

J. S. Bach's *Well-tempered Klavier* (WTK, I) as a Monogrammic Cycle

J. S. Bach's *Well-tempered Klavier* (WTK, I) unfolds itself as a cyclically structured work. Musicologic thought usually perceives this work as a certain collection of preludes and fugues. Here is one of its definitions: "The best known Bach's klavier work is undoubtedly a two-part cycle of preludes and fugues *Well-tempered Klavier*" (*Das Woltemperierte Clavier*, 1722 and around 1740; later referred to as the WTK). Each of its two parts includes 24 preludes and fugues and embraces all 12 major and 12 minor keys. Volume I of the WTK is better prepared and stylistically more integral (volume II contains some compositions written in different periods)". Nobody has, however, attempted to get a deeper insight into the regularities of the whole cycle. Musicologists limit themselves to the analysis of separate preludes and fugues. The relationship between preludes and fugues has not been more thoroughly studied either.

Here we are going to analyse volume I of the WTK, because we suppose that volume II structurally forms a separate cycles.

The structural core of volume I of the WTK cycle consists of the thematic inversion of the prelude and Fugue in C major (Example 1). The bass line of the prelude forms the fundament of a

Example 1

The image shows two musical staves. The top staff is labeled 'Prelude I' and is in bass clef. It shows a sequence of notes: C4, E4, G4, B4, D5, F5, A5, C6. Below the staff, it says 'm. 4 - 11'. The bottom staff is labeled 'Fugue I' and is in treble clef. It shows a sequence of notes: C4, B3, A3, G3, F3, E3, D3, C3. Below the staff, it says 'm. 1 - 2'. Vertical dashed lines connect the notes between the two staves, showing that the prelude's notes are the inverse of the fugue's notes (e.g., C4 in prelude corresponds to C3 in fugue, E4 to B3, etc.).

harmonic figuration (the intervals of thirds prevail). Sequential progression combinations of chords are peculiar to the development of bass. In its turn, the fugue theme is constructed absolutely differently (intervals of seconds prevail) and its expansion is based on the imitation of the theme in different voices. Therefore, the prelude and fugue get separated in harmonic and melodic respect. These two alternatives become the most general source of the thematic expansion of the cycle. Here the conception 'thematic' embraces not only a melody in its narrow sense but also the bass of harmony, the type of texture (homophony, polyphony) and the character of development (sequence, imitation). It is these intercorrelating elements that form a thematic outline of the cycle. Noteworthy is the relationship of the incipiences of the first three preludes and fugues (C, c, C-sharp). The rising figuration of chord in C major (Prelude I) turns into that of a falling C-sharp major (Prelude III). Something similar is constructed with the fugues in respective keys. The rising line of the theme (Fugue I) becomes falling (Fugue III). In its turn, the prelude and fugue in C minor, intervening between these alternative incipient pairs, are marked by a constant waving between different intoning directions. The noticed relationship of incipiences are presented in the following scheme:

Scheme No 1

Prelude	Fugue
↑ (C)	↓ (C)
↑↓ (Cm)	↓↑ (Cm)
↓ (C-sharp)	↑ (C-sharp)

(In Scheme No 1 one can notice the types of intoning directions: raising↑, falling ↓, waving↓↑.)

The thematic outline of initial three preludes and fugues conform with the key plan. An intermediate one-named (C minor) can be seen intervening between different major keys (C and C-sharp or enharmonically identical D-flat). In its respect, the future key (C-sharp or enharmonically identical D-flat) is associated by a functional link of the Neopolitan subdominant (sound D-flat in C minor is related to the lowered second, i. e. the Neopolitan degree). Thus C minor in a way fulfills the function of a common structure ("chord") between unrelated C and C-sharp (D-flat) keys. This model of alternative keys and that of a transitional one consistently, to be more exact, sequently recurs throughout the course of all the preludes and fugues and breaks only in its 12th chain. The last chain of the sequence is not full (B-Bm). However, having in mind the cycle's beginning (C), there seem to be as if no reasons for the cycle to end, and everything could rather go on recurring in an endless sequency. The WTK I boundaries are usually motivated by the exhaustion of 24 keys. In harmonic-key respect, however, the cycle is finished by the position held by the last of the keys. After the sequence reaches its last 12th tempering degree, i.e. B minor is a Lydian dominant for the future main key. It is this point where two functions of alternative harmony (the Neopolitan subdominant and the Lydian dominant) enharmonically blend. This is the end of the sequential cycle of the keys or the completeness of the plan of the keys.

This sequential cycle's tonality is also articulated at a higher level embracing eight pairs of preludes and fugues by a single macrosequential chain. In this way, the whole cycle falls into three macroconsequential the divisions of each of them are expressed by consistently rising four-tone groups (c-cis-d-es, e-f-fis-g and as-a-b-h) with appropriate major and minor keys.

The second division can be easily recognized due to the incipients of its first three positions (IX, X, XI). The preludes clearly vary the sequence of a thematic model known to us – the rising, intermediate and the falling incipient intonation. An ostinatic bass figuration, which will easily remind of a prototype (Prelude II), is particularly important to the minor prelude (Prelude X). The transformations of fugue themes in comparison with primary models (prototype) are more intricate but recognizable. The accent falls on the middle of a tessitura ambit (Fugue IX), the ostinatic eights seem as a continuation of the prototype (Fugue X) and a leap of the sixths here is downwards (Fugue XI).

The characterization of the third macroconsequential division depends on a more detailed analysis of the first and second chains.

The first division of the 8ths sets the numbers of their pairs in the manner of inverse or concentric symmetry. In this way, the triad of primary numbers reflects its incipients through mirror symmetry at the end of the division. Thus, the incipients of number III are varied by VI. The preludes of respective numbers are marked by a falling harmonic figuration, the themes of fugues – a leap through a sixths down. Analogically follow II and VII. Preludes are marked by a "vibrating" ostinato of the sixteenth, the fugues – a "twitching" phrasing of themes. I and VIII – rising harmonic figurations and suspensions as well as syncopes in the themes. The most contrasting positions in respect of musical character and tempo intervene in the middle of the 8ths sets (here one can agree with B. Mugellini's editing additions). The preludes of these members, however, interrelate due to the filling of the harmonic figuration with second slides, and the melodics of fugue themes exploit the leaps of harmonic intervals. Here we can see a certain reciprocity of thematic (prelude-shape and fugue-shape) material and intervalics.

The concentric structure of the primary section guarantees a certain closed and expositional character of this division.

The second division of the 8ths sets is marked by a certain functional orientation. The primary phase of the division, as we have already noticed, bears an evident similarity to a thematic model of the cycle's three first positions. The end of the model coincides with the functional position of the subdominant (XI, F). The second phase of the section starts from here (XI–XIV). Finally the third phase (XV–XVI) coincides with the keys of the dominant's function (G, Gm).

One is curious to know what justifies this kind of functional grouping of movement positions into phases. Most likely the easily recognized version of textural-thematic shapes? Let us concentrate our attention on the climax position (XV) of this division, coinciding with the relationship of the cycle's golden section ($24 \times 0,618 \approx 15$). The dominant key of this position distinguishes itself among others by easily recognizable textural-thematic shapes. The harmonic prelude's figuration (I) easily associates with the similar elaborations of the first prelude (C), and the respective fugue's themes are akin to the slides of 2nds and the syncope of leaps.

In this section, the position (XI) of the subdominant key distinguishes itself in a similar way. Analogous in respect of variance, the prelude's harmonic figuration, although different from the earlier observed ones, begins in a falling arpeggio. An analogous intoning direction is also peculiar to the fugue's theme.

Intonational differences between the subdominant and dominant keys are logical, having in mind the peculiarities of the modal attraction related to the keys of the opposite harmonic functions.

A theological character is motivated by the recognizable textural-thematic shapes of the dominant's and the subdominant's keys. Every other position of the prelude of the fugue adjoins the mentioned shapes. Noteworthy is the fact that at the end of the subdominant's phase (XIV) both the prelude's figuration and the fugue's theme (see: incipient) converge in respect of their intervallics due to the prevailing of stepwise movement. Another, no less important, detail – the last dominant (G minor) position (XVI), in comparison with the beginning of this section (IX), inverts thematic intoning directions, leaving the thematic contradiction of the section unsolved.

The first two sections, each containing eight positions, could be conditionally compared to the exposition and development divisions of the cycle. The functions of the fundamental keys (tonic of section I and the subdominant and the dominant of II) projectively in principle unfold the material that is coded in the chord progression of the first measures of the prelude in C major (m. 1–3). Here in succession sound three harmonic functions, i.e. the tonic, the subdominant and the dominant (T, S, D) (incidentally, a three-function harmony model is characteristic of the cycle's all preludes without exception). The third macrosequential chain is closer to the construction of the closing division (extended coda). Here thematic analogies with previous positions are least of all seen due to the prevailing of mixed shapes both in respect of intoning directions and intervallics. Nevertheless, some recapitulation aspects can be also noticed. The fugues in the second and third sections are in 3, 4 and 5 voices and the middle section disposes the fugues in mere 2, 3 and 4 voices. It should be noted that in the development section, starting from the subdominant position, there disclose themselves regularities in the range of the fugue voices – 3-4-3-4-3-4 (see: XI–XVI), which coincide with the sequence of the major and minor keys. The third section opens with the XVII the position whose both prelude and fugue incipients are marked by harmonic intervals (third prevails). It is the further stage of interrelations of melodic and harmonic intervals after the unification of the incipients in the XIV position.

The cycle's last prelude in B minor is distinct through a second-step bass figuration, whereas the fugue theme is permeated with harmonic intervals of thirds and sixths. It is cardinally an opposite distribution of intervals in comparison with that seen in the cycle's first position (I). This kind of inversion of the prevailing harmonic and melodic intervals in the cycle's lateral positions (I and XXIV) is a consistent result of a combinatory process and a significant criterion of the cycle's completeness.

Some 300 years later, after the creation of the WTK I and the scrupulously taken to pieces preludes and fugues, today still remain unsolved cyclic form riddles. One of them the WTK I monogram system.

The monogram BACH cannot be evidently seen in the sounds of the cycle. It is simply deciphered in a certain way. It can be supposed so at least on the basis of the fact that the monogram has never been disclosed. It is however quite possible that the great German composer did not even make an attempt to specially decipher something but simply exploited the monogram in his own way.

The monogram BACH is expressed by means of the intonation of sounds and is exploited in the cycle in a transposed, inverse, permuted, segmented and the like shapes. The core of the monogramic system of sounds is constructed by two alternative and one derivative shape of the sequence of BACH elements (Example 2). The alternative intonation sequence emerges by way of

Example 2

The image shows three staves of musical notation. The top staff is labeled 'O' and 'I' above it. The middle staff is labeled 'M' and 'MP' above it. The bottom staff is labeled 'P' and 'PR' above it. Each staff contains a sequence of notes: the top staff has notes on lines 1, 2, 3, 4, 5; the middle staff has notes on lines 1, 2, 3, 4; the bottom staff has notes on lines 1, 2, 3, 4. The notes are connected by stems and beams, indicating a specific melodic or harmonic sequence.

the permutation of literal symbols of sounds. In this way, the original sequence (O) is permuted (P). Between these two shapes of monograms intervenes an intermediate mixed one (M) the elements of which are only partly permuted. Thus, Bach (O), ABHC (P), ABCH (M). The mixed sequence with its two elements (AB) coincides with the permutation and with the last ones (CH) – the original.

Each of the shapes has inverse versions. The pitches of the original sounds, reflected through mirror symmetry, mark its inversion (I), the reverse permutation version – a retrograde (R), and the alternation of the mixed-shape pairs of elements (MP). It easy to notice that the alternative monogram shapes have no other reverse shapes (because $I=R$, and $R=I$). Due to transpositions any attempts to derive more mixed (M) forms get levelled in a similar way. Each of here established shapes, be it primary or inverse, is articulated by two-sound segments – the first pair, the second pair, e. g.: $O=BA$ and CH , $I=HC$ and AB ; $P=AB$ and HC , $PR=CH$ and BA , finally $M=AB$ and CH , $MR=BA$ and HC .

Each monogram's segment can be transposed on all tempered sound pitches. They can be also distanced from each other in respect of time – within the range of the measure phrase. The monogram's segments can be distributed between different voices and get woven into a harmonic figuration. Segmentic combinatorics of the monogram is partly reflected in the WTK ciphergram (Example 3).

Example 3

The musical score for Example 3 consists of 24 numbered monogram segments, each represented by a musical staff with notes and rests. The segments are organized into two columns: Prelude (left) and Fugue (right). Each segment is labeled with a monogram type in parentheses and measure numbers. The Prelude segments are: I (M), II (O), III (P), IV (O), V (O), VI (PR), VII (MP), VIII (M), IX (O), X (P), XI (PR), XII (I). The Fugue segments are: XIII (MP), XIV (I), XV (O), XVI (I), XVII (PR), XVIII (M), XIX (IR), XX (I), XXI (O), XXII (P), XXIII (P), XXIV (PR). The monogram types include (M), (O), (P), (I), (R), (MP), and (PR). Measure numbers are provided for each segment, such as m. 21-24 for I, m. 1-3 for II, and m. 1-2 for XIII.

In respect of the cycle's integrity, the ciphergram reveals several noteworthy things. B. R. Hanning in his book "History of Western Music" describes a fragment of the autograph from J. S. Bach's WTK, I, Prelude in C major (m. 21–24) as follows: "Carl Czerny (after 1830) apparently based himself on the copy made after Bach's death; here after measure 22 a non-authentic measure intervenes; [in addition Czerny inserted phrasing, tempo and dynamics references which are not indicated in Bach's manuscript (e. g. *diminuendo* in measure 21)]. Hans Bischoff in the 1883 publication made an attempt to present material as exactly as possible. [Present-day publishers also stick to the same principle, sometimes facing certain practical hardships]" (Hanning, *ibid.*). One can but guess what prompted C. Czerny (Beethoven's teacher!) and his predecessors to add an additional measure. It might have been an unusual bass slide (F-F-sharp-G-A-flat). The golden proportion section crosses almost the middle of the slide between F-sharp and A-flat. (We find it out from the prelude's measures and the relationship of the golden proportion coefficient: $35 \times 0,618 = 21,63$.) We think that in this way Bach exposes for the first time one of the shapes of the cycle's monogram (M, transposed from the sound *f*; Example 4). The seriousness of his intention was shortly after proved by the theme of the Fugue in C major (Example 5). The primary and final accents of the theme express monogrammic segments (F-E, F-sharp-G, m. 1, 3) through a distance. Here we can recognize the reverse version of the mixed shape (MP from sound *f*) seen in the culmination of the Prelude.

Example 4

J. S. Bach's autograph



C. Czerny's publication (after 1830)



H. Bischoff's publication (1863)



Example 5



Successive positions of the preludes and fugues unfold this intention. At the beginning of Prelude C minor imperceptibly "dashes" an original monogrammic shape (Example 6). It is completely blended with a harmonic figuration of the right hand (O, from *es*, m. 1–2). The "weaving" of the monogram into this "motor" rhythmic context may seem accidental. It most likely does not determine anything. But the employment of the monogram marks the prelude as if an autograph. It is also impossible to negate a constructive relationship – the theme of the Fugue in C minor illustrates an inverse version of this "autograph" (I). It is true that the inversion segments are distanced through intervals (B-C, G-A-flat, instead of A-B-flat, Example 7). [After the comparison of the thematic expositional model of the first three preludes and fugues with the monogram one could expect something similar.] Indeed, the third position (C-sharp major) lists an alternative

Example 6



Example 7



monogram shape (P). At the beginning of the prelude it sounds at the bottom and of the fugue – at top. Here a monogrammic shape is hardly legible for the reason of the double distancing of semitone segments. Their disposition embraces the entire phrase (theme), besides, they correlate at a fifth (E-sharp-F-sharp, B-sharp-C-sharp). It may be the reason why this form is identical both to the prelude and the fugue (in the fugue we cannot see the version of a reverse shape alike in the previous one). A reverse relationship of the prelude and the fugue with a permutable monogram version emerges later, i. e. in X position. The chromatically rising four-sound slide at the end of the Prelude in E minor (A-B-flat-B-C) is balanced by the falling intonation of the fugue theme (D-sharp-D-C-sharp-C). Besides, the fugue is exceptional – double-voiced, the only in the cycle. One may ask why the composer began his cycle in transposed monogram forms, to be more exact, without exploiting the authentic BACH sounds. By appearance, it looks more like the coding of his intention. So where is the original non-transposed monogram version? The searched for "catch" (BACH) sounds almost once within the entire cycle – in measure 26 of the Fugue in D minor (Example 8), i. e. in the area of the golden section ($m. 44 \times 0,618 \approx 27$).

Example 8

Andante espressivo ($\text{♩} = 72$)

m. 25

B A C H

29

GS $44 m. \times 0.618 = 27 m.$

The symbolic importance of this monogrammic projection happily clears up. Whereas the key of D minor is evolutionally associated with the Dorian tone of the modal system called *toni primi*.

This key is not only Bach's favourite (let us recollect the most celebrated works – Chaconi, Chromatic Fantasia and Fugue, Tocatta for the Organ, etc. written in this key) but also associates the majesty of the Renaissance polyphonic epoch. Thus, the authentic record of the monogram sounds in the "heart" (golden sections) of the Fugue in D minor contains a hidden depth of the implied sense in the context of old polyphonic and new homophonic epoch. In respect of the monogram, symptomatic is not only the fugue but also the Prelude in D minor. In culminating measures (m. 22–23) emerges a chromatically falling sound chain of diminished triads (Example 9).

Example 9



In the end (m. 23) one can read the permutation of the authentic monogram sounds (C-H-B-A). Particularly rich in a harmonic aspect is the minor not only due to its top modally varied tetrachord, creating preconditions for chromatic slides, but also due to the possibilities of the diminished chord to become a plastic springboard for a new system of tempered sound keys. Here the chromatic and original monogramic shapes of the Prelude and the Fugue in D minor rather openly manifest themselves as alternative to each other.

Now one can better perceive the manifestation of the derived mixed monogramic shape (M) at the beginning of the cycle in the Prelude in C major. The prelude represents not only a new homophonic-harmonic style but also the first key of the new sound system. (The Renaissance theorist G. Zarlino seems to be the first to motivate the priority of the Ionian mode.)

It is noteworthy that the intermediate monogramic shape (M) of the Prelude in C major conceptually associates an universal chromatic scale with an authentic monogram intonation. Most likely, it served for the composer as a stimulus to start the cycle in an intermediate, modified shape of the monogramic sounds. Incidentally, not only to start but also to return. The intermediate monogramic shape returns through a tritone distanced position (XIII). It is a symptomatic sign reinforcing the "well-tempered" harmony. And particularly because of the fact that its mixed shape and permutation exchanged places with the prelude and fugue. Thus at the beginning of the Prelude in F-sharp major (M. 1–4) we can see MP (from B) and within the range of the fugue golden section (m. 25) cuts in M (from A-sharp), but with a delayed second sound B and the segments distanced at a third (Example 10). This inversion with the first cycle's position (I) properly synchronizes, besides, with a closed circle of fifths (we mean a rising and falling intercourse of the fifths chain up to the sound F-sharp (G-flat) on which the tempered sound system is based.

Example 10



Another conceptual monogramic inversion can be seen in the final position of the cycle (XXIV). In the culmination of the Prelude in B-minor (m. 37–38), again within the range of the golden section (incidentally, when counting the golden section, the measures of the repeated parts of the prelude should be taken into consideration), we can see an intermediate shape (M) based on authentic monogram sounds (Example 11). Hence, the authentic monogram sounds return in a

Example 11



mixed monogramic form at the end of the cycle, and in this way as if end a monogramic conflict coded in the Prelude and the Fugue in D minor. There (VI), as we have seen, alternative forms (P and O) manifested themselves in authentic sounds. It is symbolic that this mixed form appears at the end of the cycle in the minor key and the prelude melody in comparison with the major prelude at the beginning of the cycle, where a similar form displayed itself in a transposed form in bass. Thus, we can discern here certain cycle-framing link-ups as well as the semantics of tonal and modal harmony systems.

Worthy of mention is an articulatory regularity related to the authenticity of the monogram sounds. The intonations of the sounds BACH appear once in the cycle's each 8-position section. In section the first (I–VIII) the sounds BACH can be seen in the Prelude and Fugue in D minor (PR and O), in the second (IX–XV) – Prelude in E minor (P) and the third (XVI–XXIV) – the Prelude in B minor (M). It should be noted that authentic monogram shapes sound at the end of the sections (first and third) or at the beginning (second). On the other hand, transpositional monograms with C major and F-sharp major positions, as we have noticed, embody the dualism of the cycle.

How does the composer finish this monogramic cycle? In one of his articles, the German musicologists J. Mainka writes that the theme of the final Fugue in B minor from the WTK I, consisting of all 12 sounds, is a united result of the cycle's all fugue tonics (Mainka, 1969). This thought is absorbing. But is it exact enough? The positions of the cycle are distributed in a rising order of a chromatic scale. However, such a plan of tonics finds no reflection in the Fugue in B minor. Its melodic profile is marked by a broken line. New sounds emerge beside sometimes recurrent ones. On the other hand, it is not likely that twelve different tones functioning in the theme are simply a summary accumulation of tempered sounds.

A more perspective seems to be a monogramic glance at the theme.

The fugue theme is comprised of the original and inverse monogram shapes (Example 12).

Example 12



These shapes are transposed and their pair segments of sounds are distanced from each other at the interval of the major third or minor sixths. Thus, the theme shows three successive original shapes (G-F-sharp-B-A-sharp, E-D-sharp-C-B and F-sharp-E-sharp-D-C-sharp) and at the end – the inversion of this shape (B-sharp-C-sharp-G-sharp-A, but with the previously anticipated third sound *a*). And so, the structure of the theme discloses variance (transpositional, segmental) and a closed character, structuring inversion of the original intonation at the end, whereas all the 12 tempered sounds exploited in the theme are most likely a mere precondition for the manifestation of these diverse monogramic modifications. A monogramic approach to the theme of the Fugue in B minor makes possible to productively associate it with the cycle's whole structure and its key plan. The three sections of the cycle and their key tonics, based on four different chromatically rising sounds, can remind of the composer's monogram macropermutations (Example 13). Thus

Example 13

each section disposes a certain transposition of permutation form – section I: C-D-sharp-D-E-flat; section II: E-F-F-sharp-G; and section III: A-flat-A-B-flat-B. As we have noticed, an alternative shape to permutation is an original monogram sequence. This kind of shape can be observed in the fugue theme transpositionally repeated three times (I: G-F-sharp-B-C-sharp, II: E-D-sharp-C-B; III: F-sharp-E-sharp-D-C-sharp). Hence, the major plan of the macropermutations of the three

sections is reflected in the theme by means of an alternative way. Similar micro- and macro-reflections are characteristic of the cycles. For example, a harmony progression legalizes itself in inverted order in the key plan and the like.

Noteworthy are also intonational directions of short introductions to the theme (F-sharp-D-B) and their ends (B-sharp-C-sharp...G-sharp-A). They are opposite, creating an allusion of question and answer. It is just this peculiarity that brings the theme to a complete close. We have noticed something similar on the scale of the whole cycle, comparing intonational directions of the first preludes in C major and the last in B minor.

The analysis of J. S. Bach's WTK I can be endlessly continued, however, our observations are sufficient for the argumentation of this work as a monogramic cycle.

References

Hanning B. R. *Concise History of Western Music*, 2000, p. 309.

Riemann H. *Musik-Lexikon* (Sachteil: 309, 745).

Mainka J. *Frühe Analysen zweier Stücke aus dem Wohltemperierten Klavier*, In: *Musa-Mens-Musici. Im Gedenken am W. Vetter*. Hrsg. vom Institut für Musikwissenschaft der Humboldt-Universität zu Berlin, Leipzig, 1969.

Santrauka

J. S. Bacho *Geraį temperuotas klavyras (I) kaip monograminis ciklas*

Praėjus kone 300 metų po GTK I sukūrimo ir tyrinėtojams skrupulingai išnarsčius preliudus ir fugas, šiandien dar lieka neįmintų ciklinės formos mįslių. Viena jų – GTK I kriptograminė sistema.

Akivaizdžios monogramos BACH cikle nepastebėsime. Ji užšifruota tam tikru būdu. Šitaip galima manyti bent jau dėl to, kad monograma niekada nebuvo atskleista. Tačiau galimas dalykas, kad didysis vokiečių kompozitorius net nebandė ko nors specialiai užšifruoti, o tiesiog naudojo monogramą savitu būdu.

Monograma BACH cikle naudojama transponuotu, inversiniu, permutuotu, segmentuotu ir kitokiais pavidalais. Monograminės garsų sistemos branduolį sudaro du alternatyvūs ir vienas išvestinis BACH elementų sekos pavidalai. Alternatyvi intonacijos seka gaunama sukeičiant garsų raidinius simbolius vietomis. Tokiu būdu originalioji seka (O) permutuojama (P). Tarp šių dviejų monogramos pavidalų įsiterpia mišrus tarpinis (M), kurio elementai tik iš dalies permutuojami. Taigi BACH (O), ABHC (P), ABCH (M). Mišrioji seka savo dviem pirmais elementais (AB) sutampa su permutacija, o paskutiniaisiais (CH) – su originalu. Kiekvienas pavidalas turi atvirkštines versijas.

Pravartu pastebėti ir artikuliacinį dėsningumą, susijusį su monogramos garsų autentika. Monogramos BACH garsų intonacijos kiekviename 8 pozicijų ciklo skirsnyje pasirodo po vieną kartą. Pirmajame skirsnyje (I–VIII) monogramos BACH garsus girdime Preliode ir fugoje *d-moll* (PJ ir O), antrajame skirsnyje (IX–XV) – Preliode *e-moll* (P) ir trečiajame (XVI–XXIV) – Preliode *h-moll* (M). Autentiški monogramos pavidalai skamba skirsnių pabaigoje (pirmasis ir trečiasis) arba pradžioje (antrasis). Kita vertus, transpozicinės monogramos su *C-dur* ir *Fis-dur* pozicijomis išreiškia ciklo dualizmą.

Kaipgi kompozitorius užbaigia monograminį ciklą?

Vokiečių muzikologas J. Mainka viename straipsnyje išsakė mintį, kad GTK I dalies paskutinės fugos *h-moll* tema, susidedanti iš visų 12 garsų, yra jungtinis visų ciklo fugų tonikų rezultatas.

Temoje panaudoti visi 12 temperuotų garsų, manytume, tėra prielaida įvairialypėms monograminėms modifikacijoms pasireikšti. Monograminė Fugos *h-moll* temos išvalga leidžia ją susieti su visuotine ciklo struktūra ir tonaciniu planu. Trys ciklo skirsniai ir jų tonacijų tonikos, pagrįstos keturiais skirtingais chromatiškai kylančiais garsais, gali priminti kompozitoriaus monogramos makropermutacijas. O fugos temoje alternatyviai atsispindi didysis trijų skirsnių arba trijų makropermutacijų planas. Panašūs mikro- ir makro- atsispindėjimai yra būdingi ciklams: pvz., harmonijų slinktis atvirkštine tvarka įteisinama tonacijose ir pan.

J. S. Bacho GTK I dalies tyrimą galėtume tęsti be galo, tačiau ir to, ką čia esame pastebėję, gali pakakti, kad šį kūrinių apibūdintume kaip monograminį ciklą.