

# **Basics of Methodology for Comparative Morphological Analysis of Christian Monody**

Dr. Boryana Naydenova, Ph. D.

## **I. Introduction**

The Methodology for Comparative Morphological Analysis (MCMA) is inspired by the idea of a comprehensive and detailed comparative analysis of notated chants of the Christian church. This methodology has the potential to investigate a large number of chants by empirically identifiable and statistically significant indicators.

## **II. Academic context and practical necessity**

From the beginning of the last century to the present day musicology has made remarkable achievements in the field of comparative analysis of Christian music. The works of André Mocquereau (1908, 1927), Wagner (1921), Ferretti (1937), Wellesz (1947, 54, 62), Hughes (1954, 83, 87), Huglo (1955, 56, 72), Kenneth Levy (1958-63, 64), Velimirovic (1960), Treitler (1984), Apel (1990), Troelsgård (1998), Jeffery (2001), Atkinson (2009), Lingas (2006, 2011), Gheorghită (2018) have made significant contributions implementing the comparative approach in Christian chant analysis. They reveal the basic principles of church music function and various systems for constructing sacred tunes, distinguishing between melodic models and formulae, as well as different musical approaches to sacred texts. Following this tradition, the MCMA makes it possible to move to a more complete picture of the broad foundation of ancient Christian music with different theological and singing styles from different periods or Christian denominations.

Analysis of works of art, including sacred music, is a process in which the subjective involvement and attitude of the analyst is inevitable. The element of subjectivity attains a greater importance when it is supported by a solid theoretical background, flexible conceptual apparatus, and profound knowledge of the type of music to be explored as well as the context in which it appears. The musical sense and aesthetic sensitivity of the analyst are indispensable elements in the analysis of sacred music insofar as Christian chants themselves are by nature directed to the subjectivity of the listener and seek resonance with his or her most intimate spiritual experiences. It could be said that the deeper the musicological analysis is, the more revealing the subjective experience that the Christian chant with its musical and verbal characteristics seeks to awaken. The big question is how to analyze the musical subjectivity embodied in Christian chants in an objective way so as to reflect objectively the musical philosophy of Christian music and the spirit of its time.

Numerous comparative musicological studies reveal many details and specific characteristics of ancient Christian music. Chant features that the researcher has been able to include in his or her analysis are compared. However, the extension of observation and perimeter of results achieved could be broadened as a result of increasing the number of chants considered. In order to analyze a representative

sample of chants, the chants that have fallen into it must be analyzed not individually or in pairs but as a whole. In sociology this is reflected in the difference between individual and aggregate information. The latter implies the application of mathematical-statistical methods and computer data processing.

Successful analysis of larger chants is achievable with two prerequisites:

(a) high sensitivity and knowledge of the researcher regarding the chant structure and clear criteria for their breakdown into smaller structural units. This is a meaningful condition that allows the qualitative specificity of Christian chants to be quantified, i.e. allowing coding and computer data processing of many more chants.

(b) special attention to the question of representativeness of the chants analyzed related to all chants of a belonging group. Obtaining representative and, at the same time, aggregate information about Christian music, implies not only an increase in the number of songs analyzed, but also their selection, based on their musical-verbal content and its connection with the wider musical, religious and social context. In the case of chants from a separate archive, region or time period, the analysis may become quite comprehensive.

### **III. Underlying assumptions**

Basing musical analysis on aggregate and representative information is the main purpose and value of MCMA. Application of this approach in musicology is in line with the general trends of social and humanities research, which seek accurate (quantitative) measures of all aspects of human relations, reaching even artifacts or ideas about the world.

Christian chant, regardless of its internal construction and specificity, is made up of elements, each of which carries independent information about its nature. On the basis of this premise, a question arises about identification of the smallest structural units (SSUs) of Christian chant. These are the components that carry the specifics of the chant from which they are derived and at the same time simple enough to be coded in a way that allows quantitative (statistical and computer) processing. The ultimate goal is to present each chant as a collection of such SSUs, connected in one whole by a logic, which brings up the spirit of worship music, the worship and its epoch.

The question about criteria by which this decomposition of a chant can be made without losing its specificity, is complex and multifaceted. The complexity stems from the fact that liturgical music has a pronounced functionality, subordinated to church ritual and a complex interaction between melody, liturgical text and moment of worship. Despite this complexity, however, SSUs always have three main aspects: melodic, rhythmic and verbal.

### **IV. Essence of MCMA**

The key tool for MCMA is the classifier. It is a catalog of indicators that cover, as much as possible, all musical-verbal information contained in the chants to be analyzed. Each individual indicator has a unique numeric code that allows them to be stored in a spreadsheet. Horizontally, this table lists all coded information for the individual chants, and vertically the entire list of chants that are analyzed.

The catalog of classification indicators begins with those relating the chant to the so-called large categories, each indicating the affiliation of the chant to a particular religious rite, genre, type of worship, echos (as part of Octoechos), etc.

These large categories should be as numerous as needed, to exhaust the indicators by which the chants are broken down to groups. In my dissertation, *Christian Monody – Comparative and Morphological Analysis (Based on Solesmes and Orthodox Sources from 19th and 20th Centuries)*, 2017, there are 69 indicators of this type, divided into ten general categories.

Once the chant is allocated to each of these large categories, it begins to decompose to its SSUs. The latter, in turn, are divided into several more specific groups, which reflect their melodic, rhythmic and verbal content, the intervals between them, as well as the artistic arrangements that are present graphically in the musical text. In my research, this catalog contains 506 indicators, divided into six categories. Details related to the articulation of the whole musical form are additionally encoded: caesurae, pauses, phrase ends and macrophrases.

The entire sample consists of 160 rows in the table, corresponding to the number of 160 Catholic and Orthodox chants. The longest horizontal line, containing full information about a single chant in my sample (*Gloria in Excelsis Deo*), consists of about 800 digital indicators.

### 1. Melodic unit (MU)

The definition of MU is part of the consideration by which traditional sacral melody analysis determines melodic formulas/figures and theses. But MCMA offers a broader perspective on the definition of MU, namely compliance with the melodic word, chanting position, and frequency of use of a particular melodic stroke. MCMA formulates several criteria for determining the limits of MU that are related to the direction of motion, environment of other MUs, intonation waves, and frequency of intonation use. Number and selection of criteria also take into account the type of chant (syllabic or melismatic). Perhaps the biggest difficulty in identifying the smallest structural units is the answer to the question: is this a new unit or a variant of an already formulated one? Both the content and function of the MU depend on the answer to this question. Knowledge of this type of chant is important here, as well as the degree of proficiency in musical analysis and personal musical sensitivity. Finally, correctness of the choice made can also be tested by a multi-factor analysis of the overall results obtained. Of course, the conclusions I came up with when encoding MU in the chants of my sample would be greatly enriched if applied to new and different types of chants. Respectively, the methodology will continue to be refined under the influence of new phases in musical analysis development.

Each of the melodic moves, determined according to listed criteria, receives a digital index that allows computer processing of the information. In the chant analysis classifier, my sample contains about 330 digital indexes of melodic moves containing one to six notes, or pitches. For example, MU 130 means a single pitch, MU 131 means a pitch and a step up, MU 163 means a pitch, a step up and a step down. The catalog of melodic indexes itself can also bring interesting information.

For example, in my sample of chants, the largest number of MUs is that containing four pitches.

Through further computer processing of coded information, some dependencies between the melody and the other components can be established, such as: the predominant direction of melodic movement, predominant melodic segments over certain words, different melodic approach to the same word in different Christian traditions, types of melodic approach to the same text by different authors, modification of the melodic segment in different translations of the same chant, modification in schematic and analytical notation of a specific fragment.

## 2. Rhythmic Unit (RU)

The rhythm of sacred chanting is closely linked to the correct presentation of the liturgical text. Therefore, the most important consideration in determining the rhythmic unit is the natural rhythm of the word<sup>1</sup>. Following the rhythm of the text would be sufficient if the chants were overwhelmingly syllabic and each syllable was fitted to one, two, or three pitches. However, the presence of melismatic chants leads to complication of these criteria, due to the rhythm of the pure melody and its separation into the smallest RUs. Given that pulsation is uniform and fragmentation of smaller rhythmic values is proportional, the formulated variants of RU are predominantly the result of simply dividing the duration by 2 and 3. The more complex rhythmic formations also receive their own digital code, allowing them to be interpreted as an exception in the data analytical work, thus reflecting on the symbolism they carry, or the function they perform. The definition of RU allows us to monitor the presence of a preferred rhythm for certain words, the use of the same rhythm on words or phrases with different positions of strong and weak beats, as well as to seek interaction between rhythm and melody, rhythm and genre (troparion, hymn or litany), rhythm and place of chant in the worship.

There is a widespread opinion among church chant experts that the rhythm of the text always coincides with the rhythm of the melody. Its expressive role would be irrelevant if there were no exceptions to the rule of strictly following the word rhythm. Analyzing liturgical material, we have repeatedly encountered such cases of exception, and it is impossible not to acknowledge the courage of Ferretti (Gregorian Aesthetics, 37, 24) to claim that this music, apart from performing the mission to present clearly and accurately the liturgical text, also has a purely aesthetic mechanisms by which it can be designed to influence its high artistic qualities.

Exploring the rhythmic configurations of the tune in sync or not in sync with the rhythm of the text is entirely within the capabilities of the proposed method. It may also find an application in the study of rhythm, when analyzing translated chants from one liturgical language to another or analyzing their translation from an old to a modern notation. For the purposes of my research, because of the two types of notation, there are 131 indicators divided into two categories in the catalog of rhythmic units, with written chants of the explored selection.

## 3. Verbal unit (VU)

The verbal unit can be represented by a whole word, but also by a part of a word, or a word and a part of an adjacent word. Determination of its boundaries often depends on whether the explored moment coincides with a formed melodic figure or a series of melodic figures with clear outlines (as in melismatic fragments),

or whether the melodized word is the leading one and the melody services its expression (as it is the case of monosyllabic words such as *te* or *pax*, which are always melodized with a single pitch). Number of categories and indexes in this indicator depend entirely on the empirical material being processed. This is one of the indicators for which the digital code catalog is drawn up for specific texts and specific musical-linguistic contexts.

A number of considerations are involved in defining VU boundaries, aiming for the digital code to convey meaningful information as fully as possible:

- a) what is the specific word in the array of all words involved in the chant
- b) meaning of the word
- c) number of syllables participating in the VU
- d) position of syllables involved throughout the word
- e) VU's place of stress (accent) and place of emphasis in the entire word

This information forms a ten-digit code; with it the indicator participates in the study of interaction between text and melody, text and rhythm, as well as modifications of its interaction within context of different denominations, singing schools, genres and authors.

4. Coding of all particularities of melody or rhythm that are associated with a particular expressiveness, as well as all the articulatory techniques in the form structuring, also find their place in coding of all the information about the chant.

5. Only after all these substantive features of the SSU have been exhausted does the last indicator refer to the boundary between the different structural segments. In my research, I tentatively called this boundary an interval (IN) given that the basis of musical thinking in Christian melody is a step. This is an important indicator, because if the movement is smooth and undulating, a wide interval between two separate structural units would be indicative of a symbolism violating this smoothness. In this sense, any transition from conjunct to disjunct motion and vice versa has an exegetic potential. The indicators in the classifier reflect the occurrences of upward and downward intervals in the chants included in the sample.

6. Directions of analysis

All components, general and specific, that enter the classifier can be investigated, both individually and in their relationships. Then we can compare the most common components, identify melodies, or trace clusters of melodic formations found in the music of different denominations or genres of Christian chant. These and other similar questions can be asked accordingly to the study purposes.

If the task of defining the right criteria for chant coding is affirmed and gains a wider academic recognition, this would address many of the comparative analysis problems that would be difficult for the musicologist to solve simply by analyzing and comparing separate chants. If some problems can be identified within the criteria of transforming qualitative characteristics of chants into quantitative ones, then this is no less true for a researcher who, without such a methodology, compares the features of two chants using his or her own thinking potential, without the help

of statistical and computerized data processing. The advantage of MCMA is that if we can observe a large number of chants all at once, we would have far more reason to attempt larger summaries, draw general principles and conclusions about trends and phenomena that have stood the test of time.

#### **V. Possible guidelines for the development of MCMA**

First, this methodology was developed on the basis of analysis of 160 Christian chants for the needs of my dissertation. Extending the scope of its application, for example, to sources written on old non-standard notation, will raise new questions to methodology itself and will lead to its refinement.

Second, if the information was coded directly from the old manuscripts, a comparative analysis could be made between: analytically and non-analytically recorded chants; orally transmitted and recorded chants; variations of the same chants that are spread orally in different regions; as well as their ornamentation, timbre and other aesthetic effects in their interpretation.

Third, designing a computer program to apply universally to this type of analysis is still an unsolved task. Analysis of chants included in the sample I used in the study "Christian Monody - Comparative and Morphological Analysis" was carried out by using a computer program that involved lots of mechanical work on the part of the programmer.

#### **VI. Conclusion**

I believe such analysis of Christian chants would greatly assist in the understanding and interpretation of Christian music. It would give evidential value to views expressed by researchers and interpreters of Christian music. Improvement and promotion of this methodology would give new meaning and new directions in revealing the testimonies of closeness and specificity of sacred music to Christians. This would be in full accord with the scientific searches from leading musicologists, as well as performers with iconic influence on interpretation, such as Capella Romana (directed By Alexander Lingas) and Organum (directed By Marcel Pérès) who are actively working on the idea of bridging the cultures of Christian congregations.