PLURIVOCALITY IN THE LITURGICAL MUSIC OF THE JEWS OF ṢANᶜA (YEMEN)

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INTRODUCTION

Musicologists today agree that the traditional music of the Yemenite Jews has unique stylistic characteristics. These characteristics are found in the musical

existence of certain specific musical elements common to all the Yemenite Jews. The search for these musical elements has been a main concern in the ethnomusicological studies of this Jewish tradition. Indeed, several scholars have striven — each in his or her own way — to deepen our understanding of the traditional musical styles of the Yemenite Jews.

Plurivocality, the simultaneous occurrence of different musical events in vocal performances, is one of the most salient characteristics of Yemenite Jewish music. In this article we will attempt to define the structure of this musical phenomenon in its performance context.

THE STATE OF RESEARCH ON YEMENITE JEWISH MUSIC

The first scholar to try to capture the characteristics of the musical styles found among Yemenite Jews was Abraham Zvi Idelsohn (1882-1938). He based his research on field work material collected in the Yemenite community in Jerusalem between 1907 and 1921 as part of his comprehensive research on Oriental Jewish music. Idelsohn focused on the observation of liturgical and paraliturgical events, and on the recording of selected informants with the Edison phonograph, at that time a revolutionary research tool.

Idelsohn's purpose in his study of Yemenite Jewish music was to transcribe sample selections from the traditional repertories in Western notation and to classify these samples in melodic categories on the basis of scales and characteristic motives. His findings on the Yemenites' music were published in three articles (Idelsohn 1908, 1917 and 1918) and in volume 1 of his HOM.

Idelsohn was the first scholar to describe the basic characteristics of the Yemenite musical repertories: the almost total predominance of vocal music with sparse use of ideophones (drum and metal plate); the functionality of the music, reflected in the distinction between the liturgical, paraliturgical and secular realms; and the strict division between the roles of men and women in performance (men perform only religious music and women only secular music). In his analytical studies of Yemenite music Idelsohn focused on liturgical music, paid only minor attention to the paraliturgical repertory, and gave only a few lines to the women's secular repertories.

The first study of Yemenite Jewish music to be published after Idelsohn was that by M. Ravina (Ravina 1938). This article includes the notation of nineteen wedding songs from the women's repertory and a discussion of the problems of transcribing this music arising from its melismatic character.

In the 1950s Johanna Spector and Edith Gerson-Kiwi recorded Yemenite Jewish music extensively, including the hitherto poorly documented repertories of women's songs. In two articles (Spector 1952 and Gerson-Kiwi 1968), these

authors attempted a description of the forms and modal frameworks of the women's repertory.

In more recent publications, other authors have further contributed to the study of diverse aspects of Yemenite Jewish music. Avigdor Herzog focused on the relationship between music and text in the liturgical music (Herzog 1968); Shlomo Hofman studied the variants of one tune (Hofman 1968); Yehuda Ratzabi focused on the text-music relationship (Ratzabi 1968); Amnon Shiloah treated the role and world view of a creative individual in the Yemenite cultural context (Shiloah 1969); and finally, Avner and Noemi Bahat contributed to the study of paraliturgical repertories (Bahat 1981, 1982 and 1986).

These scholars' studies and the intensive field research carried out by Uri Sharvit between 1971 and 1978 revealed the hitherto unknown variety of Yemenite Jewish music. In the introduction to the comprehensive anthology edited by Yehiel Adaqi and Uri Sharvit (Adaqi and Sharvit 1981), Sharvit distinguishes between five different musical styles among the Yemenites. Each style corresponds to a region (Adaqi and Sharvit 1981:XVIII). Some musical pieces are common to more than one regional style, but in most cases the differences between the regions are perceptible.[1]

Within each regional style, Sharvit distinguishes four types of music by using a combination of functional and stylistic criteria: liturgical readings of sacred texts; prayer tunes; paraliturgical songs; and secular songs. The first three types are exclusively performed by men, the last by women. Each of these types of music can be further subdivided. Idelsohn, for example, tried to devise an internal division of the liturgical music on the basis of musical modes and motives. These criteria, however, are not always relevant to the definition of style, and the validity of Idelsohn's classification remains questionable. Employing the tools of modern ethnomusicological research, Sharvit concluded that a classification of Yemenite music must be based on functional as well as on stylistic criteria derived from the culture-bearers' concepts (see Sharvit 1981 and 1982).

PREVIOUS STUDIES OF PLURIVOCALITY IN THE YEMENITE JEWISH SONG

The phenomenon of plurivocality in Yemenite Jewish music was already observed by Idelsohn. His findings on this aspect of Yemenite music were not based on

1 For example, in the paraliturgical *hallelôt* of the Jews of the al-Ḥugariyya district, one finds poems sung to tunes from central Yemen, the same poems sung to special tunes from al-Ḥugariyya and special al-Ḥugariyya poems sung to local tunes (Sharvit and Yaacov 1984).

sufficent data and for this reason his statements are of a very general character: "The Yemenites are used to sing always in high voice and in unison, and only those voices of the choir which cannot ascend high, sing low in [a parallel] octave or fourth. Nevertheless it happens that one who stays in the lower part sings also in [a parallel] sixth, but this combination is harsh to their ears and the chief singer usually reprimands whoever does this, since the most pleasant music for the Orientals is the unison." (Idelsohn 1918:27; English translation after Schleifer 1986:110)

Gerson-Kiwi's work was the first serious attempt towards systematic research on plurivocality among the Yemenites (Gerson Kiwi 1968). She distinguished between five types of "part singing" in this tradition: "vocal bourdon style" (or "drone organum") in which one group of singers performs the melody and a second group continues to sing the text on one pitch, the tonic of the mode, in the manner of arhythmical drone; "choral polyphony in organum technique" defined as "a many voiced parallel organum...filled with a variety of parallel intervals"; "vocal ostinato" where two voices split and one of them develops a short ostinato motif; "heterophonic part singing" where every musical phrase starts "in the fashion of a strict organum which very soon softens down to a heterophonic singing in the narrowest possible space of a second"; and "parallel organum", strict parallel singing on the interval of a perfect fourth between the parts. Gerson-Kiwi found most of the plurivocal sections in the congregational responses of the liturgy.

As often occurs with pioneering studies, one may rethink some of Gerson-Kiwi's conclusions. One difficulty in her work was that her data corpus was not comprehensive enough. Furthermore, musical characteristics of one type of plurivocality according to her classification were found also in examples of other types. Singing in parallel fourths, for example, is not only found in the fifth type but also in the second and the fourth; the ostinato motif characteristic of her third type appears also in examples of the first type, and so forth.

The phenomenon of plurivocality attracted Uri Sharvit's attention as well. Notwithstanding his interest in other aspects of Yemenite music, he occasionally refers to singing in parallel fourths and fifths (see Sharvit 1980:39, note 8, and 1982:191; Adaqi and Sharvit 1981:XXIII). He also provides a basic description of the phenomenon of "modulation" appearing in certain types of Yemenite plurivocality.[2]

2 "Often a modulation process accompanies [the singing in parallel vocal parts]. During the singing one of the participants decides to slightly lower the pitch of the tune (usually by an interval of a half tone or a full-tone), and gradually takes part or even all the congregation with him. After several such "lowerings," initiated by different

The present study was undertaken on the initiative of Simha Arom of the CNRS, as part of a program carried out in cooperation with the Jewish Music Research Centre at the Hebrew University, in view of systematic research on Yemenite Jewish plurivocality. Uri Sharvit brought to the team his deep insight into the musical culture of the Yemenite Jews, the result of intensive field recording of all types of Yemenite music in seventeen communities in Israel and numerous interviews with key informants. Simha Arom contributed his extensive experience in research of orally transmitted polyphonies and in the molding of methodological tools for their study. The team also included three research assistants: Nurit Ben-Zvi, Yaakov Mazor, and Esther Sheinberg.[3] The corpus of recordings used for this research is part of the National Sound Archives at the Jewish National and Universitary Library in Jerusalem.[4] The research was carried out between 1981 and 1986 and focused exclusively on plurivocality in the liturgical music of the Jews from Sanᶜa, the capital of Yemen.

BASIC DESCRIPTION OF THE PHENOMENON

In listening to liturgical and paraliturgical music in a synagogue of Jews from Ṣanᶜa, one can distinguish between several types of performance: solo singing by the *ḥazzan*, some monodic singing by the congregation, and to a much greater extent plurivocal singing by the congregation.

Plurivocality or multipart singing is found, in different degrees, in all the services of Sanᶜa Jews. On a first listening one can identify three characteristics of plurivocality. First, all phenomena of plurivocality are in measured rhythm. Second, the singing is essentially syllabic and the relation between the temporal values is always 2:1, except in one case (see under "Countertpoint"). Third, within the plurivocal texture transpositions occur which may affect the entire plurivocal network or part of it.

individual participants on different occasions, the congregation (or part of it) reaches a point where it is hard to sing the tune, because their voices are so "low". Then someone decides to raise the pitch of the tune, and he takes part or even all of the congregation with him. Such raising is done in general at an interval of approximately a fourth, so that almost always we find singing in parallel parts at an interval of approximately a fourth. After such "raising" the process of "lowering" begins again" (Adaqi and Sharvit 1981:XIII).

3 Other research assistants also participated in this research at different stages: Yocheved Kohai-Boaz, Tzipora Kahanovitz, and Ephraim Yaacov.

4 We are grateful to the Director of the Archives at the time of the seminar, Avigdor Herzog, and the Archives technician, Abraham Nahmias, for their assistance.

Further attentive listening allowed a preliminary classification of plurivocality on the basis of the intervallic relationship between the parts, as follows:

a) Parallel singing in perfect intervals (fourths, fifths and octaves) in different degrees of strictness. This type appears in most prayers.

b) Parallel singing in imperfect intervals (thirds, seconds, and others). In extreme cases, this type of singing creates the accoustical cluster-like effect. This type appears in two prayer sections: *pesûqê de-zimrah* and *qerî'at šemaʿ*.

c) Various degrees of regularity within non-parallel plurivocality, including contrapuntal elements. This type appears only at weddings.

PROBLEMATICS

The examination of numerous sound documents corroborated the impression of the existence of the above mentioned phenomena. Several types of measured plurivocality were manifested, sometimes including transpositions. The systematic ocurrence of these phenomena led to the assumption that they are governed by certain basic rules. On this assumption, three fundamental questions were posed concerning the structural properties of the phenomena, the regularity of their occurrence, and the process of their unfolding. A number of other questions naturally arose in the course of our work.

At the first stage of our research, we focused on the structural properties of plurivocality both on the horizontal and vertical levels. On the horizontal level we looked for the basic melodic and/or rhythmic patterns. On the vertical level, we looked for regularities in the occurrence of simultaneous pitch combinations. The second step was to study the relationship between these structural components and related extra-musical elements, chiefly the text. Finally, we observed the processes of crystallization and unfolding of plurivocal phenomena on three temporal levels: any fragment of a given service which can be considered as a liturgical unit in the overall framework of the service; a service in its entirety; and different performances of the same service in the same community over prolonged periods of time (several months, a year or more).

Apart from the analysis of the tonal material, we looked for possible interrelationships between these plurivocal phenomena and other elements of the musical performance such as changes in dynamics and the way of dividing the musical material between the *ḥazzan* and the congregation. Finally, other extra-musical variables were considered in relationship to these phenomena, such as the type of liturgical function, the duration of the services, the size of the congregation and the degree of social cohesiveness among the congregation members.

TERMINOLOGY USED IN THIS STUDY

Our purpose in establishing definitions of the terms to be used in our research was to create a terminology that would, on the one hand, reflect the performers' concepts concerning plurivocality and on the other, be precise enough to clearly reflect our own perception of the different aspects of the phenomenon.

At the outset of the project we tried to understand the musical terms employed by the Yemenites regarding the subject of this study, meeting several times with several of our key informants. The purpose of these meetings was to examine whether the members of the ethnic group use terms that correlate with some or all the musical phenomena noticed by us. However, no such correlations were found. The musical terms employed by the Yemenites, i.e., *šîrah, negînah, qerî'ah* and *amîrah* refer mostly to melodic and functional aspects and are used on and off, without a consistent correlation to plurivocality or any other musical phenomenon.[5]

We therefore turned to Western musicological terms, but here also we saw that the terminology does not always faithfully and exactly reflect a number of phenomena most frequently found in this particular musical realm. To achieve a maximum degree of clarity and precision in our description of the diverse aspects of plurivocality we thus had to redefine existing Western terms in order to frame them to these particular phenomena. This redefinition was applied to the following terms: musical phrase, song in parallel intervals, heterophony and counterpoint.

Musical phrase in the context of this study refers to the largest melodic unit identified by its recurrence in the musical continuum. The phrase is sometimes divided into smaller melodic units, each characterized by its position in the phrase. Small melodic units may be further subdivided into minimal units, distinguished from each other by the regularity of their ocurrence and/or the regularity of their position in a larger melodic unit or in the largest one (i.e. the phrase) and/or by way of arrangement of the stock of sounds which constitute these units.

Song in parallel intervals relates to the performance of the most common melodic patterns moving in parallel perfect fourths and fifths. There are three such types: strict parallelism refers to a chanting where the interval between the parts remains rigorously identical, sound by sound; in the schematic type one

5 The only ethnic term that refers to sonority, an aspect of the music treated in our research, is *beyaḥad* ("[singing] together"). However, the Yemenite use of this term is ambiguous. On the other hand, we found that aesthetic judgements concerning different types of singing are consistent. For example, strict parallel singing and melodic heterophony are defined as "good" and "beautiful".

part performs fewer sounds than the part carrying the basic melodic pattern; in the florid type one part performs more sounds than the part carrying the basic melodic pattern.

Heterophony is defined here as any plurivocal phenomenon where no pattern or order can be identified in the relationship between the parts. We distinguish between two types of heterophony: melodic and rhythmic. In melodic heterophony there is no systematics in the simultaneous appearance of the different pitches. In rhythmic heterophony there is no synchronization between the performers as to the rendering of time values (both types of heterophony can appear together or separately within the same section of the liturgical event).

Counterpoint here refers to the superimposition of two or more different melodic units of equal duration, whose unfolding is not parallel.

RESEARCH PROCEDURES AND FINDINGS

The research procedures consisted mainly of the constitution of a representative corpus and the developement of a suitable methodology including the elaboration of an original notational system, resulting in the elucidation and description of the various plurivocality types and techniques as they are manifested in the corpus.

A. THE CORPUS

To test the validity of our early assumptions, we constituted a recorded corpus of music representing the different liturgical events in which plurivocality appears. This corpus consists of forty hours of recordings and includes four types of liturgical events in which we find substantial occurrences of plurivocality: 1) Five events of the *hôšaʿnâ rabbah* vigil which includes five sections performed in plurivocality: reading of the entire book of Deuteronomy, *pesûqê de-zimrah*, Song of the Sea, *hallel*, and reading of *šemaʿ*; 2) Two events of the *Ašmorôt* service; 3) Five events of the wedding ceremony including three sections with plurivocal occurrences: *ševaʿ berakôt* (Seven Benedictions recited in the presence of the newlyweds), Psalm 55, and *hallelôt*; 4) Numerous examples of psalm chanting, on different liturgical and para-liturgical occasions.

B. PRELIMINARY CLASSIFICATION OF THE CORPUS

After a first survey of the recorded material, the plurivocal phenomena appearing in it could be divided into two groups: parallel plurivocality and non-parallel

plurivocality. One of the main difficulties was the developement of systems of transcription answering the demands of the specific structural properties of each group.

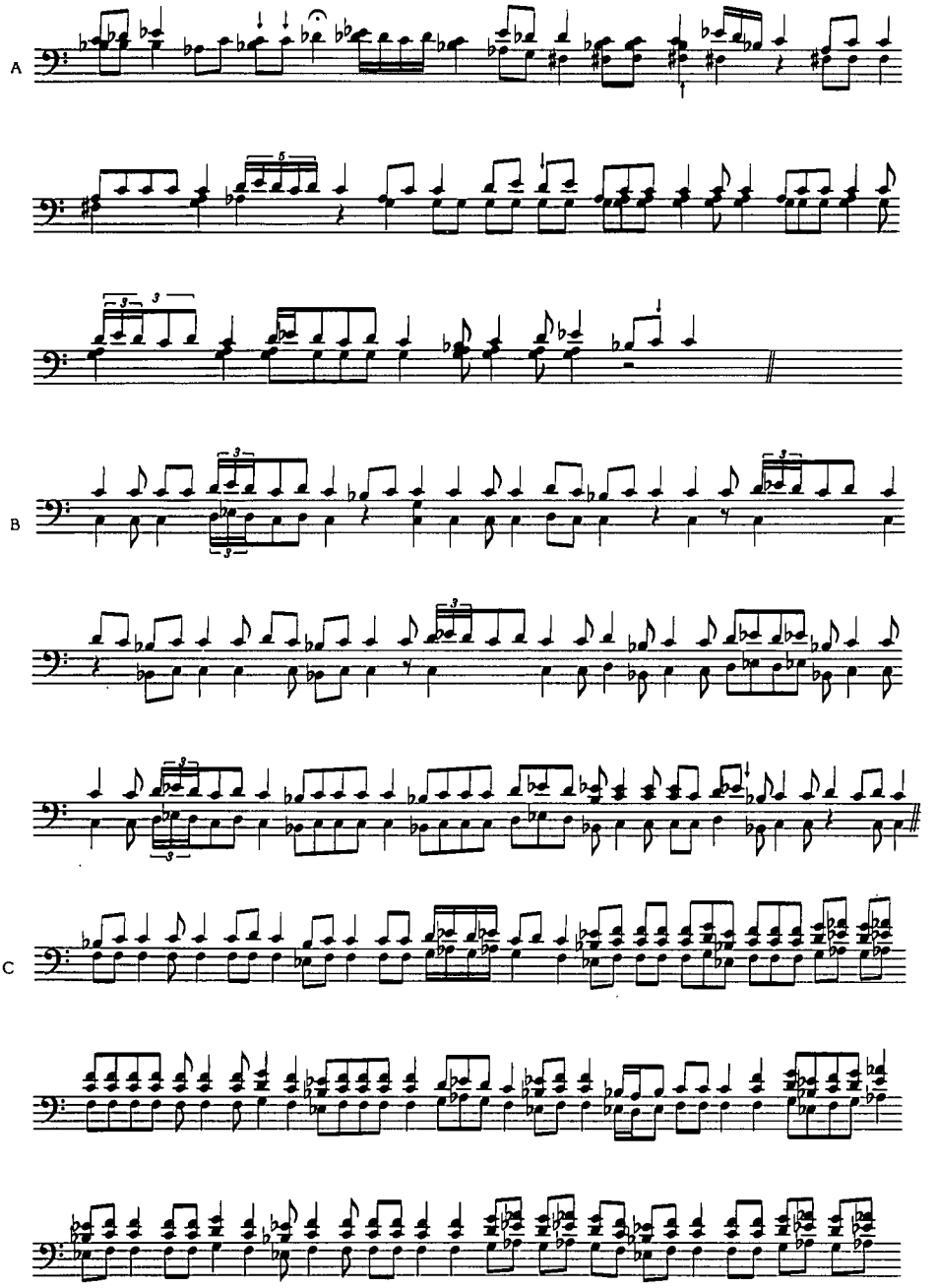
C. DEVELOPMENT OF NOTATIONAL SYSTEM

The plurivocal liturgical singing of the Yemenites is mainly founded on basic melodic units repeated throughout various prayer sections in different realizations, ranging from the schematic to the florid types, and thus posing difficulties in the precise discrimination between the plurivocal processes. It became clear to us that conventional musical transcriptions were unsuited for our purpose. Indeed, conventional transcription presented two shortcomings. First, the notation of quasi-repeated materials without relevance to any modification in the plurivocal process, would consume many sheets of music paper not enabling the necessary concentration of information about large processes in a small space, which seemed necessary to visualize at a glance the process of building-up plurivocality in large sections of the liturgy. Second, many acoustical details usually accounted for in conventional transcriptions were irrelevant for our study.

We required, then, a musical transcription that would allow us to describe exclusively the information that emerged as relevant to the problematics of our study. Our transcription also had to describe large musical processes concisely, by reducing the time needed for transcription to a minimum while achieving a maximum of information in a narrow space. These aims were reached by developing three separate elements. All the relevant materials were concentrated in a graphic scheme drawn on one special card able to describe at a glance up to twenty minutes of music. The data were classified according to the parameters relevant to plurivocality such as: pitch, rhythm, dynamics, timing, number of participants in the event and manner of performance. A clear system of symbols with fixed localization in the card was designed to represent each parameter. Finally, a system for checking the correlation betweeen the different parameters was developed.

To appreciate the differences between a conventional musical transcription and our card one can compare figures 1 and 2. The card in figure 2 contains information about a musical segment 10 minutes and 48 seconds long whose beginning only is conventionally transcribed in figure 1. The complete list of symbols and abbreviations employed in the card is given in the appendix to this article.

Figure 1: Conventional transcription of *Limmûd* tune for *hôšaʿnā rabbah*



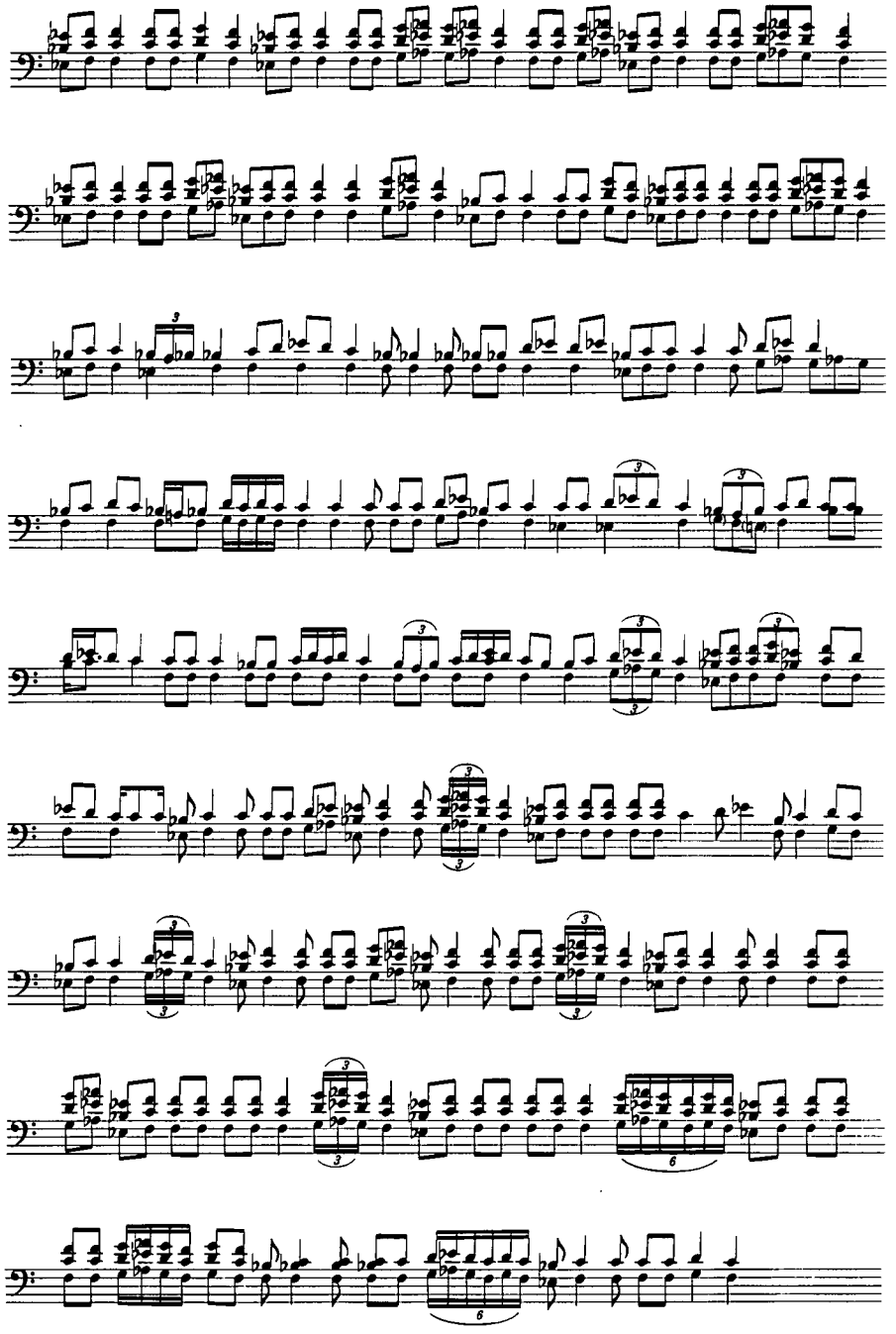


Figure 2: Card transcription of music in figure 1

Yx CNRS 1	Community *Yemen / San'a*	Place of recording	Date of recording *28.9.72*
	Event *hoša'ana rabbah*	*Jerusalem*	*YC 415* Orig. no. of recording
	Tune *limmûd tune*	*Šalom we-re'ût synagogue*	Ⓕ/S

Duration in seconds	(1) Text	(2) Plurivocality Low ◄——► High	(3) Prevalent intervals	(4) Melodic scheme	(5)	(6)	(7)	(8)	(9)	(10) Notes
A. 17 sec.	Deut. 22:4-5		T			MR	f	10-15	q	
B. 25 sec.	22:6 22:7 22:5-7									(2) The boy sings with the upper part. All IEP are sung by the boy
C. 112 sec.	22:8-22									
35 sec.	22:22-24				2 2					
84 sec.	22:25-23:5									
138 sec.	23:6-23									
165 sec.	23:24-24:16									
47 sec.	24:17-22		Ø							
11 sec.	24:22-25:2		8							
14 sec.	25:2-3		Ø (4)							pause in the recording

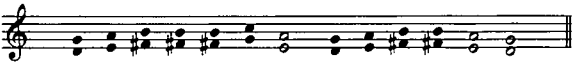
D. ELUCIDATION AND DESCRIPTION OF THE VARIOUS TYPES OF PLURIVOCALITY

The reader will find that in the final analysis — as presented in the conclusion — the typology of the Judeo-Yemenite plurivocality of Ṣanᶜa falls into four categories: parallel intervals in melodic movement; parallel intervals without melodic movement (cluster); melodic heterophony; counterpoint. In the following description, however, the various types will be presented as they emerged during the research process. Thus, the types are discussed here according to a preliminary distinction between parallel and non-parallel plurivocality.

1) PARALLEL PLURIVOCALITY

Strict parallelism

The first category which we examined in greater detail was chanting in parallel intervals. This type appears in long sections of the liturgy in which plurivocality is built up gradually. The interval between the simultaneous parts may be perfect (fourth, fifth, octave) or imperfect (third, sixth, second, seventh). The strict parallelism between the parts creates a simultaneous reproduction of the same mode on a different pitch[6] in the framework of a single octave. For example, if the mode of the basic melody is G-A-B-C-, the sequence G-A-B (two consecutive whole tones) will not be paralleled by D-E-F natural (one tone and a half tone) but by D-E-F sharp.



Example 1

The identical modal profile of all the parts in strict parallel plurivocality neutralizes the very notion of hierarchy between a "principal" and "superimposed" part. Furthermore, in this type of plurivocality there seems to be a direct correlation between the degree of importance of the ceremony and the social cohesiveness of the congregation, and musical parameters such as rhythmic precision, tempo and dynamics on the one hand, and strict parallelism of perfect fourths and fifths, on the other.

6 The term "mode" as employed here refers to a stock of sounds and the intervals between them that serve as a basis for the composition of a melody.

Another characteristic particular to strict parallel plurivocality is transposition. Transpositions are shifts in the pitch level of the whole plurivocality network. The number and occurrences of transpositions within one liturgical unit is unlimited. Two kinds of transpositions exist: seconds (major and minor) downward and a perfect fourth upward.

In the first case, the downward, the initiative comes from an older, respected member of the congregation. At the begining of a versicle, he deviates from the pitch level of the basic melodic pattern by a second (major or minor) downward, raising his voice and "pulling" other members of the congregation with him until everybody in the different parts has adjusted to the new pitch level. The process of transposition, from the initial individual deviation until the completion of the congregational adjustment, lasts a few moments during which, of course, intervallic aggregates foreign to the system occur.

In the upward kind of transposition, the initiative generally comes from children. One child deviates from the higher part by a fourth upwards. The process of realignment of the parts to the new pitch level occurs in two ways: either the child who started the deviation sustains the new pitch level systematically until the whole congregation gradually joins him or he touches the new pitch level intermittently, then establishes himself on it and is finally followed by the rest of the congregation as in the first case.

Usually an alternation occurs between the two kinds of transposition: one to three shifts of a second downward followed by a fourth upward (see figure 3). Naturally, transpositions of seconds downward are much more frequent than transpositions of a fourth upward. It should also be noted that there is no regularity in the occurence of the two kinds of transposition.

Schematic parallelism appears in two situations: (1) during the initial organization of strict parallel chanting; (2) during the transition from one register to another in the course of transposition, as described above.

Florid parallelism is also found in two transitional situations: in the process of crystallization of strict parallelism and after all parts achieve a maximum degree of cohesiveness in strict parallel, in a strict measured manner, and at perfect intervals.

2) NON-PARALLEL PLURIVOCALITY

Non-parallel plurivocality comprises of two techniques: heterophony and counterpoint. We distinguished two kinds of heterophony: melodic and rhythmic. Various types of melodic heterophony appear in the singing of psalms on various occasions. Rhythmic heterophony is found in the performance of *pesûqê de-zimrah*. Counterpoint was detected only in the Seven Benedictions of wedding ceremonies.

Figure 3: Transpositions as reflected in a card

Yx (-1) CNRS 1 (22)	Community *Yemen / San'a*	Place of recording	Date of recording *28.9.72*
	Event *hoša'ana rabbah*	*Jerusalem*	*YC 417* Orig. no. of recording
	Tune *limmûd tune*	*Šalom we-re'ût synagogue*	Ⓕ/S

(1) Text	(2) Plurivocality Low ⟷ High	(3) Prevalent intervals	(4) Melodic scheme	(5)	(6)	(7)	(8)	(9)	(10) Notes
Deut. 34:10					FR	f	20	s	same
" " "	5 4	4 5		2↑	MR			q	
" " " (aramaic)					FR			s	
Deut. 34:11					FR			s	
" " "	4 5	5 4		3↑	MR			q	
" " " (aramaic)					FR			s	
Deut. 34:12					FR			s	
" " "	5	5			MR			q	
" " " (aramaic)					FR			s	
" " "	8	8		5↓	MR			q	pause in the recording

Heterophony

The examination of non-parallel plurivocality first centered around the chanting of psalms. In order to describe this plurivocality we focused on the uncovering of the formal structure.

A unit of event is one psalm or a chain of psalms, based on a melodic scheme which, according to the circumstance, may or may not be the same as in another unit of event. When the same text appears in two different units of event, which imply the use of different melodic schemes it will of course be performed according to the scheme corresponding to the event.

Since the plurivocal phenomenon is limited here to heterophony (i.e., slight sporadic deviations from a basic monody) it seemed necessary to focus first on uncovering the formal structure of the melodic units. In this material we found that each unit of event contains a chain of phrases based on the same musical material. The musical phrase and the textual versicle are usually in agreement; that is, the last melodic unit of the phrase coincides with the end of the versicle. Each phrase ends in unison.

Continuing our research, we looked for other relevant characteristics: the complex of correlations between the parameters of function, presumed basic melodic scheme on which the unit of event is based, and text units; and the correlation between the appearance of congruence of musical phrase and verse on the one hand, and between each of the three parameters mentioned above on the other.

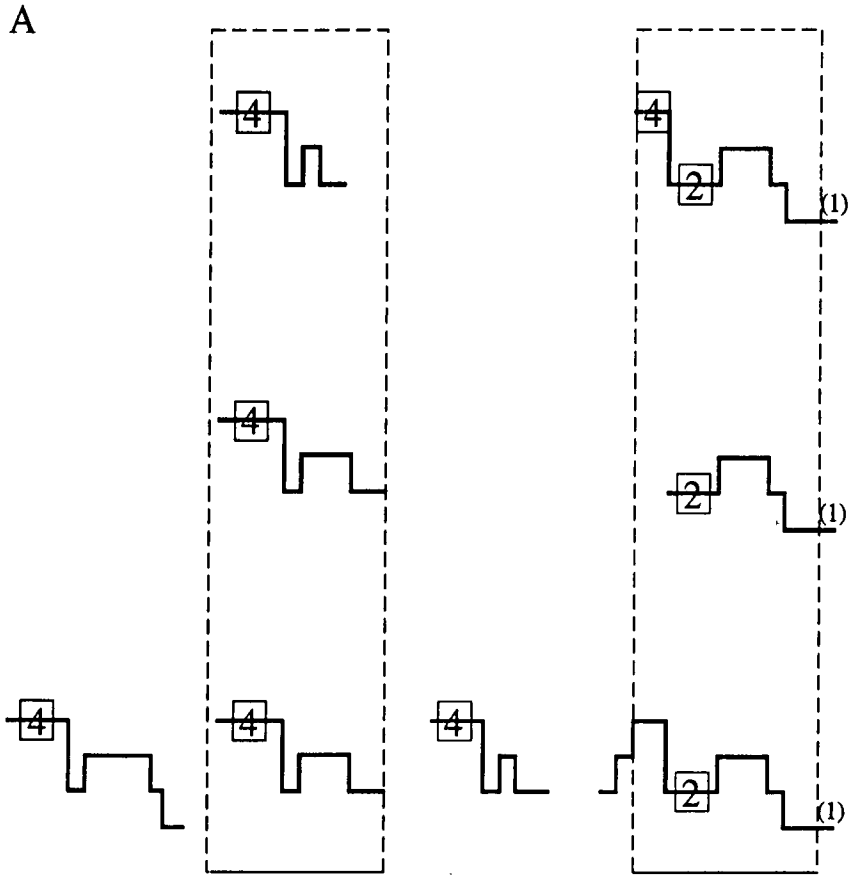
For these purposes we attempted to design tables of correlation between function/text unit (relating each psalm to the event in which it is performed, e.g., Psalm 92 is performed on Sabbath eve, Psalm 111 on the eve of the Three Festivals, etc.); between melodic scheme/text unit; and between melodic scheme/function.

We also attempted to develop a card that would describe non-parallel plurivocality. While the card designed at the outset of the project to describe plurivocality in parallel intervals was intended to show, at a glance, changes on long range processes in the plurivocal texture (where the ending of phrases was not relevant), here we had to focus on the unfolding of short range musical processes within single phrases and their internal articulation. Two experiments were made to produce a graphic system of notation that would show the degree of relevance of the melodic unit in the understanding of the plurivocal process. Both cards were found unsuitable.

In order to describe the unfolding of the heterophonic process, it appeared necessary at this stage of our work to focus on the definition of the horizontal axis, that is: the melody. We tried to find criteria for the determination of the limits of a melodic scheme. At the present stage we tend to suppose that there were five different types of melodic scheme underlying the psalm singing

musical repertory of the Sanᶜa Jews (see Fig. 4). Each of these schemes appeared in a particular liturgical context, except for the first (type A), which appeared in three different contexts applied to different texts. The differentiation between each melodic scheme was based on a combination of two musical parameters: appearance, pitch, and position of the axis tone in each melodic scheme; and the relationship between the time duration and pitch of the three sounds that end a melodic scheme.

The following figure represents in graphic form the five types of melodic scheme, marking the liturgical contexts in which they are performed and the type of psalm. Also indicated are the two musical parameters whose combination served as the basis for our distinction between the five types.



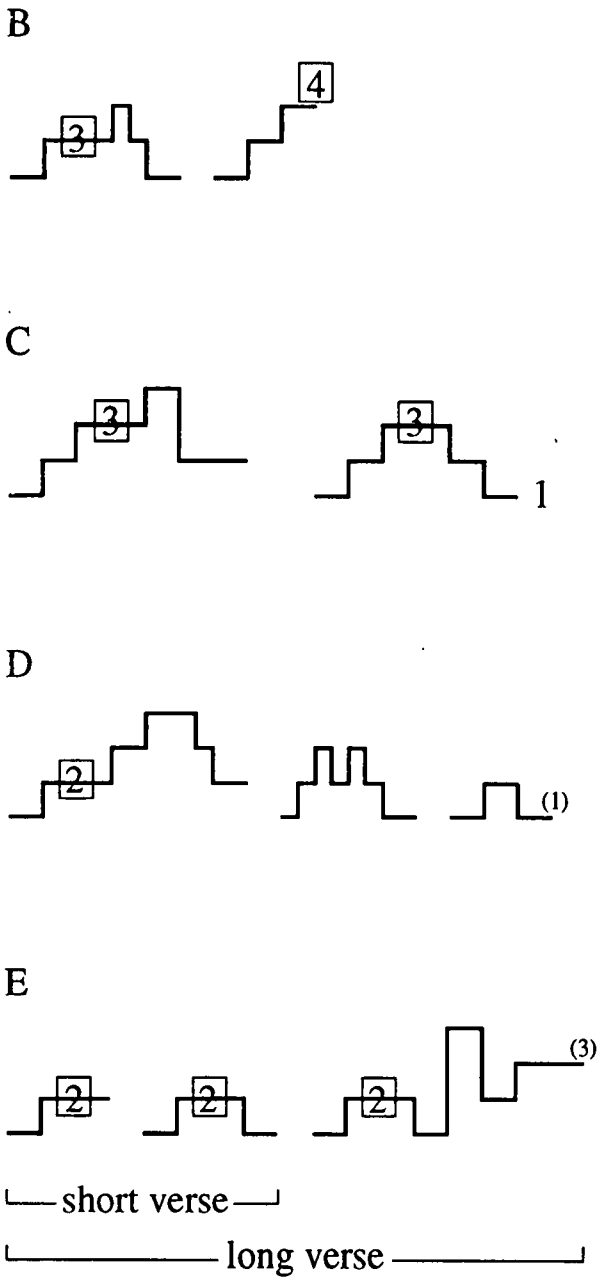
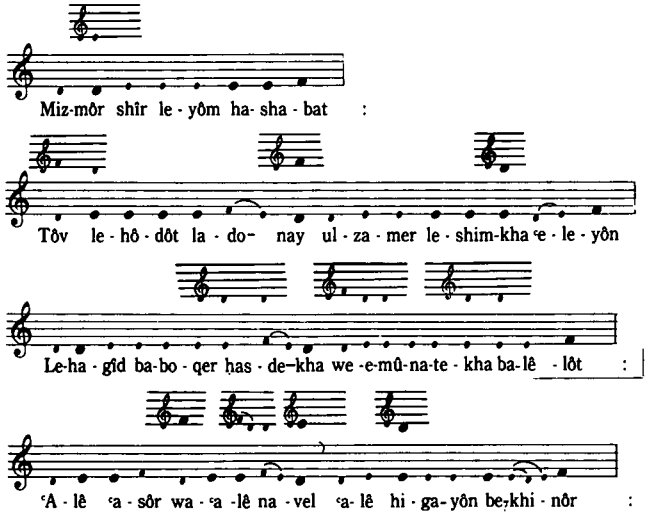


Figure 4: Melodic schemes in psalm singing

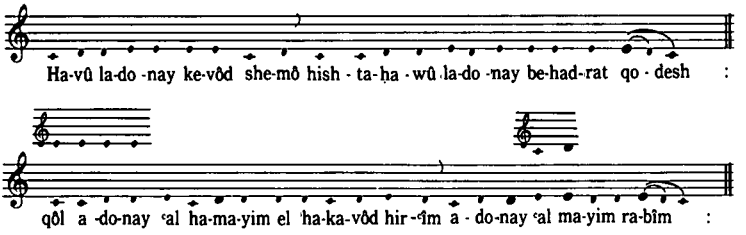
To characterize each of the five types, we compared all the melodic schemes that appear in this corpus, without considering their functional context. We did so by using tables that describe the sounds of any scheme spread over the syntagmatic axis and the frequency of the appearance of these sounds on the paradigmatic axis. These tables showed that with very few exceptions the ending of a phrase is clearly defined by a sound of longer duration, that in the majority of cases the phrase is subdivided into two melodic units, and that a pivot tone is clearly present in each melodic unit. In most cases it was also possible to determine the existence of a middle cadential tone, according to the longer duration of the sound and/or the repetition of a minimal melodic unit opening the phrase and appearing inmediately after it, and/or by a breath.

Although each melodic unit is based on a pivot tone and a middle cadential tone, the pitch of each of these sounds is not necessarily fixed. The reason for this is that in the process of plurivocal singing some of the performers commute the pivot tone with a higher one (usually a second or a third, rarely a fourth), while the rest of the congregation continues on the pivot tone in its original pitch (see Ex. 2).



Example 2

The process of commutation of the middle cadential tone is similarly cristallized by employing all the sounds of the melodic scheme (whose ambitus is not larger than a fourth), except the finalis. The result is that the vertical intervallic relations in these spots are usually of a second or a third. It has to be pointed out that commutations occur also in other sections of the phrase (see Ex. 3).



Example 3

After examining the material we found that the Yemenite plurivocal heterophony consists of a melody realized in different ways while rigorously maintaining its melodic profile. At the same time, sounds occur that belong to the musical mode of the melody but exceed its melodic profile and appear sporadically in different positions. For this reason one has to refer to them as commutation sounds beyond the heterophonic process. Since their appearance is not regular, we cannot regard them as a plurivocal construction of any other type. The only systematic rule that regulates the appearance of the commutation sounds is a limitative one: in the middle cadential sound any sound can appear except the finalis. Another limitation relates to the structure, and as a result also to the form: all phrases end in unison. This particular type of plurivocality, which characterizes the singing of psalms, is an extreme case since it does not fulfill the conditions that allow us to classify it as one of the inventoried types in ethnomusicology.

Rhythmic heterophony: parallel intervals without melodic movement

In listening to the performance of the morning prayer section *pesûqê de-zimrah* the impression is of a dynamic cluster. This dynamic is expressed in two ways: the changes of pitch appearing in the texture; and the rhythmic movements that can be heard in it. Sporadic melodic elements stand out above this cluster.

An analysis of the material shows that in the *pesûqê de-zimrah* one cannot talk about melodic units in the usual sense. The prayer of each individual in the congregation is based on a recto-tono sound, sometimes with an initium. This singing is measured, and the pitch of the recto-tono is the result of the individual's choice. Moreover, in the process of prayer, each congregant may shift the pitch of his recto-tono as well as the timing of the shift.

The possibility of individual choice in the selection of pitch as well as in the timing of the shifts, indicates that the pitch element is not relevant to the vertical structure. This liberty in performance is the factor causing the changes heard in the sound texture, and creating the cluster effect perceived by the listener.

Although the singing of each individual is measured, no durational unit is common to all the congregants, that is, each participant may choose his own tempo. However, each individual is aware of the common recitation of the text by his fellows and therefore the de-synchronization does not exceed the limits of the textual verse. It is precisely this de-synchronization which creates the rhythmic heterophony.

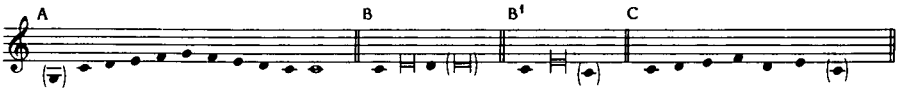
As for the sporadic melodic elements that stand out from the cluster-like texture, one must note their presence in the texture, but their nature, localization and frequency of appearance are not fixed. They cannot therefore be considered a structural element.[7]

Counterpoint

Counterpoint refers here to two or more melodic units of identical duration that are superimposed without creating parallel motion. Counterpoint appears exclusively at weddings, that is, at the *ḥuppah* (marriage ceremony) and the Seven Benedictions meal, in connection with two texts only: Psalm 45 and Seven Benedictions.[8] Careful listening to performances of these texts revealed three features: responsorial singing, public responses, and plurivocal chanting consisting of many types of plurivocality, mainly measured plurivocality, only one of which is counterpoint.[9]

The aim of our analysis here was to see if the contrapuntal elements were structural and if the phenomenon was the result of a coherent superimposition of various melodic units of different content.

We were able to distinguish three melodic schemes associated with counterpoint, labeled A, B, C. The B scheme appears in two forms: B and B1 (see Ex. 4).



Example 4

7 We noticed that *šîrat hay-yam*, The Song of the Sea (see Exodus 15), which is performed directly after *pesûqê de-zimrah*, is always sung in strict parallelism. The last versicles of *pesûqê de-zimrah* function as a gradual transition from this cluster-like rhythmic heterophony into strict parallelism.

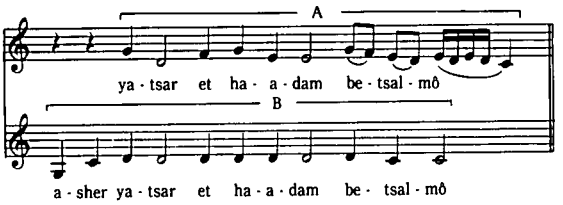
8 This phenomenon occurs in an exact manner in the four long benedictions, 4-7. In the short three, 1-3, public participation is limited to the response "amen" in unison, in parallelism, or in heterophony.

9 Responsorial singing of psalms at weddings is not systematic. The alternation may occur between a soloist and the public or between two soloists. Sometimes the versicle is divided into two, that is, the soloist sings half the versicle and the congregation (or the second soloist) answers with the second half. In other cases, the alternation is between entire versicles, that is, one versicle is performed by the soloist, and

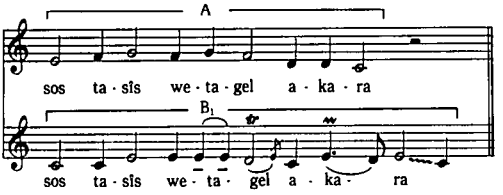
The A scheme is melismatic when performed by a soloist and syllabic or slightly melismatic when performed by the public in counterpoint with other schemes (see Ex. 6, 9a and 10 below). The B scheme is always syllabic and the C scheme is always melismatic (see Ex. 8 and 10).

On the horizontal axis, the three melodic schemes constitute the monodic three musical phrases, and, on the vertical axis, they form the basis of the contrapuntal parts.[10] In the monodic sections the schemes can appear in an array of combinations: A alone; B alone (including B^1); A and B; A and C; A, B and C.

The number of vertical combinations of the schemes in contrapuntal sections is limited to the following: A over B is the most standard pattern of vertical combination (see Ex. 5); A over B^1 and B over B^1 are less frequent (see Ex. 6 and 7); finally, C over B or B^1 is very unusual (see Ex. 8). These realizations of the different superimposed schemes always have identical duration.



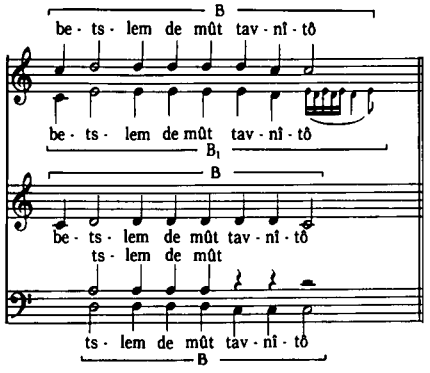
Example 5



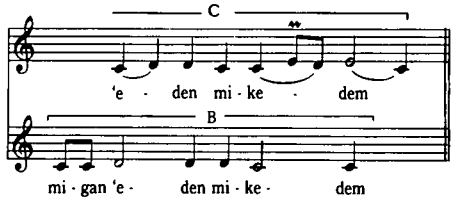
Example 6

the subsequent versicle by the congregation (or the second soloist). Several versicles in sequence may also be sung by one soloist alone or by the entire public. On the other hand, in the performance of the Seven Benedictions, certain sections are exclusively for the soloist, and others for the public.

10 The phrase for singing the texts discussed here can be recognized because scheme C appears at the end of it. Concerning the relationship between music and text: in the performance of Psalm 45 there is a congruence between musical phrase and versicle. There is also a congruence between the musical phrase and the first three, short, benedictions. The other benedictions include two musical phrases. In benedictions 4-6 the second phrase is a monody, and only in the seventh is there plurivocality. The difference between the texts is reflected also in the division of the phrase into units: in Psalm 45, the phrase consists of 3-4 units, while in the benedictions the phrase has 3-5 units.



Example 7



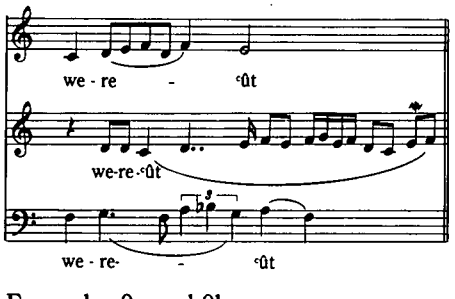
Example 8

Our impression concerning the complexity of plurivocality in Yemenite wedding ceremonies was confirmed. The contrapuntal phenomenon is not the only component in the phrase or in the whole benediction. Other phenomena also appear:

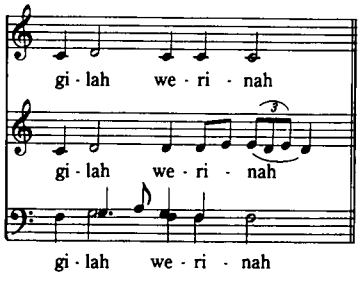
a) Units in which other types of plurivocality described above, such as parallel singing and heterophony with or without bourdon, are employed;

b) Units in which a symbiosis between two types of plurivocality, parallel singing and heterophony, appear simultaneously in the realization of one scheme (Ex. 9a-b);

(a)

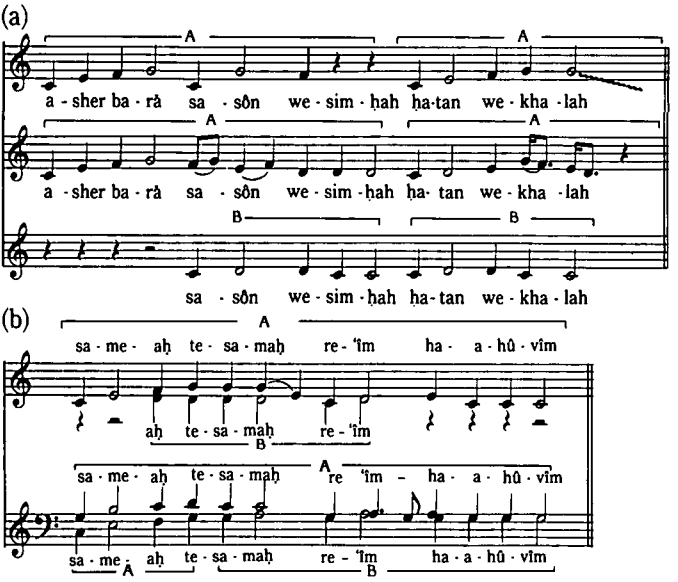


(b)



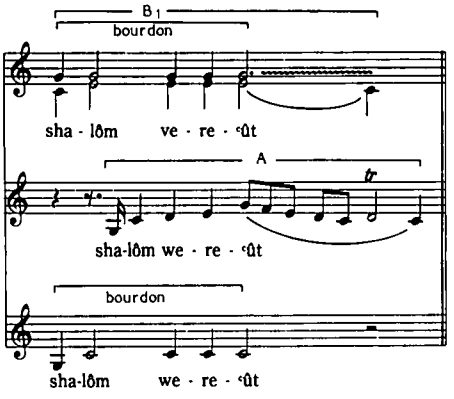
Examples 9a and 9b

c) Units that combine counterpoint with one of the above mentioned types of plurivocality (Ex. 10a-b);



Example 10a-b

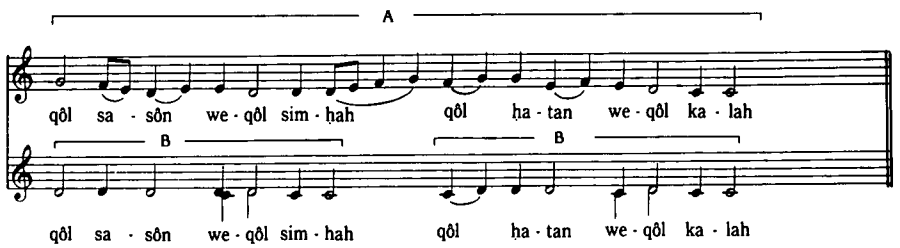
d) Counterpoint with bourdon (Ex. 11).



Example 11

It is worthwhile to notice that scheme C, which always appears at the end of phrases, is performed in unison or in the strict parallel type and seldom in heterophony. This characteristic of plurivocality at weddings is similar to the singing of psalms, where phrases move from heterophony to unison cadences, that is, from complex to less complex plurivocal textures.

Considering the short duration of the units, and the possibility that scheme A may include a kind of enlargement (see Ex. 12), we can understand how the plurivocal texture of certain phrases becomes complex to a point where the identification of the contrapuntal phenomenon and its localization might pass unperceived.



Example 12

Two rhythmic aspects stand out in the Seven Benedictions: the last benediction differs from the others in that the articulation between the melodic units is stressed by a 3 to 1 relationship between the duration of the last and the penultime sound (as opposed to 2 to 1 in all the other plurivocal types); the measured style is somewhat looser in the melismatic melodic scheme C.

CONCLUSIONS

This study was intended not only to define processes of plurivocality not yet studied, but also to describe the way in which we forged our methodology.

All the plurivocal phenomena in the liturgical and paraliturgical singing of the Jews from Sanᶜa can be classified into four categories on the basis of the musical processes occuring in them. All four types are performed in measured rhythm, the proportion between the duration of the sounds being 2 to 1 (except one case in the paraliturgical singing at weddings where the proportion was 3 to 1).

The characteristics of each type can be briefly summarized as follows:

1) Parallel intervals with melodic movement:
The singing in parallel intervals is conducted on perfect intervals — fourths, fifths, octaves — and imperfect intervals — thirds, seconds and their inversions — in

different degrees of rigorousness which we defined as strict, schematic and florid on the basis of the most frequently recurring melodic schemes.

The principle of parallelism is based on the simultaneous reproduction of the same mode within one octave. This phenomenon of a melodic unit performed simultaneously in two voices, in which the size of the interval in each voice does not depend on the concept of completing the unfolding of the two voices as in the diatonic system, is, as far as we know, a rare if not unique phenomenon in orally transmitted plurivocality.

This plurivocal system is tied to a process of systematic transposition realized in a fixed scheme: a lowering of a second (or a number of seconds) followed by a raising of a fourth. Throughout the duration of this type of singing, an indefinite number of transpositions may occur. There seems to be a direct correlation between the social cohesiveness of the community and the importance that the congregants give to the liturgical event and the degree of strictness in the plurivocality.

2) Parallel intervals without melodic movement (cluster):
This type appears exclusively in the *pesûqê de-zimrah*. This parallel singing (without melodic movement) emanates from a series of sounds, each sung by the congregants *recto-tono* on a different pitch and arbitrarily selected by each individual. The intervals between the voices are therefore not relevant. The pitch and timing of the pitch shift of each recto-tono can be freely changed by the performer.

Although this type of plurivocality is measured, there is no defined unit of duration common to all congregation members. This deliberate de-synchronization creates the effect of a rhythmic heterophony. The combination of this rhythmic phenomenon with the changes of pitch gives rise to a constantly changing sound mass texture.

3) Melodic heterophony
The singing of psalms is based on a cyclical continuum revolving around the same phrase. The length of the phrase melody usually coincides with the length of the versicle. This melody is a model with several possiblities of simultaneous realization, resulting in a heterophonic rendition. However, this heterophony is purely melodic, because the unit of duration is common to all the performers. One limitation relates to the formal aspect: the last sound of the phrase is consistently performed in unison.

4) Counterpoint
Contrapuntal singing is an exceptional phenomenon and appears only at wedding ceremonies. Even there, it does not exist independently but appears side by side

with other types of plurivocality, such as heterophony and singing in parallel intervals.

Our study shows that in the liturgical music of the Jews of Sanʿa the use of one or other plurivocal technique is basically determined by the circumstances and/or the function with which it is associated (festivals, wedding ceremonies, psalm singing or more or less "elevated" moments of liturgical services). Thus, the pertinence of the musicological analysis is corroborated by the cultural criteria. Furthermore, in the light of the typology which has been established here, it appears that among the four techniques which have been identified, three — types 1, 2, and 4 (i.e. strict parallel chant, "cluster" chant without melodic movement and the particular modalities of contrapuntal chant) — do not seem to have been previously described in the ethnomusicological literature.

APPENDIX

Legend of Card (See Figures 2 and 3)

Part A of the card (data on top of the card, until 1st double line)

— Yx CNRS I: call number of the recordings analysed in this project.
— Community: Designation of location (country, locality) of original provenance of the community, e.g.: Yemen, Ṣanᶜa
— Event: Designation of the circumstance (ligurgical, para-liturgical, etc.), e.g. *hošaᶜnā rabbah*; The Seven Benedictions for marriage.

— Tune: vernacular designation of the melodic type. E.g.: *limmûd* tune; *qerî'ah* tune; *sîrah* tune, etc.

— Place of recording: E.g.: Jerusalem, N.S.A.; Jerusalem, syn. *Šalôm we-reᶜût.*

— Date of recording: In case of copy, indicate date of original recording only.

— Orig. no. of recording: Indicate original call number of N.S.A.

Part B of the card (data below 1st double line)

This part includes a detailed description of all the features relevant to the study of the plurivocality of this performance in a synoptic display.

— Col.1: Text (duration given in seconds)

The content of this column is determined by the changes occuring in the plurivocal procedures, as shown in col. 2.
All text designations are given in Hebrew.
Biblical texts (except when part of the *siddûr*) are designated by book, chapter and verse.
Liturgical texts are usually written out, eventually preceded by the liturgical designation (e.g. *šaḥarît, mûsaf*, etc.).
Text written in red indicates "i.e.p." phenomena (see legend of "plurivocality", col.2).

— Col. 2: Plurivocality

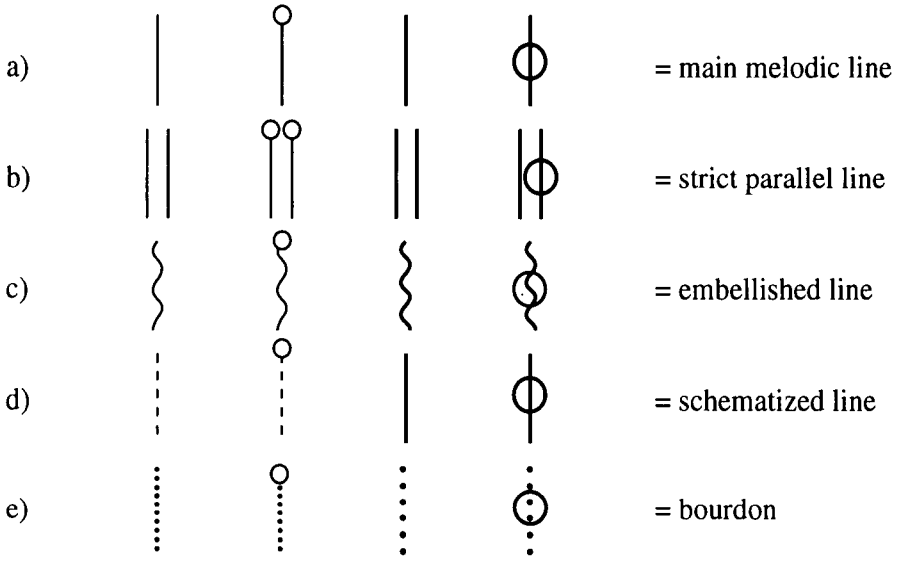
This column, to be read vertically from above downwards, presents a condensed analysis of the plurivocal procedures of the performance.

Pitch is indicated horizontally (low to the left, high to the right); each space between two consecutive vertical lines indicates the step of a second, without distinction between major and minor seconds.

The nature of the interval which separates two melodic lines is indicated by Arabic numerals, e.g.: 4 (= fourth), 3 (= third), 8 (= octave), etc.; "T" indicates the tritone.

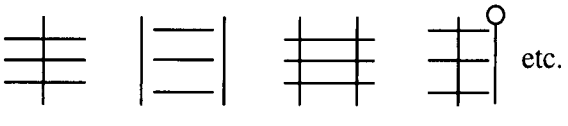
Following is a legend of conventional signs used in this column:

1. Melodic lines



2. Non identified pitches ("n.i.p.")

"N.i.p." are indicated by two horizontal lines, between and/or crossing the melodic line(s). E.g.:



3. Interminent elements of plurivocality ("i.e.p.") red colour

a) — = single tone

b) ∧ = part of a motive

c) ᴍ = entire motive

4. Indication of continuous/discontinuous melodic lines
a) C = continuous
b) DC = discontinuous

— Col.3: Prevalent intervals

This column presents a profile of the prevalent intervals occuring between two or more melodic lines.
Arabic numerals indicate intervals as specified in col. 2.
Red colour indicates the dominant interval in the plurivocal complex.
Whenever useful, the intervals will be indicated in notation.
0 = unison.

— Col. 4: Melodic scheme

This column indicates, in notation, the melodic scheme of the main melodic line. Notes framed by red colour indicate recitation tone(s).

(N.B. To be checked: relevance of final and mediant tones to the plurivocal phenomenon)

— Col. 5: Transposition

Transpositions(s) of the melodic line(s) are indicated by Arabic interval-numerals, followed by an arrow. Downward and upward arrows indicate downward and upward transposition. In the case of transpositions of more than 2 melodic lines, with divergent intervals, these are indicated in succession, starting from the lowest melodic line, and are separated by a comma, e.g. 2, 3, 5.

— Col. 6: Rhythm

MR = measured time units
FR = free rhythm

Indications of tempi (acc. = accelerando; ral. = rallentando) are given in the notes (col. 10) with reference to col.6.

— Col. 7: Dynamics

f = forte
mf = mezzoforte
p = piano

Gradual changes are indicated by arrows.

— Col. 8: Number of participants

Always indicate here (even approximately) the number of participants.

— Col. 9: Performance practice

h = *ḥazzan* (cantor)
s = other soloists
q = *qahal* (congregation)

— Col. 10: Notes

Notes are always preceded by the Arabic number (in parenthesis) of the column to which the note refers.

Summary of abbreviations:

acc. = accelerando
C = continuous
DC = discontinuous
F = recording in function
f = forte
FR = free rhythm
i.e.p. = intermittent elements of plurivocality
h = *ḥazzan*
mf = mezzoforte
MR = measured time units
p = piano
q = *qahal*
ral. = rallentando
S = study recording
s = (other) soloist(s)
T = tritone

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Frank Alvarez-Pereyre

Edited by
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ABBREVIATIONS

EJ[2]	Encyclopaedia Judaica. Jerusalem 1971-1972.
EH	אנציקלופדיה עברית (Encyclopedia Hebraica)
HOM	A. Z. Idelsohn, *Hebräisch-orientalischer Melodienschatz...*, vols. I-X, 1914-1932. Berlin, Vienna, Jerusalem.
JNUL	Jewish National and University Library, Jerusalem.
NGD	The New Grove Dictionary of Music and Musicians, ed. Stanley Sadie.
NSA	National Sound Archives, JNUL.
Yuval	Yuval — Studies of the Jewish Music Research Centre.