

II *Echoi* and *Makams* – Rhythmic Cycles and *Usûls*

The main identifying elements of compositions in modal traditions, are the names of the *echos* or the *makam*, and the rhythmic cycle that governs it¹. Another important element, is the study of its melodic behaviour (its modulations and movement between *makams*) and the rhythmic variations between its different parts. Secular music manuscripts offer interesting information on these topics. Listed below, are some observations which bring forward new elements, thus contributing to research on theoretical issues. The first direct finding is that two time periods can be clearly distinguished. During the first, from the 15th through to the 17th century, the scribes give only the *echos* in the heading of each piece, either with its initial *martyria* or with the use of letters (*echos* α' , β' and so on, except for *varys* which is given in words). Any kind of reference to *makam* and *usûl* is absent.

During the second period, that is, from the 18th century onwards, a qualitative differentiation appears: the *makam* and the *usûl* are mentioned in each piece and a more explicit reference to the genre of each composition is made, thus forming a more complete identity for each piece. Concerning theoretical treatises, in the early 18th century, Panagiotis Chalatzoğlu (Ivion 968, 731-740) first attempts the corresponding of *echoi* to *makams*, and makes the first presentation of the rhythmic cycles of secular music, the *usûls*. Around two decades later, Kyrillos Marmarinos, continuing the work of Chalatzoğlu, goes a little further and also gives the extended *apechemata*, that is, the short musical phrases exposing the nature of around seventy *makams*. Additionally, in one of his compositions (Panteleimonos 994, 323v), *makam Hüseyinî* is given in correspondence to *echos* plagal I.

However, clear indications of the *makam*, the *usûl* and often the genre as well, are given for the first time in the four autograph collections of Petros. They are

¹ The following references are examples of works from the very broad and very rich bibliography on the topic: Alygizakis 1990; D' Erlanger 2001; Ezgi 1933- 1953; Feldman 1996: 195-299; Mavroidis 1999; Özkan 1987; Tala'i 2000; Jürgen Elsner & Risto Pekka Pennanen (ed.), *The structure and idea of maqām*, University of Tampere, Tampere 1997; Habib Hasan Touma, *The Music of the Arabs*, Portland 1996; Ungay 1981; Yekta 1922; Signell 1977; Owen Wright, *The Modal System of Arab and Persian Music, A.D. 1250-1300*, London 1978, Ioannis Zannos, *Ichos und Maqam*, Bonn 1994, Amir Hosein Pourjavadiy, *Nasimi, Nasim-I Tarab, The Breeze of Euphoria (a Sixteenth Century Persian Music Treatise)*. Teheran: Iranian Academy of Arts, 2007. See also the relevant articles of Mahmoud Guettat, Thomas Apostolopoulos, Markos Skoulios, Tufic Kerbage, Walter Feldman, Fikret Karakaya, Daruishi Talai, in the collaborative work W. Feldman, M. Guettat, K. Kalaitzides (ed.), *Music in the Mediterranean*, "En Chordais", Project MediMuses in the context of European Union programme Euromed Heritage II. Thessaloniki, as well as those of Karl Signell (pp. 47-58), Scott Marcus (pp. 89-92) in Danielson, V., Marcus, S., Reynolds, D., (ed.) 2002, *The Garland Encyclopaedia of World Music, Volume 6, The Middle East*, New York and London; Tanrıkorur 2003:85-105, in chapter "Türk Müsikişinde Usûl-vezin Münâsebeti". G. Smanis, 2011.

given, either by name in Gritsanis 3, LKP (dossier) 60 and LKP (dossier) 137, or with the use of symbols in RAL 927. In the late 18th century, *makam* indications are found in MSS Iviron 1038 and Gennadius 725, and both *makam* and *usûl* indications are found in MSS RAL 653 and LKP 19/173 (the scribe of the latter being Petros Byzantios), a custom which was subsequently followed by the rest of the scribes.

Finally, it is worth noting that the scribes never mention the *makams* or the rhythmic cycles in folk songs, neither are they mentioned in the transcriptions of the 16th and 17th centuries, nor in those of the 19th century. Indications of *makams* and *usûls* are also generally absent from the vocal genres of Ottoman music, as well as from the various songs labelled “persikon” and “atzemikon”. It seems that, unlike instrumental compositions, the identity of each work in such cases was adequately determined by the incipit, making a reference to the *makam* unnecessary.

Echoi and Makams

Primary and Secondary Makams

It is known that the modal system did not remain static but evolved over the course of centuries. This had a direct impact upon the use and categorisation of the *makams*, which are the core of the theoretical system. Some of them gradually fell into disuse, while others appeared or were invented along the way. Furthermore, in some periods, certain *makams* were more important than others. This is not only demonstrated in the whole of the theoretical tradition, but is also understood from the study of the music collections of the time, with or without notation². The information obtained from the research embarked upon for this book, confirms the above claims, though the findings are limited to the 18th century. Before that, the manuscripts do not make mention of the *makam* or the *usûl*. With 1830 as the end chronological boundary of this study, any attempt at painting a picture of the 19th century would be incomplete. In addition, there is satisfactory information from other sources on the 19th century regarding the *makams* and *usûls*, therefore any contribution offered by this work would be of lesser importance.

The sources examined here, are mainly the four manuscripts of Petros Peloponnesios, as well as Panteleimonos 994 (one *makam* reference), Timios Prodromos 93, 251r (one *makam* reference), Gennadius 725 (two references), and Iviron 1038 (one reference). Their content concerns Ottoman music, except for the two Phanariot songs of Gennadius 725. Petros, with very few exceptions, always mentions the *makam*, and fifty-one *makam* names in total are found in his manu-

² See related, Feldman 1996:234-236 and Wright 1992.

scripts. He usually omits the *makam* name in vocal compositions, as well as in some *semâ'îs*, which are in the same *makam* as the *peşrev* presented immediately before them. From the fifty-one *makams* named by Petros, some appear in higher frequency (listed immediately below), which indicates their importance in the art music practice of the court:

hüseynî (35 works)³, *bicâz* (25), *'uşşak* (18), *nevâ* (17), *rast* (17).

Some others appear less frequently:

segâb (13), *evîç* (13), *beyâtî* (13), *nihavent* (12), *isfabân* (11), *sabâ* (11), [*hüseynî*] *'aşîrân* (11), *büzzâm* (10), *'arazbâr* (9), *dügâb* (9), *acem* (8), *irak* (8), *mahûr* (8), *nühüft* (8), *müste'âr* (7), *yegâb* (6), *bestenigâr* (6), *sazkâr* (6), *râbatü'l-ervâb* (6), *nikrîz* (5), *büzürk* (5), *pengâb* (5), *bisâr* (5).

And finally, others are more rare:

bûselik (3), *şehnâz* (3), *çârgâh* (2), *kürdî* (2), *muhayyer* (2), *muhayyer bûselik* (2), *rehâvî* (2), *râbat-fezâ* (2), *nişâbûr* (2), *'acem-'aşîrân* (2), *şehnâz-bûselik* (2), *sultânî-irak* (2), *sünbüle* (1), *tâbir* (1), *havî* *acemî* (1), *havî* (1), *bümayûn* (1), *baba tâbir* (1), *acem kürdî* (1), *nevgûlat* (1), *nevrûz acem* (1), *necd* (1), *karcığar* (1).

It is difficult to draw conclusions about the importance of the *makams* in each century with surety, since the dated pieces from the 15th and 16th centuries are very few – two and ten respectively – while there are twenty-six from the 17th century. Moreover, only the compositions by known composers allow for accurate dating. The anonymous compositions, which occupy a significant part of the transcribed repertoire, remain undated.

Petros does not distinguish primary and secondary modal entities in his transcriptions. He names them all *makams*, even though many of them were initially *terkîbs*⁴. In the middle of the 17th to the early 18th century, the term denoted a type of scale, but in no way did it mean a “*makam*”. According to Cantemir, *mürekkkeb* (mix) and *terkîb* (combination) defined the modal entity more precisely, and he criticised his contemporaries for ignoring the distinction between *makam* and *terkîb*. Indeed, he writes in his theory book that:

“due the fact that a number of *terkîbs* are more prominent than others, among musicians it is a widespread error that they are named “*makam*”... Nevertheless it cannot be denied that every *terkîb* is subordinate to a major *makam*”.⁵

³ The dominant presence of *hüseynî* is also confirmed by other musical collections of the time. See Feldman 1996:234-236.

⁴ Here the term *terkîb* denotes a modal entity, and not a structural part, as examined in the chapter “Genres of Secular Music”.

⁵ See related Feldman 1996:231-232, containing translated quotes in English from Cantemir’s work, with the relevant citations.

The way the term *makam* is used by Petros, already evident by the third quarter of the 18th century, witnesses its universal use, the gradual elimination of the term *terkîb* as a modal entity, and its concurrent conversion to a component of the form of instrumental compositions. A similar view on the topic of the establishment of the term *makam* in all *terkîbs* is also expressed by W. Feldman:

“Throughout the 18th century we can see the gradual elimination of the various categories of modal entities, resulting in an “open-ended” modal system by the mid-19th century through Turkey and much of the Ottoman Empire”.⁶

This transitional period is highlighted in MS Gritsanis 3 and especially on ff. 188v - 196r. Therein, as was also noted in the chapter “Genres of Secular Music”, the term *terkîb* is used with both meanings: as a modal entity and as a component of the form of a composition. More specifically, in the *bicâz nev kislât fabte peşrev* of Kemânî Yorgi, Petros lists around thirty-one *terkîbs* in an equal number of different *makams*, in addition to the main *makam* of the *peşrev*⁷. The *exegesis* of some *terkîbs* from this particular work by Thomas Apostolopoulos proves the above and leads to a number of observations:

- a) Each *terkîb* extends over two or four rhythmic cycles.
- b) The listing of so many *terkîbs* in so many *makams*, does not adhere to the logical development of a *peşrev*.
- c) It is obvious that the treatment of the melody goes beyond the logical structure of a *peşrev* and is more similar in its characteristics to a *küll-i külliyyât peşrev*.

⁶ Feldman 1996:231 and 2005b:231-234. This topic is also mentioned in the chapter “Genres of Secular Music”, pp. 206-207.

⁷ See the analytical description in the chapter “Genres of Secular Music”, pp. 206-207.

Mûlazime of hicaz peşrev nev kislât, Kemânî Yorgi, [echos plagal II], fabte: Gritsanis 3, 188v



Repetition of *mûlazime*



4th *terkib* of *mülazime: kürdî*8th *terkib* of *mülazime: büseyrî*

Modulation - Transposition

With the exception of two manuscripts, LKP (dossier) 60 & LKP 2/59a, clear written indications of modulation or transposition are generally absent from the sources. Relevant conclusions are drawn only by locating *phthorai* and by the meticulous study of the melodic behaviour of each composition. For example, the *bestenigâr peşrev* of Hânende Zacharias (Gritsanis 3, 5v) is lacking relevant written indications. Its *exegesis* into the *New Method* by Thomas Apostolopoulos, makes it possible to recognise transitional movements to *hüseyinî* and to *'uşşak*, as well as a longer transition to *hicâz* in the *son hâne*.

Son hâne *Hüseyinî*



Hicâz





'Uşşak




The movement to *hicâz* is discerned in the manuscript by the existence of a chromatic *phthora*, while the other two transitions are deduced by the movement of the melody, the dominant notes and the cadences.

Below is another example, two centuries earlier, from the *tasnîf persikon* by Abdülkadir Marâghî. The second large section of the piece is in *echos* II – *makam hüzzâm*. The last part of that section is dominated by two lengthy transitions to *echos* plagal I – *makam hüseyinî*. The transitions are recognised by the melodic behaviour, since written indications or *phthorai* do not exist in the exegesis of the piece, with the exception of the two *martyriai* of the chromatic and diatonic genus:



It is worth noting that Petros Peloponnesios, in MS LKP (dossier) 60, defines the initial note of each composition, as well as the initial note of each of its parts, explicitly by name:

- 3r The *dügâb devri kebîr* from *dügâb*
the *mülazime* from *dügâb*
3v *orta hâne* from *rast*
2nd *terkîb* from *şelmâz* and *hicâz*
24r *Hicar tevîr*, starts from *büseynî*
the *mülazime* from *hicâz*
2nd *terkîb* from *büseynî*
24v the *Son hâne* from *büseynî*

Similar information is given in almost the whole manuscript. In some cases, he names the movements to other *makams*:

- 27r the *son [hâne]* from *nevâ* with *beyâtî* and *nihavent*
2nd *terkîb* from *çârgâb* with *nihavent*
41r the *son hâne* from *dügâb* with *hicâz*
47v the *son hâne* from *nevâ* with *nihavent*

In nine out of fourteen cases where Petros annotates the movement to another *makam*, he does so at the last part of the instrumental composition, the *son hâne*⁸. The practice of the modulation taking place in the last *hâne* existed in the 18th century, and Petros's transcriptions confirm that.

In fragment LKP 2/59a, Gregorios continues and improves the method of representing movements to other *makams*, in relation to the initial presentation found in LKP (dossier) 60. He is more analytical and descriptive, and as already discussed, that may be indicative of a possible educational dimension to this particular work⁹. His main differentiation is that within the score, the annotations refer only to *echoi*, either by name or by the use of *phthorai*.

Another *terkîb* of *ser hâne* [*echos*] plagal I *Terelelele*

Another *terkîb* of *orta hâne* *Terelelele*

Makam names are used in the headings of the pieces, and sometimes also in the explanatory texts inserted at the beginning of, or within a piece. The only place he does not follow that rule is in the note:

5th *hâne*, the last one, starts [with] *büzzâm Temtirilelele* (2v).

⁸ See relevant reference in chapter "Genres of Secular Music", pp. 209-210.

⁹ It should probably be taken as a given that Gregorios had taken manuscript LKP (dossier) 60 into consideration, since it was found in the remnants of his archive which are now part of the library of Konstantinos Psachos of the University of Athens.

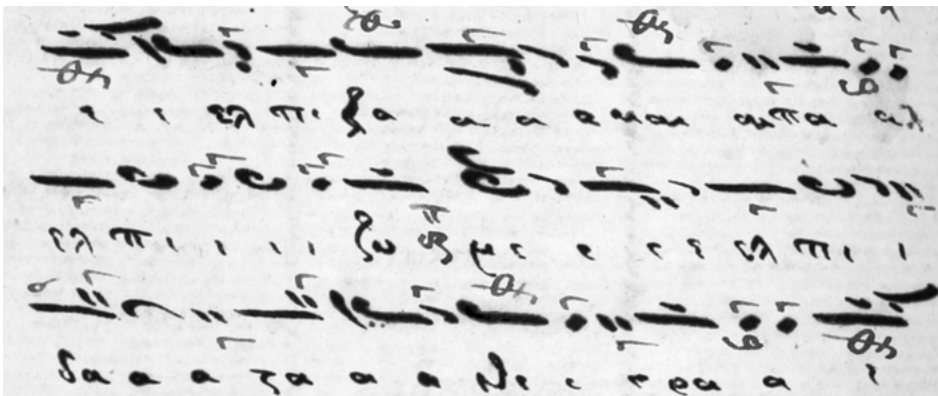
In the plain text descriptions of modal movements, he uses the names of the notes of Eastern music¹⁰, and almost never those of ecclesiastical music. Analytically, his descriptions are as follows:

- 1r [...] *Beyâtî* starts from *echos* IV and it finishes on *aneanes* and instead of *eviç* it touches *acem* a few times touches *eviç* and the *phthora* of *neanes* is placed so to know when it has to be *acem* and when *eviç*; this *peşrev* also mixes in *hüzzâm* when you see the *phthora* of *neanes* on *nevâ* then it is *hüzzâm*; it also does *arabân* with the same *phthora* with the difference that we put the *nenano* on *gerdâniye* so that we know instead of *eviç* we use *mâhûr* and then *gerdâniye* which becomes *arabân* when we put the *nana* on *tiz segâh* we use *sünbüle* instead of *tiz segâh* and when we put the *nana* on *segâh* we use *kürdî* instead of *segâh* and when we put half *phthora* on *irak* we descend only half a tone, that is, from *mubayyer* to *şelmâz*, from *gerdâniye* [to] *mâhûr*, from *eviç* to *acem*, from *hüseyinî* to *hisâr*, from *nevâ* to *bicâz*, from *çârgâh bûselik* [to] *segâh* ///// from *dügâh zîrgüle* [to] *rast* //// that is from *irak* *acem* os *kairon* o (sic) /// we descend half a tone [when] the half *phthora* is placed; while in the ascending [movement] whole *phthorai* are placed so that ascending from ‘*aşîrân* to ‘*acem* we put [phthora of *nana* sign given], ascending from *dügâh* to *kürdî* again [phthora of *nana* sign given], from *hüseyinî* to ‘*acem* again [phthora of *nana* sign given], from *mubayyer* to *sünbüle* again [phthora of *nana* sign given], however as soon as the *phthora* is placed on a main *perde*, then *nenano* is placed, that is, *bicâz* on *agia*, *mâhûr* on *gerdâniye* and *şelnâz* on *mubayyer* and so on //// *tiznia* //// //// such is the way that the *phthora* of *nenano* is placed, so here is the *beyâtî* [...]
- 1v *beyâtî*, *echos* IV *terelelele*
second *hâne* called the *mûlazime*, [*echos*] *plagal* IV *terelelele*
- 2r And again the *mûlazime* up to this point where it has the *neagie* and then the *teslîm* is performed by ascending to *eviç* and it finishes on *nevâ* to enter the *orta hâne* with a good *isitai* (sic) because the *orta hâne* starts from *gerdâniye*, so that is how it finishes, you ascend from *rast* to *eviç* like that
[*echos*] *plagal* IV *terelelele*
And again [the] *orta hâne* and at the end as it is with the red [writing] only with the two it finishes [on] *rast* and here is the 4th *hâne* that is the *zeyl* which starts from *bûselik* ...
- 2v Note that this *hâne* starts from *bûselik* and works like this: *bûselik çârgâh nevâ* and *hüzzâm* up to where the *phthora* of (*echos* *plagal* II) is found on top of the three *ison* signs which as on the *perde* of *çârgâh* then follows the *hüseyinî* and raising the *phthora* it works from there as *hüseyinî* *acem* *hisâr* up to this *martyria* (...) that is in *metrophonia* the note is *aneanes* while in the *melos* it is *neanes* and then again with the *phthora* of (*echos* III) which is

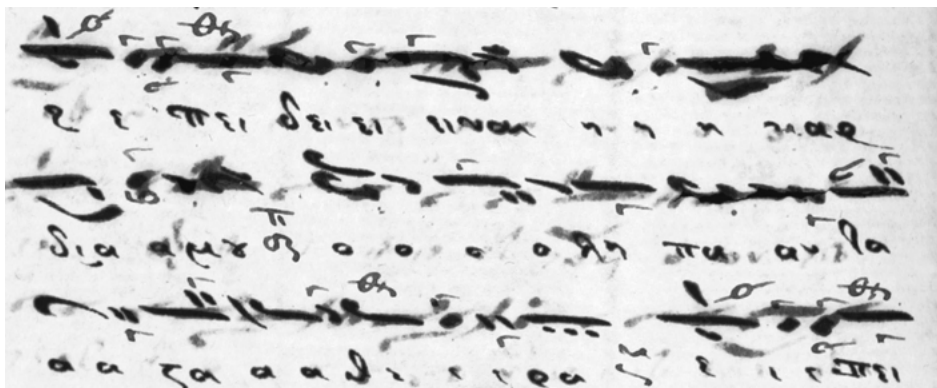
¹⁰ While there are seven note names in ecclesiastical music, there are around fifty on the double diapason scale of Eastern music, since each note of different pitch is given its own name. Often, the names of the notes and the names of the *makams* having those notes are either tonic notes or as dominant notes are identical e.g. *irak* note – *irak makam*, *kürdî* note – *kürdî makam*, *nim hisâr* note – *hisâr makam*, and so on.

- in front of the *martyria*, that is with the *perde* of *acem* it returns to its normal state, that is, to *beyâtî*
 [echos] plagal IV *terelelele*
 5th *hâne* which is the last one, starts [from] *büzzâm temtirilelele*
- 3r [...] *semâ'î* called arabân *beyâtîsî* [...] starting from *dügâh*, that is from plagal I
Terelelelele
 Another *terkîb* of *ser hâne* [echos] plagal I *terelelele*
Mülazime from [echos] plagal I *terelelele*
 Another *terkîb* of *mülazime* from [echos] II *terelelele*
- 3v 3rd *terkîb* of *mülazime* [echos] IV *terelelele*
Orta hâne from plagal I *terelelele*
 Another *terkîb* of the *orta hâne* *terelelele*
 [...]
- 4r *peşrev muhayyer* [...]
- 6v *Son hâne* // *terkîb* ... [echos] plagal I *terelelele*
 [...]

Lastly, the Phanariot songs, which occupy a large part of the available manuscripts, have a much simpler form, thus justifying the absence of any indications of modal interest within the melody; only the *echos* and *makam* are given in their heading. Again, any possible modulations are stated here with the use of *phthorai* or they are deduced by the movement of the melody. The variety and clarity of the *phthorai* in the *New Method* simplifies matters. From the many possible examples, the song of Gregorios Protopsaltes *Ἐλπίζω καὶ πάλι ἐλπίζω*, is chosen where an alternation of the *chroa* of *spatbi* with the *phthorai* of *echos* plagal II and the enharmonic *phthora* of *Ga*, are seen both in the first part,



as well as in the *miyân*.



Corresponding Echoi and Makams

It is known that the Greek theoretical system, as expressed in writings relevant to ecclesiastical music, organised modal entities on the basis of the *octoechos*¹¹. It categorised and interpreted the related modal systems with the same logic, having as a reference the four main and four plagal *echoi*, with terminology clearly alluding to the *octoechos*. In contrast, related non-Greek traditions adopted a different method. Although the *makams* are distinguished into primary and secondary (or subordinate) as aptly noted by P. Kiltzanidis, every melodic deviation is also named, thus greatly increasing the number of *makams*¹².

The Greek musical community, expressed a particular interest in the issue of the correspondence of *echoi* and *makams* quite early. The beginnings of a comparative approach in music theory are found in the work of Panagiotis Chalatzoglou and Kyrillos Marmarinos, and from Petros Lambadarios onwards, as well as in the transcribed repertoire of secular music. Hence, a large volume of information of theoretical interest is available; a pool from which it is possible, among other things, to extract a wealth of correspondences of *echoi* and *makams*. Petros, in his four manuscripts containing secular music, rarely gives the *echos* by name. The *echos* is understood by the initial *martyria*. The same practice is fol-

¹¹ See indicatively, Alygizakis 1985, containing a rich bibliography on the topic.

¹² See Kiltzanidis 1978. This Kiltzanidis's scholastic approach is due to the fact that a notational system did not exist in these traditions for many centuries. The lack of a written means to express each modal subdivision, contributed to the development of a complex system where even the smallest melodic differentiation is given a name and takes a special place in the theoretical system. Despite the system's complexity, *makam* names rarely divulge musical information. Usually, names relate to geographical indications (*bicâz*, *isfahân*, *irak*) or other notions such as, *'uṣṣak* = in love, *sûz-nâk* = hot, *rast* = straight, *hüseynî* = belonging to Hussein, *gûlizar* = the rosy cheeked one, their greatest percentage coming from the Persian or Arabic language. Related statements are also made by T. K. Apostolopoulos in his unpublished paper from the Third Conference of the Institute of Byzantine Musicology (Athens, October 2007), titled "Ανάλυσεις στην περί τροπικότητας διδασκαλία του Αποστόλου Κώνστα του Χίου" (kindly provided by its author).

lowed by Petros Byzantios (LKP 19/173), Evgenios (ELIA) and the unknown scribe of RAL 653, while others, in contrast, always mention the *echos*, such as, Nikeforos (in RAL 925 & 784, Vatopediou 1428, and Iaşi 129), Ioannis Pelopidis, and the unknown scribes of Gennadius 231, and RAL 2238.

With its more analytical character given to it by the Three Teachers (Chrysanthos, Gregorios Protopsaltes and Chourmouziou Chortophylax), and mainly by Chrysanthos in his theory book, the introduction of the *New Method* aided scribes. Correspondences between *echoi* and *makams* became clearer, and more in line with today's practice. For example, in the manuscripts of the *Old Method*, *müste'âr* is usually named *echos* IV *legetos* while in the *New Method* it is rendered with the *chroa* of *zygos* which is the correct practice.

However, the correspondences of *echoi* and *makams* derived from the manuscript tradition must be viewed critically. In certain cases, some problems are observed, at least according to today's practice in the theoretical systems of ecclesiastical and Eastern music. There is confusion, in particular, around the *makams segâh* and *hüzzâm*, which depending on the case, are corresponded to either *echos* II or *echos* IV *legetos*. Appended to this book is an analytical table outlining the correspondences found in the various sources as well as those discerned in the course of this research.

Complementary to the appended table, the following points ought to be noted:

- a) In certain songs, the *echos* and *makam* correspondences are not mentioned in the manuscripts. They are, however, deduced by an examination of the melody.
- b) Given the changes in the theoretical systems of the ecclesiastical and Eastern music, the above correspondences concern the 18th century and the early 19th century.
- c) The correspondences of Kyrillos Marmarinos which are not found in the transcribed repertoire, are excluded from the table. More specifically, twenty-one of the *makams* referenced by Kyrillos, are only found in his treatise and they are absent in the rest of the transcriptions, therefore they are not included in the above table. These *makams* are:

Echos plagal IV: *rehâvî, zâvil, mumberka*,

Echos II: *maye, gevest*,

Echos plagal I: *zemzeme, paisan kürdî, gerdâniye bûselik*,

Echos IV: *hûzî, nihavent kebîr*,

Echos plagal I: *'uzzal, suri, vedci, gerdâniye*,

Echos I tetraphonic: *kiocek, selmek, horasan, bisâr 'aşîrân*,

Echos varys: *muhâlîf irak, dilkeş-hâverân, dilkeş*,

Echoi and *Makams* as Organisational Criteria for Music Collections

The grouping method based on the *echos* is a common phenomenon in the manuscripts of ecclesiastical music. The layout of the various groups of similar pieces in each codex is based on the *echos* e.g. *kekragaria*, *doxologies*, *cheroubika*, *koinonika* etc. They are often preceded by the phrase “Beginning, [in the name of] the Holy God, of the *echos* I”, for example. In the *kratemata* in particular, which as discussed earlier, are the genre most related to secular music, the layout of the material is organised on the basis of the *echos*, in both the cases where they constitute a special section of a manuscript, and in the self-contained codices of *kratemataria*¹³.

The codex writing practices of secular music, borrowed from ecclesiastical music, among many other things, the method of organising the repertoire on the basis of the eight *echoi*. That is, it is observed that with the appearance of the first extensive music collections, the majority of compositions are categorised on the basis of their *echos* and its subdivisions or its *makam* correspondence. For example, the section of the collection belonging to *echos* plagal IV contains pieces in the following order of *makams*: *rast*, *sâzkâr*, *nikrîz*, *nîhavent*, *rehâvî*, *sûznâk* etc. Similarly, the section of *echos* I contains pieces in *makams*: ‘*uṣṣak*, ‘*acem*, *muḥayyer* and so on. Within each *makam*, the songs are further grouped by composer.

This categorisation method was applied for the first time by Petros Peloponnesios in MS RAL 927 and was implemented more comprehensively by Nikeforos Kantouniaries in Vatopediou 1428. On this specific issue, of course attention is focused on the codices, since the fragments and booklets do not lend themselves to the extraction of relevant information. Nikeforos in his earliest manuscripts (784, 925 & CAMS P1) does not seem to care particularly about the layout of the material. He first organises the presentation of the repertoire on the basis of the *octoechos* in Iași 129 and especially in Vatopediou 1428. Within each *echos*, songs are grouped initially by *makam* and then by composer, while in the beginning of each section he writes “beginning of the [name] *echos*”. With the exception of *echos* I, which is missing a relevant inscription, he follows this method for all eight *echoi*, though some small deviations are noticed.

Due to the restrictions involved in the writing of a codex, as well as the possible lack of sufficient preparation and systematic approach with regard to this issue by the scribes, inconsistencies are often noticed in the layout of the material. For instance, a composition of *echos* I or *echos* plagal II is seen to be inserted within the section of *echos* III, and so on. Given the copying of the material from manuscript to manuscript, this scenario is repeated often. A notable exception is MS Vatopediou 1428, where Nikeforos, through his own foresight, leaves a few

¹³ See related, Anastasiou 2005:207 where he states that “[t]he pieces of the *Kratematarion* are ordered by *echos*”, and also the whole of the chapter “Τὰ κρατήματα ὡς αὐτόνομες μελικεῖς συνθέσεις”, pp. 167-243.

blank pages between *echoi*, in order to add any forgotten songs without upsetting the order of the material.

The classification model based on the criterion of the *makam* is not unknown to Eastern music. It is found in the manuscript collections of poetic texts of the Arabs, Ottomans and Persians; the well known *mecmu'a*. The logic behind the ordering of the pieces of the *mecmu'a* was defined by *makam* theory, and in some cases, it in turn influenced the organisation of the materials by *makam* in the manuscripts examined here. The categorisation criterion was the base note of each *makam*, starting from the lowest notes and progressing to the higher ones.¹⁴ That is the model followed, for example, by Petros Byzantios who, with small deviations, organised his material beginning from the note of *yegâh* (low *Di*) and the *makam* of the same name, progressing upwards toward the note of *muhayyer* (high *Pa*) and the *makams* *şehnâz* and *muhayyer*:

Pa	<i>şehnâz, muhayyer</i>
-----	-----
Zo	<i>evîç</i>
Ke	<i>hüseynî, 'acem</i>
Di	<i>nevâ, nübüft, beyâtî, isfahân</i>
Ga	<i>çârgâh</i>
Vou	<i>segâh, müste'âr, hüzzâm</i>
Pa	<i>dügâh, sabâ, 'uşşak / bicâz, hümayûn</i>
Ni	<i>rast, sâzkâr, nihavent, nikrîz, mâbûr</i>
(low) Zo	<i>irak, bestenigâr, râhatü'l-ervâl</i>
(low) Ke	<i>hüseynî 'aşîrân</i>
(low) Di	<i>yegâh</i>

In relation to the above, the unique case where the organisation of the material made on the basis of the *makam* and the order of the pieces performed in the sequence within the macro-form of *fasıl*¹⁵ in particular, is of interest. The source in which it appears is the fragment LKP (dossier) 59. Its scribe, Gregorios Protopsaltes, lists the songs with the *fasıl* logical order, even though it is an incomplete sample. Furthermore, on the first page he indeed names it as "*Fasıl Sâzkâr*":

- 1 *Fasıl Sâzkâr, baste-i Ilia, usûl remel, echos plagal IV, Bir dil oloutzak olousehin*
- 3 *Yürük Beste Sâzkâr, usûl zarbeyn, echos plagal IV, Ah dionsitedikim*
- 6 *Yürük Tabi Efendinin, [echos] plagal IV Yionz verme*

¹⁴ For more see Wright 1992.

¹⁵ The *fasıl* has already been discussed in the chapter "Genres of Secular Music", and in particular in the introductory comments for the art music of Constantinople.

Rhythms and *Usûls*

As already noted in the beginning of this chapter, the rhythmic cycle and the *makam* constitute the two main aspects of a composition. The mention of the rhythmic cycle in the heading of a piece, along with the name of the composer and the incipit comprise the identity of a work, and this information is especially valuable, particularly for those pieces written in the *Old Method* of notation. The work of the *exegesis* is significantly facilitated by the fact that the rhythmic cycles delineate the notated phrases and their rhythm. The term *usûl*, was established early in Eastern music and it is in use even today. *Asl* (pl. *usûl*) in Arabic, means “correct”, that is, metaphorically, the “right way” in the performance of a piece, while in the Turkish language, apart from the meaning it has in music, the word is used to mean “method” or “manner”. However, reference to the *usûl* is made only within works of art music of Constantinople, that is, in works of the music of the Ottoman court as well as in Phanariot songs. Relevant indications in folk songs or in compositions of undetermined genre could not be found in any manuscript. As previously discussed, the first attempt at *usûl* transcriptions was made by Panagiotis Chalatzoglou in his well known treatise, followed shortly afterwards by Kyrillos Marmarinos¹⁶. The former presents twenty-eight *usûls* and the latter, twenty-two (although he introduces twenty-six). The presentation is brief and consists only of explanations by the use of the words *düm*, *teke*, *tek* etc., without using symbols or musical examples¹⁷. From the time of Petros Peloponnesios, who introduced the practice of writing the *usûl* in the heading of transcribed works, onwards, this practice was universally adopted by subsequent scribes of codices containing secular music. As with *makams*, it became a custom to give *usûls* names, such as *arrogance*, *turtle dove* and others, which usually do not convey any information of musical interest.

Usûls in the sources

Twenty-six *usûls* are found in the examined manuscripts, often with small variations in their names as a result of their transliteration into the Greek language. They are listed here in alphabetical order:

aksak *semâ’î*, *yürük semâ’î*, *evsat*, *zarbeyn* or *darbeyn*, *zencîr*, *küçük zencîr*, *küçük sakîl*, *bereşân*, *muhammes*, *nim devri*, *nim sakîl*, *darb-ı fetb* or *zarpuşet*, *devr-i kebîr*, *devr-i revân*, *düyek*, *devir*, *ramal*, *sakîl*, *sofyan*, *çenber*, *çifte düyek*, *fahte*, *fer’-i muhammes*, *fi-rengi fer’* or *frengi* or *frangi*, *havî*, *hafîf*.

¹⁶ See related Popescu-Judetiz & Sirli 2000:31–34, 84–86 & 135–137.

¹⁷ Explanations of *usûls* using words are also found by Stephanos Lambadarios in *Ερμηνεία τῆς ἑξωτερικῆς μουσικῆς*, Constantinople, 1843, pp. 43–45.

Combinations of two, three or four *usûls* are found in three *peşrevs*,

Zarbeyn: *devrikebîr* and *bereşân* (Gritsanis 3, 48v)

[*Zarbeyn*]: [*çifte*] *düyek*, *çenber*, *fahte*, *bereşân* (Gritsanis 3, 115v)

[*Zarbeyn*]: *hafîf*, *sakîl*, *zarpufet* (LKP (dossier) 60,15r)

a practice quite common in the music of the East. In these cases in particular, the *usûl* gains a special name preserved by Petros: “*zarbeyn*”.

Four compositions bear rhythmic descriptions which were not possible to identify:

gul devri, *zarbeyn tero peref*, *devri*, *rakip*.

The following table presents the *usûls* found in the manuscripts, the number of beats in each *usûl* (2-beat, 4-beat, 6-beat and so on), and the frequency with which they appear.

	beats	total references in the manuscripts
<i>Sofyan</i>	4	731
<i>Yürük semâ’î</i>	6	227
<i>Aksak semâ’î</i>	10	87
<i>Düyek</i>	8	63
<i>Fi-rengi Fer’</i>	28	24
<i>Hafîf</i>	32	19
<i>Darb-ı fetb</i>	88	14
<i>Çenber</i>	24	15
<i>Çifte Düyek</i>	16	13
<i>Sakîl</i>	48	13
<i>Fahte</i>	20	13
<i>Devr-i kebîr</i>	28	12
<i>Bereşan</i>	32	11
<i>Devr-I revân</i>	26	9
<i>Muhammes</i>	32	9
<i>Semâ’î</i>		8
<i>Darbeyn (Zarbeyn)</i>	30	7
<i>Zencîr</i>	120	4
<i>Ramal</i>	28	4
<i>Küçük Zencîr</i>	60	4
<i>Havî</i>	64	2
<i>Evsat</i>	26	2
<i>Küçük Sakîl</i>		1
<i>Nim Sakîl</i>	24	1
<i>Nim Devri</i>	9	1
<i>Fer’-i Muhammes</i>	16	1
<i>Tevîr (Devîr)</i>	9	1

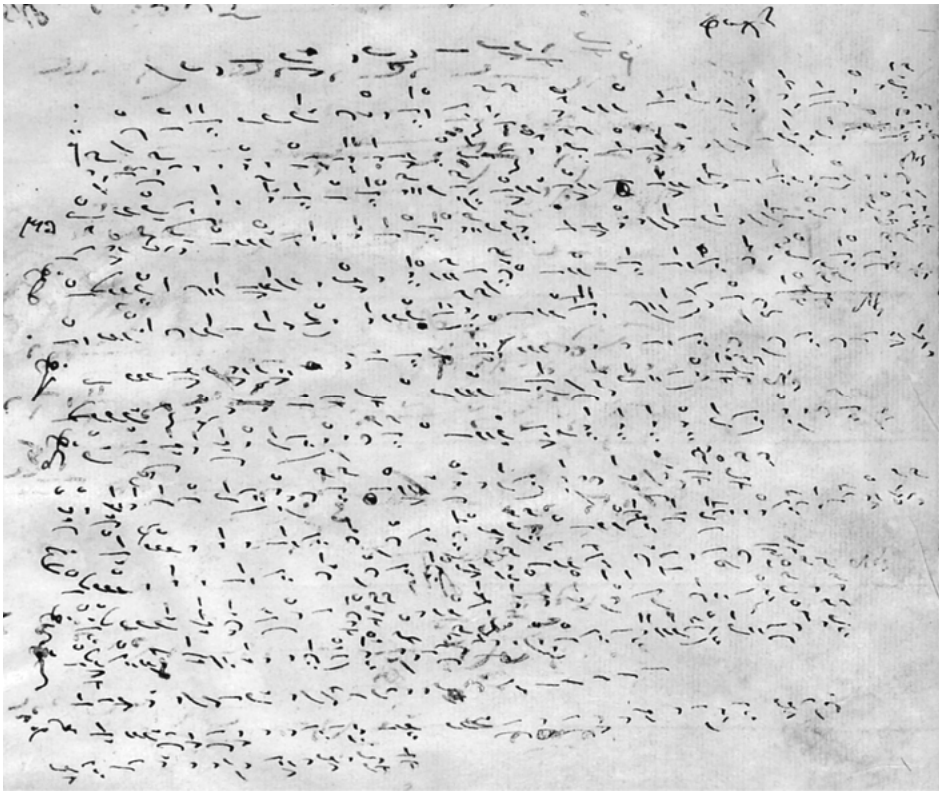
The greatest variety of *usûls* is found in the codices of Petros, MSS Gritsanis 3 and LKP (dossier) 60, which contain mainly instrumental compositions of the Ottoman court. In the rest of the manuscripts containing *usûl* descriptions, only three or four *usûls* are found, they are: *sofyan*, *yürük semâ'î*, *aksak semâ'î* and *düyek*. This is easily explained: the largest volume of manuscripts from the 18th century onwards contains Phanariot songs, which in their vast majority were composed in these simple and easily comprehensible *usûls*. The numbers are indeed impressive. Skimming through the above mentioned codices, *usûl sofyan* is found seven-hundred and thirty-one times, *yürük semâ'î* is found two-hundred and twenty-seven times, *aksak semâ'î* is found eighty-seven times and *düyek* is found sixty-three times. *Firengî fer'* exists twenty-four times. After that, the frequency with which different *usûls* appear decreases continuously, with some *usûls* found only once or twice.

The scribes of secular music do not appear particularly familiar with the *usûls*. The *makams*, due to their relationship with the *echoi* of ecclesiastical music, were probably more easily comprehensible and for that reason a satisfactory volume of relevant information is available. *Usûls*, by contrast, were less known within the theory and practice of both secular and ecclesiastical Greek music, remaining for a long time an unknown field. An exception in this case, as already mentioned, is Petros Peloponnesios, while, for instance, another important scribe of secular music, Nikeforos Kantouniaries, who made a serious attempt to transcribe and even to provide an *exegesis* of *usûls* in certain cases in the Arabic songs he preserved, does not give any information pertaining to their rhythm. It seems that perhaps he was unable to define their rhythmic content, as it was quite different from that which was characteristic of the music of Constantinople. Therefore, the *psaltai* who were also occupied with the composition of secular songs are found to make almost exclusive use of the three easiest to understand *usûls*: *sofyan* (4-beat), *yürük semâ'î* (6-beat) and *düyek* (8-beat), which probably were a better fit in terms of the Greek verses.

As will be shown below as well, *usûls* made up the frame of a composition, upon which modal melodic behaviour was built, in both vocal and instrumental compositions. In the vocal compositions in particular, musical development was directly related, or rather, depended upon the meter of the poetic text (Bektaş 2005). The *usûls* were a separate and “closed” field, perhaps inhospitable for the composition of vocal works in the Greek language, which required different techniques and practical preconditions. In addition, it must be taken into consideration that Byzantine *parasimantiki* did not possess any system of “bars” as in staff notation; therefore the practical issues arising from rhythmic matters became even more challenging for someone not familiar with the genres of the Ottoman court.

Method of Illustration and Analysis of Usûls

The first indications of *usûls* in the music manuscripts are in words, without the use of any explanatory symbols. In MS Gritsanis 3 (f. 203r), the symbols, 0 I, which define rhythm are found for the first time and, as a matter of fact, within the score itself.



These symbols are also found sporadically on folios 27r – 28r & 31v of MS LKP (dossier) 60. Essentially, Petros introduces the use of these numerical symbols in MS RAL 927. Therein, he defines the *usûl* sometimes in words (*sofyan*, *semâ'î*), other times with the use of symbols (ó 2, ó 2 ó i), and at other times in both of these ways combined,

7v *usûl sofyan* ó 2, Aşîrân, [echos] plagal I heptaphonic, *Αὐτὸ τ' εἶναι τὸ δικόν μου, τὸ κακὸν τὸ ριζικόν μου*

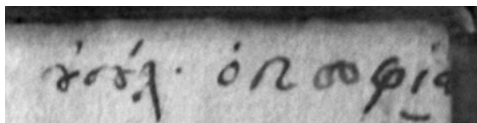
15r *makam irak*, [echos] *varys* diatonic, *usûl semâ'îs* ó 2 ó i, *Ἡθέλησεν ἡ τύχη μου, μόλις νὰ μ' ἐλεήσει*

while in many songs he completely omits any mention of the *usûl*. His example of the use of symbols to indicate *usûl* was followed by Petros Byzantios (LKP

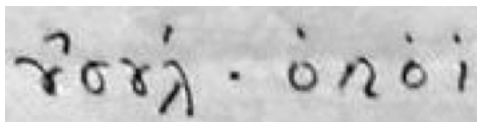
19/173), Nikeforos Kantouniaries (RAL 784, CAMS P1, Iași 121, Vatopediou 1428), as well as by the unknown scribes of MSS RAL 653 and CAMS P2¹⁸. The same symbols are found in Chrysanthos's theory book (1832:67-80), where they are offered

"for the exercise of rhythm by the beginners, the hit of the downbeat called *Düm*, and the hit of the upbeat, called *Tek*" (80).

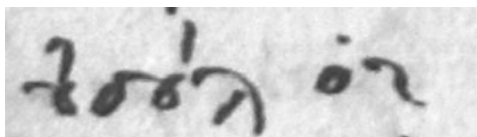
They are written using three symbols. The first, looks like an accented zero or omikron and means the downbeat, that is, the *düm*. The second, looks like the digit "2", or rather the *gorthmikon* "τ" = n of the *kratemata* and the *nenanismoi*, meaning two upbeats, either *te ke* or *tek tek*. The third symbol resembles an accented *iota* and symbolises the single upbeat, *tek*. This particular way of explaining the rhythm with symbols, which seems to have been introduced by Petros, was followed by all codex writers who used them in order to describe the *usûls*:



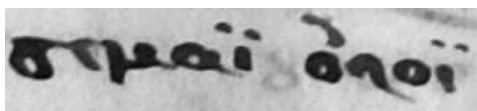
Petros Peloponnesios, RAL 927



Petros Byzantios, LKP 19/173



Nikeforos Kantouniaries, RAL 784



unspecified composer, RAL 653

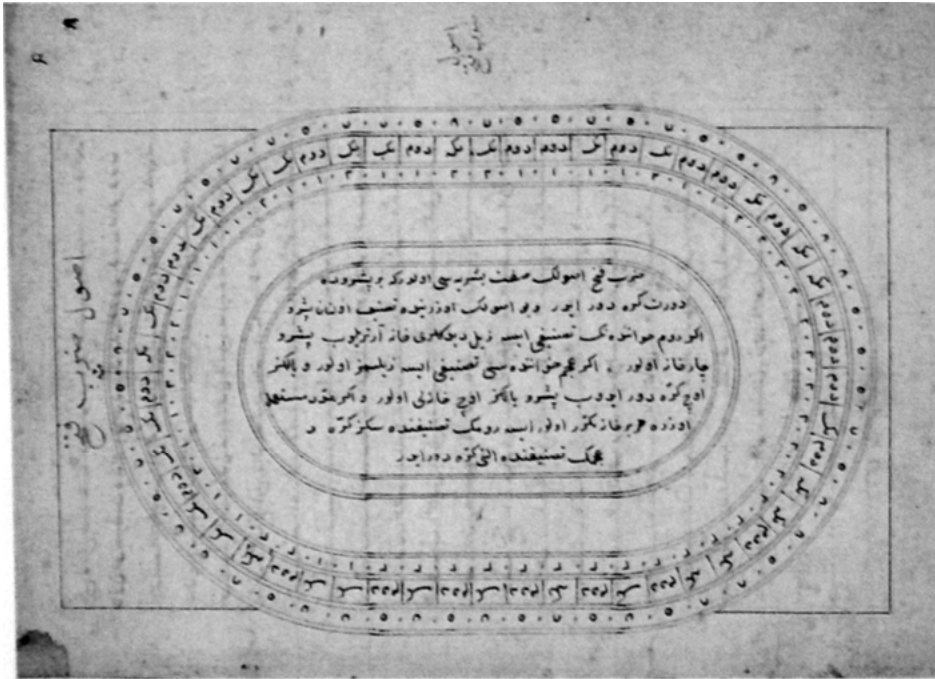
Generally in the sources, only two *usûls* are written with these symbols, they are *sofyan* and *yürük semâ'i*. The former is consistently written as *ó 2* and read as *düm te ke*, while the second one exists in three variations: *ó 2 ó i*, *ó 2 2 ó i* & *ó i ó i*, where all three are read as *düm tek tek düm tek*. Panagiotis Kiltzanidis (1978:25-31), Ioannis Zographos Keyvelis¹⁹, and Agathangelos Kyriazidis²⁰, who give the *usûls*

¹⁸ These symbols are also used in the only song by Evgenios in the ELIA manuscript.

¹⁹ *Μουσικὸν Ἀπάνθισμα (Μετζιμουάι Μακαμάτ)*, Constantinople 1872, pp. 13-23. Explanatory notes on the *usûls* are also given by K. Psachos in the introduction of the collection *Ἀσιῶς Ἀύρα* Athens (1908:8-14).

with the above symbols as well as their interpretations of the beats, explain the issue thoroughly.

It cannot be supported that Petros invented these symbols. After all, he himself does not appear certain of their use, only taking advantage of them occasionally in RAL 927, and not at all in his other three manuscripts containing secular music. According to the evidence so far, he introduced them into the notational practice, but they were probably already known to him, either in this exact form or in a similar form. Furthermore, one of them which is similar to a 0 or an O, the symbol of *diim*, is also found in Cantemir's work²¹, where for the *tek*, *teke*, the given symbols are two or three variations of curved lines:



Nikeforos, generally also uses the above-mentioned symbols, even though he often mentions *usûls* only by name.²² In certain cases in particular, he does not stop at the mention of the *usûls* but also gives an analytical presentation using mono-syllabic words like, *diim*, *tek* etc.:

²⁰ Ὁ Ρυθμογράφος, Constantinople 1909, pp. 28-35

²¹ D. Cantemir f. 78 & 80-86 (Wright 1992).

²² Stathis (2001c:616-617, fn. 13) implies that Nikeforos was perhaps taught this system in the Common School of the Nation by Chrysanthos himself. This view is supported by the fact that in Nikeforos's earliest manuscript of secular music, RAL 925, the rhythmic cycle of the songs is not stated in any way. In contrast, in his later manuscripts, RAL 784 and Vatopediou 1428, he gives the *usûls*, either by name or with the above-mentioned symbols.

Beste of archon postelnikos Georgios Soutsos, transcribed by Nikeforos, *makam rast*, [echos] plagal IV, *usûl fi rengi fer'*, that is, *düm düm düm düm düm tek düm düm te-ek teke teke Arzit metiyia* (RAL 784, 152r / Iaşi 121, 281 / Vatopediou 1428, 289)

By the same composer, *beste*, in another *usûl*, that is, *hafif düm tek te-ek düm tek te-ek düm teke düm te-ek tek düm teke düm düm tek teke düm tek teke düm tek teke teke*, echos plagal IV (Iaşi 121, 282 / Vatopediou 1428, 289).

By the same composer [Georgios Soutsos], *beste*, in another *usûl*, *hafif, düm tek te-ek düm tek te-ek düm teke düm te-ek tek düm teke düm düm tek teke düm tek teke dü[m] te[k] teke teke*, [echos] plagal IV, *Zalívez bir* (RAL 784, 153v / Iaşi 121, 282).

Ağır semâ'î [echos] plagal IV, *usûl ağır Düm teke düm tek*, *Oi σειρήνες τριγυρίζουν* (RAL 784, 164v / Vatopediou 1428, 322).

Ağır semâ'î [echos] plagal IV, *usûl ağır düm tek tek düm te-ek*, *Εμψυχώθηκαν σὲ σένα αἱ καθόλου ἀρεταί* (RAL 784, 166r / Vatopediou 1428, 323).

Another *beste* by the same archon postelnikos Georgios Soutsos, compiled in a much sorrowful and artistic way, for the sake of his deceased daughter, beloved by him beyond measure: Transcribed by Nikeforos archdeacon, *makam nişábûrek*, [echos] plagal IV, *usûl sofyan, düm te'-ke düm tek Tí μεγάλη συμφορά, τί ἡμέρα, τί εἰδήσεις* (RAL 784, 168r / Vatopediou 1428, 339).

Şarkı by the same archon postelnikos [Georgios]. Transcribed by Nikeforos, *makam nişábûrek*, [echos] plagal IV, *usûl sofyan* short: *düm teke düm tek Gönüler sangaüdini* (RAL 784, 173v / Vatopediou 1428, 342).

In one case, in MS RAL 784, he does not seem certain about the *usûl* and thus writes

Usûl sofyan or hafif düm tek te-ek düm tek, tadir teneni, aman, Tὴν ὥραίαν σου εἰκόνα, σὸν καθρέπτην ἂν ἰδῇς (RAL 784, 161v).

Later on though he seems to have resolved the issue, clearly stating in Vatopediou 1428:

Most artistic *beste*, compilation of verses and music by archon postelnikos dragoumanakis Georgios Soutsos, transcribed by Nikeforos archdeacon of Antioch: *usûl hafif*, that is, *düm tek te-ek düm tek te-ek düm teke düm teke te-ek düm teke düm düm tek teke düm tek teke düm tek teke teke*, *makam mâlbûr*, echos plagal IV heptaphonic, 1st *beyti*, *tadir teneni, aman, Tὴν ὥραίαν σου εἰκόνα, σὸν καθρέπτην ἂν ἰδῇς*, Vatopediou 1428, 320

That is, in total, Nikeforos analytically presents several versions of four *usûls*: *sofyan*, *hafif*, *ağır semâ'î* and *fi-rengi fer'*:

Sofyan: *düm teke düm tek*

Sofyan: *düm teke düm tek* (small)

Ağır: *düm teke düm tek* (in the title it is recorded as *ağır semâ'î*)

Ağır düm tek tek düm te-ek (in the title it is recorded as *ağır semâ'î*)

Fi-rengi Fer': *düm düm düm düm düm tek düm düm te-ek teke teke*

Hafif: *düm tek te-ek düm tek te-ek düm teke düm te-ek tek düm teke düm düm tek teke düm tek teke düm tek teke teke.*

Hafif, *düm tek te-ek düm tek te-ek düm teke düm te-ek tek düm teke düm düm tek teke düm tek teke düm tek teke teke.*

Hafif, *düm tek te-ek düm tek te-ek düm teke düm teke te-ek düm teke düm düm tek teke düm tek teke düm tek teke.*

Inconsistencies are noted between the two versions of the *ağır semâ'i* and the three versions of *hafif*. The style of presentation of the *usûl* analyses given by Nikeforos are reminiscent of those of Panagiotis Chalatzoglou and Kyrillos Marmarinos²³. From these two sources, similar correspondences are found both between them and with Nikeforos's analyses. It seems that the phenomenon of rhythmic cycles remained perplexing and difficult to understand.

Usûls as Guides for Composition

A piece of information drawn from fragment LKP 2/59a gave rise to an issue directly related to the function of the *usûls* in composition. Gregorios writes:

"the *peşrev* whose *usûl* is *zarbı fetih* must have five *hânes* and one of the five is called *zeyl*, the *peşrev* being *zarbı fetih* in its *usûl* it is five *hânes*, therefore this *usûl* has 44 *zarpia* for each *hâne*, so there is one *usûl* which has forty four single beats that is *zarpia*".

Indeed, the *peşrev* transcribed immediately afterwards consists of five *hânes*. Its *usûl* is *zarbeyn* or as it is known today, *darbeyn*. Its rhythmic cycle has forty-four *zargia*, that is forty-four beats. And the most interesting fact, "each *hâne* is one *usûl*", therefore each part of the *peşrev* develops within the limits of one rhythmic cycle of forty-four beats.

It is therefore understood that the *usûls* do not only make up the rhythmic content of the compositions but they also determine their length, thus also essentially defining their constituent parts. Depending on the length of the *usûl*, each part of a composition of art music occupies one, two, three, four or more rhythmic cycles. E.g.

[Rast] *Gül tevrî peşrev* [unspecified composer], *echos* plagal IV, *devr-i kebîr* (Gritsanis 3, 231v) [identified from Cantemir, f. 67, work 122]: *Ser hâne* = two rhythmic cycles, *mûlazime* = five rhythmic cycles.

²³ See related Popescu-Judetzy &, Sirlî 2000:31-34, 84-86, 135-137 and especially on pp. 148-149 where a comparative listing of the *usûls* from both works can be found. The use of "*düm, tek*" is also mentioned by Apostolos Konstas in his *Θεωρητικόν* (Apostolopoulos 2002:142).

Hicâz nev kislât fabte peşrev by Kemânî Yorgi (Gritsanis 3, 188v): *mülazime* and *terkîb* 2, 4, 9 & 8 = four rhythmic cycles. *Terkîb* 3 = two rhythmic cycles.

Seyf miseyn nazîresi, makam irak, uşûleş diyek (Gritsanis 3, 61v) [identified from Cantemir, f. 103-104, work 194]: each *hâne* has from seven up to thirteen rhythmic cycles.

Hicâz turna [peşrev] [unspecified composer] [echos plagal II], *sakîl*, (LKP (dossier) 60, 22v) [identified from Cantemir, f. 176-177, work 324]: *Ser hâne* = one rhythmic cycle, *mülazime* = one and a half rhythmic cycles.

Hüseyinî [beste] *Ab yar cemâlin Hânende Zacharias*, echos plagal I, (LKP 152/292, 144): *Zemin hâne* = four rhythmic cycles, *miyân hâne* = four rhythmic cycles.

Explaining this practice, the kanun virtuoso Nikos Stephanidis (1986:52) characteristically writes that:

“The old composers did not have the European notes like the contemporary musicians do, they composed their melodies with the *düm teks*”.

while Chrysanthos notes in his theory book (1832:79):

“their other use is that which leads them to remember the melodies which they are taught and which they teach. Because the Ottomans, by not using notation to write the melodies, remember them through the rhythms”.

Chrysanthos’s views are shared by both Stephanos Lambadarios and Panagiotis Kiltzanidis:

“[the *usûls*] primary use is to remember the melodies, which they teach and they are taught, since by not using notation to write the melodies, they remember them through their rhythms”²⁴

“Whereas for the Arabo-Persians the rhythm becomes not only necessary but also, as mentioned, required, since by not having notation to write the melodies, they can only remember them by the rhythms”. (Kiltzanidis 1978:25)

and quite later this view was also shared by Agathangelos Kyriazidis 1978:28):

“Rhythm in Turkish music is most necessary, since the Turks by not having notation to write the melodies, can remember them through the rhythms”.

The Greek music teachers are an alternative source of information on the function of the *usûl* as a guide for composition. Also, Yetkin Özer's note is also relevant:

“In Turkish traditional music, *usûl* is one of the outstanding elements in the progression of the melodic line, and thus has a significant role in the perception of composed pieces”²⁵.

²⁴ Stephanos Lambadarios, op. cit., p. 45.

²⁵ Özer 1990:5. See also the chapter *Türk Müsikiinde Usûl-vezin Münâsebeti*, pp. 85-106, in Tannkorur 2003 and Tannkorur 1990.

Apart from Gregorios's fragment giving this direct information, it is possible to draw relevant conclusions in the rest of the manuscripts solely from the study of the notation and the architecture of each composition, as in the above examples.

