

Beethoven revisiting his own past: some considerations on the relationship between the last two Sonatas and Op. 10 n. 1

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The objectives of this study fall into two categories: while the first involves theoretical reflection, the second is based upon firmly rooted performing experience.

One theoretical-poietic observation to begin with, that is trivial only if taken at face value: while in both the analytical and the musicological literature there is an enormous amount of material that traces the influence of preceding or contemporaneous composers on the work of Beethoven – at present I will only mention the texts by Webster [1995] and Dahlhaus [1990] – the influence that the young Beethoven had on the more mature composer has not been investigated to the same degree. In what sense do Beethoven's last works owe something to those of his youth? More broadly, one might further ask for what reason a composer is driven to revisit his own past works, and in what key they should be reinterpreted.

From a practical-esthetic point of view, this work draws its inspiration from an extremely personal and subjective insight: the study of Op. 110 and 111 set off a series of spontaneous and irrational connections with Op. 10 n. 1; to be specific, after having played the last two Beethoven Sonatas at the piano, the writer over and over found himself singing various passages of Op. 10 n. 1. Given that this happened repeatedly, after virtually every practising session, the need of undertaking a study was felt, to clarify the relationship between the works in question. Obviously, the first thing to verify was whether these relations had an objective foundation, or were only the fruit of an individual form of musical experience, tied to subjective impressions. Two strategies were employed to avoid the risks of subjectivity: an exam of the literature on the topic, and the rigour of a solid analytical methodology.

1. The precedents

References to analogous researches proved to be extremely scarce; the most significant goes a work by Gabriele Meyer [1985, 158] which compares the basic design of the bass of the opening theme of Op. 110 with a reduction of the first bars of Op. 26 (see example n. 1). In Meyer's text, this is understood as a rather rapid citation, from which no kind of conclusion is drawn. Another precedent comes from Charles Rosen, who highlights the relation between the Arietta from Op. 111 and the theme of the Diabelli Variations: in this case as well, which on the contrary has to do with the connections between Beethoven and contemporaneous composers, the example is inserted in the text as a passing reference. [Rosen 2002, 246]

Esempio n.1



The most noteworthy precedent is found in an article that appeared in a periodical published in Beethoven's own time, to be precise the second number of the Berliner Allgemeine musikalische Zeitung, dated 10 March 1824: in this number Adolph Marx defines Op. 110 as "a backward-looking glance towards happier times". The reference to the composer's youth, not yet undermined by deafness, seems obvious; however, exactly what led to this sensation of a "backwards glance" remains to be seen: perhaps thematic or harmonic references, or in all probability more generic ones, such as a certain stylistic atmosphere. It would seem to be significant that in another person, apart from the present author, listening to Op. 110 set off a more or less intuitive sort of flash-back.

Paul Loyonnet as well, a propos of Op. 110, states that "the entire first movement of the Sonata seems to be made up of melodic reminiscences that rise out of the past". In this light, Loyonnet cites the melody *In questa tomba oscura* written in 1807, even though the association between the two pieces appears to be completely arbitrary; the author explains his analogy with an interior-psychological type of interpretation, speaking generically of a "flight into memory" position [1997, 439]. Loyonnet himself quotes an observation made by Jacques-Gabriel Prod'homme [1937], which emphasizes the analogy between bars 5-6 of Op. 110 and the beginning of the second theme of the first movement of Op. 10 n. 1; the analogy, while above any doubt, in this case as well is presented as a rapid citation from which it is not possible to extract any clues regarding the evolution of Beethoven's musical thought [1997, 441]. Lastly, Donald Tovey, also discussing the piano sonatas, generically mentions a "logic of thematic connections between works belonging to the first and the last period", without specifying which connections are involved [1927, 132].

Before proceeding further into the questions already put forward, it may be useful to propose a brief reflection on the idea of "youthful work" and "late work", concepts that one can find in the musicological literature. From which moment on in the output of a composer can one define a work as "late"? An interesting reflection on the matter has been advanced by Carl Dahlhaus, for whom it is not possible to situate a "late" work in its own time, given that it is stylistically uprooted from the very period it comes from: "in the history of the spirit and of composition, late works break away from their own period, without any possibility of 'ideally' setting them in other times" [1988, 220]. In this sense, Dahlhaus gives as examples Bach's *Art of the fugue* and *Musical offering*. The referral to the world of strict counterpoint is not

accidental: according to Dahlhaus the stylistic trait that distinguishes Beethoven's mature production from his younger works is precisely the will to compose following the "tendency towards counterpoint and non-fulfilled harmonic functions". During our exam of Op. 111, we will have occasion to observe a few examples which prove the truthfulness of both affirmations. Beethoven himself, according to the testimony of Czerny, spoke of a "new way" in referral to the Variations Op. 35, and of a "completely new manner", without however specifying, in this instance, the meaning of this expression. For Dahlhaus the "new manner", brought in with the three Sonatas for piano Op. 31, is realized through the breakdown of the traditional concept of "theme" towards a "thematic configuration", i.e. a grouping of elements that do not in any specific phraseological articulation. By this Dahlhaus surely means to call our attention to the presence, in this group of Sonatas, of notes or groups of notes that cannot be inserted in a phraseological unity such as a phrase or a semi-phrase, appearing rather as isolated nuclei. The example that best illustrates this is the beginning of the Sonata Op. 31 n. 2, whose two initial motives, before their respective pauses, do not in any way fall under the traditional concept of "theme".

A somewhat more vague idea of "late work" can be found in Giovanni Carli Ballola, who speaks of the "abolition of temporal delimitations, of the "before" and "after" within which the an artist's creativity is imprisoned". For Ballola a youthful attitude of "immense prodigality of materials which are thrown with accumulative effects in the sonata-form container" goes to some extent toward the mature works in which "the effusive youthful procedure" coexists "alongside the strictest thematic elaboration". The citations given are quite generic, and leave us in doubt as to whether Ballola is asserting that there be no real distinction between the early and the late styles [1985, 106].

All in all, both Dahlhaus and Ballola seem to suggest that there are profound ties between Beethoven's youthful and late production, without however being precise as to the nature of these bonds, nor as to the way in which one has an influence on the other.

2. Methodology

In order to verify the correlations between two different works, the most suitable analytic methodology immediately seems to be the one developed by Rudolph Reti (1978), above all in the passages in which he traces musical materials that had been previously used and are newly taken up, put through transformations in pitch, rhythm, and metre. Of particular interest are the relations that Reti indicates between the four initial modules of the Allegro from Beethoven's Ninth Symphony and the four motives of the theme of the Scherzo, read as transformations of the former and used in exactly the same order as in the Allegro. Thus "not only the motivic fragments but the image of the Allegro's full theme are reiterated in the Scherzo" [Reti 1978, 13]. This observation, according to which the repetition involved is not limited to a few fragments but is extended to the entire formal profile of the theme of the Allegro, prompted (at least partially) the theoretical framework of the present research. And although in the cases examined one cannot speak of a complete repetition of the thematic profiles, it seems interesting to point out that the thematic transformations identified take place in the same order as their respective original fragments. [1]

Reti's theory examines a limited number of well defined thematic transformations, in such a way as to precisely identify the basic melodic element, as well as the type of transformation which undergoes. In the pieces in question, Beethoven uses only some of the techniques of elaboration defined by Reti, specifically those which have to do with modifications of the rhythmic and metric structure (notes on strong beats shifted to weak ones, and vice versa), inversions of notes, and addition or elision of material. Surprisingly, all of the techniques which involve combinations of different thematic elements are absent, whether in a horizontal (linking together diverse motivic fragments) or in a vertical sense (overlapping thematic elements), whereas these techniques play a great role in Reti's theory [1978, 66-105].

Furthermore, particular attention has been paid, in the present work, to the kinds of formal correspondence between the measures compared: the fragments under comparison, even though they do not always come from the same section (e.g. from the first theme group or from the transition), in the majority of the cases belong to "formally important" moments. By this expression I intend, for example, the beginning or the conclusion of all sections which carry out any formal function whatsoever, and naturally anything that can be identified as a "theme". This criterion is intentionally generic, in that the objective is to confront fragments that may be taken from quite different sections, without attempting to establish a precise formal correspondence between these sections.


Before beginning to compare the works in question, one lexical specification may be useful: the terminology adopted will be that of Rosen, in which by "first or second group" the formal section often called first or second theme is intended; by "transition" the formal section more commonly referred to as "modulating bridge" is intended. With "theme", on the other hand, the reference goes to the meaning one can draw from Drabkin [2001], understanding by this term a metrical unit with a complete sense which, in a way that is coherent with Rosen's stance, can be found in any point of a sonata-form.

3. The first movement of Op. 110 and the second movement of Op. 10 n. 1 (2)

Example n. 2 (audio example 1) shows the analogies between the opening bars of the two pieces; in this case the analogy involves both pitch and tonality. The use of the technique of inversion is clear, even though one must point out that, in Reti's theory, the term "inversion" is almost always used in a generic fashion, given that it includes inversion proper, as well as retrograde and contrary motion. In conjunction with this term Reti uses the neologism "interversion" to define the procedure, very frequent in Beethoven, of free rotation of notes within a melodic fragment [1978, 68-69].

We might well take advantage of this example to clarify the problem of confronting fragments that have different functions. One could object that the notes of Op. 110 C-Ab and Db-Bb, which belong to a single motive (bars 1-2), are compared with bars 1-2 and 3-4 of Op. 10, where the same notes are part of not one single motive, but two. Yet this comparison cannot be considered improper, given that in Reti's theory the expansion of a fragment from one to two or more motivic units is fully part of the concept of thematic transformation.

Esempio n.2



[\(example audio 1\)](#)

Example n. 3 (audio example 2) examines the long “vocalise” which brings the initial period of Op. 110 to a close; the melody F-Eb-Db-C, after an initial ascending movement, undergoes a descent towards C in two phases: the first ends on the trill on Db, and the second reaches the C after a new upwards impulse. In the corresponding passage of Op. 10, which belongs to the beginning of the central section, the two phases of the descent from F to C are even more explicit, even though the pitches are at a greater distance. The rhythmic outline of Op. 110, which resembles a recitative, is completely transformed with respect to its twin passage.

Esempio n.3



[\(example audio 2\)](#)

Example n. 4 (audio example 3) puts the beginning of the second period of the first group of Op. 110 face to face with the conclusion of the second period of the central section of Op. 10, and reveals once again analogies involving the pitch of the notes to be compared. The melodic profile is identical, with the difference that the interval Eb-Ab in Op. 110 no longer has intermediate notes: this is the type of thematic transformation that Reti defines as “thinning”. Here we have one of the few cases in which the transformation does not involve metrical aspects: the notes are in fact more or less in the same position within the bars.

Esempio n.4



op. 110
(II tempo) BATT. 5-6

op. 10 n.1
(III tempo) BATT. 25-27

[\(exemple audio 3\)](#)

The upper half of example n. 5 (audio example 4) compares a reduction of a few passages from the first movement of Op. 110 with passages taken from the second movement of Op. 10 n. 1. To be specific, from the top downwards: the beginning of the transition of Op. 110, the beginning of the concluding period of the central part of Op. 10, the beginning of the second group of Op. 110 and the varied repetition of the last period of the central part of Op. 10 (which correspond to pentagrams 5-1, 5-2, 5-3 e 5-4). This example takes into consideration a complex situation: in both compositions we find an ascent from G to Eb, that is repeated twice in a slightly different way. The first ascent is present in Op. 110 in the long demisemiquaver passage that sets off the transition: the groups of four demisemiquavers in example 5-1 are placed at the beginning of each bar, and clearly show an overall ascending movement; the same melodic profile is discernible in the parallel passage of Op. 10, realized with greater chromatic density (ex. 5-2). The second ascent differs from the first by falling back melodically onto the Bb that is present in both passages. This time the situation is inverted: Op. 110 presents the melodic arch in its essence (ex. 5-3) whereas Op. 10 puts forward a gradual ascent, expanded by way of the increment in chromatic density which delays the arrival on Eb (ex. 5-4).

Esempio n.5



The musical score for Example n.5 consists of ten staves, numbered 5-1 to 5-10. Staves 5-1, 5-2, 5-3, and 5-4 are single-line staves in treble clef. Staves 5-5 and 5-6 are a grand staff (treble and bass clefs). Staves 5-7 and 5-8 are another grand staff. Staves 5-9 and 5-10 are a grand staff. The score includes various musical notations such as notes, rests, and triplets. Vertical dashed lines connect corresponding notes across different staves, illustrating the polyphonic structure and thematic relationships.

[\(exemple audio 4 e 5\)](#)

In the lower half of ex. n. 5 (audio example 5) an even more complex situation appears: this example contains, from the bottom up, the beginning of the second movement of Op. 10 (pentagrams 5-9 and 5-10), the beginning of the coda of Op. 10 (es. 5-7 e 5-8) and the reduction of the passage which joins the end of the exposition to the beginning of the development in Op. 110 (ex. 5-5 e 5-6). The first two citations, both taken from Op. 10, are form a chiasm between themselves, that is the coda contains the same voices as the initial theme, with displacements within the polyphonic texture: for example the fixed note Eb in the left hand (ex. 5-10) is found, in the coda, in the inner part of the right hand (ex. 5-7); in this way the C-Bb-Ab of the theme emerges in the bass of the coda. [3] From here we proceed to Op 110: the melodic profile of the two passages points out in both of them an overall descent from Eb to Ab, which comes about in two moments (Mib-Reb-Do e Reb-Sib-Lab, es. 5-5). The most striking fact is the analogy between the polyphonic structure of the three passages: in all three one can recognize, beyond the already mentioned profile, a held note and the arch of a descending third (see ex. 5-6, 5-7 e 5-8).

There is another important factor which unites the two works, i.e. the use of the contrapuntal procedure known as "contrary motion". This procedure is present in Op. 10 at the beginning of the second movement (ex. 5-9 e 5-10): the neighbouring note pattern Ab-Bb-Ab in the upper voice (without the appoggiatura on C) has a corresponding pattern in the lower voice which is the exact mirror image of the first (Ab-G-Ab). In the rest of the piece, contrary motion procedures do not seem to occupy much room: one might therefore affirm that they are a potentiality, present in the initial thematic material, but which remains practically unexpressed.[4] In Op. 110 the full realisation of this contrapuntal procedure emerges, becoming present virtually everywhere, particularly in moments which can be called "important" in the meaning outlined above. Examples n. 6 to n. 12 only reproduce a small fraction of the moments in the piece in which contrary motion is present: ex. 6 involves the opening, in which the movements in the bass are clearly perfectly symmetrical compared to the movements in the right hand.

Esempio n.6



op. 110
(I tempo)
bb 1-3

*p con amabilità
(sanft)*

Example n. 7 is taken from the end of the transition: the ascent in the right hand from C to Bb is still visible, and is emphasised by the use of acciaccature, to which the descent in trilled quarter notes in the left hand responds. At the beginning of the second group as well (example n. 8) the ascent from G to Eb is counterbalanced by a descent which reproduces the same notes, inverting their order.

Esempio n.7



op. 110
(I tempo)
bb 25-27

p cresc.

f

è tratto dal termine della transizione: è visibile l'ascesa della mano destra dal Do al Sib, enfatizzata dall'uso delle acciaccature, cui fa riscontro la discesa in semiminime trillate della mano sinistra. Anche nell'inizio del secondo gruppo (esempio n. 8)

Esempio n.8



op. 110
(I tempo)
bb 28-29

Moving on to the second movement (example n. 9): the famous popular melody that proceeds by descending steps, which sets off a sort of binary scherzo, also has a twin counterpart. Example n. 10 shows the beginning of the central section in which the contrary motion procedure is greatly emphasised. The converging melodic lines are superimposed, and necessitate quite a large crossover of the hands; in this case the contrary motion becomes an extreme, almost blatant gesture. Examples nn. 11 and 12 show the beginning of the famous final fugue with its acclaimed inversion in G major, which, as is well known, is to be followed by a final re-exposition in the home key. This succession of the main tonalities of the fugato themes (Ab-G-Ab, respectively at bars 26, 136, and 174 of the third movement of Op. 110) inevitably recall the initial bass notes of Op.10 (ex. 5-10), almost a sort of polarization in which the three fundamental parts of the fugue are implicit.

Esempio n.9

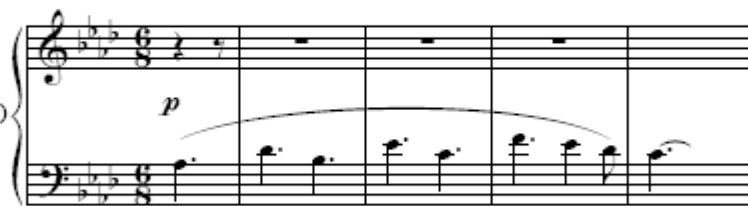


op. 110
(II tempo)
bb 1-4

Essentially, the procedure of contrary motion seems to have a cyclical nature that, working together with other compositional aspects, acts as a connective tissue common to the entire work, in order to avoid that sense of "rhapsodic juxtaposition of the movements" pointed out by Dahlhaus [1990, 218]. On the other hand, the use of contrapuntal techniques as a factor of formal cohesion is nothing new in the works of Beethoven: Allen Forte [1974] as well, in a well known essay, has demonstrated the presence of another contrapuntal procedure (diminution) as an element common to the entire Sonata op. 109. Evidently, the search for circularity within long and complex works does not have to do only with more or less clearly visible thematic events, but with subterranean networks of a more "technical" type as well.

Esempio n.11

op. 110
(III tempo, Fug)
bb 26-30



Esempio n.12

op. 110
(III tempo)
bb 136-140



4. The first movement of Op. 111 and the first movement of Op. 10 n. 1

The analogies between these two movements are quantitatively lesser, but they bear a great deal of interest on account of their particular nature. Without altering the criteria already used in the preceding comparison (adherence to Reti's methodology; comparison between parts found in particularly important formal occasions), another element appears to be indispensable: a reference to the theory of salencies. This theory, which first appeared in an article by Lerdhal [1989], involves an auditory type of analytic approach, normally used for non tonal pieces. At first sight it might therefore seem inappropriate to apply, in our present context, a theory that is so strongly tied to a completely different repertory; nevertheless, the strategy adopted seems to be the most appropriate to illustrate the kind of connection that rises between these two works. Lerdhal's theory defines "salient" those notes or aggregates thereof which have any kind of emphasis, that makes them stand out above the others. On the basis of this definition we would like to propose some examples that show in what way some notes from Op. 111 (in the lowest pentagram) take up notes that, in Op. 10, are situated in salient positions.

Esempio n.13



[exemple audio 6](#)

The C-Eb-B that marks the thematic incipit of Op. 111 (bar 20) takes up the three notes that, at the beginning of Op. 10, are found in the most salient points of the melodic arch, i.e. at the beginning, at the peak, and at the end (see example n. 13, audio example 6). The lack of the semiquaver triplet that opens the thematic exposition of Op. 111 remains to be cleared, that is, the notes G-A-B that Beethoven in his harmony exercises defines as a Schleifer (triple appoggiatura) and that are absent in the composer's own sketchbooks [Cooper 1979, 232]. The complete incipit is identical to a melodic fragment found in the second act of Dardanus by Antonio Sacchini, which was performed in Bonn in 1792 (example n. 14): this melody could therefore refer to a more or less conscious memory of a work heard in Beethoven's youth. As far as the pitches are concerned, one important aspect must be pointed out: in Op. 10 the three notes are quite far apart in the pitch space, in a range that reaches a thirteenth; the same notes are brought together in Op. 111 in a much narrower compass (a diminished fourth). The procedure of thematic transformation that Reti defines as "elision" [1978, 88-92] is applied here – as in example n. 17 – in an extreme, almost radical fashion.

Esempio n.14



As example n. 15 (audio example 7) shows, the continuation of the theme also makes a referral to Op.10, even though the stepwise G-C motion does not seem to be particularly salient. It should however be stated that this succession takes on a special relief exactly by virtue of its redundancy, being repeated three times in a row; moreover, in the last repetition, the descent is enlarged until it reaches an octave's range. The process of rhythmic transformation is clear, going from a ternary to a binary (metric) scansion, with consequent change of the metric position of the majority of the notes.

Esempio n.15



op. 10 n.1
(I tempo)
b 9

op. 111
(I tempo)
bb 21-22

[\(esempio audio 7\)](#)

The most interesting comparison can be found in example n. 16 (audio example 8), which is worthy of an ample description. The notes from Op. 10 are without doubt salient, in that they amount to an emphatic enlargement of the fifth and sixth leaps with which the theme begins; the emphasis is reinforced by the triple sforzato (also found in the original edition) which appears at the beginning of each bar. They are placed at the end of the first thematic group, while the Eb is found at the beginning of the transition; in Op. 111 the notes F-Db-D-B are located at the end of the transition, whereas Eb is at the beginning of the second thematic group. Observing example n. 16 one can note significant differences in the position and in the choice of the notes: the C is missing in Op. 111, and instead one finds a Db absent in Op. 10, while the B natural is enharmonically changed to Cb. Some notes in Op. 111 are inverted, following the technique of thematic transformation that Reti defines with the neologism "interversion", whose meaning has been discussed above. What meaning do these differences have, and what is their importance in the context in which they are found? To find an answer to these questions we must examine the two fragments singularly.

Esempio n.16



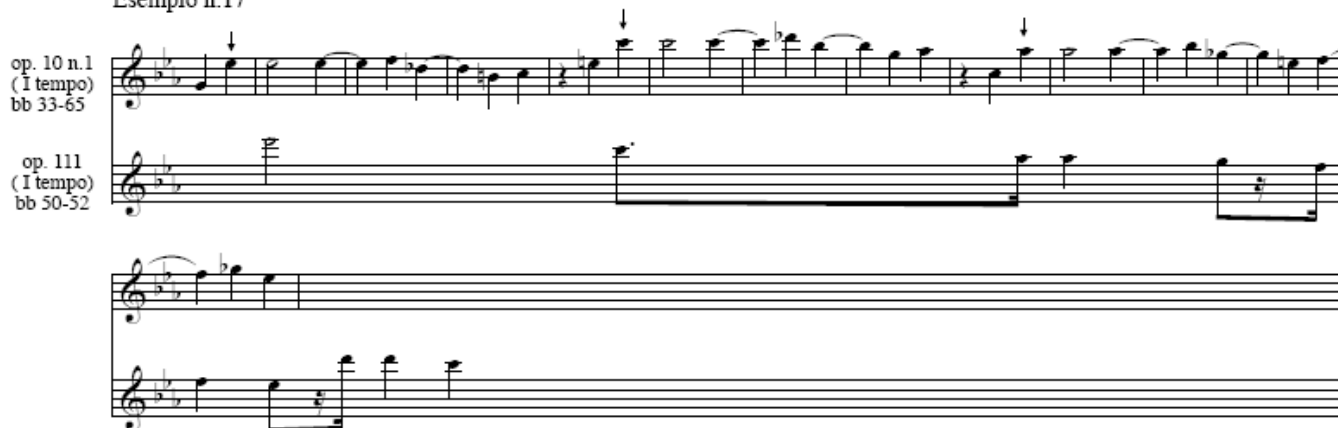
op. 10 n.1
(I tempo)
bb 28-32

op. 111
(I tempo)
bb 48-50

[\(exemple audio 8\)](#)

In Op. 10 the C exerts an extremely strong centripetal force: it is the arrival point of two melodic lines, one from above (F-D-C) and one from below (D-B-C), and therefore has a great force in the segmentation of the passage; there is thus an abyss between the C and the following E flat, reinforced also by the notable length of the pause. In Op.111 the situation is quite different. The D flat acts as the starting point of a chromatic melodic line that arrives upon E flat, while the F's tension as well indubitably resolves towards this note. In short, the E flat (dominant of the second group's tonality of A flat), acting as the point of resolution of both the chromatic line in the bass and the melodic line that comes from the high F, takes on the same function as the C in Op. 10.

Esempio n. 17



[\(esempio audio 9\)](#)

Example n. 17 (audio example 9) compares the beginning of the transition of Op. 10 to the beginning of the second group of Op. 111. The feature that makes the notes in Op. 10 salient is their special position within the melodic arch: they in fact act as the climax of the sixth leaps with which the single phrases begin, before turning into a movement which on the whole is descending. These "salient" notes (indicated by the arrow), taken one after the other, are the same notes with which the second thematic group begins.

5. Conclusions

In Beethoven's mature works, youthful material is often reorganized in a remarkably flexible space, which expands and contracts according to the needs of the new context: no tendency seems to prevail in an absolute way, the pitches being grouped together or expanded in an unforeseeable way, following procedures that can reach the dimensions of an extreme concentration or rarefaction.

Another interesting aspect to emerge from this research is the presence of elements used in a cyclic way: in the historical period in which the sonata form tends to dilate itself beyond all measure, one can well understand the need to find elements inside the various movements that act as connective tissue, common to the entire work. This research has demonstrated that these elements do not only involve more or less subterranean thematic aspects, but constructive procedures as well that make the presentation and evolution of the material uniform.

One last observation, perhaps the most remarkable and humanly involving. In the period in which Beethoven was falling into a deep deafness, he developed an attention towards acoustically salient phenomena which become the origins of new compositions. It may become legitimate to ask oneself at this point whether it was his deafness itself that acted as an important stimulus in his last great creative period, and if this same sensorial insufficiency may not somehow mark the border of a new stylistic phase.

With respect to the vague insights noted at the beginning of this work on the relationship between Beethoven's youthful and mature works, some new ground has been gained. In the *Allgemeine Musikalische Zeitung* (1799/2) a critic wrote a propos of Op. 10 n. 1, that: "the abundance of ideas brings Beethoven to superimpose them one upon the other and, in a rather bizarre way, to group them in such a way as to produce an artificial obscurity". Certainly, not a very favourable review, but it will be just to this abundance of material that Beethoven will look, as to a material that has not yet expressed all of its potentialities. Beethoven's backwards glance excludes any and all variation, paraphrasing, or other kinds of reminiscence that could be compared to a literal quotation or a nostalgic act of memory. What we find is a completely new reflection upon his youthful materials, which are projected in spatial dimensions that the first Beethoven probably had not yet conceived or had only imagined.

This kind of approach on the behalf of a composer might be confirmed by the words of Goffredo Petrassi, who often asserted in his conferences that a musician does not look forwards and backwards at the same time, like two-faced Janus, but rather looks only ahead, even when he turns to materials that come from his own past.

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1. The examples cited in the present article are indicated with the bar numbers of the passages they are taken from, with the precise intention of allowing the reader to verify that in each work they occur in a linear order, one after another.
2. In the examples of this paragraph, the upper pentagram always refers to the upper voice of the first movement of Op. 110, whereas the lower pentagram always refers to the upper voice of the second movement of Op. 10 n. 1. The number of the bar in which each example is found in the work appears beside each pentagram, while the bar lines are present only when important changes in the metric structure are to be indicated (notes in an accented position displaced onto weak beats, and vice versa).
3. In the example as transcribed, the notes do not have similar harmonic functions: the C of the theme is an appoggiatura, while the C in the bass is part of the harmony. In Reti's theory of thematic transformations a modification of the harmonic function is included as "change of harmony" [1978, 99-100].
4. The only exception is in bars 24-27 and 71-74, which correspond to the beginning of the second thematic group.