentation, and are mostly in straight lines.
- There is one repetition: either exactly the same, with a clear operation (shift, contrast, expansion/reduction), or with delayed resolution (as in the Classical period AA').
- There are only a few different durations of notes (onset to onset) and rhythms. Song 5 has four different durations and song 2 has two; the other three songs have three different durations. This may be considered the optimal number of different durations (i.e. the “normative range”) for the purpose of clear, overall “directionality” in the songs.
- All of the songs are syllabic and are subject to clear harmony (prototype degrees [I, V, IV] and “strong” progressions [Schoenberg 1954]): Song 1 has one chord (as a tonic [I]); song 3, I–V–I; song 5, I–IV–V–I.
- Clear binary contrasts: ascending/descending (in all parameters); skip/second (in melodic intervals); melodic chord (broken)/seconds (a contrast typical of Western tonal music, related to the contrast between harmony and melody).

All these characteristics are shown graphically (Figs. 1a and 1b) and represent Western characteristics.
Figure 1: Maximum symmetry in five Western folk songs in major keys
1a: The five Western folk songs in notation (All of them have Hebrew texts; the titles of songs 3–5 given in their Hebrew forms): 1—“Frère Jacques”; 2—“A, B, C”; 3—“Yonatan Hakatan”; 4—“Bayad Pirhi Poreah” (Mozart); 5—“Simi Yadekh.” Each contains eight units.

Fig. 1a

![Figure 1a](image-url)
Fig. 1b: Graphic representation of the melodic curves within the ranges of occurrence (in rectangles) of the units, and sometimes half-units as well.

1c: Relationships between units, groups of units, or half-measures: identical (=); repetition with an operation (shift [→]; contrast [inversion or retrograde: ◢]; expansion [×]; or reduction [●])

Each song is written in notation. Interestingly, each measure corresponds to a unit.
I.2. Some Characteristics of Arab Folk Songs

The Arab folk tradition in Israel is extremely rich and very old (Cohen & Katz 2006). This tradition is based on a set of well-known genres that are characterized by a combination of numerous musical and extramusical factors (particularly textual ones). This combination in itself is representative of one of the typical Oriental traits, “lack of separation,” compared with the separation that is characteristic of the West and is realized in many different ways. The musical variables that characterize the genres include the maqāmāt (of which the bearers of the tradition are generally unaware), the structure of a song, rhythmic aspects, and the degree of melisma. Combining these factors produces an extreme example of lack of separation. The extramusical factors that affect the characteristics of the genres are the text (content and structure), function, occasions on which a song is performed, etc.

Another significant aspect of the tradition is the importance of performance and improvisation: a song is never repeated in exactly the same way, and it is not always clear what constitutes sameness and difference. In particular, the intonation is highly scattered, so that the degree of definability of the pitches and interval sizes is small—so small that many scholars have thought that there was no connection between theory and practice with respect to intonation in Arab music. We discovered, however, that there is a very interesting method to the “madness,” and it abides by its own principles (“intonation type”; see Cohen & Katz 2006).

The songs generally consist of one or two melodic units, and we can distinguish between free-floating units and fixed ones. The fixed units include motives, phrases, stanzas, and refrains of various sizes. The largest directional unit is usually the phrase (which corresponds to a poetic stich or pair of stichs).

I.3. Examples Taken from Arab Folk Music (Figs. 2a–j)

Below, we look at several examples (taken from our analysis of hundreds of songs) highlighting principles that contribute to the difference between “Oriental” and “Western” music. These principles lead to a focus on the moment and preclude a complex superstructure: lack of definability in various respects, little separation (between units, between maqām scales and other characteristics, between musical and extramusical characteristics of the genres), little symmetry, a lack of complex levels of organization, imprecise repetitions, operations that are not always clear and come in only a few types, and a lack of binary contrast. Nevertheless, we find adherence to melodic nuclei with many slight changes that are significant for the bearers of the tradition, and are based on multiple sizes of seconds with an interesting regularity that is not defined in precise terms. The examples (Fig. 2a-Fig.2j) are taken from Cohen & Katz (2006, henceforth PAM). Each figure caption includes indication of the number of the page in the book.

We begin by describing the standard genres that are unique from various standpoints with respect to the principle of lack of separation. These genres classify the songs based on an interesting set of musical and extramusical factors (text and occasion of performance). We have arranged them here along a spectrum of musical and textual characteristics (Fig. 2a). The collection of songs range from loose and flowing to restrained and rhythmic.
Figure 2a: The arrangement of the genres based on a set of characteristics. (The characteristics are not defined in simple terms because several factors are involved.). Originally published in *PAM*, p. 474.

One characteristic of the rhythmic songs as opposed to the less formalized ones is a shorter duration of the stanza (Fig. 2b) and a shorter range of tempo changes in each song (Fig. 2c) (but the tempo differences between songs in the rhythmic genres are greater than between songs in the other genres).

Figure 2b: Duration (in seconds) of stanzas in each genre; the average for each genre is designated by a broken vertical line. The diagrams of the genres are arranged from top to bottom according to their degree of rhythmicity. Originally published in *PAM*, p. 147.
Interestingly, however, “density tempo” (average number of notes per unit of time; see Kolinsky 1959) was found to be important in this tradition. No substantial difference was found between the density tempo of the various genres (Fig. 2d), and no difference was found between the vocalized segments (free singing of isolated syllables) in the various songs and the singing of a metered text. The density tempo ranges mainly from 200 to 280, with an average of 240, whereas the average is 125 for the Western folk songs. (A preliminary examination of density tempo in Classical piano sonatas showed similar density tempo in all the movements of each sonata, despite changes in the beat tempo.) This subject requires further research in order to increase our understanding of the meaning of the beat tempo, the density tempo, and the connection between them. It may be that certain styles in some cultures are characterized also by their density tempo.
**Figure 2d1**: “Density tempo” (D.T.: number of notes per minute, as opposed to number of beats) in vocalized sections (dotted line); in each song, omitting vocalized sections (solid line); and in each song, including vocalized sections (broken line). The similarity between the three curves testifies to the importance of the density tempo. Originally published in *PAM*, p. 152.

The similarity between the curves of the genres testifies to the importance of the mean density tempo as a characteristic of the entire repertoire.

Another difference between the genres is in the degree of separation between motives (Fig. 2e), which is clearer in the rhythmic genres; unclear definability of the units contributes to an unclear structure. (In this music, the problem of phrasing is of importance.)

**Figure 2e**: Three examples for characterization of the degree of connectedness between motives: a. disjunct; b. conjunct; c. indistinct. Originally published in *PAM*, p. 137.

a. Disjunct (*dabke*)

![Disjunct Example](image)

b. Conjunct (*mu‘annā*)

![Conjunct Example](image)

c. Indistinct (*şūriq*)

![Indistinct Example](image)
An important factor that contributes to indefinability is the unavoidable improvisation, which makes the same phrase different in different performances even of rhythmic songs (see Fig. 2f).

**Figure 2f:** Different versions of a motive that appears mainly at the ends of phrases in ‘atāba songs in the maqām bayāt. Originally published in *PAM*, p. 140.

As mentioned above, the indefinability is manifested mainly in the sizes of interval. Using the melograph, we found a huge amount of scatter (which prevents “categorization” [Rakowski 1991]) in the various intervals (see Fig. 2g), but this scatter was found to embody a hidden regularity that we called an “intonation type” framework, in which the relationships between sizes of successive seconds are preserved, although the relationships are expressed not in precise quantitative terms but in terms of “more than,” “less than,” or “equal to” (like the relationships between durations in poetic meters).
Figure 2g: Summary of interval sizes in cents (produced with the aid of the melograph): Arab and Western intervals, originally published in *PAM*, p. 51

The lengths of the four rectangles represent the ambitus of the four interval scatters in the music we examined. The qualities of fixed Western intervals are represented by M (major), m (minor), and P (perfect).

S: Average of the smallest interval sizes;   L: Average of the largest interval sizes

Another feature that is relevant to “Oriental” music is the small degree of symmetry (in accordance with the aesthetic ideal). In the Arab folk music that we examined we found some symmetry: binary symmetry occurs in less than one-third of the songs (but without the constraints of the Classical period!); non-binary symmetry also occurs in less than one-third of the songs (Fig. 2h); the rest of the songs have no symmetry at all. (Even in the songs with binary symmetry, the division into units can often be interpreted in various ways. For instance, in Figure 2h the units of the stanzas can be divided into 3+3 bars or 2+2+2.)
Figure 2h: Non-binary symmetry (3+3 measures) in a single performance of the second stanza of the song “'Ala Dal’ona” in the dabke genre, performed by Qāsim. Originally published in PAM, p. 384.

Finally, melisma, which represents “lack of separation” between notes, is another characteristic of the Arab tradition and of the individual genres. There are even typical one- or two-syllable “vocalizations” that have an opening function (Fig. 2i).

Figure 2i: Typical vocalization of the syllable ōf in the opening of the mu‘annā song (maqām sabāḥ). Originally published in Palestinian Arab Music: A Maqām Tradition in Practice (The University of Chicago Press, 2006), p. 146.

In our study, we characterized the melisma from several standpoints, and found several aspects to be significant: the average overall melismatic quantity (MQ), the change in melisma along the time axis, and the degree of its scatter. We found a distinct difference between Israeli and Arab folk songs with respect to the degree of overall melisma (Fig. 2j; for an explanation of how MQ is calculated, see Cohen & Katz 2006, 185–89). We repeat that most of the Western songs that we examined here are completely syllabic.

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All these examples are presented here to point out the “Oriental” characteristics compared with the “Western” ones. In “Haperah Begani,” as stated, we found a blend of the two. This blend constitutes an overarching set of traits that are generally perceived as Oriental.

II. Haperah Begani (“The Flower in My Garden”)

This song, composed in 1981, won first prize in the 1982 Dror Oriental Song Festival. To this day, it is attributed to the performer, Zohar Argov (it is generally known as “Zohar Argov’s Song”), and, indeed, the way it is performed is of tremendous importance (Horowitz 2002). Here, we will first discuss the song as it is notated, i.e. as it was composed (music and text) by the popular composer Avihu Medina (who, incidentally, does not read music) with the assistance of Moshe Ben-Moshe, without the additions made by the performer and without Nancy Brandes’s orchestral arrangement (see Example 1—the notated song).

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Example 1: “Haperah Begani” (lyrics: Avihu Medina, music: Avihu Medina and Moshe Ben-Moshe) in notated form (with the accompanying chords marked). Parts of the song are circled.
II.1. Analysis

II.1.1. Overall Structure

In general terms (see Fig. 3), the song consists of two syllabic parts, A and B, which are distinguished from each other by their motives, melody, and rhythm; part O—which is short and melismatic (on the syllable o)—between them; and a brief coda. The overall structure (as we see in Fig. 3) is part A, followed by A’, O, and B, then an exact repetition in the notation of A’, O, and B (whereas the text, which constitutes the refrain, is in B), and finally a coda. The text includes a refrain, the last lines of which are repeated. Each of the parts is made up of four-measure units that correspond to four lines of text; most of the units join together or are divided into 2^n, as found in many folk songs. (All the parts here are divided into 2+2, most are divided further into 1+1, and some are even divided into ½+½.) However, this division into 2^n on the immediate level is just in the notation.

All the two-measure units end with a long note or a rest, and represent two lines of the text, which form the basis of the rhyme structure. The rhyme here is a perfectly common one—the end of line 2 rhymes with the end of line 4).

These units, which may be regarded as having been constructed from motivic nuclei, form the basis for the structure of the piece, which has four levels.

II.1.2. Rhythm and Its Notation

As for the rhythm, all the measures have a 4/4 meter (the most common meter in popular music) and, in the notation, the notes accentuate the division into four beats, each of them 4/16. It should be kept in mind, however, that the notation was not written by the composer. In fact—as we see in Figure 2—the subunits in each measure relate to variable durations of beats (alternating 1/16, 2/16, 3/16, and 4/16). In the notation, the difference is obtained through slurs, ostensibly yielding syncopation.
Figure 4: Division into subunits within measures (blurring the beat). The openings of A and B in notation and as heard (represented by the number of 16th notes in the subunits

These changes produce a kind of “quiver,” and contribute to the sense of importance of the moment. The division into $2^n$ thus did not penetrate the unit of the measure. Moreover, we did not find any phrases divided into classical Western periods (I→V, I$_a$→V, I$_a'$→I$_a'$).

Interestingly, this sort of notation, which does not reflect performance precisely, is common in non-Western music. Perhaps it reflects unconscious attention to complex meters such as the mizān in Arab music.$^3$

II.1.3. The Melodic Aspect

The scale is Phrygian or Hejaz, which may indicate a Spanish influence (in the notation here, the center of the scale is the note mi [E]). This scale is extremely common in popular Israeli music, whereas major scales are very rare. (In Arab music, it is known as the scale of the maqām hejaz; in Jewish music, it is ahava rabba).

Motivic nuclei: Each two-measure unit can be seen as a combination of between one and three motivic nuclei (similar to gestures); the song as a whole is composed of four types of motivic nuclei, each of which appears in several ranges of occurrence. Such nuclei are typical of improvisation in Arab music and are known as jīns. For instance, A (in Fig. 4) begins with a skip on an upbeat (E→A) followed by ornamentation on the note A, and it ends with the descending tetrachord A→E; B begins with the trichord C$^\text{'}$→A.

The following are the four types of motivic nuclei (Fig. 5). Scale degrees are designated by numbers.

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$^3$ In contrast to the simple Western meter, which permits a hypermeter based on $2^n$ and contributes to a superstructure, the mizān does not allow this; instead, it contributes to momentary complexity and a focus on the moment.
Figure 5: Four motivic nuclei (a–d) on different levels (ranges of occurrence) represented by numbers. In all of them we find the intensification principle.

Type a consists of recitation on a note or ornamentation of a note. This type appears mainly on four notes denoted by numbers, from the lowest to the highest: E (1), A (2), C' (3), and E' (4). (B, which is quite rare, is designated by 2.) For example, nucleus no. 2 appears on the note A in the first measure of part A in Figure 2.

Type b is a descending tetrachord on two main levels: from A to E (in numbers, 2→1) and from E' to B (4→2); it occurs once from F' to C' (5→3).

Type c consists of ascending or descending thirds on three levels: one of them between the notes C and A (in numbers, 3↔2, as at the beginning). The others are B–G# (2→3) and E'–C' (4→3). There is also one occurrence of F'–D' (5→3).]

Type d consists of an ascending skip, which appears as an upbeat at the beginning of a four-measure unit only in parts A and A' (a state of concurrence in which the high note following the skip appears on a stressed beat). The skip starts on the tonic E with three possible intervals. Other skips are rare and appear only between units.

These motives are quite flexible. Their boundaries are sometimes open to various interpretations. For example, the motive of a third may be regarded as an expansion of the ornamentation of a second, and the motive of a fourth as an expansion of a third.
II.1.4. The Structure in Terms of the Two-Measure Units and the Parts of the Song

All the two-measure units can be classified as two types: x and y. X is lower than y and ends on the note E, whereas y usually ends on a B. Each type may be realized in several ways. The overall structure is summed up in Figure 6.

Interestingly, all ten different units are derived from the first unit x by natural operations: shift, expansion, reduction, contrast, segregation, and grouping.

- x′—expansion of the ambituses of the subunits (motives) in x
- x″—expansion of x along the time axis from two measures to four
- y—the first measure is a shift of the first measure in x; the end of y is ascending, unlike the end of x, which is descending.
  - y₁—reduction of y to a C'–A descent and repetition of this motive
  - y₂—ornamentation of y₁ and a conclusion as in y
  - y₃—the two measures are a shift and expansion with ornamentation derived from motives a and b.
- End of B—shift (partly with contrast) of y₃
- Coda—contrast with the end of x (in x, A→E; in the coda, A→E′)

**Figure 6:** Correspondence between parts (8 bars) and units (2 bars)

*Note:* All 10 different types are derived from unit X by natural operations (contrast, shift, expansion and contraction), but not precisely (unlike most Israeli songs).

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</tbody>
</table>

It should be stressed that all the units are obtained from x through various operations, though not in a precise fashion (in contrast to most Israeli songs). Their relationship is one of “family resemblance” (an “open” relationship). The flexibility of the operations detracts from the precision of the distinction between sameness and difference, and this indefinability is one of the characteristics of improvisation, performance, and even composition in Arab music.

II.1.5. Some General Characteristics of the Units on Various Levels: Skips, Cadential Notes, Peak Notes, Curves of Pitch

II.1.5.1. Skips

All the skips, including the opening ones in part A mentioned above, with the exception of two descending skips that separate units, are ascending (in accordance with the
natural prevalence found by Huron when he examined thousands of folk songs [Hippel & Huron 2000]). We do not find very large skips or primes; in other words, the intervals are within the normative range. The largest of the skips is a minor sixth (as in Palestrina counterpoint), and most of the skips come at the beginnings of units (as Narmour [1990] pointed out). The intervals in the middle of units are mainly seconds and a few thirds, as we found in Arab music. Two of the thirds (F→A; C→E) underscore the importance of F and C as factors in delayed resolution (F-(A)→E; C-(E)→B) and contribute to tension (as is common in Arab music). The minor sixth interval, which can be thought of as an extension of a fifth, is known in Arab music as the “interval of love.” Part B contains almost no skips.5

II.1.5.2. Cadential notes

The cadential notes here are relatively long notes and appear at the end of every two measures (as in Figure 4). Almost all of them are E or B. The exceptions are G# and A, each of which appears only once in a unit, thereby emphasizing the clear separation among the two-measure units.

II.1.5.3. Peak notes

It is well known that peak notes are significant (Eitan 1997). Here they appear in almost every two-measure subunit, even as ornamental notes. In most of the measures, there is a one-time peak, which appears not at the beginning nor at the end of the measure, producing a convex curve and emphasizing the two-measure units (e.g. the peak note in the first phrase of part A [Fig. 2] is the note B, whereas the first phrase of part B is unusual because it has two peaks on the note C). An important exception is the coda, where the peak note comes at the end.

II.1.5.4 Curves of pitch

Figure 7 sums up the curves of pitch on the various levels of the song. Three types of curves are represented graphically: convex (∩), ascending (<), and descending (>). There is also a combination of convexity with an ascending or descending curve, where the convexity is not symmetrical. In addition, the two peaks in the song are marked with arrows (↑). Within units x and y, descending and convex curves predominate; on the higher levels, ascending curves are salient. An ascending curve is found between type x and type y; in the big parts ascending and convex curves prevail; the peaks of the song are found at the end of A' and B'. We also have an ascending curve between the parts (A<A'B), i.e. the piece follows the principle of intensification that is so characteristic of Oriental music. In addition, we see an ascending straight line in the coda. All this ignores the O that separates A' from B; it is lower than they are, and ends with descent.

It should be stressed that the principle of intensification is common in some non-Western cultures for various parameters and has even been given special names. In Arab music, it is important in the taqāsim, an improvisation-based genre. In the present song, it is applied to the parameter of pitch on all levels except the two-measure level and the level of the short, melismatic unit O separating A' from B. The principle of

4 A possible explanation: an ascending skip (i.e. a sudden change in pitch involving an increase in energy) means concurrence in terms of the salience, whereas a descending skip means non-concurrence.

5 In Arab musical theory, skips are almost meaningless.
intensification naturally creates tension and is directional, but the directionality is unclear and not complex.

**Figure 7**: Pitch curves within and between units at various levels (except in the four-bar part O, which is low and descending): ∩ convex; > descending; < ascending; ↑ peak in the song
II.1.6. A Graphic Summary of Some of the Characteristics on the Various Levels of “Haperah Begani” (Fig. 8)

Figure 8: Graphic representation of selected characteristics of “Haperah Begani.” The rectangles represent the ambitus of motives, without peak notes, including a selection of significant notes. Y-axis: names of notes (do, re, mi, etc.), with the range of occurrence represented by numbers (1–5) in parentheses, in accordance with Figure 3. X-axis: the series of two-measure units (x, y, and z) joined together to form larger sections (A, A’, O, B, coda). The units as designated in Figure 6: the x units (x, x’, x”), which are in the lower range, end on mi; the y units (y, y’, y1, y2, y3), which are in the upper range, start on do and end on si.

Legend:
- □ Opening note of 2-measure units. If it starts on mi followed by large skips (in sections A and A’), the second note is also designated by:
  - ● Concluding note
- ■ Non-repeated peak notes in the middle of two-measure units
- ▲ The note fa followed by a skip to la (not shown in the figure), as a delayed resolution to mi.
- ▲ Accentuation of the relationship between fa and mi (in the x units) and between do and si (in the y units)
- ◁ Asymmetrical convex curves in sections
- / Curves of intensification within and between sections

Solid columns indicate the range of occurrence of the x units; hatched columns indicate the range of occurrence of y units, excluding the skip from the note mi.
As stated above, this song, though considered Oriental, has certain elements of a “Western” framework that allows the song to have some overall directionality—a superstructure that did not exist in the East. This superstructure reached peaks in Western tonal art music, where it appears with complexity. Superstructures of various kinds are also found in other cultures, although without complexity.

**II.2. Summary of Oriental versus Western Characteristics in “Haperah Begani”**

II.2.1. Western Characteristics
The Western characteristics manifested here include clear distinctions between relatively large units with binary contrasts that contribute to a clear, perceptible superstructure:
1. Between two-measure units separated by rests or long notes; where the two measures form the basis for organization in $2^n$
2. Between two main types of units—the two-measure units x and y
3. Between two basic eight-measure (four-unit) parts, A and B: in A, every two-measure unit begins with an ascending skip; in B it does not.
4. Between units along the time axis that constitute a superstructure: opening (A), pseudo-development (A' and B), and coda (an inversion of the end of the opening of A).

II.2.2. Oriental Characteristics
Oriental characteristics are manifested here by a lack of clarity in many respects: lack of clear separation between components, ornamentation, and quivering in “small” events (which contribute to a focus on the moment and blur the superstructure), and the principle of intensification (characteristic of the East). The following are the Oriental components of the song:
1. There is a variety of motivic nuclei whose flexibility is manifested in the absence of precise repetition, lack of clarity regarding the central notes (which is ornamenting which?), lack of clarity regarding the boundaries of the motive; and a blurring of the distinction between sameness and difference.
2. The two types of two-measure units, x and y, which form the basis for the entire superstructure, are composed of motivic nuclei and are manifested in ten ways, related to each other by “family resemblance” (an “open” relationship). All ten of these realizations are obtained from the basic unit x using “natural” cognitive operations, plus local modifications (as discussed in II.1.d).
3. There is a rhythmic quivering within the two-measure units (as heard and not as written); i.e. the $2^n$ schema did not penetrate the immediate level.
4. The curves of pitch of the two-measure units (except in the conclusion) are convex or descending and reinforce the small units. On all the other levels, they are ascending. In other words, we have here the principle of intensification.
5. Resolution (to important notes) is expressed only via momentary delays through a descending minor second ($F \rightarrow E; C \rightarrow B$) in the two-measure units.
6. As for the parameter of pitch, although the intervals belong to the Western system (which is not microtonal), the selection of the specific scale (the equivalent of the Arab ḥejāz) is considered Oriental.
To sum up, we have tried to demonstrate a kind of analysis based on universal principles that, on the one hand, makes it possible to classify and define the factors that are perceived as Oriental, while on the other hand explains the perceptible structure that helps “market” the song as world music. All the characteristics referred to as Oriental can be viewed as an overriding “umbrella” or melting pot for different styles, which are specific realizations of the Oriental stylistic framework.

III. “Jazz Kar-Kurd”: a piece that demonstrates world music

This piece was composed by Taiseer Elias in 1994 for Bustan Avraham (“Abraham’s Orchard”), an ensemble made up of Arabs and Jews who play the oud (a kind of lute), flute, guitar, violin, qanum (a kind of plucked zither), bass, and percussion instruments (drums and bells). The ensemble has achieved extensive publicity worldwide, and has produced CDs (for the composition as notated by the composer, see Fig. 9). The transcription presented here is a slightly simplified version of the melody as compared to the recorded version heard on the CD. We thank the composer for granting us permission to publish this transcription.

III.1. Analysis

The piece selected is an example of “world music,” which combines a range of sources—Arab, Spanish, jazz, blues, Western impressionism; a range of compositional techniques—monophony (unisono), polyphony, polyrhythm, polytonality, ostinato, harmony (a mixture of various kinds of chord relationships with chords as timbre); various types of scales—maqām, mode, pentatonicism, chromaticism, whole tones; and a variety of types of rhythmic patterns—mizān, flamenco, other, and undefined. All this variety partakes in the superstructure of the piece, which may be regarded as art music.

III.1.1. Overall Structure

The piece as a whole (represented in Figs. 9–13), which is about six-and-a-half minutes long, is made up of six sections—an introduction; sections A, B, C₁, and C₂; and a conclusion—some of which (the end of the introduction, A, end of B, and the conclusion) are written down and others (the opening of B, C₁, and C₂) are improvised, though abiding by constraints. Figure 9 shows the written parts of the piece (which account for slightly more than a third of it), and Figures 9a–13 summarize the piece from various standpoints. Here we will focus mainly on selected melodic elements from the written parts and on general characteristics that contribute to the superstructure. As for the smaller units, our analysis shows that the written melodic part is based on two motives, a and b, and two periods, i and ii, obtained through development of the motives or parts thereof. Motive b is obtained through basic operations on a; a may be regarded as an expansion of a nucleus, which consists of the notes do–re♭–do (C–D♭–C). We thus have a hierarchical system with four levels of units (nuclei, motives, periods, and sections) that use all the operations: contrast; reduction and expansion; shift; segregation and grouping.

**Figure 9**: Notation of the written parts of “Jazz Kar-Kurd.” The unwritten parts are designated by heavy horizontal lines. The various units are designated by letters: A–C: sections; i, ii: periods; a, b: motives.

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6 The name comes from the maqām kurd, which is analogous to the Phrygian mode, and jazz, which is one of the sources of the piece.
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Conclusion

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III.1.2. The Basic Units—Nuclei and Motives (Fig. 10a)—and Rhythmic Organization (Fig. 10b)

In Figure 10a we see twelve examples of the nucleus and of motives $a$ and $b$. Examples 1 and 2 show nucleus $\alpha$ on $do$; in examples 3 to 7, nucleus $\beta$ is on $re\# (D\#)$; examples 8, 9, and 10 show motive $a$; and examples 11 and 12 show motive $b$.

Figure 10a: Notational representation of the basic written units in “Jazz Kar-Kurd”: nuclei and motives (1–12) and the places where they appear in the overall structure. (The notes on the staff appear as originally written. The rhythms on top are those as actually heard.)

Legend for the location: A, B—sections; i, ii—periods in A; a, b—motives; $\alpha$, $\beta$—nuclei; int.—introduction before A; dev.—development; con.—conclusion

Note: $b$ is derived from $a$; $a$ is derived from nucleus $\beta$, which is derived from $\alpha (do)$. 
III.1.2.i. Nuclei

Examples 1 and 2 in Figure 10a show the central note do (C) as a recitation note and a long note. Example 1 appears in the introduction and example 2 appears at the opening of phrase i in section A (bar 11).

Example 3 shows the note re♭ (D♭), as an extension of do (C)—do—re♭—do (C–D♭–C). This appears in various forms (examples 3–7 in Fig. 10a). Example 4 shows the boundaries of motive a; Example 5 shows the end of motive b; Example 6 shows the end of the second phrase in section A; Example 7 is from the end of section B. It is particularly important in the middle of the piece, where re♭ (D♭) is a long, stressed note (Example 7) that is resolved only at the end of the piece.

III.1.2.ii. The Motives

Motive a (Example 8 in Fig. 10a) starts and ends on do (C), with a D♭ before the end. Thus, it may be viewed as an expansion of the nucleus. Its characteristics are a convex curve and a conclusion on a descending tetrachord. It first appears in the introduction, where it is repeated four times by all the instruments in unison, and it recurs with exact repetitions at the end of section A and before the end of section B. In addition, it appears in several variations in various places: appearance of the tetrachord with rhythmic changes (Examples 5 and 6 in the figure), expanded to a pentachord (6) or even to an octave (10), with the ascending fourth filled in by thirds (10, 10'), with inversion (at the beginning of motive b in examples 11 and 12)—and so on.

Motive b (no. 11 in Fig. 10a) is more complex than a. It is “aggressive” and divisible and lacks clarity regarding rhythm, meter, and tonality (at the start of the motive). It has an overall descending curve with zigzags and ends on the Phrygian tetrachord (as in motive a), with accentuation of the D♭.

The exact motive appears first at the end of the introduction and then reappears at the end of the entire piece, with the entire ensemble in unison. Parts of it appear in inexact forms, such as at the beginning of the conclusion (Example 12). The two periods i and ii, which are developments of motives a and b, appear in section A.

III.1.2.iii. Rhythmic Aspects

As for rhythmic organization, the entire written part and the opening and the improvisation in B are rhythmic; almost the entire written part (with the exception of motive b) is in $\frac{4}{4}$ meter, and most of the measures are organized in $2^n$ (Fig. 10b).
Figure 10b: Organization of the measures in the written parts (all, except motive b, in $\frac{4}{4}$ meter, representing the schema $2^n$ and deviations from it.

- $a$—repetition of motive $a$; $\tilde{a}$—development of the essence of $a$; $\tilde{b}$—development of the essence of $b$
- $=$—identical measures; $\sim$—almost identical
- $\dash$—unwritten part. Measures that are not divided (partially or totally) into units of quarters (a kind of quivering) are in bold with a wavy underline (1, 2, b).

Within the measures, however, except in period ii (in part A) and at the end of section B, the division into four equal quarters (i.e. $2^n$) does not take place (in the version performed, although it does appear in the written version). In this respect, the rhythmic aspect of the notation is similar to that of “Haperah Begani.”

III.1.3. Summary of the General Structure of “Jazz Kar-Kurd”

The piece is summed up by means of its three representations, from the concrete to the abstract, in three figures (11–13). The summary represents the results of the analysis together with the composer’s instructions. Figure 11 presents a “verbal score” that supplements the composer’s notation (Fig. 9) with information based on our analysis and that provided by the composer. Figure 12 is an abstract summary of selected characteristics on the various levels. Figure 13 shows selected overall characteristics—the curve of the degree of definability; the schema of repetitions (rondo and ABA); and an allusion to sonata form.
Figure 11: Verbal “score” of “Jazz Kar-Kurd”: Additional information about the units on various levels—nucleus (α), motives (a, b), periods (i, ii), and section (see Fig. 9). The information in each unit is designated by the duration in seconds (in brackets); several musical characteristics; the participating instruments; and stylistic references. Written units are designated by ≈ (handwriting).

<table>
<thead>
<tr>
<th>Subunits</th>
<th>Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Introduction</strong> (50 sec)</td>
<td><strong>Opening (20)</strong></td>
</tr>
<tr>
<td>Rhythmic dialogue:</td>
<td>Entire ensemble in unison</td>
</tr>
<tr>
<td>Oud and guitar; Arab. flamenco, and Jazz</td>
<td></td>
</tr>
<tr>
<td><strong>A (80)</strong> Phrase (18) i’</td>
<td>ii (17)</td>
</tr>
<tr>
<td>Oud, drum, and bass guitar</td>
<td>Kanūn joins in</td>
</tr>
<tr>
<td>Flute -- improvisation ending with variations on b with bass guitar and percussion, jazz, Spanish, polyrhythm, etc.</td>
<td></td>
</tr>
<tr>
<td><strong>B (60)</strong> Improvisation (30)</td>
<td></td>
</tr>
<tr>
<td>Oud -- improvisation on magāmat with chromaticism and divergences; all the others—rhythmic drone on Res; harmony as timbre and polytonality; Arab and impressionistic</td>
<td></td>
</tr>
<tr>
<td><strong>C₁ (85)</strong> Flute improvisation based on whole tones; Other instruments: “quivering” background.</td>
<td></td>
</tr>
<tr>
<td><strong>C₂ (80)</strong> b’ (18) development of b flute</td>
<td>b (7)</td>
</tr>
</tbody>
</table>

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Figure 12: “Jazz Kar-Kurd”—Overall summary of selected characteristics of the units on the hierarchical levels designated by various letters and symbols:

$\alpha$, $\beta$—nuclei, based on the important notes $do$, $re^\flat$
$a$, $b$—motives; i, ii—periods
A–C, + introduction and conclusion—sections
Re$^\flat$—salient delayed resolution
$\leftarrow$—intensification of various aspects; Imp.—improvisation within constraints
$\Delta$—leading instrument
□—played in unison
↑—peak in pitch

<table>
<thead>
<tr>
<th>Parts</th>
<th>Section and durations</th>
<th>Written</th>
<th>Imp.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction (50 sec)</td>
<td></td>
<td>X*</td>
<td>opening $\alpha$ $a$ $a'$ $b$ $\leftarrow do$</td>
</tr>
<tr>
<td>A (80 sec)</td>
<td></td>
<td>X</td>
<td>i</td>
</tr>
<tr>
<td>B (60)</td>
<td></td>
<td>X**</td>
<td>ii</td>
</tr>
<tr>
<td>C$_1$ (85)</td>
<td></td>
<td>X</td>
<td>i'</td>
</tr>
<tr>
<td>C$_2$ (80)</td>
<td></td>
<td>X</td>
<td>ii'</td>
</tr>
<tr>
<td>Conclusion (25)</td>
<td></td>
<td>X*</td>
<td>$\approx$ $a$ $\approx$ $\text{Imp.}$ $\approx$ $\text{Flute}$ $\approx$ $\text{Ud}$ $\approx$ $\text{Disintegration}$ $\approx$ $\text{Increased disintegration}$ $\approx$ $\text{Flute}$ $\approx$ $\text{b}$ $\approx$ $\text{Conclusion}$ $\approx$ $\text{b}$ $\approx$ $\text{Conclusion}$</td>
</tr>
</tbody>
</table>

* written, other than the opening, which is rhythmized and not improvised
** starting from a

In a general perspective, we can see the overall structure as based on some of the principles of the sonata (Fig. 13). The introduction after the opening represents the “raw material.” It is followed by the “exposition” of motives $a$ and $b$ for the rest of the written parts.

Section A contains the two periods i and ii (i.e. the development of $a$ and $b$), which are repeated but with a greater number of instruments and greater polyphonic complexity. Section B is marked by rhythmic improvisation, including polyrhythm. It ends with motive $a$ and is followed by a short variation on $a$ that ends on a long D$\flat$. In section C$_2$, the improvisation is all rhythmically free and there is maximum disintegration. In both of the improvisational sections, C$_1$ and C$_2$, the schemata of the tonality, the rhythm, and the harmony gradually fall apart. Sections A, B, and C can be considered “development” and then we have, in brief, the recapitulation (the conclusion). Finally, the concluding section, which is very short, begins with a variation on motive $b$ and ends with the original, complete $b$. 
**Figure 13(a-d):** Selected characteristics of the overall structure (symbols of isolated letters, as in Figs. 10–12)

13a: The overall curve of change (asymmetrical and convex) of organizational definability (defined–undefined–defined)

13b: The ends of the sections (except for section C, which is improvised) are in unison: motive $a$ appears as a refrain, and motive $b$, which ends similarly to $a$, appears at the end of the opening and closing sections.

13c: The basic nucleus $\beta$ (do-re-do) encompasses the entire piece.

13d: An allusion to sonata form. ↑ represents a peak in pitch, roughly in the middle of the piece.

<table>
<thead>
<tr>
<th>Section</th>
<th>Introduction</th>
<th>A</th>
<th>B</th>
<th>$C_1$</th>
<th>$C_2$</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>13b ends</td>
<td>a(x4)b</td>
<td>ax4</td>
<td>a(x2)$\bar{a}$</td>
<td></td>
<td></td>
<td>$b$</td>
</tr>
<tr>
<td>13c motive nucleus $\beta$</td>
<td>do</td>
<td></td>
<td></td>
<td>re$^b$</td>
<td></td>
<td>do</td>
</tr>
<tr>
<td>13d sonata form</td>
<td>“exposition” (a+b)</td>
<td>dev. (a+b)</td>
<td>dev. essence of a (end of B)</td>
<td>disintegration</td>
<td>“recapitulation” (b only)</td>
<td></td>
</tr>
</tbody>
</table>

![Diagram](image)

Thus, in our analysis, which takes into account natural schemata, we obtain a superstructure in terms of some characteristics and units that appear on the hierarchical levels despite factors that we have not described here, which reinforce the superstructure. In Figure 13(a-d) we see the overall process starting by moving from the defined to the undefined—i.e. from the rhythmic, planned, and written to improvisation, free of rhythm and other frameworks—and concluding with defined assertiveness. The overall effect is a sort of convex curve with its peak near the end. In addition, motive $a$ serves as a refrain and motive $b$ is the opening and conclusion. From another perspective, we can see a suggestion of sonata form in the superstructure: the introduction and section A are the exposition, B, $C_1$, and $C_2$ are the development, and the conclusion is the recapitulation.

### III.2. Comparison with “Haperah Begani”

Both “Haperah Begani” and “Jazz Kar-Kurd” have units on four hierarchical levels, obtained from each other by cognitive operations; in both, the measures are organized to a large extent in $2^n$, which contributes to overall directionality; both contain deviations from the orderly organization within the measures (the same gap between the notation and the performance), contributing to momentary complexity and focus on the moment, and in both we find the principle of intensification and binary contrasts. However, “Jazz Kar-Kurd,” analyzed here only in part (without the improvisational sections and some of the “Western” parts in various styles, and without referring to “learned schemata”), is
much more complex and varied in terms of the learned and natural schemata and its units are longer. This piece requires theoretical knowledge. It combines complex overall directionality with momentary directionality that contributes to a focus on the moment. The principals of overall directionality are somewhat reminiscent of those that guide the structure of the classical sonata: a convex curve of stability-instability-stability and various binary aspects on different hierarchical levels. The binary nature is manifested in the two motives (a and b); the two periods (i and ii); rhythmic versus arrhythmic; defined versus undefined; and composed versus improvised. Significantly, in contrast to the sonata structure, the strong focus on the moment may divert attention to details at the expense of the overall structure. In some ways, this is the opposite of the common overall structures in the East, in which pieces move from undefined to defined.

Conclusion

To sum up, we attempted to develop a model based on universal principles that enables us to map musical works, including world music, in terms of styles and stylistic frameworks. On the whole, our findings corroborated both our assumption and our hypotheses, taking into account the aesthetic ideal (which also relates to the Oriental and Western extremes) and universal principles of natural schemata that connect the two (the ideal and the stylistic rules).

Some major questions pertinent to ethnomusicology remain unanswered. For example, can one speak of broader geographical characteristics? What characteristics can be attributed to a specific geographical area?

Moreover, along with the gradually expanding phenomenon of blends of styles, we increasingly find the ostensibly opposite phenomenon—a desire to preserve the cultural uniqueness of Arab art music, but with significant changes to express the composer’s uniqueness. This phenomenon, which is growing in Lebanon, is significant also among Israeli Arab musicians. We then have to ask how the “correct” innovation is manifested; this interesting topic requires separate research. In practice, the changes involve the use of Western characteristics—chords (characterized mainly by timbre) and types of simple polyphony, i.e. a combination of particularism and blending. Is there such a thing as a culture free of any cultural specifics? Perhaps we have here different degrees of blending and particularism, and the classification itself is interesting.

Whatever the answer, it seems to us that types of directionality and complexity invariably allow for meaningful classifications, including consideration of the raw materials based on various learned schemata, natural schemata related to the meaningful organization of sound, and “regularity” pertaining to improvisation.

It goes without saying that further research is required.
References


