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Mind-games: the structure of energy and the character of structure in Beethoven's 'Archduke' Trio

1. James Webster: 'Formen-lehre in theory and practice', in *Musical form, forms and Formenlehre: three methodo-logical reflections*, ed. Pieter Bergé (Leuven, 2009), pp.123–39.

2. George A. Miller, Eugene Galanter & Karl H. Pribram: *Plans and the structure of behavior* (New York, 1960).

3. Webster: 'Formenlehre', pp.123–24.

4. David Lewin: 'Music theory, phenomenology, and modes of perception', in *Music Perception* vol.3 no.4 (Summer 1986), pp.327–92.

5. Jorge Luis Borges: 'The garden of forking paths', in *Labyrinths: selected stories and other writings*, trans. Donald A. Yates & James E. Irby (Harmonsdworth, 1970), pp.44–54.

IN HIS ARTICLE ON MUSICAL FORM 'Formenlehre in theory and practice' James Webster discusses two complementary perspectives.[1] The first, which he calls 'Form', objectively describes a movement's layout of sections as the order of play, often using spatial terms such as symmetry and proportions. 'Formung', on the other hand, is the specific realisation of the background premises of tonal action, as reasonable expectations of 'how such a movement will go'. Cognitive linguist George Miller calls such background premises 'plans', which apply in many areas of life. Plans provide the ground-rules of how we learn, communicate and locate ourselves in a particular environment – geographic, verbal or musical – by means of identifiable points of reference.[2]

Plans of behaviour as 'Form', then, can be seen as rules of engagement which provide probable courses of action for 'Formung' as specific realisation. 'Formung' is the movement's 'insider story' as action in time, where expectation is transformed and digression may lead into surprise tonal directions or expressive domains.[3] Background expectations of 'Form' enable practised listeners to evaluate tactics of surprise and strategies of return as creative invention. David Lewin describes how such points of evaluation depend not only on formal criteria of genre but also on the level of expectation, immediate or long-term, in what he calls the horizon of probability.[4] At a particular point of structural intersection, how the music plays out can be seen as the specific realisation from possible choices, a range that Webster calls 'multi-valence'. At such an intersection, the actual route cannot be predicted ahead of time. As in Borges's story 'The garden of forking paths' the uncertain future at the juncture of choice becomes the actual past in retrospect.[5] Creative invention is only 20/20 in hindsight.

Webster's terms 'Form' and 'Formung' propose contrasted perspectives in describing musical works, as space versus time and objective construct versus subjective experience. Expectations of 'Form' are probability schemas, whose contours of action, in the specific realisation of 'Formung', may be impacted in three ways: deflected by unexpected tonal direction; dislocated by intrusion; or intersected by 'time out' as reflection. Individual works may be evaluated as inventive solutions against expected action, in part as

adherence, but also as departure, reworking and transformation. 'Formung' is not just about strategies of deflection, though. Complementary to the 'route out', against paradigms of 'Form', are tactics of return that enable the movement or work to be resolved. 'Formung' accordingly traces the dialectics of risk and restitution: between unforeseen action on the one hand and recalibrating return on the other.

Beethoven's 'Archduke' Trio, op.97, provides a case-study of 'Formung' as 'internal story' on the one hand and as 'external story' of dates and documents on the other. A point of location in the 'external story' is the autograph, dated 'Trio am 3ten März 1811' at the beginning and 'geendigt am 26th März 1811' [April crossed out] at the end. The 'Archduke' Trio, however, was not published until 1816, appearing in two parallel editions, one by Steiner in Vienna and the other by Birchall in London.[6] This unusually long time between completion and publication led to two lines of inquiry: one was whether Beethoven had intentionally held back the trio until he initiated negotiations with publishers in 1815, putting out tenders for the best price. The long gap between completion and publication was like that of the F minor String Quartet, op.95, completed slightly earlier in 1810 but not published until 1816. As with the trio, it was published in two editions, by Steiner in Vienna and by Clementi in London in 1817. The two cases, though, were rather different. The quartet, characterised by abrupt discontinuities and confrontational style, was not for a wide audience but understood by just a small number of educated listeners. Given its radical character, Beethoven said that it should only be played in private, a concern which may have led to withholding it from publication. On the other hand, Beethoven had tried to get the trio published earlier. In a letter to the Vienna publishers Breitkopf & Härtel dated 12 April 1811, Beethoven introduced his friend Oliva, giving him power of attorney to negotiate on his behalf for the new trio.[7] This was evidently unsuccessful, not on account of third-party negotiation but because the price of 100 gulden was too high.

The other line of inquiry was whether the dating on the autograph was actually correct. As part of the Biblioteka Jagiellońska collection in Cracow, the two-volume autograph, recently published in facsimile by Henle, is a surprisingly messy document. Far from a clean copy, it is full of changes, deletions and fierce scrubbing out, as Beethoven continued revising ideas on the autograph, like a further stage of the sketch books.

Such extensive changes, together with comparing paper types in the second volume of the 'Archduke' autograph with the autograph of the Violin Sonata, op.96, led Sieghard Brandenburg to propose a later date of 1814/15 for the 'Archduke' autograph, which would bring it closer to the publication date of 1816.[8] He contended that extensive amendments in the 'Archduke' autograph were written only after Beethoven's completion date

6. Alan Tyson: *The authentic English editions of Beethoven* (London, 1963), pp.13–27.

7. Emily Anderson: *The letters of Beethoven*, 3 vols (London, 1961; rpr. New York, 1985), vol.1, letter no.304, p.319.

8. Sieghard Brandenburg: 'Bemerkung zu Beethovens Op.96', in *Beethoven Journal* vol.9 (1977), pp.11–25.

of 26 March 1811, with its later publication date similar to two other works Beethoven had written in close proximity of time, the Violin Sonata, op.96, and the F minor String Quartet, op.95. For a long time, this dating was considered correct. In a recent article on the 'Archduke' autograph, though, Seow-Chin Ong reviewed the documentation, considering paper types as necessary but not sufficient evidence. Drawing a close correlation of paper types and ink between the autograph and a set of performance parts written out by Beethoven's copyist, Wenzel Schlemmer, in 1811, Ong reconsidered the autograph date as at, or near, to 1811.[9]

Autograph dates aside, Brandenburg's sense of a parallel between the F minor Quartet, op.95, and the 'Archduke' Trio may not have been so wide of the mark. Both works were sketched in Landsberg II, a sketchbook in use, probably, from autumn 1810 to spring 1811. The first part of the sketchbook was used for incidental music for Goethe's play *Egmont* ('ten numbers, overture and entr'acte music'). The middle section contains sketches for all four movements of the F minor String Quartet, op.95, on pages 30–47, while sketches for all movements of the 'Archduke' are on pages 59–93.[10]

Written in close proximity of time, the F minor String Quartet and the 'Archduke' Trio are diametrically opposed in style, mode and character: the quartet, with intense rhythmic concision and sharp alternations of texture and dynamics; the trio, with diatonic expansiveness and dialogue as discourse. The F minor Quartet's sharp discontinuities, though, are counterbalanced by lyricism. Its abrasive narrative is intersected by the slow movement as a kind of 'as if' introspection; and in the scherzo, episodes, like windows of reflection, are interpolated into the scherzo's urgent F minor action. While the 'Archduke' Trio defines a completely opposite expressive demeanour – major key, expansive diatonic material and substantial proportions in each movement – it is also inflected by 'as if' expressive domains set within, and against, the work's B♭ major expansive diatonic character. As in the F minor Quartet, these inflections, seemingly imported from a different time zone, take place on two levels of structure. One of these is within the movement. The first-movement development sets the scene for such a digression by a lyrical commentary on the first subject in the cello answered by the violin (ex.1a). Development dialogue, pausing at the juncture point, then turns inwards into an unforeseen zone, a ghostly arena of action with *pp* dynamics, short, edgy trills in the piano and pizzicato strings (ex.1b).

By contrast with the movement's expansive discourse, this digression first deflects direction into uncanny terrain, and then recoups it via the circuitous approach to the recapitulation. As tactics of deflection and in its 'underworld' character, this ghostly section recalls the scherzo of the Fifth Symphony: first, as the spooky reprise of the scherzo material, *pp*, 'pizzicato', which sneaks in after the C major trio (ex.2a). At the larger

9. Seow-Chin Ong: 'The autograph of Beethoven's "Archduke" Trio, op.97', in *Beethoven Forum* vol.11 no.2 (Urbana-Champaign, 2004), pp.181–208, particularly p.191, and idem: 'Source studies for Beethoven's Piano Trio in B-flat major, op.97 ("Archduke")', PhD dissertation (University of California at Berkeley, 1995).

10. Douglas Johnson, Alan Tyson & Robert Winter: *The Beethoven sketchbooks: history, reconstruction, inventory* (Berkeley & Los Angeles, 1985), pp.198–200.

Ex.1a: Beethoven: 'Archduke' Trio, op.97, first movement, development

Ex.1b: Beethoven: 'Archduke' Trio, op.97, first movement, development.

structural level, the scherzo's skeletal return waylays the finale resolution, just prior to the recapitulation (ex.2b).

Like the juxtaposed 'underworld'/'overworld' domains in the 'Arch-duke' first movement, similar contrasts of expressive character occur between movements. The slow movement's sustained lyricism as 'time out' is set against scherzo and finale energy as 'time in'. At the level of macro-structure, then, the 'Archduke' Trio and the F minor Quartet realise 'plans of behaviour' as innovative 'Formung', not only as contrasted structural action but as expressive model, which will be described as the expressive concept

Ex.2a: Beethoven, Symphony no.5 in C minor, op.67, reprise of scherzo.

Ex.2b: Beethoven, Symphony no.5 in C minor, op.67, reprise of scherzo before finale recapitulation

of complementation and interpolation. This model considers techniques of re-routing prevailing narrative by 'windows' that either suspend or deflect it. Like a monologue in a play, 'windows' are 'time out'; they are meditative reflections, conveying a different perspective of understanding to the audience, inserted into the overall dramatic plan. As tactics of musical action, 'windows' that import a reflective expressive counter-terrain into the action similarly modify form: from primarily goal-directed linear action into deflective paths of alternative choice. 'As if' domains deflect the direction of time and action, which is subsequently recalibrated as return.

The expressive model of complementation and interpolation, as 'plans of behaviour' in deflecting narrative routes, differs from comparing/contrasting two works in the same genre, like symphony or string quartet, as problem-solving 'Formung' strategies. The Fifth Symphony, op.67, minor key, powerful, tautly constructed, written in 1807 and the beginning of 1808, and the Sixth Symphony, op.68, expansive, diatonic F major with five movements, written in the spring and summer of 1808, provide one of the best-known examples of different solutions of 'how to write a symphony'. Unusually, both works were premiered together (with numbering switched) in the benefit concert of Beethoven's new works on 22 December 1808, at the Theater an der Wien.[11]

Against such striking contrasts of style and expressive character, these adjacent solutions also contain related aspects of structure, such as the run-on connection between penultimate movement and finale. At the end of the Fifth Symphony's scherzo, dominant resolution is sidetracked by an ominous timpani tremolando on A♭ in cellos and basses. Fragmented scherzo phrases in violin 1 over the bass F♯ to G coalesce, impelling resolution into the broad-based C major finale. In the 'Pastoral', dissolution rather than deflection links the last two movements. The 'Storm' movement's fierce, dissonant energy drains away to a residual rumble in cellos and basses which then dissolves. Out of the stillness an ascending flute line leads to an exchange between clarinets and horns, and in turn into the F major 6/8 finale, as restitution of the natural world.

The F minor Quartet and the 'Archduke' Trio, on the other hand, show different solutions of the expressive model, with tonal direction re-routed into often unforeseen domains. In scientific contexts these tactics of either inflection or deflection are called 'outsiders', described as 'the transformative way in which boundary crossing plays a role in creative thinking and innovation'.[12] The two scenarios of a work's 'inner story' may be seen, then, as complementary descriptions: stories as problem-solving design – 'Formung' – are tactics of probable action; expressive inflections and deflections (stories as analogues of affective journeys) are route-changing in tonal and temporal location and game-changing in creative thinking.

The expressive model accordingly opens up two kinds of time dimensions: one is deflection of route into an unexpected domain, where time splits off into diverse strands as non-linearity, only returning to its deflected goal later in the movement. The other dimension of time is suspension, the 'music of the spheres' as the musical choreography of the starry heavens, and in the larger context of a work, 'time out' from action. In an article on Beethoven's creative process, William Kinderman describes how two short pieces from 1820 in the 'Wittgenstein' Sketchbook can be seen as looking forward to Beethoven's conceptions of time in the late works, particularly

11. Lewis Lockwood: *Beethoven: the music and the life* (New York & London, 2003), p.218.

12. Oren Harman & Michael R. Dietrich, edd.: *Outsider scientists: routes and innovation in biology* (Chicago & London, 2013), p.ix.

timelessness as character and non-linearity in context.[13] As meditative reflection, representations of suspended time appear in the late slow movements, such as the D♭ major slow movement in the String Quartet in F major, op.135. Interpolated episodes of suspended or reflective time appear in the E major section of the slow movement in the E♭ major String Quartet, op.127, and the C♯ minor section in the D♭ major slow movement of the F major Quartet, op.135. Such non-linear solutions appear in the late works as 'play-grounds' of complementation and, often, interpolation.

Time as timelessness, though, appears earlier in Beethoven's middle period works, in the serene E major slow movement of the E minor String Quartet, op.59 no.2, and the reflective, D major variation slow movement of the 'Archduke' Trio – as if temporal characterisations in the late works appear as emergent aspects of compositional thinking in the middle period. Interpolation of different time zones into larger contexts occurs in both works in the Landsberg II sketchbook, providing alternative realisations to the predominant, middle-period plan of linear, goal-directed action. But as well as the profile of the works, the sketchbooks may themselves be seen from different dimensions of time: as future, in 'continuity drafts' yet to be realised; as present, in the workshop of crafting ideas; and as past, the sketchbooks were the repositories of compositional solutions, Beethoven's compositional history, which he bundled up and took them with him on his many moves of apartment in Vienna.

The 'Archduke' Trio, then, may be seen as dialectic between 'Form' as reasonable probability of action, and 'Formung' as what actually happens. Discussing this dialectic in the first movement, Frank Samaretto sees the movement's grandiose public face as having an undercurrent tilt that pulls direction in unexpected ways.[14] Part of that tilt is the second subject in the submediant, G major, a third below B♭ major, rather than the expected dominant, F major.

While keys a third apart for main tonal/thematic areas in a first-movement sonata exposition occur fairly often in the late works, as in the 'Hammerklavier' Sonata, op.106, and the String Quartets in E♭ major, op.127, and B♭ major, op.130, they are more unusual in middle-period works but not unique. A well-known example is the first movement of the 'Waldstein' Sonata, op.53. In the exposition, the chorale-like second subject in E major, as major mediant, is followed by a triplet variant, which appears twice at different tessituras (ex.3a).

In the recapitulation, the second subject is a third below C in A major, the major submediant, followed by the triplet variant in two tessituras, as in the exposition. Recapitulation as resolution modifies the replay. The chorale-like second subject, repeated in A minor, curves round to C major for the two appearances of the triplet variant, as double tonal resolution (ex.3b).

13. William Kinderman: 'Beyond the text: genetic criticism and Beethoven's creative process', in *Acta Musicologica* vol.81 no.1 (2009), pp.99–122.

14. Frank Samaretto: 'Temporal poise and oblique dynamic in the first movement of Beethoven's "Archduke" Trio', in David Beach & Yosef Goldenberg, edd.: *Bach to Brahms: essays on musical design and structure* (Rochester, NY, 2015), pp.57–68.

Ex.3a: Beethoven: Piano Sonata in C major, op.53, 'Waldstein' , first movement, exposition, second subject

Ex.3b: Beethoven: Piano Sonata in C major, op.53, 'Waldstein', first movement, recapitulation, second subject.

The 'Archduke' first movement, though, does not show such an equivalent interval for the recapitulation return of the second subject. While G major occupies extensive space in the development with twelve-and-a-half bars of dominant pedal leading to the ghostly 'underworld' exchange, the recapitulation has no equivalent appearance of the second subject at the third above to balance the exposition's G major at the third below. In sonata movements where the exposition second subject key is a third above the tonic, it returns in the recapitulation at the third below, as in the 'Waldstein' first movement. If the exposition second subject is a third below the tonic, as in the first movement of the B♭ major Quartet, op.130, it returns in the recapitulation at the equivalent third above, in a key with either one more sharp or one less flat. The first movement of op.130 is a particularly interesting solution as the exposition second subject a third below, in G♭ major, 'borrows' from keys in the network of the tonic minor, B♭ minor, with the reprise in the recapitulation in D♭ major, at the third above. In both these movements, the equivalent recapitulation reprise is followed by the second subject in the tonic, as double resolution.

In the first movement of the 'Archduke' Trio, the second subject in G major, at the third below, seems to work against the grain of tonal 'Form' criteria of intervallic equivalence. Neither possible solution works as recapitulation reprise at the third above. The major mediant, D major, would be 'sharper' than the exposition submediant, while D minor, on the flat side, is unrelated to G major. Although the second subject returns in the tonic as resolution in the recapitulation, there is nevertheless a sense of unfinished business. The unusual sharp key of G major in the B♭ major narrative is left hanging, as if a strategic character in the movement's dramatic design has been whisked offstage.

Not only presence but absence in a particular context may indicate that some kind of unusual expressive relationship at issue as expectation deferred or deflected – in other words, re-routed on to different time-strands via alternate organisational paths. While the anticipated ascending third between tonal areas does not return in the recapitulation, it nevertheless does not disappear from the work. The 'would be' return of the major mediant, D major, extrapolates out instead to a larger structural level, as the key of the slow movement. D major, as 'would be' complement to G major, is deferred from the internal context in the first movement, to a larger horizon of reflection (in both senses) in the context of the work. The expressive concept of complementation and interpolation can be seen, then, to integrate levels of time and tonal structure as 'Formung'.

G major as the second subject key in the first movement exposition of the 'Archduke' relates to two other substantial B♭ major works dedicated to the Archduke Rudolph, with G major playing a strategic role in both: the

'Hammerklavier' Sonata, op.106, as expressive complementation in the first movement, and the 'Grosse Fuge', op.133, as interpolation and confrontation of counter-tonal domains. In the first movement exposition in both the 'Archduke' and the 'Hammerklavier', the pitch D is used as connective switch-point between the keys of B♭ major and D, as the dominant of G major. Expansive elaboration in the 'Archduke' transition unfolds in a cello/violin dialogue using first subject material, counterpointed by the piano's triplet figure in a spacious descending curve. The triplet figure elaborates a triadic descent with a mordant highlighting the first note of each triplet, as seen in ex.4. As the curve in turn ascends, the triplet figure dissolves out first subject material, shifting the balance from figuration as activity to figuration as elaborated stasis, hovering at the periphery of G major before the piano leads into the second subject. These tactics of dissolution to restitution, seen previously in the inter-movement energy curve between penultimate movement and finale in the 'Pastoral' symphony, now appear within the 'Archduke' first movement as a means of expanding proportions, deflecting tonal direction and establishing the second subject key before the appearance of its thematic material.

Like the 'Archduke' connection as expressive complementation, the 'Hammerklavier' first movement, after a peremptory B♭ major/D major triad switch-point, also shows exploratory wandering in G major with a similar strategy of expanding the connective link before the second subject material enters. In these interpretative tactics, the tonal domain appears prior to and accordingly separate from thematic identity. By contrast with sharply defined middle-period praxis where forward-driving momentum highlights arrival of the second subject, here the second subject's rhythmic/motivic contour emerges from its tonal environment. The 'Grosse Fuge',

Ex.4: Beethoven: 'Archduke' Trio, first movement, exposition, approach to second subject.

Ex.4 continued

by contrast, projects the expressive concept as interpolation, jostling for position. In the fugue's confrontational off-centre opening tactic, G major challenges the primacy and identity of B♭ major from the start.

   Prime first movement elements in the 'Archduke' Trio provide the basis of identity and transformation in subsequent contexts. These elements contain invariant motifs, which establish points of identity, and variant intervals, as the means of mobility and deflection, realised across the movement, as may be seen in figs.1a–f.

   The dialectics of invariant and variant components as high-level problem-solving are a gambit where components, aligned in dynamic play, are choreographed in different expressive characters and tempi. From this perspective, the scherzo, placed second, can be seen as a variant of the prime elements in fig.1a and 1b, as seen in figs.2a–d. A fascinating aspect

Fig.1

First movement, first subject elements

(a) [musical notation with "variable" boxed]

(in second subject group exposition)

(b) bar 3 [musical notation] variable   bar 7 [musical notation] variable   bar 73 [musical notation] variable

(c) bar 5 [musical notation] variable

second subject (exposition)   variable
(d) [musical notation]   (bar 52) [musical notation]

development   bar 115
(e) [musical notation]

'underworld' exchange
(bars 141/42)   (bars 143/44)   (pizz.)   (bar 146)   variable
(f) [musical notation]

Fig.2

First movement, first subject, elements

(a) [musical notation]

(bar 3)
(b) [musical notation]

Scherzo
(c) [musical notation]

(at pitch)
(d) [musical notation]

First movement, development
'underworld' exchange
pizz.   (bar 146)   Scherzo, trio   (bar 127)
(e) [musical notation]   pp   p

of the scherzo as transformative variant of the first movement is how the trio, in B♭ minor, refers back to the unsettling 'underworld' exchange in the first movement development, not only in compressed character but by compressing the 'underworld' exchange material, as may be seen in fig.2e.

These inter-movement references are a kind of mnemonic, where the trio 'underworld' character and compressed material recall the interpolated exchange in the first movement development. Although a recollection rather an exact quote, as in the ghostly scherzo appearance interpolating the finale of the Fifth Symphony, there is nevertheless a musical memory of the first movement's 'underworld' digression carried forward into the suppressed B♭ minor trio.

The trio, though, has two completely different and alternating characters: the one minor key, with chromatic, suppressed semitones, the other, major key, expansive and diatonic, with a mordant on the downbeat of the bar, re-calling the mordants highlighting the transitional curve from B♭ to G major in the first movement exposition, in ex.4. The trio's confident, major key component appears in three different keys: D♭ major, as relative major to B♭ minor; E major, a surprising and striking switch to the sharp side of the tonal spectrum; and B♭ major, leading back to the scherzo. The B♭ minor material's chromatic shuffle is the means of return from E major to B♭ major. At bar 222 the pitch F♯, as part of the dominant of E major, is respelled chromatically as G♭. Re-interpreted as flat submediant in B♭ major, G♭ falls to F as V, as seen in fig.3a. In the integrated structure between motif as pitch centres and keys as tonal centres, the keys D♭ major, E major and B♭ major, juxtaposed against B♭ minor, form an inflected retrograde of the first subject motif in bar 5 (fig. 3b).

Fig.3

Inflected, but not exact: because the exact retrograde would be D♭ major, E♭ major, B♭ major, with the last interval a variable, as in fig.2b. Why E major and not E♭ major? After all, E♭ major has already established a presence in the scherzo, as the *dolce* response *p* (from bar 86) after the highly articulated, rhythmic exchanges *ff*, and its parallel place in the scherzo return (from bar 372). E♭ will also teasingly play off as/in subdominant at the beginning of the finale in one of Beethoven's favoured off-centre finale tactics, also used in the finale of the E minor String Quartet, op.59 no.2, and the Fourth Piano Concerto.

From the perspective of expressive complementation and interpolation, E major is not just side-by-side contrast with the preceding chromatic B♭ minor. It is the most extreme tonal interpolation on the sharp side in the movement and work. Each of the three B♭ movements contains sharp-side components, initially set against the movement's structural paradigms and subsequently reconfigured: the G major second subject in the first movement exposition; the E major intersection in the scherzo; and the finale Presto in A major, effectively reinterpreted as leading-note for the return to B♭ major. In the character of scherzo as play and the strategy of scherzo as risk-taking, the E major section is the movement's 'sharpest' interpolation (in both senses). Maynard Solomon has described this kind of high-risk tactic as veering towards chaos, by first pushing towards extreme boundaries of rhythmic energy or tonality, then pulling back, redefining order and grounding identity.[15] At the most extreme tonal deflection in the scherzo, E major is recouped by pitch-reinterpretation, where F♯, in its dominant, as noted above, is respelled as G♭. Then, as ♭VI to V in B♭ major (seen in fig.3a), the last trio pairing presents the compressed B♭ minor material answered by B♭ major, as tonic major key complement, followed by the return of scherzo.

Strategies of expanded proportions in the 'Archduke' scherzo can be seen as a specific 'Formung' realisation, with ABA scherzo form reinterpreted by the enormously expanded trio. This plays out as double intersection: at the level of the movement, in the trio where the tonic minor, B♭ minor, with its chromatic, shuffling semitones, provides contrast to B♭ major's deft, precisely articulated figures, with linear thirds up and down in scherzo as play. On the other hand, within the trio, intersections appear as unexpected forays into contrasted major key episodes, unfurled in confident, gestural style and set against the suppressed chromatic shuffle of B♭ minor.

Not limited to this extraordinary expansion in the middle of the movement, the whole action repeats from the beginning, making enormous proportions for the movement. At the end of the second time repeat, the coda, opening with the trio's B♭ minor chromatic shuffle, dovetails into the scherzo's opening B♭ major material. But the initial spiky, eight-bar

15. Maynard Solomon: *Late Beethoven: music, thought, imagination* (Berkeley, 2003), p.131.

question-and-answer exchange between cello and violin is now cut down to four bars, sliced up with one bar for the cello and three for the violin. Overlapping the violin's last note, the piano ends the movement by four bars, *pp*, of the scherzo's ascending scale, capped by two bars *ff*.

The 'Archduke' Trio shares with other broad-based, major keys middle period works, like the 'Eroica' Symphony and the F major 'Razumovsky' Quartet, op.59 no.1, thematic coherence over large spans, new concepts of development not limited to the development section, and tactics of digression and return over large time-spans. With reference to the F major Quartet, op.59 no.1, focusing particularly on the first movement, Lewis Lockwood has discussed such expanded proportions in terms of thematic strategy and its realisation over a large time-span. Considering a large-scale repeat of the first movement development and recapitulation in the autograph, subsequently deleted, he proposed that a movement basically has to reconcile two different demands: thematic strategy as identity versus narrative action as perceptual coherence. He calls this the 'fit' between material and its balanced realisation,[16] considerations that apply equally to the very large repeat in the 'Archduke' scherzo.

But another movement in the F major Quartet with expanded proportions may throw light on the 'Archduke' scherzo, with its unforeseen forays and articulated returns: the B♭ major scherzo, which, like the 'Archduke', is placed second in the order of movements, with similarly articulated rhythmic prime material as structural reference. In the quartet scherzo, ABA form is underpinned by sonata design, which provides anchor points of tonal coherence: exposition and recapitulation open with the sharp-profiled, monotone opening rhythmic motif in B♭ major, while the exposition's second subject in F minor, the minor dominant, returns in the recapitulation in the tonic minor, B♭ minor. Logical tonal plan though, is projected in scherzo style, with surprise moves and wrong-footing routes to and from tonal areas and with a dazzling display of virtuoso scoring in the development and coda. In the 'Archduke' scherzo, on the other hand, expressive interpolation plays out at two levels of part fulfillment/part contradiction. As part fulfillment of the movement's large-scale structure, the repeat of the whole action – scherzo, trio, scherzo, trio, scherzo – makes a five-part form, like the scherzo of the E minor 'Razumovsky' Quartet, op.59 no.2. As part contradiction, the trio's B♭ minor is intersected by keys and material imported from 'outside'. The trio as movement in the trio as work is effectively a double 'outsider': by keys imported from the 'outside'; and in technique, crossing boundaries, as in scientific contexts noted above, which open up new dimensions of creative thinking and innovation. By extending the normally short trio section in ABA form into a vastly expanded section of juxtaposed episodes, scherzo contrasted by trio is reframed as scherzo interpolated by trio.

16. Lewis Lockwood: 'Process versus limits: a view of the Quartet in F major, op.59 no.1', in idem: *Beethoven: studies in the creative process* (Cambridge, MA, 1992), pp.198–208.

In a letter of January 1865 to his friend Humbert Ferrand, Hector Berlioz describes hearing Joseph Joachim play the 'Archduke' Trio and other chamber music works by Beethoven. 'The famous German violinist has come to spend ten days here; he is asked to perform almost every evening in various salons. I thus heard played by him and by a few other worthy artists Beethoven's [Archduke] Trio in B flat, the [Kreutzer] Sonata in A, and the E minor Quartet [op.59 no.2]. [...] it is the music of the starry heavens'.[17] Berlioz's reference to the starry heavens takes up a well-known trope in Beethoven's thinking of elevating human experience by connecting inner spiritual dimension to the sublime patterns of the outer world, seen in the heavens. Beethoven's biographer Thayer comments on the composer's involvement with spiritual elevation around and after 1810, which would include the time of composing the 'Archduke' Trio, saying: 'Beethoven exhibits a keen perception and taste for the lofty and sublime'.[18] Thayer also notes Beethoven's interest in eastern philosophy and concepts of time. By contrast with western descriptions of time as action, the arrow of time and time as destroyer ('time's scythe'), eastern philosophy views time as timelessness, inner serenity and eternal return in the recurrent cycles of nature and existence. The connection between inner human spirituality and outer patterns of time and nature are recorded most famously in a Conversation Book entry from 2 February 1820: 'The moral law [with]in us and the starry heavens above us. Kant!!!'[19]

Time as 'the music of the starry heavens' – in Plato's evocative phrase 'time as the moving image of eternity'[20] – is often described in the slow movements of Beethoven's late works as instrumental arias and variation movements that unfold successive perspectives on the theme. But like time travel back through Beethoven's compositional journeys, sustained temporality and the collage of unfolding variants appear earlier in middle-period slow movements. It is of particular interest that such sustained slow movements appear in two of the works Berlioz heard Joachim play, the E minor Quartet, op.59 no.2, and the 'Archduke' Trio.

The 'Archduke' slow movement has two unusual aspects of time: one is triple metre; and the other, a shift of rhythmic emphasis in the opening phrase, from expected downbeat to the second beat of the bar. In the answering phrase, the downbeat returns to the first beat of the bar in bar 5. The subtle rhythmic shift to the second beat plays against downbeat harmonic layout while the three quaver upbeat in bars 2 and 4 creates movement towards the next bar within the poised character of the theme. Shifting the downbeat emphasis is set against expectations of rhythmic patterning and harmonic context, inflecting 'musical speaking'; whether speaking is in words or in sound, process as discourse remakes meaning.

17. Hector Berlioz: *Correspondance générale*, vol.7, ed. Hugh Macdonald (Paris, 2001), no.3001.

18. Elliot Forbes, ed.: *Thayer's Life of Beethoven*, 2 vols (Princeton, 1967), vol.1, p.480.

19. ibid., vol.2, p.747.

20. Francis M. Cornford, ed. & trans.: *Plato's cosmology: the Timaeus of Plato (37d)* (London & New York, 1937; rpr. 2014), p.98.

Ex.5: Beethoven: 'Archduke' Trio, slow movement, opening

Ex.6: Beethoven: Piano Sonata in C minor, op.13, 'Pathétique', slow movement, opening

The shift from downbeat to off-beat in the 'Archduke' slow movement opening may be seen against a normative model of symmetrical phrases, either two- or four-bars, starting on the downbeat, most often in duple time. Harmonic span over the first phrase is usually I-V, answered by V (or ii-V) to I in the second, making a closed unit. Many slow movements open with pitch-clustering in a small range in the first phrase, then extending the melodic line in the second phrase, as in the A♭ major slow movement opening of the 'Pathétique' Sonata in C minor, op.13.

While the 'Pathétique' slow movement opening contours lyrical slow movement style as melody and accompaniment, extended temporality recontours time as space. The E major slow movement of the Second 'Razumovsky' String Quartet, op.59 no.2, is integrated in every dimension – harmonic, linear, contrapuntal – by falling and rising appoggiaturas. Set

out as answering pairs of phrases in duple time, these motifs overlap in slowly shifting patterns that define the still, expressive space of 'the music of the starry heavens' (ex.7).

Timelessness as inward reflection appears in conjunction with time perspectives of past, present and future. As compositional solutions of time, the sustained, inward reflection in the E major slow movement of op.59 no.2 and the shift in rhythmic emphasis in the 'Archduke' slow movement opening extrapolate forward to another E major variation slow movement: the Piano Sonata in E major, op.109. In the dialectics of part fulfillment and part contradiction of expectations, the E major theme of op.109 retains the symmetrical, phrase-structure model of four and eight bars, with the halfway cadence and final closing of the theme as feminine endings, while using the 'Archduke' slow movement's shift in emphasis to the second beat of the bar. Like the E major Quartet slow movement, the op.109 theme 'gathers in' pitch-centring within a narrow compass, imaging time as reflection, while the shift to the second beat of the bar, as in the 'Archduke' slow movement, inflects time as the 'moving image of eternity'.

But in a different time dimension – almost sideways or, rather, a little earlier – another D major slow movement may present a distinctive perspective on the 'Archduke' slow movement: the slow movement of the F minor Quartet, op.95, the other chamber music work in the Landsberg II sketchbook, composed only months earlier than the 'Archduke'. Like the 'Archduke', the quartet slow movement is a major-key slow movement on the sharp side in a flat-key work: so in both compositions, the D major slow movement is located outside the work's tonal network. But 'outsideness' is not limited to tonal relationships within the movement but projects a distinctive

Ex.7: Beethoven: String Quartet in E minor, op.59 no.2, 'Razumovsky', slow movement, opening

expressive profile in the context of the work: in the expressive character of interpolation against disjunct, highly compressed F minor movements in the quartet, while 'outsideness' in the 'Archduke' slow movement is reflective complement to the work's expressive context as discourse. Cited within works with highly contrasted expressive characters, the two D major slow movements are problem-solving solutions, both related and distinctive.

Most striking is the shift of rhythmic emphasis in the opening thematic material of both movements. After the quartet slow movement's opening cello pointed descent from I-V as frame, rhythmic emphasis moves to the third bar, with the first two bars like an upbeat to G minor, as minor dominant. With reference again to David Lewin's description how harmonic action on one level is often subsumed at the next, higher level in a larger horizon of goal-direction,[21] ongoing process re-sites G minor as a passing tonicisation en route to V of D major at the end of the answering phrase.

This minor key inflection, initially a subdominant modal coloration, infiltrates the slow movement on a number of fronts: as chromatic profile of the *alternativo* (from upbeat to bar 35, viola) which occupies much of the central discourse in the movement; and as forays into flat side keys (from bar 57) against the movement's D major. Switches between opening material and *alternativo* can be seen as split timelines as routes of digression that alternate and diverge during the movement and are finally reconciled at the end, with the opening material underpinned by *alternativo* reference in the cello (bars 172–74). The movement closes with a harmonised version of the opening pointed cello frame.

The play of alternates and opposites, between the opening as ascending melody and accompaniment and the *alternativo* as inward-curved, chromatic counterpoint, shows not only a sophisticated play of major/minor variant technique but also reveals consistency of compositional strategy in what is probably Beethoven's most confrontational work. Overall, the quartet's primary expressive mode is interpolation, seen on the large scale of the slow movement set against F minor polarised discourse; and within the scherzo, as the two interpolated episodes as 'time out' from tense scherzo action. Within the slow movement, though, there is also a kind of complementation, which 'borrows' and 'strains out' the aggressive profile of the F minor movements, incorporating its minor key inflection as alternate route in the characterisation of the D major slow movement. Alternative versions of the subdominant which play out as flat side/sharp explorations and as variants between vertical alignment and contrapuntal discourse, are microcosms of this expressive complementation in the movement by contrast with the D major 'Archduke' variation movement as large-scale expressive complementation in the work.

Lewis Lockwood's concept of 'fit' between thematic strategy and per-

21. Lewin: *Music, theory, phenomenology*, pp.327–92.

ceptual coherence over a large time-span may also be applied to 'fit' within a work, as interplay between a movement's individual character and integrity and its place in the overall composition. Larger proportions in many of the middle-period works were accordingly concerned with 'fit' not only in Lockwood's view of internal proportions but also with the larger sense of 'fit' as to how movements, as individual entities, relate to the whole work as compositional problem-solving.

In this sense of movements' distinctive characters contributing to a larger identity, the first movement of the 'Archduke' Trio sets out the work's expansive, diatonic character followed by scherzo digression as play, while the slow movement and finale are solutions to middle as reflection and end as action. The two halves of the work may be seen, then, as internal complementation, with the first movement as 'gravitas' followed by the scherzo as '*Witz*', while the slow movement as expressive centre is balanced by the finale as rhythmic/textural high-wire conclusion. This exploration of slow movement 'time-out' is recentred by the finale as 'time-in', led off by its snappy, off-centre subdominant rhythmic ploy which then 'corrects' to the tonic at each appearance.

Spatial representations of structure as 'outer framework' versus time as experience as the 'inner story' brings us back to 'Form' as road-maps of action and identity, and 'Formung' as individual, creative solutions. How these realisations play out is often informed by expressive complementation and interpolation as the contour of time. In a specific movement or work, the predominant characteristic, either complementation or interpolation, may nevertheless be inflected by the other side of the expressive concept.

'Formung' of the individual movement in turn extrapolates out to the work as 'fit', where contrasted component movements become agents of complementation in the whole: as expressive journey; as a human journey in an alternative world; and as time travel, where the structure of energy in Beethoven's 'Archduke' Trio reflects back on the character of structure.

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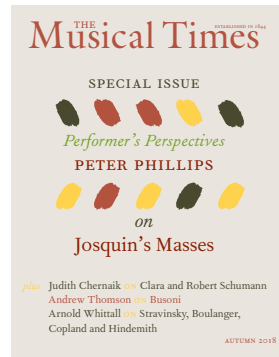Signature ....

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