

Temporal experience in ecclesiastical chanting: A collaborative approach between music psychology and Byzantine musicology.

Eleni Lapidaki

Department of Music Studies, Aristotle University of Thessaloniki, Greece
lapidaki@mus.auth.gr - <http://users.auth.gr/lapidaki>

Maria Alexandru

Department of Music Studies, Aristotle University of Thessaloniki, Greece
malexand@mus.auth.gr

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Background in Music Psychology. The determination and manipulation of tempo constitutes an important expressive parameter of music that enables various juxtaposed sound events of the musical structure to be woven together or phrased in real time in order to make the communication of a composition's musical meaning viable. In other words, "the temporal pacing of a composition is what gives music its unique motional, emotional, and sensuous character, as has been acknowledged in most discussions concerned with music aesthetics, theory, and compositional or performance practice" (Lapidaki, 2000, p. 42). Recent research in expressive performance has shown that performers tend to indicate phrase boundaries (e.g., Chuan, & Chew, 2007) and, thus, clarify structure (Kendall, & Carterette, 1990) from tempo information by increasing the tempo between successive tones (Todd, 1995) or by manipulating the tempo of a composition according to musical units demarcated by prosodic cues (e.g., Palmer, & Hutchins, 2005). Nevertheless, interesting as these conclusions may be, they are limited in that they merely investigated the relationship between temporal pacing and/or metric and phrase segmentation in performances within the Western art music culture.

Background in Byzantine Musicology. Byzantine theoreticians highlight the role of rhythm in ecclesiastical chant, by calling the *Psaltike* a "rhythmic art" (Pseudo-Damaskenos, l. 13-15) or "a science connected to rhythms and melodies" (Gabriel Hieromonachos, l. 27-28). However, our knowledge about the concrete rhythm in old Byzantine chant is fragmentary in many respects. As pointed out by Schlötterer (1991), the Byzantine concept of rhythm is indebted to Aristoxenos of Tarent, who saw in the rhythm the force giving shape to previous amorphous sounds, syllables, and/or movements. Such rhythmic energy is connected in Byzantine chant to the breath of the singer, becoming the living vehicle of the sacred word to be carried to the minds and hearts of the assembly. The music functions as *ancilla verbi* (servant of the word) both on microstructural and macrostructural levels (see Jammers 1962, and also Apostolopoulos 2002, p. 133). Musical texture, in close connection to temporal pacing, was for the late post-Byzantine theoretician Apostolos Konstas Chios (beginning of the 19th cent.) the criterion for his theory of four different categories of hymns (*dromoi/chronoi*): quick, heirmologic, organic, and slow (Apostolopoulos 2002, p. 226-230). The exploring of the chanter's experience of musical and liturgical time may shed new light on the rhythm as one of the most important components of Byzantine music.

Aims. The study was designed to determine the temporal pacing chosen by 15 psaltes (singers of Byzantine music) from different age groups and positions (*officia*) in the Orthodox Church while chanting different pieces of the Byzantine Hymnography. More specifically, five specific research questions were posed:

1. Is there a consistency of temporal pacing by all psaltes for the same chants?
2. Is temporal pacing affected by the "echos" (mode) of a certain Byzantine chant?
3. Is the temporal pacing affected by the text or/and the musical style of a chant?
4. Is the temporal pacing affected by the phrase structure of the chant?
5. Is there a relationship between the tempo of a chant when chanted and when recited?

Main contribution. This study examines temporal pacing as a specific unifying relationship in conscious musical experience between the subjective pace of the flow of musical structure, on the one hand, and ordinary time, on the other, or between subjectively felt ("religious") and objectively measured (clock) time while chanting Liturgical hymns of the Orthodox Church (Eliade, 1959). It is hoped that this unique collaborative approach to temporal experience between music psychology and Byzantine musicology will help both disciplines attune to "cultural nuances" and "cultural knowledge" of musical temporalities. As Judith Becker wrote: "Fragmentation of intellectual effort is one of the curses of the modern academy" (p. 7).

Implications. The methodology and the thinking that arises from this interdisciplinary approach attempts to shed light on questions intrinsic to the meaning and the cultural value of the temporal pacing in relation to large- and short-scale structure of Byzantine chant by taking into account how psaltes express this musical flow while chanting in an Orthodox Church and why. However, in this attempt one has to be careful in translating concepts from one discipline to the other, especially when the temporality under examination concerns liturgical time, the “time of the Church,” the “time of Christ” (Chupungco, 2000, p. xix), “another time” (Eliade, 1959, p. 33). One should be reminded of “Cook’s lament: “Perceptual psychologists assume that music is made out of notes” (cited in Aiello, 1994, p. 65).

Introduction

Tempo perception is closely associated with the experience of time of a musical composition—that is, with the way we sense “the rate of speed” of the flow of musical sounds or events when we compose, perform, or listen to music (Dürr, 1966, p. 183). Therefore, if this interdisciplinary research is to contribute to a more comprehensive understanding of tempo in ecclesiastical chanting as time transformed into a certain rate of speed, it should begin with an investigation of the question: What is the time of music?

The experience of time in music can only be explained in connection with what we believe time is. The nature of time is, however, a puzzling phenomenon like the riddle of the Sphinx in Greek mythology, and a definition of time is indeed very difficult. What we call time exists in such diverse ways that we can hardly pinpoint what it is. We do not even know if it exists at all; we can only describe the attributes of our sense of time. Discussing the nature of time in a penetrating passage in his *Confessions*, which has become almost a classic in the history of philosophy, Saint Augustine (trans. 1961) wrote: “What then is time? I know well enough what it is, provided that nobody asks me; but if I am asked what it is and try to explain I am baffled” (p. 264).

If we opt to determine the time experience in Liturgical music, an inseparable aspect of which is tempo, there is the temptation to solely rely on musical speculations and terminology of Western art music theory to explain its nature. Nevertheless, it becomes clear that strict musical theoretical interpretations of musical terms do not tell the whole story about their essence and perceptions. This can be explained by the proposition that music is a sociocultural phenomenon that reflects human intellect as it searches, questions, infers, and reveals aspects of experience at a given moment in

history (Xenakis, 1985). The present study examines temporal pacing as a specific unifying relationship in conscious musical experience between the subjective pace of the flow of musical structure, on the one hand, and ordinary time, on the other, or between subjectively felt (“religious”) and objectively measured (clock) time while chanting Liturgical hymns of the Orthodox Church (Eliade, 1959). It is hoped that this unique collaborative approach to temporal experience between music psychology and Byzantine musicology will help both disciplines attune to “cultural nuances” and “cultural knowledge” of musical temporalities.

Background in music psychology

Tempo preference in music performance

While there is near unanimity in the definition of musical tempo in Western art music as the pacing of time of a musical composition, hence, the speed at which its performance proceeds (Dürr, 1966), questions arise with respect to the way the “right” or “absolute” tempo of a composition can be determined (Lapidaki, 2006). Does a piece of music have one and only one inherent tempo (absolute tempo), and if so, does this concept possess an absolute time framework? Or can a piece of music survive a wide range of tempi?

The literature is far from consistent on these questions. For instance, Richard Wagner (as cited in Pöppel, 1990) wrote in his essay “On Conducting” with regard to tempo: “If one wants to summarize what is involved in the right interpretation of a piece, on the conductor’s part, then this consists in that he or she always indicates the right tempo, because the choice and determination of tempo makes us realize whether the conductor has understood the piece or not” (p. 105).

Similar ideas about the existence of one “right” tempo are expressed by Stravinsky

(Stravinsky & Craft, 1980) who stated that “a piece of mine can survive almost anything but wrong or uncertain tempo ... What does it matter if the trills, the ornamentation and the instruments themselves are correct in the performance of a Bach concerto if the tempo is absurd? I have often said that my music is to be “read,” to be “executed,” but not to be “interpreted.” (p. 135).

It is also worth-mentioning what pianist and composer Glenn Gould (1982) said in a recorded interview with Tim Page: “I have come to feel over the years that a musical work, however long it may be, ought to have basically one tempo, one pulse rate—whatever it may be—one constant rhythmic reference point.”

Conductor and music theorist Epstein (1985) also embraces Gould’s approach to tempo with the concept of a “continuous pulse”: “So powerful is the element of pulse that if one violates it by distortion of tempo, one runs the risk of an unsuccessful performance. Such a distortion seems to be violating not only a “musical factor,” but a biological one as well, one which sets ground limits to our aesthetic perception” (p. 37).

Harpisichordist Ralph Kirkpatrick (1984) criticized the notion of fixed relationships of pulse and the concomitant belief in an absolute tempo. Pianist Alfred Brendel (1977) opposes himself to the metronome-conscious interpretation of music which, as he points out, has managed to influence musical thinking “through the experiences of Stravinsky and jazz music” (p. 42). However, Brendel disagrees with Kirkpatrick’s belief in the dominance of the interpreter’s chemistry (nature) that influences the execution of tempo. Brendel superimposes a psychological tempo on the notion of metronomic tempo: “The interpreter who follows the flow of music as naturally as possible—and hereby I mean the nature of music and not the nature of the player—will always give the “psychological listener” the feeling that he or she plays ‘in the right tempo’” (p. 43).

Music theorists diverge in their opinions of whether structural relationships in music—formal characteristics, local-level and more global harmonic relationships, rhythmic and

metric relationships—are in some way dependent on tempo (Berry, 1986; Lester, 1982; Piston, 1978) or whether they remain independent of tempo (Aldwell & Schachter, 1978; Cooper & Meyer, 1966; Forte, 1979). To quote Piston (1978), for instance: “The speed of music justifies a broader view of the harmony than would be indicated merely by root changes” (p. 208). Clarke (1985) attempted to provide evidence for the psychological validity of modifications of performance tempo by demonstrating that these modifications are closely related to the structural characteristics of the music performed. In contrast to Piston’s view, Cooper and Meyer (1966) maintain: “Tempo, though it qualifies and modifies [pulse, meter, and rhythm], is not itself a mode of organization. Thus a rhythm or theme will be recognizably the same whether played faster or slower” (p. 3).

Another stark contrast of opinion about absolute tempo may be seen in the positions of Reckziegel and Reinecke. Reckziegel (1961) asserted: “The perceived tempo of music obviously depends not only on the duration of one or more abstract units but also on the rhythmic structure within this duration. Therefore, we would like to introduce the term of “inner tempo” (*Inneres Tempo*) that has been already used by ethnomusicology for some time (p. 215).

Reckziegel further expressed inner tempo as the equation $bp = 1/t \cdot dt$ where b stands for inner tempo, t stands for the duration of the metric unit, and p stands for the average pulse number within the metric unit. He concluded that “the attempt to determine an inner tempo results in making measurable the musical time dimension, which is seemingly only comprehensible in a sensory way” (p. 223). Reinecke (1974), however, stated that “no evidence has been found to prove that one specific musical piece has only one ‘right’ tempo” (p. 414).

Although tempo is considered to be a prominent factor in harmonic rhythm, it is surprising that music theorists have paid relatively little attention to it. Indeed most music theories deal primarily with rhythm and meter and take a somewhat dim view of musical tempo (Lerdahl & Jackendoff, 1983).

Rhythm and meter can be indeed structured, grouped, arranged hierarchically, notated, and imagined without exact measurement in units of real time. Nevertheless, as soon as they are listened to, they gain concrete dimension in a fixed period of time, at a certain tempo. In other words, the rhythmic and metric order of a musical composition cannot be realized and, thus, measured without the parameter of tempo.

Yet there are apparently no theories of music that assert that because all note values are obviously relative to each other, a specific time value can only be determined by referring to the speed of the temporal structure of the music in relation to real (externally metered) time. While Glenn Gould (1982) considered the tempo of a composition to be "one constant reference point", Cooper & Meyer (1966), on the other hand, criticized the notion of constant relationships of pulse and absolute tempo of music: "And while changes of tempo will alter the character of the music and perhaps influence our impression of what the basic beat is (since the beat tends to be perceived as being moderate in speed), tempo is not a relationship. It is not an organizing force ... It is important to recognize that tempo is a psychological fact as well as a physical one" (p. 3).

Concurring with Cooper & Meyer with regard to the dual nature of tempo Kramer (1988) stated: "If we consider tempo as both the rate of beats and the rate of information, then we can incorporate into this broad concept both the objectively measured and the subjectively felt" (p. 349). Furthermore, from a phenomenological standpoint, Clifton (1973) maintained that although musical time is an a priori, because it can be perceived immediately, tempo is not an a priori, though it concerns time, "... because we must learn to measure it" (p. 79).

An important consideration in the study of musical expression is the execution of tempo changes in performance which are not precisely captured in the composer's notation. It should be noted that tempo changes have been considered as an important factor of musical expression. In fact, a number of authors agree that the slowing of the tempo

in a *ritardando* or the speeding up in an *accelerando* occur due to the performer's desire to give spirit and expression to music each time. Recently researchers attempted to explain these tempo fluctuations by objectively measuring them, especially by means of computer programs and other technical advances that allow for accurate registration and timing of the so called "microstructure" of the musical performance. Thereby, different models were developed and conclusions drawn depending on the methodology of the experiments and the composer, the musical style, or the size of the musical examples.

In most cases, however, there is critical evidence of flexible constraints or restrictions on expressive timing patterns, in actual expert performances (e.g, Friberg, 1991; Repp, 1994). These constraints can be demonstrated as classes of optimal geometric or mathematical temporal structures or shapes for melodic events. Researchers interpret these shapes as frameworks within which performers manifest their individual expression and artistic freedom for a favorable musical communication with the listener. Nevertheless, this evidence carries with it no assumptions of conscious awareness or intention on the part of the performer (Clynes & Walker, 1982). Some of the studies of performance expression also combine measurements with perceptual judgments of listeners that verify the aesthetic validity of the measured constraints. Yet these judgments are ceded completely to the listener's intuition (Lapidaki, 2000; Repp, 1992; Sundberg & Verillo, 1980).

Along these lines, Clynes (1983, 1986, 1987) suggested that there are specific recurring patterns of timing that convey the composer's character. These expressive patterns associated with individual composers are called the composer's "pulse " and illustrates the musical "signature" of the composer." Moreover, a number of other studies have also shown a clear indication of the stability of expression, in general, and of tempo changes, in particular, in repeated performances that may span several years (Wagner, 1974; Clynes & Walker, 1982).

Finally, it seems necessary to summarize what possible generalities the empirical findings with respect to the execution of tempo in performance may have. Tempo perception can be regarded as involving both conscious and unconscious mental processes in musical expression. On the one hand, the conscious aspect manifests itself in the dynamic search by the performer for tempo variations that would be faithful to the composer's designations in music notation, and capable to communicate to the listener the composition's expressive potential. On the other hand, the unconscious aspect of tempo perception is apparent, as musicians are often only dimly aware of these tempo modifications, which they control in the physical actions of musical production intuitively rather than intentionally. As Feldman, Epstein, & Richards (1992) wrote, this intuitive judgment of the performer concerning tempo variations demonstrates "... an underlying, unconscious conception of music as a quasi-physical thing that "moves forward" as it unfolds through time, now speeding up and now speeding down, in accord with the moment-to-moment flux in its rhythmic, harmonic, and affective character—a conception reflected in musicians' common use of terms as "movement," "motion," and "flow" to characterize the progression of music" (p. 202).

The present study attempted to further the investigation into tempo during ecclesiastical chanting by examining whether chanters (psaltes) are consistent in their choice or preference of the correct or absolute tempo of Liturgical music. Furthermore, it examines whether factors intrinsic to the music itself (e.g., musical mode or "echos" and phrasing) may also play a part in aiding consistency of tempo judgments. Therefore, the following questions were posed:

1. Is there a consistency of temporal pacing by all psaltes for the same chants?
2. Is temporal pacing affected by the "echos" (mode) of a certain Byzantine chant?
3. Is the temporal pacing affected by the text or/and the musical style of a chant?
4. Is the temporal pacing affected by the phrase structure of the chant?
5. Is there a relationship between the mode of a chant when recited before it is sung in each mode?

Background in Byzantine Musicology

Tempo in Byzantine, post-Byzantine and newer Greek theoretical writings

Byzantine theoreticians highlight the role of rhythm in ecclesiastical chant, by calling the *Psaltike* a "rhythmic art" («ῥυθμική τέχνη»: Pseudo-Johannes Damaskenos, eds. Wolfram/Hannick 1997: lines 13-15) or "a science about rhythms and melodies occurring in the divine hymns" («Ἡ ψαλτική ἐστὶν ἐπιστήμη διὰ ῥυθμῶν καὶ μελῶν περὶ τοὺς θεῖους ὕμνους καταγινόμενη»: Gabriel Hieromonachos, eds. Hannick/Wolfram 1985: lines 27-28). During the Byzantine and post-Byzantine period, the knowledge about rhythm and tempo seems to have been primarily a practical one, related to the highly developed cheironomyⁱ.

Today, our knowledge about the concrete rhythm in old Byzantine chant is fragmentary in many respectsⁱⁱ. As pointed out by Schlötterer (1991), the Byzantine concept of rhythm is indebted to Aristoxenos of Tarent, who saw in the rhythm the force giving shape to previous amorphous sounds, syllables, movements. Such rhythmic energy is connected in Byzantine chant to the breath of the singer, becoming the living vehicle of the sacred word to be carried to the minds and hearts of the assembly. Musical texture, in close connection to temporal pacing, was for the late post-Byzantine theoretician Apostolos Konstas Chios (beginning of the 19th cent.) the criterion for his theory of four different categories of hymns or compositional manners (*dromoi/chronoi*): quick, heirmologic, organic, slowⁱⁱⁱ.

It is not until the Reform of the Three Teachers at the beginning of the 19th cent.^{iv}, that the Psaltic Art is provided with a comprehensive 'Rhythmuslehre', expounded in Book II of Chrysanthos' *Mega Theoretikon* (1832: § 112-216). It is based on five key-notions: time/time units (χρόνοι), genres of

metrical feet (γένη ποδικά), tempo (ἀγωγή ὀυθμῶν), rhythmical changes (μεταβολαί) and rhythmical composition (ὀυθμοποιία)^v. The tempo is defined by Chrysanthos in a relative way as “the quickness or slowness of the time units”^{vi}.

A didactic manual compiled by the other two Teachers of the Reform, Chourmouziou Chartophylax and Gregorios Protopsaltes, which is transmitted in the ms. Sinai 1450 from the beginning of the 19th cent.^{vii}, mentions four different tempo-degrees (δρόμοι/τάξεις: fol. 11-12). The first one corresponds to a time-unit with the duration of one second, and each of the other three tempo-degrees is two times faster than the previous one, i.e., according to the proportion 1 - 1/2 - 1/4 - 1/8^{viii}.

The Musical Commission of the Ecumenic Patriarchate (Constantinople, 1881-1883, under Patriarch Ioachim), defined tempo as “the absolute duration of the time unit which determines the fast or slow movement”^{ix}. In the same chapter («Περὶ χρόνου καὶ ἀγωγῆς», “About time units and tempo”), the Commission set up five different tempo-degrees, with their corresponding metronome-values, as shown in fig. 1.

Nr.	Name	Nr. of beats per second (M.M.)
1.	Slow Βραδεία	56-80
2.	Moderate Μέση	80-100
3.	Middle Μετρία	100-168
4.	Fast Ταχέα	168-208
5.	Very fast Χύμα	208-(416)

Fig. 1. Typology of tempo, according to the Musical Commission of 1881-1883^x

Subsequent theoretical treatises of the 20th and of the beginning of the 21st cent. refined and/or expanded the typology presented by the Commission of 1881-3.

At first glance, these and other similar classifications of tempo in Byzantine chant

show some differences as to the number of tempo-degrees (5/6/7), their names (especially as to the medial tempo-group) and the metronome-indications. However, a deeper comparative study of theoretical sources belonging to the 19th-21st cent. reveals a consistent tradition of temporal categorization, tightly connected to the musical texture of the ecclesiastic hymns^{xi}. It is worthwhile mentioning that Chrysanthos (1832: § 189-192) refers to the ancient Greek teaching about ethical connotations of different rhythms and applies it to rhythm and tempo in ecclesiastical chant, an idea taken over also by other modern theoreticians like Παναγιωτόπουλος (2003: §66, 78) or Ευθυμιάδης (2006: 59, 62). For the last author, rhythm is the “soul of the music.”

Tempo indications in musical sources

As shown in the previous unity, the beginning of tempo-theory in Psaltic art can be traced back to the early 19th cent. However, until today, chant collections (printed editions or musical manuscripts) contain sparse indications of the tempi to be used. Nevertheless, there are a few exceptions^{xii}:

a) A. Euthymiadis used to indicate in his chant collection at the beginning of each piece the precise tempo with metronome values^{xiii}.

b) A. Karamanis consequently uses the new Byzantine signs for tempo indication not only at the beginning of the musical pieces, but also for every small change of tempo inside the pieces^{xiv}.

c) In Athonite editions of the monk Nektarios, different pieces contain at the beginning an indication of the total duration of the piece, expressed in minutes and seconds, from which one can conclude with approximation the concrete duration of the beat^{xv}.

d) A list of tempi with metronome indication for different pieces or categories of chants is comprised at the end of Thr. Stanitsa's *Triodion* (1969: 338-339). It is well-known among chanters and considered as an authoritative guide for the choice of the adequate tempo, since it reflects the oral tradition of the Ecumenical Patriarchate (cf. below, unity 4.2.2.1.).

Methodology

Music examples

Several generations of newer theoreticians elaborated on the concept of tempo (χρονική άγωγή) in Psaltic art. However, the place to experience tempo is the performance practice. The pieces which have been chosen for this study of tempo in Byzantine chant were the following:

1. Κύριε ἐκέκραξα (Κύριε ἐκέκραξα) in the 1st authentic and 2nd plagal mode. Both modes were sung in their fast (*syntomon*) and slow (*argosyntomon*) manner),
2. the *anastasima eulogetaria* Εύλογητός εἰ Κύριε (Evloghitós i Kýrie) in the first plagal mode (slow (*argon*) manner), and
3. the *kathisma* Τὴν ὠραιότητα (Tin oreótita) in honor of the Holy Virgin Mary which was sung in both its fast (*syntomon*) and slow (*argon*) manner.

There were several reasons for selecting these hymns for our research:

We could presume that all the *psaltes* were familiar with them, since they range among the most beloved pieces of Greek ecclesiastical music^{xvi}. Some of these pieces are performed many times during the services of the liturgical year^{xvii}. All the musical compositions belong to the 18th century classical composer Petros Peloponnesios (ca. 1835-1887), except of the brief *Τὴν ὠραιότητα*, notated by his Pupil Petros Byzantios († 1808). Usually they are sung according to the slightly adapted version of Ioannis Protopsaltis, which reflects the oral tradition of the Constantinople Patriarchate at the middle of the 19th cent.^{xviii}

The *kekragaria* in all the eight modes already constituted the subject of a comprehensive and illuminating study on the dynamics between oral and written tradition of the 19th-20th cent., combining historical and ethnomusicological research-methods (Giannelos 1987). This offered us a sound point of departure for the exploration of tempo in Ecclesiastic chant^{xix}.

The pieces chosen belong to the two tempo-degrees which are most frequently used in nowadays practice: fast and moderate.

Two of the poetical texts (*Κύριε ἐκέκραξα* and *Τὴν ὠραιότητα*) are composed in different manners, the first one also in different modes. Therefore, the material offers multiple internal possibilities for comparison.

The *anastasima eulogetaria* in the first plagal mode by Petros Peloponnesios are a masterpiece of Byzantine melopoeia. Most of the cadences are imperfect, some of them constructed with a rising movement towards the fifth degree of the mode, some others with a descendent melodic line towards the fourth degree. This well-balanced cadential plan articulates a most refined and, at the same time, very simple melodic contour which gives the feeling of an infinite melodic flow^{xx}. The different recordings would allow us to explore, how tempo gives the 'swing' to this unique piece.

Both reading and singing were performed from broadly disseminated editions of liturgical texts and chants. The collections used do not contain any explicit indication of tempo for the chosen pieces. Therefore, we could better inquire the impact of the oral tradition, the chanter's education and his experience in the choice of tempo^{xxi}.

Subjects

In view of the above mentioned seven music examples that were to be sung and read by each subject and the volume of data that would be generated for tempo tracking analysis, the maximum number of participants in the study was set at twelve (N=13). Subjects were adults with extensive music training in different oral traditions of Psaltic art, significant professional engagement as chanters in Greek Orthodox churches, and outstanding contributions to the advancement of ecclesiastical chanting.

Apparatus

All music examples sung and read by the chanters were recorded on a portable digital recorder with 4 mic capsules at 16-bit/44.1kHz resolution as WAV files which

were later stored on a Macintosh PowerPC G4 for tempo tracking analysis.

Procedure

All chanters (except two) were recorded individually by both experimenters (authors) at a Byzantine church of their choice. Churches were chosen as sites for the study in order to create a natural ecclesiastical setting and, thus, minimize distractions while chanting as it might have happened, for instance, at a recording studio.

Each chanter was asked first to read and then to chant the above mentioned seven music examples, using the same broadly disseminated editions of liturgical texts and chants. Only two chanters preferred to use different books because of a higher degree of familiarity with them. Each chanter was encouraged to take as much time as was needed and to try to chant each liturgical chant as often as necessary until he was satisfied with his performance which was then recorded.

In order to delve deeper into chanters' oral traditions, music education, views about the relationship between a chant's music and its lyrics, and their experience of liturgical time, in general, and tempo, in particular, a questionnaire was handed to them at the end of the recording session. The discussion between each chanter and the authors that followed was recorded and used in later qualitative analysis.

Report of quantitative data

Consistency of global tempo choices among chanters. The hypothesis for the first research question was that chanters would demonstrate consistency with respect to their tempo preference while chanting the same music piece. To test the hypothesis, an independent samples paired t-test was performed for each music example. Results did not show evidence that chanters exhibit significant consistency in their choices of

most appropriate tempo of each example. Table 1 presents the tempo choices of all chanters for *Kýrie ekékraxa* (*Kýrie ekékraxa*).

Effect of the compositions' mode or echos on chanters' global tempo choices.

In order to examine whether chanters' tempo would be influenced by the mode of each chant, a one-way repeated analysis of variance for each music example was performed using tempo choices at each of the two trials in which it was chanted in the same

	Kýrie ekékraxa 1st authentic mode		Kýrie ekékraxa 2nd plagal mode	
	Fast manner M.M.	Slow manner M.M.	Fast manner M.M.	Slow manner M.M.
1.	97.58	77.66	100.76	85.99
2.	102.96	82.03	109.24	93.41
3.	214.2	114.45	229.43	113.24
4.	115.03	96.66	117.97	101.77
5.	129.71	110.98	143	113.45
6.	90.82	86.76	107.47	91.42
7.	83.43	68.85	96.32	72.26
8.	134.18	85.43	160.82	93.36
9.	109.38	90.83	112.19	96.84
10.	110.18	98.65	144.39	98.16
11.	122.16	87.18	138.1	80.1
12.	108.14	91.81	127.7	95.74
13.	117.76	92.16	126.18	94.86

Table 1. Tempo choices of all subjects (N=13) for the music example *Kýrie ekékraxa* arranged by Mode [1st authentic & 2nd plagal] and Manner [Fast (*syntomon*) and Slow (*argosyntomon*)]

tempo level (fast and slow) but in a different mode. The .05 level of significance was adopted as the alpha level of these tests. Results show that the mode or *echos* of the same music examples did not affect chanters' tempo choices (see Table 1 for *Kýrie ekékraxa* (*Kýrie ekékraxa*)).

Further examination of results revealed that both means of tempo choices for the trials with the "fast" tempo indication in the text were higher than the means for the trials with the "slow" indication in the text with respect to the different modes of the same chant.

Effect of phrase structure on tempo choice. With respect to the relationship between the phrase structure of the chants and tempo choices for each phrase, it was observed that the three chanters (I. Papagiannis, I. Chasanidis, and Ch. Taliadoros) chosen for the phrase analysis, chose the same tempo for all phrases of each chant, regardless of the metric structure of each phrase. Tables 2 and 3 demonstrate the tempo choices of each of the six phrases for *Kýrie ekékraxa* when they sang it in fast and

Kýrie ekékraxa 1st authentic mode in fast manner			
Phrase	I. Chasanidis M.M.	Father K. Papagiannis M.M.	Ch. Taliadoros M.M.
1st	109.2	114.44	80.89
2nd	108.77	110.76	82.65
3rd	108.93	119.28	85.65
4th	107.4	114.35	81.01
5th	106.45	117.71	85.16
6th	107.34	109.63	91.69

Table 2. Tempo choices of three subjects for the music example *Kýrie ekékraxa* [1st authentic mode in fast (*syntomon*) manner].

slow manner. In other words, chanters were consistent in the tempo choices for all phrases of each chant. It should be noted, however, that these chanters did not exhibit significant consistency in their choices of most appropriate tempo of each chant.

Kýrie ekékraxa 1st authentic mode in slow manner			
Phrase	I. Chasanidis M.M.	Father K. Papagiannis M.M.	Ch. Taliadoros M.M.
1st	85.06	101.75	65.96
2nd	90.57	100.71	61.71
3rd	84.12	97.78	63.07
4th	84	99.23	62.22
5th	86.4	99.42	67.69
6th	87.62	94.42	64.94

Table 3. Tempo choices of three subjects for the music example *Kýrie ekékraxa* [1st authentic mode in slow (*argosyntomon*) manner].

Effect of a chant's mode on the speed of its reading. It seemed appropriate to investigate the difference between the duration of chanters' two readings of the same chant before it was sung in two different modes. An independent samples paired t-test was performed for each reading.

Results did not show evidence that the mode of the chant influences the duration and, thus, the speed of each reading (see Table 3 for *Kýrie ekékraxa* (*Kýrie ekékraxa*)).

	Kýrie ekékraxa 1st authentic mode	Kýrie ekékraxa 2nd plagal mode
	Speed of reading (min:sec)	speed of reading (min: sec)
1.	00:13	00:13
2.	00:13	00:15
3.	00:16	00:13
4.	00:11	00:16
5.	00:15	00:19
6.	00:18	00:16
7.	00:17	00:13
8.	00:15	00:16
9.	00:15	00:11
10.	00:13	00:16
11.	00:13	00:13
12.	00:16	00:15
13.	00:13	00:13

Table 3. Duration of all subjects (N=13) readings for the music example *Kýrie ekékraxa* arranged by Mode [1st authentic & 2nd plagal].

Discussion of qualitative analysis

On the reading of pieces. At services, a great variety in the way of performing liturgical texts and chants can be observed: a) fluent reading (*χύμα*), b) between fluent reading and recitative (*χύμα πρὸς τὸ ἐμμελές*), c) recitative/lectio sollemnis (*ἐμμελῆς ἀπαγγελία*), d) melody: syllabic, melismatic, highly melismatic (*μέλος σύντομο, ἀργοσύντομο, ἀργό*) (P. Neochoritis).

During the centuries, a traditional way of fluent reading of the sacred texts was shaped ('παράδοση της ανάγνωσης': P. Neochoritis). The reading should envisage the teaching of the congregation rather than the stirring to emotions (D. Manousis). A 'normal rhythm' in reading will facilitate the comprehension of the texts (Father K. Papagiannis), though the actual tempo in reading might be different, according to the degree of familiarity of the singer with that specific text (J. Olkinuora).

In actual practice, the fluent reading seems to be performed mainly according to the meaning of the text (M. Giannopoulos), what we could label a semantically orientated mode of reading^{xxii}.

Punctuation marks in the currently used editions of liturgical texts lend assistance to the meaningful reading of the hymns. However, sometimes the punctuation refers rather to the musical or to the metrical, than to the syntactical and semantic structure of the piece (M. Giannopoulos)^{xxiii}. Some newer editions of liturgical texts e.g. the Roman *Menaia* from the end of the 19th cent., or the *Συλλειτουργικόν* (5th edition, 2006) broadly used nowadays by Greek chanters, contain a combination of asterisks and punctuation marks in order to offer cues both to the musical and to the syntactical structure of the hymns.

The reading gains its own rhythmic flow by the alternation of accentuated and unaccentuated syllables, which create an immense variety of metrical patterns^{xxiv}. The abstract metrical structure of a hymn might be acknowledged by the singer or not^{xxv}, the salient point being that in Byzantine hymnography metrics come to their plenary expression through singing^{xxvixxxvii}.

The choice of tempo when singing the pieces. As mentioned above, most chant-books do not contain an explicit indication of tempo, since this information is part of the oral tradition. The adequate tempo for the musical performance of each piece is learned mostly in an empiric way, during services, at the "great school of Psaltic Art, namely the *analogion* (pulpit)" (Ch. Taliadoros). By summarizing the answers of the singers on the question about the causes for choosing a certain tempo for a musical piece, we can list a whole gamut of factors, both music-intrinsic and extrinsic, on which tempo depends:

The choice of the tempo must allow the poetical text to be clearly articulated by the singer. The sense of the text should be made intelligible to the congregation (M. Giannopoulos, I. Liakos), since the scope of chanting is "God's praise and the spiritual education of the people" (Th. Kordellidis).

The tempo is indicated by the piece itself (M. Giannopoulos), in a double sense: a) by its melodic & rhythmical structure (P. Chatzipapas, A. Bazoukis, J. Olkinuora) and b) by the genre (e.g. heirmologic or papadic) / the category (e.g. *eulogetarion*,

kekragarion) / the style (e.g. old classical, kalophonic, new embellished, new classical) and the manner of composition (*syntomon*-short, *argosyntomon*-medial, *argon*-large) it belongs to^{xxviii}. Several chanters pointed in this connection to the very helpful list of the "most characteristic tempo for different ecclesiastic melodies, according to the tradition of the (Constantinople)-Patriarchate", included in the *Triodion* of Stanitsa (1969: 338-339): "few pages only, but reflecting the experience of many centuries" (P. Papaemmanouil).

To their turn, the categories and manners of composition are linked organically to the liturgical context of the pieces, on two levels: a) order & function in the Divine Liturgy or in other services, b) degree of festivity & place where the office is celebrated.

To a): Priest and singers, together with the congregation, form a 'dynamic unity' (J. Olkinuora) in worship, and tempo depends also on their multiple interactions. This is most obvious in the case of the so-called 'covering-hymns' like e.g. the *cheroubikon*, where the duration of the singing is strictly related to the time the priest needs in the Holy altar to read the special prayers and to prepare the Great Entrance^{xxix}.

To b): Offices on Sundays and other feasts are usually longer than those on normal weekdays. This is related, on the one hand, to a larger number of pieces foreseen by the *Typikon*^{xxx} for festal days. On the other hand, the chanter can choose for these occasions more elaborated/longer pieces and, in certain cases, also slower tempi (I. Chasanidis, P. Chatzipapas). The tempo might also be related to the size of the church-building, a cathedral like the Hagia Sophia in Thessaloniki certainly requiring more/longer/slower processional pieces than a smaller church in the same city (e.g. for the *apolytikia* sung during the Small Entrance at the Divine Liturgy: Gr. Papaemmanouil)^{xxxi}.

The actual tempo of a piece is further influenced by the voice, the breathing and generally the singing-technique of each chanter, his personal style and his mood (P. Neochoritis, A. Bazoukis).

Local traditions can also determine slight differences of tempo (e.g. a chanter from Thessaloniki singing a bit slower than one from Athens: A. Bazoukis).

When asked whether the choice of a certain mode (*échos*) influences the tempo of a musical piece, the chanters had a negative answer, mentioning nevertheless the following exceptions:

a) Certain musical phrases, according to the sense of the poetical text and/or when modulating into another genre (e.g. in the case of a chromatic phrase inserted into a diatonic context), might be connected to a somewhat slower tempo (F. K. Papagiannis, M. Giannopoulos).

b) Certain modes (namely the fourth authentic mode *hagia* for the papadic melodies and the third plagal diatonic mode *barys*) are especially connected to slow tempo in chanter's mind (P. Papaemmanouil).

c) The modes/phrases perceived as difficult by the singer may lead to the choice of a slower tempo (A. Bazoukis, J. Olkinuora).

d) Finally, the emotional connections produced to the chanter by a certain mode may also influence the tempo (D. Manousis).

From the details mentioned above, one can confirm that tempo-degrees for each type of piece belong to the performance practice of Byzantine chant. The actual realization of the tempo is connected to a large scale of factors: musical, liturgical, social, physiological and psychological. The 'right tempo' (J. Olkinuora) is that one which makes the unity of text & music most expressive in the given liturgical context, bringing the soul into a state of prayer (M. Giannopoulos, I. Chasanidis). The chanter's approach to singing is primarily not an emotive but an existential one (D. Manousis).

On the relation between text and music and the structuring-process of Byzantine melodies. From the answers of the singers to three related questions regarding a) the connection between the poetical text & the *melos*, and b) the process of structuring/phrasing during the chanting, one could gain the following precious insights:

All the singers pointed to the main importance of the poetical text: «'Εν ἀρχῇ ἦν ὁ Λόγος» reminded P. Papaemmanouil, by quoting the beginning of the Gospel according to St. John, and Gr. Papaemmanouil stressed that "this music was born in order to serve the Divine Word." Father K. Papagiannis also emphasized that in ecclesiastical chant the music is only the 'way', whereas the scope is the sense of the word.

During the singing-process, however, chanters tend to follow mainly the text in heirmologic and sticheraric pieces, whereas the papadic chants invite the singer to pursue the beauty of the melodic line (A. Bazoukis, P. Papaemmanouil). In fact, the structuring/phrasing requires a 'holistic' approach of the piece by the singer (i.e. of the poetical and musical text, in the given liturgical context). It also depends on the physical condition of the chanter, a 'good' breathing being very important for an adequate musical phrasing (D. Manousis, P. Chatzipapas).

A 'good chant-book' is a trustworthy guide for the singer, since it offers the musical piece already in a clearly structured form, through the way the cadences are realized (place, type of cadence, formula) and indicated in the score with the corresponding signatures (*martyriai*). The neumes, as another 'musical accentuation system' will assist the singer in the interpretation of the text (P. Chatzipapas, I. Liakos, D. Manousis)^{xxxii}. The singer can go a step further in his attempt to understand the 'musical thinking' of the composer, by analyzing the melodic formulas and the modulations, and choosing the *isokratemata* (pedal-tones) for the piece he intends to perform (I. Chasanidis).

If the singer has to perform a *prosomoion*, having on the pulpit only the poetical text, than he will follow the cues given by the latter (sense, accentuated syllables, syntax, interpunctuation marks) and shape the melody according to the respective model-strophe (*automelon*). If the chanter has to create a new melody, again, he will start from the poetical text and try to combine in the most adequate way traditional musical formulas (*theseis*) into melodic phrases, using the main notes of the given mode as

structural tones of his melody. Especially the cadences shall be performed in close connection to the sense of the text and its interpunctuation (although not slavishly), assuring both an intelligible text and a meaningful musical line (Father K. Papagiannis, J. Olkinuora).

The 'comprehension of the form', both macro- and microstructural, i.e. at the level of the whole piece and of single phrases, is believed to be essential for the solistic and choral singing-practice (I. Tsamis).

Most of the singers mentioned the notion of 'composing/singing or phrasing according to the meaning of the text' (κατ' ἔννοιαν μελοποίησις/ἔρμηνεία/ψαλμωδία), with reference to the work of Iakobos Protopsaltes († 1800)^{xxxiii}. Nevertheless, the musical depiction of the textual sense should not be exaggerated (M. Giannopoulos), neither should the division of the piece into musical phrases by the composer/chanter become a thoroughly rationalized matter (P. Chatzipapas).

Byzantine chant is characterized by the 'marriage between the text and music' (A. Bazoukis^{xxxiv}) and the offices offer a delectation ('πανδαισία') not only for the mind but also for all the senses (D. Manousis, A. Bazoukis). In this context, the role of the singer is both to teach and to move emotionally the congregation. Therefore the singing must issue from a sincere and humble heart (Ch. Taliadoros, P. Neochoritis, J. Olkinuora). The singer needs not only a sound musical education, but also philological and theological knowledge, in order to understand properly the hymns he is going to perform (Father K. Papagiannis, Th. Kordellidis). Thus, the singer tastes a great joy in studying and performing ecclesiastic chant (I. Chasanidis).

In time and beyond: on the temporal experience in ecclesiastic chant

"By chanting a hymn during the Divine Liturgy or at another service, what feeling do you have concerning the time of that hymn in the divine worship?"

The discussion with the chanters revealed some essential points leading to a deeper understanding of tempo and, more generally, of the Psaltic art.

Tempo in ecclesiastic chant is both related to the clock-time and to a temporal 'dimension' beyond it. The time experienced in worship, the liturgical time^{xxxv}, reveals Christ's resurrection as its profound center (D. Manousis; see also Appendices I,C,5-7 & D,2-3).

The mysteries (Eucharist, Baptism a.o.) are dominated by the word (readings, prayers) and liturgical actions, while in the services belonging to the night-and-day offices (Vespers, Mattins a.o.) the main weight falls on hymnography & music. Therefore, temporal experience varies also according to the type of service (M. Giannopoulos).

The place (order) and the time for each chant, as well as the temporal relations among the different pieces, readings, prayers, are coordinated by the liturgical *Typikon*, which also assures the well-balanced form (ισορροπία) of the services.

Therefore, tempo is determined by liturgical tradition, in the sense of consistency with "the way of singing as it was shaped at the Patriarchate (of Constantinople) by means of a long and constant spiritual exercise" («παράδοση είναι ο τρόπος ψαλμωδίας, όπως διαμορφώθηκε στο Πατριαρχείο, διά μακράς και ομοιομόρφου ασκήσεως»: Ch. Taliadoros). It is the role of the teacher, to preserve the authentic mode of singing (τρόπος), the style (ύφος) (P. Neochoritis).

For the chanter it is essential to understand the form of each service, so that he can build up systematically the singing, in accordance with the structural units of the office^{xxxvi}. Tempo-'handling' can become a most effective means to support the construction of culminations (slow tempo, e.g. in a *doxastikon*), or can contribute to the creation of a festive atmosphere (fast tempo) (A. Bazoukis)^{xxxvii}. Tempo reflects and determines at the same time a slower or faster movement of the soul. Slow melodies may help the mind to 'rest' on a certain noetic place, and repetitions (both textual and melodic ones) unfold the deeper sense of the

prayers (P. Neochorites). The chanter must care to take that tempo which avoids both disturbance and slackness, leading instead to repentance and joy (D. Manousis). Father Papagiannis finds that the most adequate tempo is that one which produces a vivifying atmosphere (‘ζωντάνια’). “Tempo is a mystagogy” («Ο χρόνος είναι μια μυσταγωγία»: M. Giannopoulos).

The Psaltic art could be defined as “movement of the soul” («Τί είναι η Ψαλτική; Κίνηση της ψυχής.» P. Neochoritis^{xxxviii}). The liturgical chant, as Spiritual music, ‘searches’ and brings God’s word to the heart of human being, and leads the soul of the listeners to God (M. Giannopoulos, I. Chasanidis, D. Manousis). Intervals, rhythm, tempo, mode of performance: everything is engaged in the same scope (P. Neochoritis). Simplicity of the melody paired to a mild and at the same time majestic way of performance characterizes the patriarchal style (Ch. Taliadoros, M. Giannopoulos). It is both an *ars pro homine & pro Deo*, since the singer is chanting before God, for his fellows and for his own sake (D. Manousis)^{xxxix}.

The Psaltic art is a service to the word of God, through music, leading the soul with the subtle waves of the melodies^{xl} in a rising movement from sadness (λύπη) to ‘bitter joy’ (χαρμολύπη^{xli}) and beyond, to the pure joy (χαρά), which finds its ultimate expression in the *silence* before God (‘η μή μουσική’, the ‘non-music’) (D. Manousis, P. Neochoritis)^{xlii}.

Conclusions and implications for further research

In liturgy, word and music fusion both on micro- and macro-structural levels, and it is the tempo which essentially contributes to this ‘perfect marriage’. The recordings and interviews of the chanters reveal, in the ground, an impressive, ‘monolithic’ singing-tradition, having at its surface almost infinite subtle variations. Although included into the theoretical discourse since the beginning of the 19th cent., tempo remains in its main aspects a matter conveyed to oral tradition. Tempo depends primarily on the place of the piece in the services as codified in the *Typika*, and on the genre/category/manner of

melopoeia the piece belongs to. However, plethora of other factors, both musical and extra-musical influence the actual tempo of a piece. Tempo in Church-singing can be only in part approached with the metronome. It is related to the breath, the pulse of the singer, and the subtle movements of the soul, which experiences God’s presence.

Further research on temporal experience could investigate the very slow, slow and the very fast tempo-degrees not included in the present study, further the recitative-style and variations due to local traditions. Tempo in solistic performances, compared to choral ones, including remarks about the use of the simple or composed time-unit^{xliii} and the hand-movements performed by the singers/conductor of the choir, is another theme worth of systematic investigation. A comparative study on selected pieces sung in- and outside the services would help to develop essential themes of the Psaltic art mentioned by the chanters at a theoretical level only, during the interviews for this study.

Exploring tempo in ecclesiastic chanting leads to the articulation of highly interesting interdisciplinary issues and to the unveiling of hidden temporal dimensions which touch the ‘a-temporal’.^{xliiv} However, in this attempt one has to be careful in translating concepts from one discipline to the other, especially when the temporality under examination concerns liturgical time, the “time of the Church,” the “time of Christ” (Chupungco, 2000, p. xix), “another time” (Eliade, 1959, p. 33). One should be reminded of “Cook’ s lament: “Perceptual psychologists assume that music is made out of notes” (cited in Aiello, 1994, p. 65).

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References

Music Psychology

- Aiello, R. (1994). *Musical Perceptions*. Oxford: Oxford University Press. Bloomington, Indiana: Indiana University Press.
- Aldwell, E., & Schachter, C. (1978). *Harmony and voice leading* (Vol. 1). New York: Harcourt Brace Jovanovich.
- Becker, J. (2004). *Deep Listeners: Music, Emotion, and Trancing*. Bloomington, IN: Indiana University Press.
- Berry, W. (1986). *Form in music* (2nd ed.). Englewood Cliffs, NJ.: Prentice-Hall.
- Brendel, A. (1977). *Nachdenken über Musik* [Thinking about music]. Munich, Germany: R. Piper & Co. Verlag.
- Clarke, E. F. (1985). Structure and expression in rhythmic performance. In P. Howell, P., I. Cross, & R. West (Eds.), *Musical structure and cognition* (pp. 209-236). London: Academic Press.
- Clynes, M., & Walker, J. (1982). Neurobiologic functions of rhythm, time and pulse in music. In M. Clynes (Ed.), *Music, mind and brain: The neuropsychology of music* (pp. 171-216). New York: Plenum Press.
- Cooper, G., & Meyer, L. (1960). *The rhythmic structure of music*. Chicago: University of Chicago Press.
- Dürr, W. (1966). Rhythm in music: a formal scaffolding of time. In J. T. Fraser (Ed.), *The voices of time* (pp. 180-200). New York: George Brazillier.
- Eliade, M. (1959). *The Sacred and the Profane. The Nature of Religion*. (W. R. Trask, Trans.) San Diego, CA: Harcourt Brace Janovitch.
- Epstein, D. (1985). Tempo relations: A cross-cultural study. *Music Theory Spectrum*, 7, 34-71.
- Feldman, J., Epstein, D., & Richards, W. (1992). Force dynamics of tempo change in music. *Music Perception*, 10 (2), 185-204.
- Friberg, A. (1991). Generative rules for music performance: A formal description of a rule system. *Computer Music Journal*, 15, 56-71.
- Gould, G., & Page, T. (Winter 1982-83). An interview (record). *The Piano Quarterly*, 120.
- Kendall, R. A., & Carterette, E. C. (1990). The communication of musical expression. *Music Perception*, 8(2), 129-164, 1990.
- Kirkpatrick, R. (1984). *Interpreting Bach's well-tempered clavier: A performer's discourse on method*. New Haven, CT: Yale University Press.
- Kramer, J. D. (1988). *The time of music: New meanings, new temporalities, new listening strategies*. New York: Schirmer Books.
- Lapidaki, E., & Webster, P. R. (1991). Consistency of tempo judgments when listening to music of different styles. *Psychomusicology*, 10 (1), 19-30.
- Lapidaki, E. (2000). Stability of tempo judgments in music listening. *Music Education Research*, 2(1), 25-44.
- Lapidaki, E. (2006). Temporal stability in repeated listening tasks. In M. Maroni, A. R. Addressi, R. Caterina, & M. Costa (Eds.), *Proceedings of the International Conference of Music Perception and Cognition* (pp. 1140-1148). Bologna, Italy: Bononia University Press.
- Lester, J. (1982). *Harmony in tonal music* (Vol. 2). New York: Alfred A. Knopf.
- Palmer, C. and Hutchins, S. (2005). What is musical prosody? (pp.246-278). In B. H. Ross (Ed.), *Psychology of Learning and Motivation* (Vol. 46). Amsterdam: Elsevier Press.
- Piston, W. (1978). *Harmony*. New York: W. W. Norton.
- Pöppel, E. (1990). Unmusikalische Grenzüberschreitungen? [Unmusical crossings of limits?]. In C. R. Pfaltz (Ed.), *Musik in der Zeit* [Music in time] (pp. 105-124). Basel, Switzerland: Helbing & Lichtenhahn.
- Reckziegel, W. (1961). *Musikanalyse: eine exakte Wissenschaft? [Musical analysis: an exact science?]*. In H. Heckmann (Ed.), *Elektronische Datenverarbeitung in der Musikwissenschaft* [Electronic data processing in musicology]. Regensburg, Germany: Gustav Bosse Verlag.
- Reinecke, H. P. (1974). *Vom musikalischen Hören zur musikalischen Kommunikation* [From musical hearing to musical communication]. In B. Dopheide (Ed.), *Musikhören* [Musical hearing]. Darmstadt, Germany: Wissenschaftliche Buchgesellschaft.
- Repp, B. H. (1992). A constraint on the expressive timing of a melodic gesture: Evidence from performance and aesthetic judgment. *Music Perception*, 10, 221-242.

- Repp, B. H. (1994). On determining the basic tempo of an expressive music performance. *Psychology of Music*, 22, 157-167.
- Sundberg, J., Verillo, V. (1980). On the anatomy of the retard: a study of timing in music. *Journal of the Acoustical Society of America*, 68, 772-779.
- Stravinsky, I., & Craft, R. (1980). *Conversations with Igor Stravinsky*. Berkeley, CA: University of California Press.

Byzantine Musicology

Theory of Byzantine chant

- Αποστολόπουλος, Θ. (2002). *Ὁ Ἀπόστολος Κώνστας ὁ Χίος καὶ ἡ συμβολὴ του στὴ Θεωρία τῆς Μουσικῆς Τέχνης*. IBM, Μελέται 4. Αθήνα.
- Χατζηθεοδώρου, Γεώργιος (). *Μέθοδος διδασκαλίας τῆς Βυζαντινῆς Ἐκκλησιαστικῆς Μουσικῆς*. Μέρος Δεύτερο, *Θεωρητικόν*. Νεάπολις Κρήτης: Εκδόσεις «Ὁ Μιχαὴλ Ἰ. Πολυχρονάκης».
- Χρῦσανθος εκ Μαδύτων (1832). *Θεωρητικὸν μέγα τῆς μουσικῆς*. Ed. Π. Πελοπίδης. Trieste: Τυπογραφία Μιχαὴλ Βαίς. Repr. Athens: Κουλτούρα.
- Id. (1996). *Μεγάλο Θεωρητικὸ τῆς Βυζαντινῆς Μουσικῆς*. Translation into Modern Greek & comments by Ανδρέας Βουτσινάς. 2 vols. Athens.
- Δεβρελής, Αστέριος (1989). *Πηδάλιον Βυζαντινῆς Μουσικῆς. Μέθοδος*. Thessaloniki.
- Επιτροπή 1888: *Ἐπιτροπὴ τοῦ Οἰκουμενικοῦ Πατριαρχείου ἐν ἔτει 1883. Στοιχειώδης διδασκαλία τῆς Ἐκκλησιαστικῆς Μουσικῆς, ἐκπονηθεῖσα ἐπὶ τῇ βάσει τοῦ ψαλτηρίου*. Constantinople. Repr. Athens 1978: «Κουλτούρα».
- Gabriel Hieromonachos (1985). *Abhandlung über den Kirchengesang*. Eds. Chr. Hannick/G. Wolfram. MMB, CSRM, 1.
- Γιακουμάκης, Ανδρέας (2002). *Συστηματικὴ διδασκαλία τῆς Βυζαντινῆς Μουσικῆς*. Τεύχος Α', *Ἀναγνωστικὸ*. Athens: Ἐκδόσεις Δόμος.
- Giannelos, Dimitri (1996). *La musique byzantine. Le chant ecclésiastique grec, sa notation et sa pratique actuelle*. Παρίσι, Montréal: L' Harmattan.
- Καράς, Σίμων (1982). *Μέθοδος τῆς Ἑλληνικῆς Μουσικῆς. Θεωρητικόν*. 2 vols. Athens: Σύλλογος πρὸς Διάδοσιν τῆς Ἑθνικῆς Μουσικῆς. MMB, CSRM: Monumenta Musicae Byzantinae, Corpus Scriptorum de Re Musica. Vienna 1985-: Österreichische Akademie der Wissenschaften.
- Παναγιωτόπουλος, Δ.Γ. (2003). *Θεωρία καὶ πράξις τῆς βυζαντινῆς ἐκκλησιαστικῆς μουσικῆς*. 7th ed. Athens: Ἀδελφότης Θεολόγων "Ὁ Σωτήρ".
- Pseudo-Johannes Damaskenos (1997). *Die Erotapokriseis zum Kirchengesang*. Eds. G. Wolfram/Chr. Hannick. MMB, CSRM, 5.

Liturgical books, chant collections, editions of the Holy Scripture & patristic texts

- Ευθυμάδης, Αβραάμ, Ἄρχων Μουσικοδιδάσκαλος του Οικουμενικοῦ Πατριαρχείου (1991). *Τριώδιον «φωναῖς αἰσῆς»*. Thessaloniki.
- Ιωάννης Πρωτοψάλτης (1903). *Εἰρημολόγιον καταβασίων*. Constantinople. Repr. Πολυχρονάκης.
- Καραμάνης, Αθανάσιος (1965). *Νέα Μουσικὴ Κυψέλη, ἀποτελουμένη ἐκ τριῶν τόμων*. Τόμος γ', μέρος α', Σεπτέμβριος – Δεκέμβριος. Thessaloniki. Repr. Thessaloniki 2000.
- St. Maximus Confessor. *Mystagogia*. P.G. 91, 657-718.
- Μηναῖα τοῦ ὄλου ἔνιαυτοῦ*. Vol. 1. Rome 1888.
- Νεκτάριος Μοναχὸς Ἱεροψάλτης, Γέρον του Λαυριωτικοῦ Κελλιοῦ «Ἅγιος Ἀθανάσιος» (2000). *Μουσικὸς θησαυρὸς τοῦ Ἑσπερινοῦ*. Holy Mountain.
- Novum Testamentum Graece* (1920). Ed. E. Nestle. 11th ed. Stuttgart.
- Παρακλητικὴ*. Athens: Εκδόσεις «Φῶς».
- Πέτρος Λαμπαδάριος & Ιωάννης Πρωτοψάλτης (1981). *Ἀναστασιαματάριον*. Athens: «Ζωή».
- PG: *Patrologia Graeca*. Ed. J.-P. Migne. Vol. 1, Paris 1857. Vols. 2-161, Turnhout.
- Pseudo-Dionysius Areopagita. *De mystica theologia*. P.G. 3, 997-1064.
- Septuagint* (1976). *The Septuagint Version of the Old Testament and Apocrypha*. With an English Translation by Sir Launcelot Lee Brenton. London: Samuel Bagster and Sons.
- Στανίτσας, Θρασύβουλος, Ἄρχων Πρωτοψάλτης της Αγίας του Χριστοῦ Μεγάλης Ἐκκλησίας (1969). *Μουσικὸν Τριώδιον*. Athens.
- Συλλειτουργικόν* (2006): *Συλλειτουργικὸν ἤτοι τάξις ἀναγνώστου καὶ ψάλτου*. 5th ed. Holy Mountain: Ἐκδοσις Ἱερᾶς Μονῆς Σίμωνος Πέτρου.
- Triodion* (1978): *The Lenten Triodion*. Transl. by Mother Mary and Archimandrite Kallistos Ware. London & Boston: Faber and Faber.
- Τυπικὸν τῆς τοῦ Χριστοῦ Μεγάλης Ἐκκλησίας*. Ed. Γεώργιος Βιολάκης. Athens: Publishing House Σαλιβέρος.

Byzantine Music, Hymnography, Liturgy, Art History

- Alexandru, Maria (2000). *Studie über die 'grossen Zeichen' der byzantinischen musikalischen Notation unter besonderer Berücksichtigung der Periode vom Ende des 12. bis Anfang des 19. Jahrhunderts*. Dissertation, 3 vols. University of Copenhagen.

- Ead. (2006). Αναλυτικές προσεγγίσεις και ιχνηλασία του κάλλους στη Βυζαντινή Μουσική. Ο Ευχαριστήριος Ύμνος Σὲ ὑμνοῦμεν. Αριστοτέλειο Πανεπιστήμιο Θεσσαλονίκης, Σχολή Καλών Τεχνών, Τμήμα Μουσικών Σπουδών. *Μουσική Θεωρία και ἀνάλυση – Μεθοδολογία και Πράξη*. Πρακτικά Συμποσίου, 29.09.-1.10. 2006, Θέρμη Θεσσαλονίκης. Ed. Κώστας Τσούγκρας. Thessaloniki: 317-329.
- Αλυγιάκης, Αντώνιος (1993). *Θέματα ἐκκλησιαστικῆς μουσικῆς*. Thessaloniki: Πουρναράς.
- Αρβανίτης, Ιωάννης (2003). Ἡ ρυθμικὴ καὶ μετρικὴ δομὴ τῶν βυζαντινῶν εἰρῶν καὶ στιχηρῶν ὡς μέσο καὶ ὡς ἀποτέλεσμα μίας νέας ρυθμικῆς ἐρμηνείας τοῦ βυζαντινοῦ μέλους. *Οἱ δύο ὄψεις τῆς ἐλληνικῆς μουσικῆς κληρονομιάς. Αἰθέρωμα εἰς μνήμην Σπυρίδωνος Περιστερῆ*. Πρακτικά Μουσικολογικῆς Συνάξεως 10-11 Νοεμβρίου 2000. Ed. Ευστάθιος Μακρῆς. Athens: Ἀκαδημία Αθηνῶν. Δημοσιεύματα τοῦ Κέντρου Ἑρεῦνης τῆς Ἑλληνικῆς Λαογραφίας, 18: 151-176.
- Bouvy, Edmond (1886). *Poètes et mélodes. Étude sur les origines du rythme tonique dans l'hymnographie de l'Église grecque*. Nîmes: Imprimerie Lafare Frères.
- Chardas, Constantin/Alexandru, Maria (2008). Functions and images in Greek art music utilizing Byzantine echoi. *Proceedings of the fourth Conference on Interdisciplinary Musicology (CIM08)* Thessaloniki, Greece, 2-6 July 2008. Ed. C. Tsougras. <http://web.auth.gr/cim08/>
- Χατζηγιακουμῆς, Μανόλης (1999). *Ἡ ἐκκλησιαστικὴ μουσικὴ τοῦ Ἑλληνισμοῦ μετὰ τὴν Ἄλωση (1453-1820). Σχεδιάγραμμα ἱστορίας*. Athens: Κέντρον Ἑρευνῶν & Ἐκδόσεων.
- Christ, W./Paranikas, M. (1871). *Anthologia Graeca Carminum Christianorum*. Leipzig : Teubner.
- Chungco, A. J. (ed. 2000). *Liturgical Time and Space*. Handbook of Liturgical Studies. Vol. V. Collegeville, MN: The Liturgical Press.
- Colosimo, Jean-François (2001). *Le silence des anges*. Paris : Desclée de Brouwer.
- Conomos, Dimitri (1974). *Byzantine Trisagia and Cheroubika of the Fourteenth and Fifteenth Centuries. A Study of Late Byzantine Liturgical Chant*. Thessaloniki: Patriarchal Institute for Patristic Studies.
- Follieri, Henrica (1963). *Initia Hymnorum Ecclesiae Graecae*. Vol. IV. Studi e Testi 214. Citta del Vaticano: Biblioteca Apostolica Vaticana.
- Giannelos, Dimitri (1987). *La musique Byzantine. Recherches sur la tradition orale XIXe et XXe siècle*. Dissertation, University Paris X-Nanterre.
- Hannick, Christian (1991). Probleme der Rhythmik des byzantinischen Kirchengesangs. Ein Rückblick auf die Forschungsgeschichte. *Rhythm in Byzantine Chant*: 1-19.
- Hierotopy. Studies in the making of sacred spaces*. Material from the International Symposium. Ed. Alexei Lidov. Moscow 2004: Radunitsa.
- Huglo, Michel (1963). La chironomie médiévale. *Revue de Musicologie*, 49, 155-171.
- Isar, Nicoletta (2004). Chorography (Chōra, chōros, chorós) – a performative paradigm of creation of sacred space in Byzantium. *Hierotopy*: 36-38.
- Jammers, Ewald (1962). *Musik in Byzanz, im päpstlichen Rom und im Frankenreich: Der Choral als Musik der Textaussprache*. Abhandlungen der Heidelberger Akademie der Wissenschaften, Phil.- hist. Kl. Heidelberg.
- Jeffery, Peter (1992). *Re-Envisioning Past Musical Cultures. Ethnomusicology in the Study of Gregorian Chant*. Chicago – London.
- Jordan, Robert H. (ed. 2000, 2005, 2007). *The Synaxarion of the monastery of the Theotokos Evergetis*. Vol. 1. September-February, Vol. 2. March to August & The Movable Cycle, Vol. 3. Indexes. Belfast Byzantine Texts and Translations, 6.5-7. Belfast Byzantine Enterprises.
- Jung, Annette (1991). The Kathismata in the Sofia Manuscript Kliment Ohridski cod. Gr. 814. *Cahiers de l'Institut du Moyen-Âge Grec et Latin*, 61, 49-77.
- Καραγκούνης, Κωνσταντίνος (2003). *Ἡ παράδοση καὶ ἐξήγηση τοῦ μέλους τῶν χειροβικῶν τῆς βυζαντινῆς καὶ μεταβυζαντινῆς μελοποιΐας*. IBM, Μελέται 7. Athens: Ἐκδ. Γρ. Στάθης.
- Καράς, Σίμων (1992). Κουκουζέλης
- Lidov, Alexei (2004a). Hierotopy. The creation of sacred space as a form of creativity and subject of cultural history. *Hierotopy*: 32-33.
- Id. (2004b). Spatial icons. The miraculous performance with the Hodegetria of Constantinople. *Hierotopy*: 124-131.
- Lind, Tore Tvarnø (1998). *Sangen fra det Hellige Bjerg*. 2 vols. Speciale-work. University of Copenhagen.
- Moran, Neil K. (1986). *Singers in Late Byzantine and Slavonic Paintings*. Byzantina Neerlandica, 9. Leiden.
- MMB: Monumenta Musicae Byzantinae. Copenhagen 1935-
- Παναγιωτίδης, Παναγιώτης (2003). The Automelon-Prosomoion *O marvellous wonder!* In the First Authentic Mode and its Forms of Composition. Id. *Θέματα Ψαλτικῆς. Μελέτες στὴν Ἐκκλησιαστικὴ Μουσικὴ. Ψαλτικὰ Ανάλεκτα*, 2. Κατερίνη: Ἐκδόσεις Ἐπέκτασι: 161-192.
- Παπαδόπουλος, Γεώργιος (1890). *Συμβολαὶ εἰς τὴν ἱστορίαν τῆς παρ' ἡμῖν ἐκκλησιαστικῆς μουσικῆς*.

- Athens: Τυπογραφείο Κουσουλινού & Ἀθανασιάδου.
- Parkes, M.B. (1992). *Pause and Effect. An Introduction to the History of Punctuation in the West*. Aldershot Hants: Scolar Press.
- Pöhlmann, Egert (1970). *Denkmäler altgriechischer Musik*. Erlanger Beiträge zur Sprach- und Kunstwissenschaft. Nürnberg: Verlag Hans Carl.
- Raasted, Jørgen (1958). Some Observations on the Structure of the Stichera in Byzantine Rite. *Byzantion*, 28, 529-541.
- Id. (1966). *Intonation Formulas and Modal Signatures in Byzantine Musical Manuscripts*. MMB Subsidia 7. Copenhagen: Ejnar Munksgaard.
- Rhythm in Byzantine Chant. Acta of the congress held at Hernen Castle in November 1986*. Ed. Chr. Hannick. Hernen 1991: A.A. Bredius Foundation.
- Romanou, K. (1990). A New Approach to the Work of Chrysanthos of Madytos: The New Method of Musical Notation in the Greek Church and the Μέγα Θεωρητικόν τῆς Μουσικῆς. *Studies in Eastern Chant*, 5, 89-100.
- Schlötterer, R. (1991). Einige allgemeine Überlegungen zur Frage des Rhythmus im byzantinischen Kirchengesang. *Rhythm in Byzantine Chant*: 55-65.
- Στάθης, Γρηγόριος (1980). *Πέτρος Πελοποννήσιος (1735 περ.-1778)*. Βυζαντινοὶ καὶ μεταβυζαντινοὶ μελοποιοί, 4. Ψάλλει Χορὸς Ἱεροσολιτῶν μετὰ Χοράρχην τὸν Ἄρχοντα Πρωτοψάλτην Θερασύβουλον Στανίτσαν. IBM. Athens. LP records and booklet.
- Id. (1992). *Οἱ ἀναγραμματισμοὶ καὶ τὰ μαθήματα τῆς βυζαντινῆς μελοποιίας*. IBM, Μελέται 3. 2nd ed. Athens: Ἐκδ. Μητροπολιτῆς Κοζάνης Διονύσιος καὶ Γρ. Στάθης.
- Ștefan, Răzvan-Constantin, Deacon. Περί του δοξαστικού *Cu cuvinte de aur* του Dimitrie Suceveanu. «Χρυσέοι ἐπεσι», ἓνα στιχηρό εἰς τιμὴν τοῦ Ἁγίου Ἰωάννου Χρυσοστόμου στη διαχρονικὴ του ἐξέλιξη: Παλαιογραφικὲς & αναλυτικὲς ἀναζητήσεις. Ομάδα Παλαιογραφίας Βυζαντινῆς Μουσικῆς ἀπὸ το Τμήμα Μουσικῶν Σπουδῶν τοῦ Ἀριστοτελείου Πανεπιστημίου Θεσσαλονίκης. Επιμ. Μ. Alexandru: § 3.8. Forthcoming in: *Byzantine Culture*, Proceedings of the First International Conference of the American Society of Byzantine Music and Hymnology, Athens, 10-15th September 2007.
- Taft, Robert, S.J. (1978). *A History of the Liturgy of St. John Chrysostom*. Vol. II. *The Great Entrance. A History of the Transfer of Gifts and other Pre-anaphoral Rites*. 2nd ed. Orientalia Christiana Analecta 200. Rome: Pontificium Institutum Studiorum Orientalium.
- Id. (1988). Mount Athos: a late chapter in the history of the Byzantine Rite. R. Taft, *Liturgy in Byzantium and Beyond*. Variorum: Hampshire – Vermont: Ashgate Publishing, 1995: 179-194.
- Id. (1992). *The Byzantine Rite. A Short History*. American Essays in Liturgy. Collegeville Minn.: The Liturgical Press.
- Τρεμπέλας, Παναγιώτης Ν. (1949). *Ἐκλογή ἑλληνικῆς ὀρθοδόξου ὑμνογραφίας*. Βιβλιοθήκη Ἀποστολικῆς Διακονίας, 20. Athens.
- Troelsgård, Christian. *Inventory of Microfilms and Photographs in the Collection of Monumenta Musicae Byzantinae*. Database of the MMB: <http://www.igl.ku.dk/MMB/catbyz.htm>
- Id. (1999). Musical notation and oral transmission of Byzantine chant. *Classica et Mediaevalia*, 50, 249-257.
- Wanek, Nina-Maria. *Nachbyzantinischer liturgischer Gesang im Wandel. Studien zu den Musikhandschriften des Supplementum Graecum der Österreichischen Nationalbibliothek*. Veröffentlichungen zur Byzanzforschung, Vol. XII. Vienna: Verlag der Österreichischen Akademie der Wissenschaften.
- Wellesz, Egon (1962). *A History of Byzantine Music and Hymnography*. 2nd ed. Oxford: Clarendon Press.
- Wolfram, Gerda (1984). Ein neumiertes Exapostellarion anastasimon Konstantins VII. *Βυζάντιος*. Festschrift für Herbert Hunger zum 70. Geburtstag. Eds. W. Hörander/J. Koder/O. Kresten/E. Trapp. Vienna: Ernst Becvar: 333-338.
- Zannos, Ioannis (1994). *Ichos und Makam. Vergleichende Untersuchungen zum Tonsystem der griechisch-orthodoxen Kirchenmusik und der türkischen Kunstmusik*. Orpheus-Schriftreihe zu Grundfragen der Musik. Bonn: Orpheus-Verlag GmbH, Verlag für systematische Musikwissenschaft GmbH.

Lexica

- ODB: Oxford Dictionary of Byzantium* (1991). Eds. A. Kazhdan/A.-M. Talbot/A. Cutler/T.E. Gregory/N. Ševčenko. 3 vols. New York - Oxford: Oxford University Press.
- OLD: Oxford Latin Dictionary* (1968). 2 vols. Oxford: Clarendon Press.
- Lampe, G.W.H. (1961). *A Patristic Lexicon*. Oxford: Clarendon Press.
- Liddell, H. G./Scott, R./Jones, H. St./McKenzie, R. & alii (1968). *A Greek-English Lexicon. With a Supplement*. Repr. 1990. Oxford: Clarendon Press.

Pearsall, Judy/Trumble, Bill (1996). *The Oxford English Reference Dictionary*. 2nd ed. Oxford – New York: Oxford University Press.

Τολίκα, Ολυμπία (1993). *Επίτομο εγκυκλοπαιδικό λεξικό της Βυζαντινής Μουσικής*. Athens: Ευρωπαϊκό Κέντρο Τέχνης.

ⁱ Χειρονομία, lit. ‘hand law’ = art of conducting the singing/choir in the context of a tradition where the oral element predominates. It functioned as a sort of “gestic or mnemonic notation” (Jordan [ed. 2000]: 573), consisting in specific movements/positions of the fingers/hand, which conveyed information about tempo, rhythmical patterns, ornaments, dynamics, articulation, character. Cf. Moran 1986. Huglo 1963. Alexandru 2000: I, 239-286

ⁱⁱ Cf. main issues on this theme in the Proceedings of the Congress *Rhythm in Byzantine Chant* (Hannick, ed. 1991).

ⁱⁱⁱ Cf. Αποστολόπουλος 2002: 226-230. Παναγιωτίδης 2003. Alexandru 2000: I, 246-274.

^{iv} For details on the systematization of the theory of Greek ecclesiastic chant as well as the simplification and development of the neumatic notation, cf. Romanou 1990. See also Χατζηγιακουμής 1999: 93-110.

^v Cf. Χρύσανθος 1832: 146. See also Alexandru 2000: I, 266-271.

^{vi} «Ἀγωγή δὲ τοῦ ὀρθοῦ εἶναι ταχύτες ἢ βραδύτες τῶν χρόνων»: Χρύσανθος 1832: § 195. In the following paragraphs (196-197), the same author mentions the traditional changes in tempo which occur inside the *cheroubika*, *koinonika* and other pieces, when passing or returning from the *kratemata* they contain. To this end he introduces the initial of the word χρόνος, superposed by an *arsion* or a *gorgon*,

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indicating the shift to a slower or a faster tempo, respectively. Further symbols used in later theoretical writings to indicate different tempo-levels, are derived from these two signs. Cf. also Giannelos 1996: 211.

^{vii} Dated by Bjarne Schartau: cf. Troelsgård, *Inventory*.

^{viii} Cf. Alexandru 2000: I, 271.

^{ix} «Ἡ ἀπόλυτος διάρκεια τῆς χρονικῆς μονάδος ἢ προσδιορίζουσα τὴν ταχεῖαν ἢ βραδεῖαν κίνησιν καλεῖται ἀγωγή»: Επιτροπή 1888: § 10.

^x Cf. *ibid.* and Giannelos 1996: 210.

^{xi} Cf. fig. 1 (Commission of 1881/3) with Χατζηθεοδώρου Jahr: 56-57 and Ευθυμιάδης 2006: 59-62. Cf. Δεβρελῆς 1989: 78. Cf. Γιακουμάκης 2002: 39-40.

^{xii} See also Giannelos 1996: 212.

^{xiii} Cf. e.g. Ευθυμιάδης 1991.

^{xiv} Cf. e.g. Καραμάνης 1965.

^{xv} Cf. e.g. Νεκτάριος Μοναχός Ιεροψάλτης 2000. We thank Mr. P. Chatzipapas for this piece of information.

^{xvi} A transcription of the musical examples into staff-notation is supplied in [Annexes I,C,1-12](#).

^{xvii} The *kekragaría* are sung on daily basis. For the *kathismata & anastasima eulogetaria*, cf. Αλυγιζάκης 1993: 87-88. For the former, see also the historical and analytical study by Jung 1991, especially p. 55 & 68, where *Τὴν ὠραιότητα* and one of its *prosomoía* are analyzed according to the ms Kliment Ohridski cod. Gr. 814 from A.D. 1720. Cf. also the references given by Follieri 1963: IV, 106-107 to a multitude of *prosomoía* for this piece. Few *prosomoía* for the same *kathisma* are mentioned already in the Evergetis Synaxarion (ed. Jordan 2007: 154-155). For the use of *Τὴν ὠραιότητα* at the end of the *Chairetismoi*-office, cf. Τυπικόν, ed. Βιολάκης: 335. The text of this troparion is also included among the paradigms for *kathismata* in Christ/Paranikas 1871: 56 (with division into *kola*) and in Τρεμπέλας 1949: 145 (presumably belonging to the 2nd period in the development of the Byzantine hymnography, 5th-7th cent.: cf. *ibid.* 1. The text is provided only with asterisks indicating the cadential places).

^{xviii} Στάθης 1980. Χατζηγιακουμής 1999: 76-110. Τολίκα 1993: 152.

^{xix} See especially Giannelos 1987: 226-228, where the author speaks about characteristic, although almost imperceptible, *accelerandi-rallentandi*, as well as about the *parlando rubato* style he observed in the performances of his informants. One of them, the first chanter of St. Sophia in Thessaloniki Mr. Charilaos Taliadoros, kindly participated also in the present study. In a future research one could compare the tempo used in these two recordings which are separated by a span of 20 years. Another highly original ethnomusicological approach to Byzantine chant is offered by Lind 1998. For the aid of Ethnomusicology in the study of ecclesiastical chant, cf. Jeffery 1992.

^{xx} Cf. also Αλυγιζάκης 1993: 88. For some further analyses of this piece and its transformation into Greek art music by Yannis Papaioannou, cf. Chardas/Alexandru 2008.

^{xxi} In the list included at the end of Stanitsa's *Triodion* (1969: 338-339), for the «Κεκραγάρια σύντομα στιχηραρικά», the tempo '88-92' is suggested, while the *kathismata* bear the indication '144'. We should also mention, that Father K. Papagiannis and M. Giannopoulos wished to perform some of the pieces also from Father Papagiannis' own editions (*Μουσική Παρακλητική*, vols. 1 & 3, Thessaloniki, University Studio Press), because of the very careful matching of textual and musical structure,

while Th. Kordellidis sung the *kathisma* from the *Anastasimatarion* of his teacher Ch. Taliadoros (*Πρωτότυπον Αναστασιατάριον*, 2nd ed., Thessaloniki 2001), because of a higher degree of familiarity with this book.

^{xxii} Cf. Parkes 1992: 65, 70, 97, 114.

^{xxiii} A detailed textual, metrical and musical analysis of old Byzantine troparia, paired with the collation of medial signatures and punctuation marks from a large number of mss, enabled J. Raasted to observe that "Structure of hymns can be viewed from at least three different points: structure of *thought* (the train of thought), *syntactic* (grammatical structure), and structure of the *music*. These structures may coincide – but they do not have to." (Raasted 1958: 529). Especially in the *prosomoia*, musical and textual structure might diverge (*ibid.*: 532). The same scholar created a catalogue of "means to establish the structure of a hymn", comprising: "1) Punctuation in the MSS. 2) Medial signatures. 3) Cadences and other purely musical details (...). 4) Isosyllabism, rhyme and other linguistic designs. 5) Analysis of the syntactical data" (*ibid.*). In their turn, the punctuation marks occurring in musical mss mainly from the Byzantine period, can be divided into syntactical, musical or metrical, a distinction which becomes lucrative in cases where the different structures of a hymn do not coincide. (cf. *ibid.*: 533). See also Raasted 1966: 56-60. The major relevance of the dots occurring in Byzantine musical manuscripts for the understanding of the metrical structure of the hymns was signalized by Cardinal J.B. Pitra (1812-1889): cf. Bouvy 1886: 266-268 and Hannick 1991: 2. See also Τρεμπέλας 1949: p. νσ' with note 1 and νζ'. Furthermore, the dotting in Byzantine liturgical books and chant-collections is related to the venerable tradition of *kanonarchema*, which consists in the reciting of each *kolon* of a *troparion*, usually by a young monk with the office of a *kanonarches*, before its choral musical performance: cf. Troelsgård 1999.

^{xxiv} Cf. in this sense Raasted 1958: 529 and the bibliography mentioned in Alexandru 2006: 320, note 38.

^{xxv} Two of the chanters referred *expressis verbis* to metrics: M. Giannopoulos when explaining the metrical structure of the *anastasima eulogetaria*, and D. Manousis generally mentioning metrics and rhythmical feet in connection with the *kathisma Τὴν ώραίότητα*.

^{xxvi} Cf. Αρβανίτης 2003: 152 (about the melody helping to understand the metrical structure of a hymn) and 156 ("The verse acquires meter through the melody": «Ο στίχος αποκτά μέτρο μέσω του μέλους»).

^{xxvii} For some more details about analysis of Byzantine chant, cf. Alexandru 2006. For the metrical analysis, cf. also Wolfram 1984: 334.

^{xxviii} Cf. Στάθης 1992: 37-46 *et passim*.

^{xxix} For the Great Entrance, cf. Taft 1978. For the Byzantine cheroubika, cf. Conomos 1974 and Καραγκούνης 2003.

^{xxx} The *Τυπικόν* is the liturgical book which comprises "a liturgical calendar to which have been added instructions for each day's service": *OBD* 1991: III, 2131(-2133). For the history of the *Typikon*, cf. Taft 1992 & 1988. See also Jordan (ed.) 2000, 2005, 2007.

^{xxxi} In monasteries, the degree of festivity in the celebration of different Saints is also reflected by the place foreseen in the *Typikon* for some of their offices. Thus, the celebration takes place in the *katholikon* or in the *parekklesion*, depending on whether the Saint had an own *apolytikion* or not (I. Chasanidis).

^{xxxii} See also Ευθυμιάδης 2006: 53-54, about the close connection between the textual accents and the music: "The very nature of this chant, with its rising and lowering of the voice, with the sharpness and lowness of the tones, replaces and at the same time underlines the accent of each word."

^{xxxiii} Cf. Χατζηγιακουμής 1999: 83-84.

^{xxxiv} See also Wellesz 1962: VIII: "It is impossible (...) to consider the texts apart from the music. The fusion is complete: the texts cannot be judged apart from the melodies nor the melodies apart from the words to which they were sung."

^{xxxv} Cf. Chupungco 2000.

^{xxxvi} P. Neochoritis compared the way a singer structures the chant at the Mattins-service, from low beginning until the apex is reached at the Great Doxology, with the mode an athlete constructs the warming-up.

^{xxxvii} Ch. Taliadoros underlined the importance of the *doxastika* included in the offices of Vespers and Mattins, as pieces which "comprise the whole sense of a feast", like a true *Gospel*" («το δοξαστικό περιέχει όλο το νόημα της εορτής: είναι *Ευαγγέλιο*»). Constantinos Pringos was mentioned as the famous singer of the 20th cent. who excelled in this category of chants. The breathtaking atmosphere created by the antiphonic singing of Pringos and Stanitsas, where the implacable rhythmical pulse passed from the *protopsaltis* to the *lampadarios* (first and second chanter) and to the congregation, was evoked by M. Giannopoulos. Lykourgos Angelopoulos sees in the achievement of this unity of pulse among chanters and listeners one of the most important *desiderata* in choral training.

^{xxxviii} See also the motto of Δεβερελής 1989: «Μουσική, η γλώσσα της ψυχής» ("Music is the language of the soul").

^{xxxix} Cf. in this context Wellesz 1962: 58.

^{xl} I. Chasanidis characteristically said: "these notes aren't soulless. They have an energy. This music is 'wave', it's not 'scale'. All the art lies in the passing from one tone to the other" («Αυτές οι νότες δεν είναι άψυχες. Έχουν ενέργεια.

Είναι κύμα αυτή η μουσική, δεν είναι σκαλί. Όλη η μαστοριά είναι το πέρασμα από έναν φθόγγο στον άλλο»)

^{xli} Cf. Lampe 1961: 1519.

^{xlii} Cf. See in this context also Pöhlmann 1970: 16, 106-107 and the *cheroubikon* for Holy Saturday *Σιγησάτω πάσα σάρεξ βροτεία*. Καράς 1992: 12-14. See, furthermore, Lampe 1961: 1232, lemma «σιγή», 4, about the inexpressible Godhead, especially the quotations from St. Maximus Confessor's *Mystagogia* (speaking about the 'most eloquent silence': *πολύφθογγος σιγή - silentium vocalissimum* [PG 91: 671-672 C]), and from *De mystica theologia* attributed to St. Dionysius Areopagita (*ὁ υπέρφωτος τῆς κρυφιομύστου σιγῆς γνόφος - caligo plus quam lucens silentii arcana docentis* [PG 3: 997-998 C & Lampe 1961: 317]). Cf. also Colosimo 2001.

^{xliii} For the simple and the composed time unit (*χρόνος πρώτος/απλός* and *χρόνος σύνθετος*) which would correspond in our transcriptions to the crotchet and the half note respectively, cf. Παναγιωτόπουλος 2003: § 68. M. Giannopoulos suggested that he is following the simple time unit in chanting.

^{xliiv} Cf. in this context Lidov 2004a&b. Isar 2004.