New Perspectives on Brahms's Linkage Technique

Peter H. Smith

> The musical image created by repetition need not be, in all cases, a painstakingly exact reproduction of the original series of tones. Even freer forms of repetition and imitation, including manifold little contrasts, will not cancel the magical effects of association.
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> It should be added, furthermore, that not only the melody but the other elements of music as well (e.g., rhythm, harmony, etc.) may contribute to the associative effect of more or less exact repetition and thus to delimiting the individualities of various patterns.
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> Heinrich Schenker, *Harmony*, 1906[1]

Schenker's concept of linkage technique (*Knüpftechnik*) reflects the theorist's penetrating insight into the motivic dimension of tonal music. Schenkerians nevertheless have focused their studies of motivic relations primarily on Schenker's other provocative concepts of motivic parallelism, enlargement, and hidden repetition. One searches in vain, beyond the brief discussions of Oswald Jonas and Sylvan Kalib, for attempts to develop and revise Schenker's original conceptualization of linkage.[2] Linkage is nevertheless ripe with possibilities for analytical extension, especially as the melodic dimension of the technique—the aspect on which Schenker and others have focused—interacts with harmonic and rhythmic components.

The special charm of linkage grows largely from its defining characteristic: the transformation of a gesture of conclusion into one of initiation. In the hands of a master like Brahms—the composer most consistently associated with linkage—this transformation may indeed manifest a "magical effect of association," especially as the motivic sleight-of-hand transpires in real-time performance. At the time he wrote *Harmony*, Schenker's notion of "manifold little contrasts" expressed in the above epigraph was a conventional one: all he means is that it is still

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[1] Schenker 1954, 7.

[2] Jonas 1982, 7-9; Kalib 1973, vol. 1: 89-92. Walter Frisch (1984, 15-16 and passim) also discusses linkage and applies the concept in a number of his analyses.

possible to assert a motivic connection even if a repetition fails to reproduce exactly the pitches of the original cell. Schenker's statement nevertheless resonates with his later theory, in which the whole question of motivic relationships is complicated by the derivation of pitch configurations through voice-leading transformation.

It is not uncommon to find Schenker and scholars working in the Schenkerian tradition asserting motivic parallelisms even though a cell and its repetition may have different voice-leading derivations and therefore different structural descriptions. This is the case even despite the theoretical primacy Schenker grants voice-leading transformation in determining the content of any given structural level. There is no question that the structural reinterpretation of a motive is a fundamentally different kind of contrast than the more literal pitch alterations Schenker refers to in *Harmony*. But it is a contrast nevertheless and one that has given rise to some unacknowledged contradictions in Schenkerian accounts of motivic relations.[3] With respect to the meta-theory of motivic analysis, I count myself among those who believe that these little (or perhaps not so little) structural contrasts need not necessarily disrupt the magical effect of association. Indeed they may very well enhance it. Moreover, as Schenker would have it, other elements of music such as harmony and rhythm may help to delineate a motivic connection, even as the structural description of a motive may change upon repetition.

Such is the case with linkage, where the transformation of a gesture of conclusion into one of initiation often involves structural reinterpretation. What has not been well recognized, however, is the extent to which rhythmic or harmonic components may enhance the associative effect of linkage, even as these components also manifest their own forms of structural reinterpretation. In the rhythmic dimension, this enhancement may involve either a change in the hypermetric position of a linking motive or the migration of that motive in relation to the notated meter. In the harmonic dimension, the magical effect of association might engage continuity of vertical sonority even as the verticality involved

[3] For a discussion of these contradictions and some of their theoretical implications, see Keiler 1984 and Cohn 1992.

undergoes a shift in structural meaning. Such harmonic linkage may even arise between a structural harmony and an incidental or "apparent" version of the same sonority.

The excerpts from Brahms shown in Ex. 1 illustrate the possibility for these rhythmic and harmonic aspects of linkage. The first main section of this study will focus on the harmonic dimension via analysis of the Horn Trio and several other examples. For the moment, however, I offer a few brief observations about the passages from the Second Symphony, op. 73, and the G-minor Piano Quartet, op. 25, in order to provide a sense of the rhythmic issues I will take up in earnest later. The main point to observe about the symphony is the shift in hypermetric orientation for the A-G♯-A neighbor motive as it creates linkage across the formal boundary at m. 44. Up until the structural downbeat at m. 44, the various versions of the neighbor fall almost exclusively on hypermetric upbeats, as illustrated in Ex. 1a and Ex. 2.[4] The out-of-phase relationship between melody and accompaniment that gives rise to this anacrusic placement creates rhythmic tension that complements the tonal tension of dominant emphasis throughout mm. 1-43. Thus, above and beyond linkage's local function of creating continuity across the formal boundary, the motivic repetition participates in a large-scale process: the sudden hypermetric alignment of the neighbor motive provides an element of rhythmic resolution that complements the V-I tonal resolution at the structural downbeat.[5]

The passage from the piano quartet (Ex. 1b) illustrates rhythmic components of linkage in relation to the notated meter. Here the shift is from the strong-weak placement of the C♯-D form of the linking dyad at the half cadence of m. 160 and the F♯-G weak-strong version on the eighth-note level at the beginning of the phrase repeat (m. 155b). As in the symphony, there appears to be a rhythmic-harmonic corollary at work. Tonic articulations at the beginning of phrases (mm. 155 and 167) throughout the

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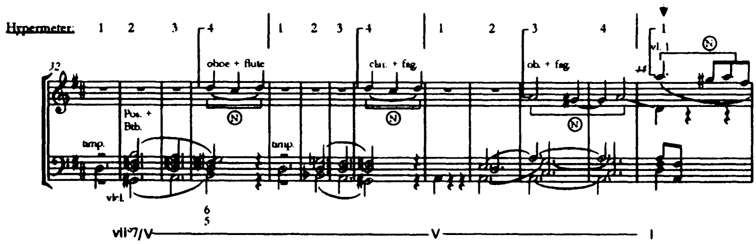
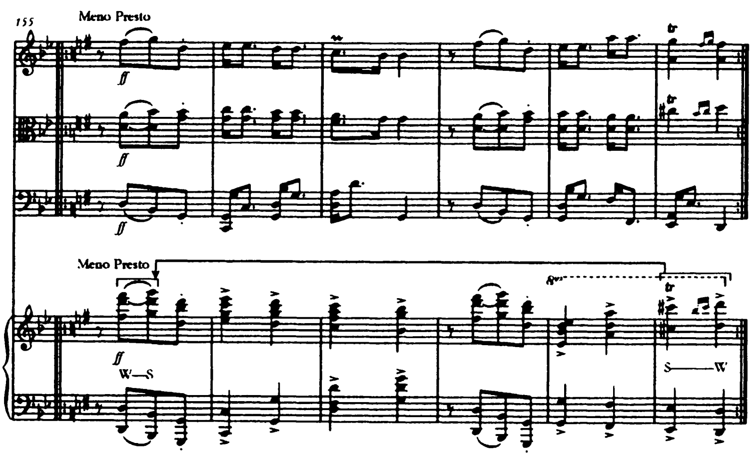
[4] Here I follow the hypermetric interpretation of the passage presented in Schachter 1983.

[5] David Epstein 1979, 168 observes a similar coordination, in the movement's coda, between tonic resolution and hyper-downbeat alignment of the neighbor motive.

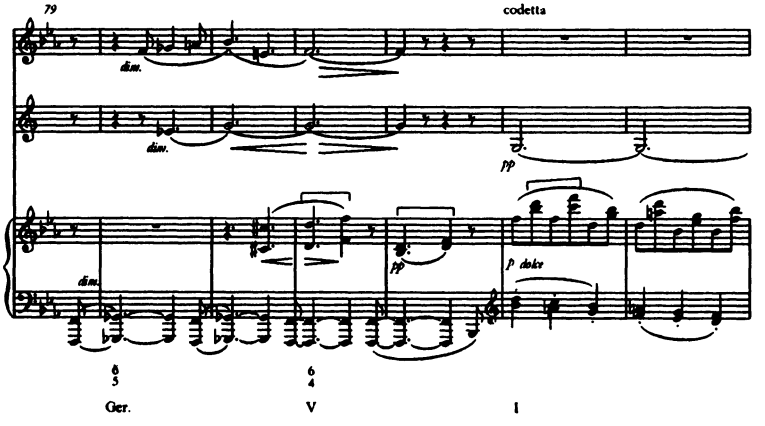
Example 1a. Brahms, Second Symphony, I, mm. 32-44 (simplified).



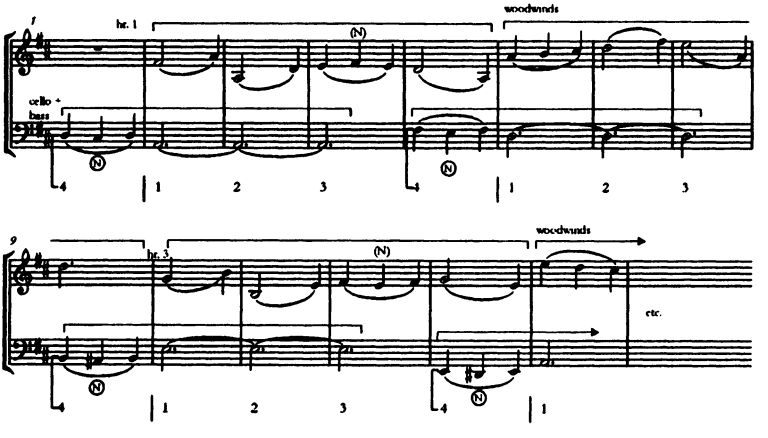
Example 1b. Brahms, G-minor Piano Quartet, IV, mm. 155-60.



Example 1c. Brahms, Eb-major Horn Trio, IV, mm. 79-84.



Example 2. Brahms, Second Symphony, I, mm. 1-14 (simplified).



theme's aba ternary form correspond with anacrusic versions of the linking dyad. Cadential arrival on the dominant at the end of the [a] and [b] sections (mm. 160 and 166), by contrast, corresponds with the strong-weak augmented version. It is only at the theme's closing authentic cadence (m. 172) that the aligned version of the motive enters at the F♯-G level, in a coordination of rhythmic and harmonic resolution not unlike the reconciliation at the symphony's structural downbeat.

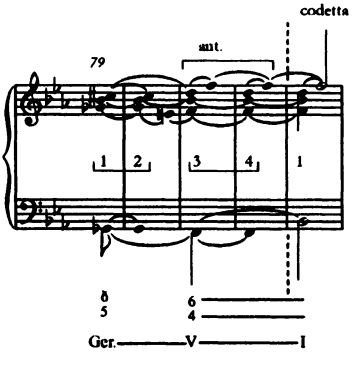
We will see, in the second part of this study, that metric development of the quartet's linking dyad plays a central role in the movement's formal processes well beyond this G-major episode. Indeed, metric reinterpretation of the motive creates both continuity and contrast throughout various levels of the movement's complex rondo form. For now, however, let us turn to harmonic aspects of linkage, as illustrated by the passage from the finale of the horn trio (Ex. 1c). As in the symphony and quartet, the melodic component is paradigmatic: the D-F repetitions at the end of the secondary area prepare the entrance of the codetta's head motive. Schenker also observes that the codetta's D-F statement fulfills an implication left unrealized by the preparatory passage and thereby creates an additional element of continuity across the formal boundary.[6] If Brahms were to have followed the pattern he established in mm. 75-78, then the second statement of the D-F motive (m. 82) would have needed to appear two octaves higher. By relegating the motive to the lower register, Brahms allows the codetta's linking repetition to fulfill this registral obligation, thus even more tightly fusing the formal segments.

Despite its characteristic acuity, Schenker's analysis nevertheless shies away from one additional aspect of continuity that similarly intensifies linkage's binding effect. Specifically, he fails to mention that Brahms's elision of the dominant $\frac{5}{3}$ results in a linking relationship between the cadential $\frac{6}{4}$ and the codetta's structural tonic. One way to conceptualize this continuity is to understand it as a form of linear anticipation: the B♭, D, and F of the $\frac{6}{4}$ chord anticipate, within the rhythmic space of the V *Stufe*, the structural arrival of the tonic pitches at the codetta, as illustrated in Ex. 3. Such an analysis avoids asserting a harmonic relationship

[6] Schenker 1954, 11-12.

across the formal boundary in favor of a linear conceptualization of the continuity. A linearly oriented analysis makes good sense, to be sure, above all in its responsiveness to the function of the pitches in their contrapuntal environment. The idea of melodic anticipation also has the advantage of responding to rhythmic and formal characteristics. As highlighted in Ex. 3, the passage's four-bar hypermeter, two-bar harmonic rhythm, and formal boundary at m. 83 all indicate continued dominant prolongation until the entrance of the codetta.[7]

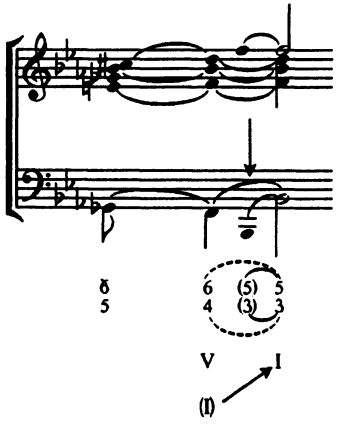
Example 3. Brahms, E♭-major Horn Trio, IV, mm. 79-83, 6/4 chord as linear anticipation.



[7] Since this is a case of elision, it may be worthwhile to consider the exact rhythmic location where a dominant $\frac{6}{5}$ is implicit even as it never actually sounds on the musical surface. In many cases of harmonic linkage, such a precise determination is difficult if not impossible to make. That is, there may not be a definitive moment when the function of $\hat{1}$ and $\hat{3}$ as suspensions that *delay* the dominant $\frac{6}{5}$ shift in meaning and become anticipations that *foreshadow* the tonic. Rather this transition occurs gradually as part of a seamless process. In the horn trio, however, regularity of hypermeter and harmonic rhythm suggests that the downbeat of m. 82 marks the moment when the cadential $\frac{6}{4}$ would give way to the dominant $\frac{6}{5}$. In a moment, we will see that elements of recomposition in the recapitulation confirm the idea that this measure marks the point at which the $\frac{6}{4}$ chord as tonic anticipation elides the V$\frac{6}{5}$. (On a still deeper level, of course, the entire two-measure unit of mm. 81-82 is governed by the dominant $\frac{6}{5}$.)

I nevertheless would like to explore the possibility of an explicitly harmonic dimension to the linking relationship, as suggested in Ex. 4. This is not to suggest that insight into tonal

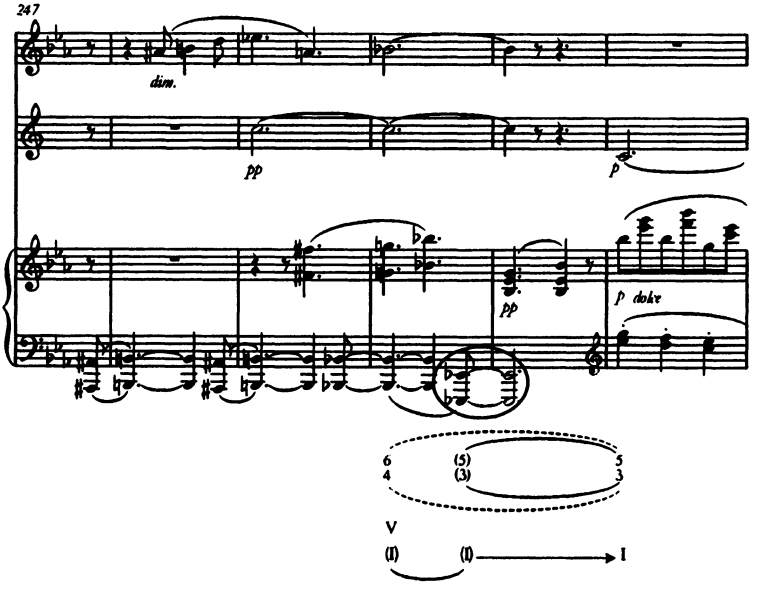
Example 4. Brahms, E♭-major Horn Trio, IV, mm. 79-83, 6/4 chord as harmonic anticipation.



music would somehow be aided by rejection of Schenkerian principles in favor of a methodology that treats embellishing $\frac{6}{4}$s and structural $\frac{5}{3}$s as inversionally equivalent. But under special circumstances of linkage, it is possible for relationships to arise from continuity of vertical sonority as well as from repetition of motivic cells. Such harmonic continuities may arise even though they entice us to hear across prolongational boundaries and distinctions of tonal function. Indeed, far from canceling the magical effect of association, this extra-prolongational continuity creates its own magical effect. Just as we can hear a relationship between metrically or hypermetrically repositioned versions of a motive, so too can we hear a freer form of repetition between structural and incidental versions of a harmony. Admittedly, the sense of harmonic anticipation is understated in the passage from the horn trio, but it is strengthened by the shift to B♭ in the bass at the very end of m. 82. Moreover, notice the increased continuity in

the parallel passage in the recapitulation, where Brahms allows the piano to shift to Î in the bass a measure earlier, as highlighted in Ex. 5. The recapitulation thus more fully realizes the extra-prolongational connection hinted at in the exposition.

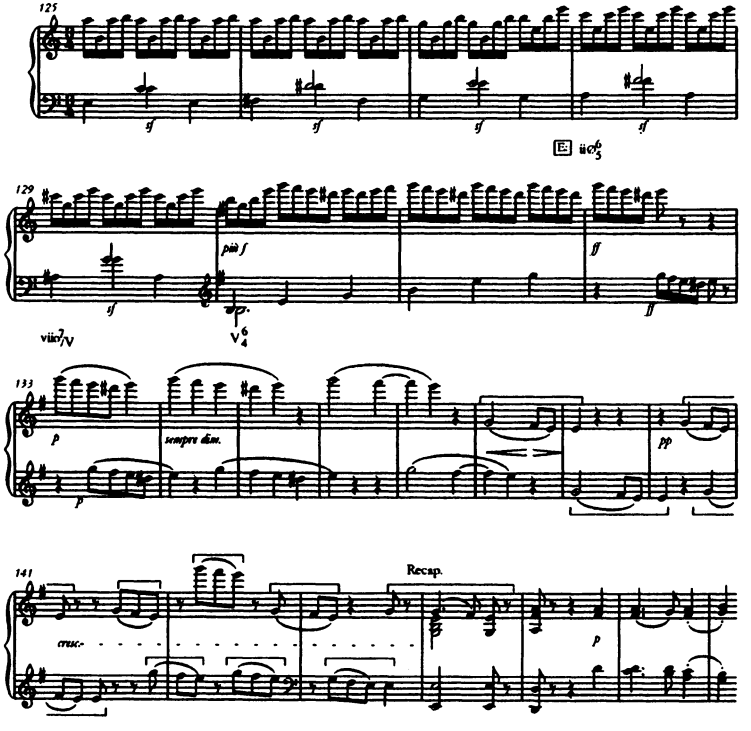
Example 5. Brahms, E♭-major Horn Trio, IV, mm. 247-51.



An example from Beethoven manifests an even more emphatic connection between $\hat{5}$ elaboration of the dominant and a subsequent tonic articulation, and thus further demonstrates the possibility for linkage to penetrate the harmonic dimension. The crossover into the reprise of the first movement from the E-minor Piano Sonata, op. 90, features the motivic continuity characteristic of linkage. As brackets in Ex. 6 highlight, Beethoven builds his retransition out of near-obsessive repetition of a linking $\hat{3}$-$\hat{2}$-Î fragment, which adumbrates the return of the main theme. Dominant prolongation forms the harmonic environment for these repetitions, as the graph in Ex. 7a indicates. This dominant function is suggested by the ii$^{\sharp\hat{5}}$-vii$^{\circ 7}$/V progression that prepares the arrival of B in the bass at m. 130. The linking motive thus

forms part of an extended $\frac{6}{4}$ chord whose $\frac{5}{3}$ resolution is elided, similar to the situation in the horn trio.[8]

Example 6. Beethoven, E-minor Piano Sonata, op. 90, I, mm. 125-46.

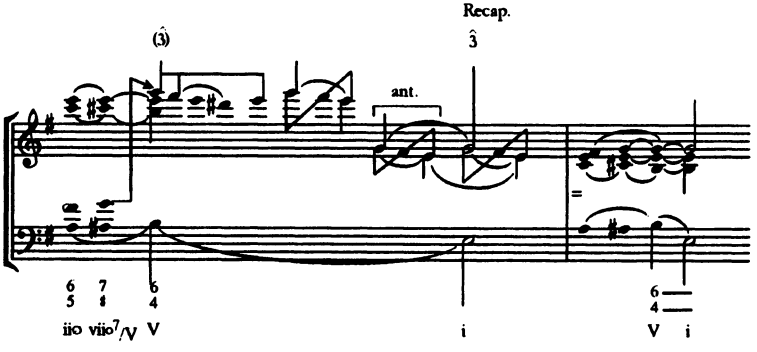


[8] As with the horn trio, the passage raises the issue of whether there is a discrete moment when cadential $\frac{6}{4}$ gives way to tonic anticipation. Here, however, the overlapping imitation and the written-out *ritard* and *accelerando* make it difficult to identify an instant when one contrapuntal function ends and another begins. Rather, in the absence of the kind of periodicity found in the horn trio, the transition from $\frac{6}{4}$ as suspension to $\frac{6}{4}$ as anticipation occurs seamlessly.

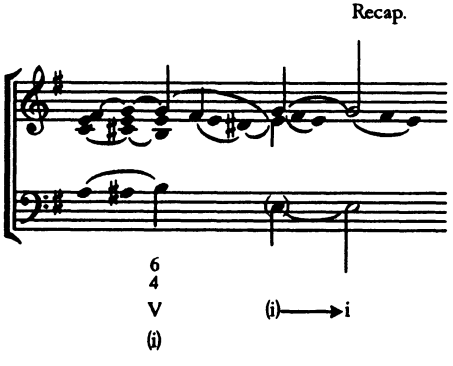
Beethoven follows a similar retransitional procedure in the first movement of the Fourth Symphony. Robert P. Morgan 1969, 60-62 discusses the retransitions from both the sonata and the symphony. He also hears the $\frac{6}{4}$ chords in these movements as tonic anticipations and offers insightful observations about Beethoven's manipulation of register, texture, and rhythm in the two passages. My analysis expands on Morgan's, first by viewing Beethoven's procedures in light of Schenkerian linkage and second by drawing attention to the tension between harmonic components of this linkage and the boundaries of prolongational structure.

Example 7. Beethoven, E-minor Piano Sonata, op. 90, I, mm. 128-44.

(a) 6/4 chord as linear anticipation.



(b) 6/4 chord as harmonic anticipation.



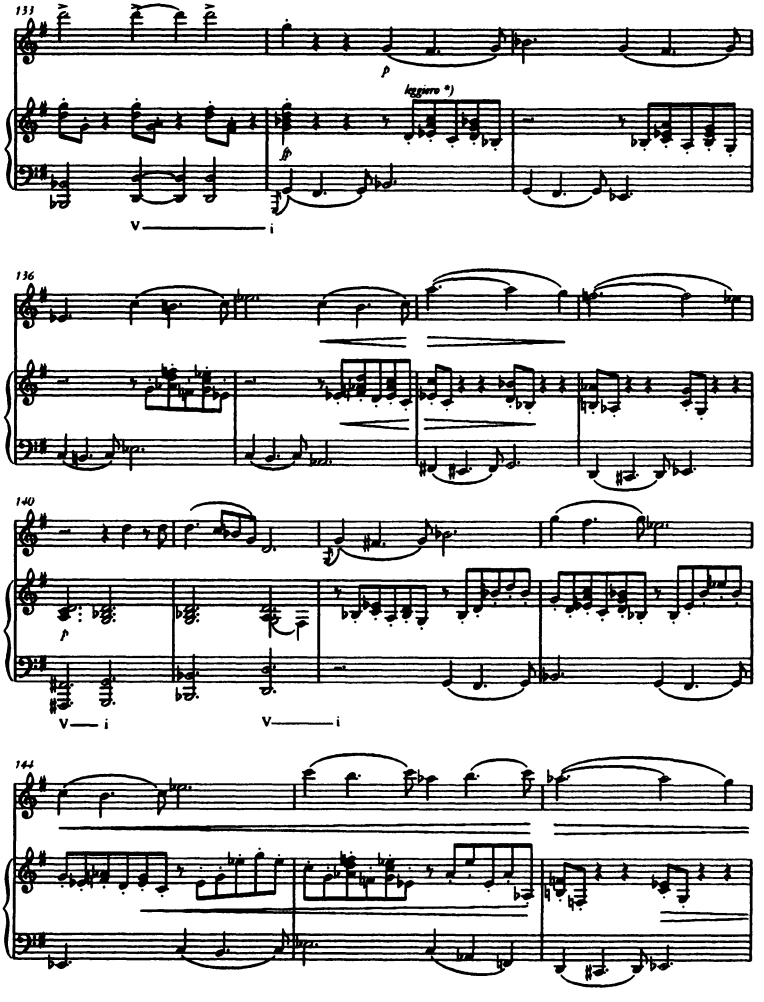
Beethoven's retransition nevertheless articulates a heightened degree of anticipatory "tonicness," even compared to the intensified harmonic foreshadowing in the horn trio's recapitulation. The more palpable sense of premature tonic function arises from a number of factors. First, Beethoven allows the bass B to drop out after one measure. The function of the linking motive's G and E as members of a $\frac{6}{4}$ chord thus

immediately becomes a matter of implication. In addition, the motivic repetitions repeatedly emphasize Î as goal, making the tonic pitch sound increasingly stable. Decoration of E specifically through neighboring D♯s contributes to Î's gradually increasing stability in relation to the elided leading tone to which it is implicitly subordinate. Finally, there is the sheer duration of the passage, which extends long enough for the listener to lose touch with the dominant function articulated at the outset. The overall effect is to invest the retransition with a strong component of tonic anticipation as a complement to its motivic continuity. A sympathetic analysis thus should include attention to the harmonic component outlined in Ex. 7b in conjunction with the linear anticipation depicted in Ex. 7a.

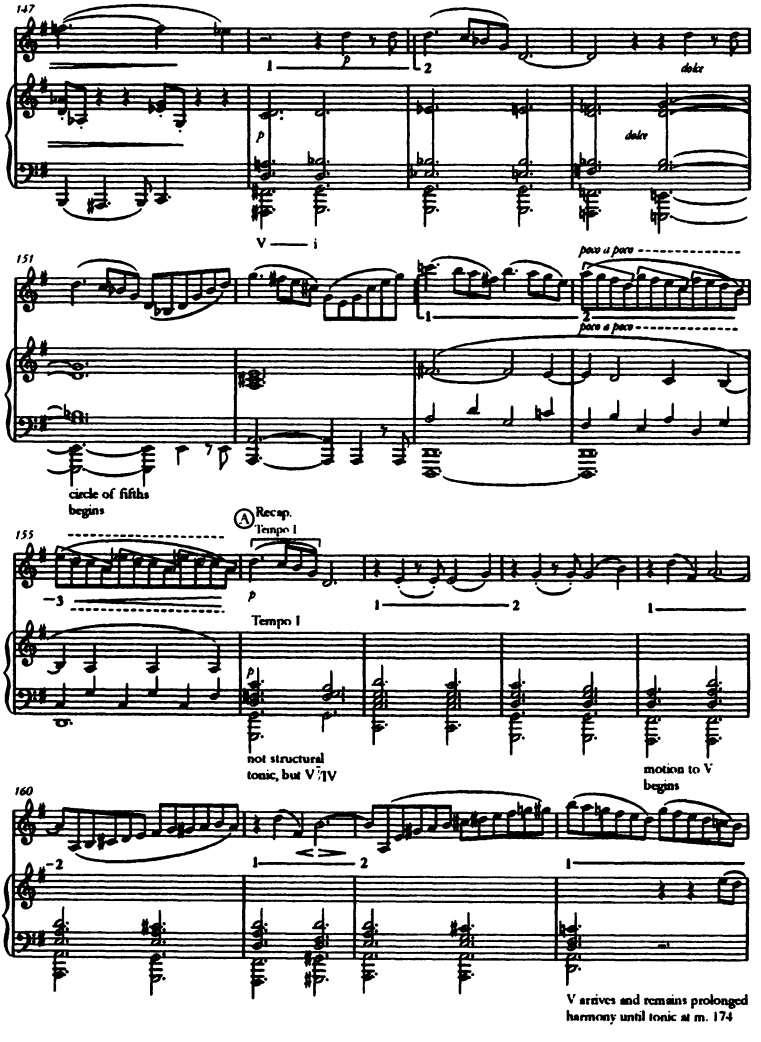
We find a still more palpable instance of tonic anticipation in our next example of harmonic linkage: the reprise in the first movement of Brahms's G-major Violin Sonata, op. 78. In this case, the anticipatory tonic emerges not as a by-product of $\frac{6}{4}$ elaboration, but rather from strong articulation of the root position I chord itself. Annotations in Ex. 8 highlight these tonic articulations at mm. 134, 140, 142, and 148 as well as the melodic linkage that smoothes the crossover into the return of the main theme (m. 156). The noteworthy feature here is not the key orientation at the end of the development; on the contrary, orientation around the home key is the first default option for a sonata retransition. What is unusual is that this tonic orientation arises from prolongation of the tonic harmony itself instead of expansion of the home dominant.

Moreover, the recapitulation responds to this premature tonic not with its own harmonic stability, but instead with a highly equivocal G articulation. The crossover into the reprise, in other words, stands formal-harmonic convention on its head. Note that, in addition to the melodic linkage, the recapitulatory tonic continues the circle of fifths progression Brahms initiates at m. 151. The addition of F♮ (m. 156) plays a dual role in relation to the resulting overlap of formal processes, in which the theme begins to reemerge prematurely in the development and the retransitional circle-of-fifths continues across the reprise. F♮ destabilizes the tonic precisely at the moment when formal convention calls for

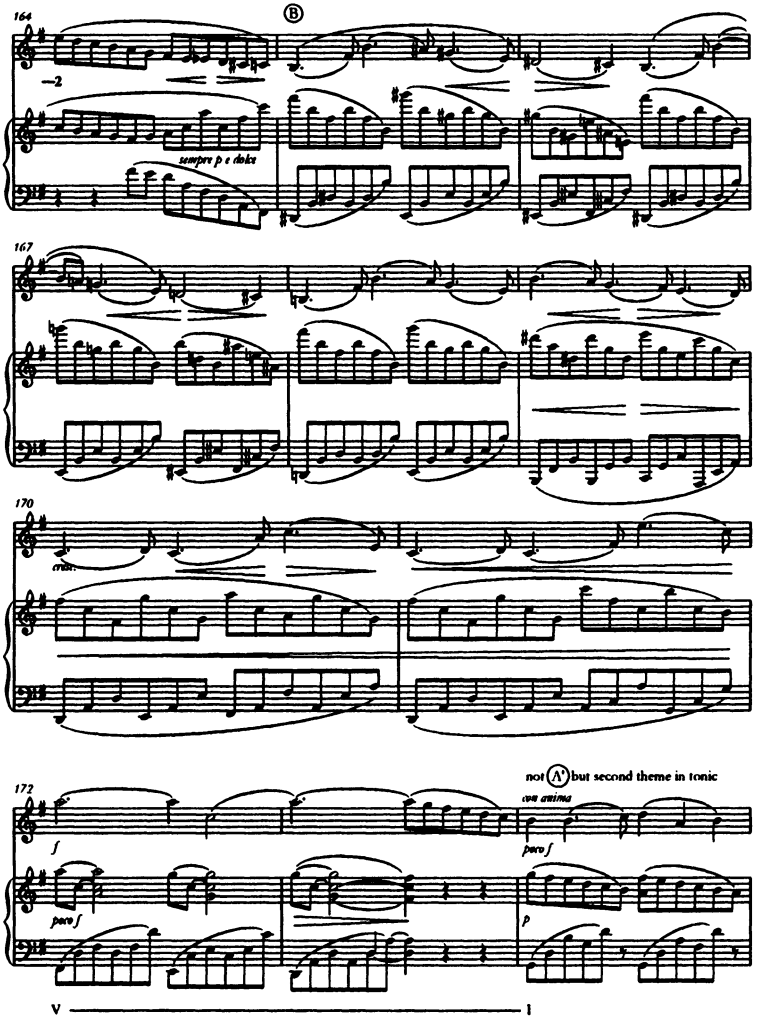
Example 8. Brahms, G-major Violin Sonata, op. 78, I, mm. 133-74.



Example 8 cont.



Example 8 cont.



resolution, and it also binds the tonic more tightly to the circle of fifths by throwing the weight of emphasis onto the subdominant at m. 157. Although the fifths progression finally breaks with the G chord in the following measure, this tonic arrives just as the opening phrase begins to move towards the dominant, first as a lightly tonicized harmony and then as cadential goal at m. 163.

With this dominant emphasis, Brahms is now in a position to "correct" the idiosyncrasies of his initial retransitional motion with a more conventional approach to tonic resolution. The B section of the tripartite tonic area (mm. 165-73) prolongs the dominant articulated at the end of the A section formed by the opening phrase. In the exposition, this dominant prolongation resolves at the return of the A material (m. 21), which then merges into a transition to the dominant area. In the recapitulation, Brahms avoids the redundancy of another A repetition and instead uses the B section to lead directly into the transposed return of the secondary material (m. 174).[9] He thus intensifies the impact of the delayed tonic return by merging two formal functions: the tonic at m. 174 both resolves the harmonic tension that remained in effect across the main theme and also initiates the resolution of large-scale dissonance through reconciliation of the secondary material with the home key.

The need to avoid redundancy—Brahms's celebrated compositional economy—might also contribute to our understanding of the equivocal character of the articulation at the beginning of the reprise. For it is the case that the opening theme has already returned along with a stable tonic at m. 82, as part of a rondo-like refrain at the end of the exposition. A third large-scale statement, without development within a formal overlap, might threaten to degenerate into a "needless" repetition, to borrow Schoenberg's term. And as is so often the case, this large-scale instance of developing variation explores properties inherent in the materials themselves.[10] The melodic linkage, for instance, responds

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[9] Haimo 1995 formalizes the tendency for this type of recapitulatory economization into a *redundancy principle* and explores its various manifestations in symphonic movements of Haydn.

[10] Schoenberg's "Brahms the Progressive" (1984, 398-441) presents his classic statement on these aspects of Brahms's compositional economy. Frisch 1984

to the anacrusis at the opening of the theme by absorbing it into the final bars of the development: the structural top-voice D embellished by the linking motive in m. 155 substitutes for the D pickup of the original version. What was a local upbeat gesture within a tonic point of departure becomes part of a large-scale, dominant-prolonging anacrusis.

The recomposition also responds to an additional rhythmic-metric characteristic related to this anacrusic beginning. A brief consideration of this rhythmic characteristic will allow us to reconnect with some of the ideas I introduced earlier about hypermetric components of linkage, especially as these components interact with tonal articulation. In its original appearance (Ex. 9), the theme's grouping pattern and harmonic rhythm articulate a duple hypermeter with odd measures as strong. Thus the anacrusic character of the thematic beginning embraces the initial pickup and also the violin's entire motion to the IV chord at m. 3, as arrows indicate in Ex. 9. Yet as is so often the case, this hypermetric pattern has the potential for reinterpretation. When the material returns later in the movement, its second measure sometimes falls in a strong metric position, while at other times it maintains its original unaccented status. The end of the development provides instances of both possibilities, as indicated at mm. 148-49 and 153 of Ex. 8.

The restatement at the reprise exploits this flexibility in order to introduce an element of hypermetrical ambiguity as a complement to the tonic's tonal equivocation. The three measures of preparatory dominant, the return to the original tempo, and the thematic entrance all support the arrival of a hypermetric downbeat at m. 156. Yet the above-described elements of linkage flow across the formal boundary, contradicting the notion of a strong metric arrival. Moreover, the continuation of the theme immediately shifts into the original accent pattern with the grouping and harmonic rhythm articulating hypermetric accents on odd measures (mm. 157, 159, 161, 163, etc.). Thus, at least in retrospect,

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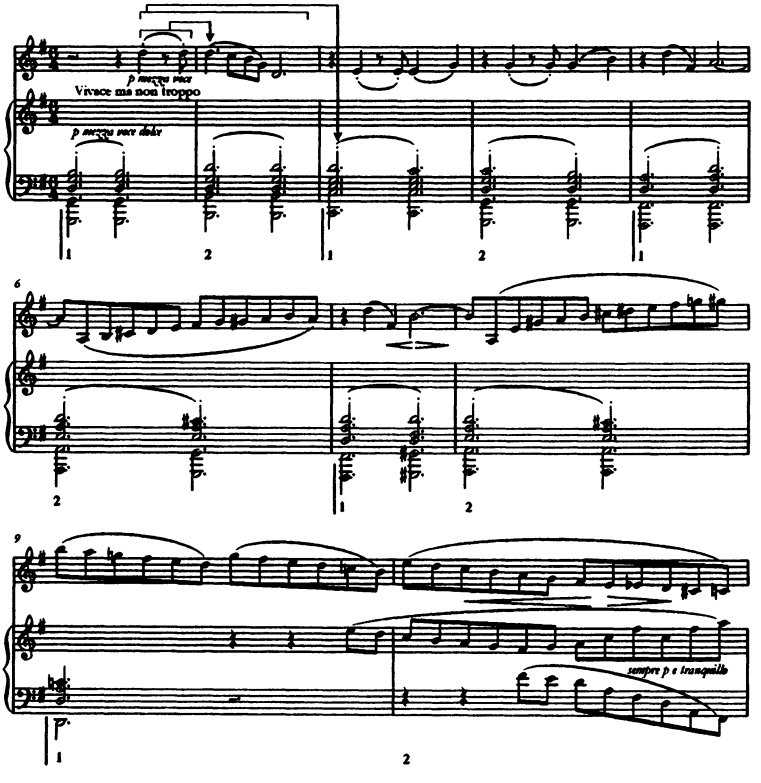
introduces the idea that Brahms's recomposed main theme recapitulations represent large-scale manifestations of developing variation. See also my own discussion of the topic in Smith 2005, 66-107.

Example 9. Brahms, G-major Violin Sonata, op. 78, I, mm. 1-10.



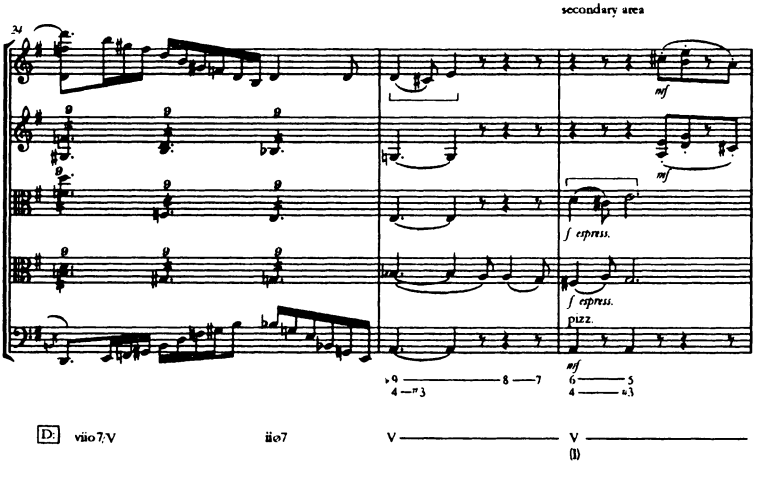
the entrance of the equivocal tonic may be reinterpreted as weak, in favor of a strong arrival on the subdominant at m. 157. Indeed, I prefer a performance that phrases across m. 156 in order to allow the entrance of the subdominant to form a point of gravity. This rendition responds to those characteristics of linkage that undercut the sense of return at m. 156, first in favor of the cadence on D at m. 163 and ultimately the double return of tonic and second theme at m. 174.

A suggestive aspect of this passage of linkage is the manner in which it fuses processes of tonal and rhythmic reinterpretation. Just as linkage helps to create instability around what otherwise

might have been a point of tonic arrival, so too does it participate in the reassignment of weak status to a potentially strong hypermetric accent. Here we see the opposite strategy compared to the approach to tonal-rhythmic interaction we found in the Second Symphony. Recall that in the symphony, melodic and hypermetric aspects interact to intensify the resolving force of a structural downbeat. Later I will have more to say about hypermetric components of linkage. From the examples of the symphony and sonata, we can nevertheless already see the benefits of keeping our ears open to harmonic and rhythmic factors as a complement to a more traditional focus on linkage's melodic dimension.

For the time being, let us briefly look at two final examples involving dominant and tonic functions before we move on to a second category of harmonic linkage. These two examples suggest yet additional ways in which Brahms plays with tonic and dominant relations as he creates continuity across formal boundaries. The first passage—the arrival of the secondary area in the first movement of the G-major Viola Quintet, op. 111—again exploits a $\frac{6}{4}$ chord to create harmonic continuity as a complement to the melodic linkage highlighted in Ex. 10. Here, however, the $\frac{6}{4}$ chord

Example 10. Brahms, G-major Viola Quintet, op. 111, I, mm. 24-26.

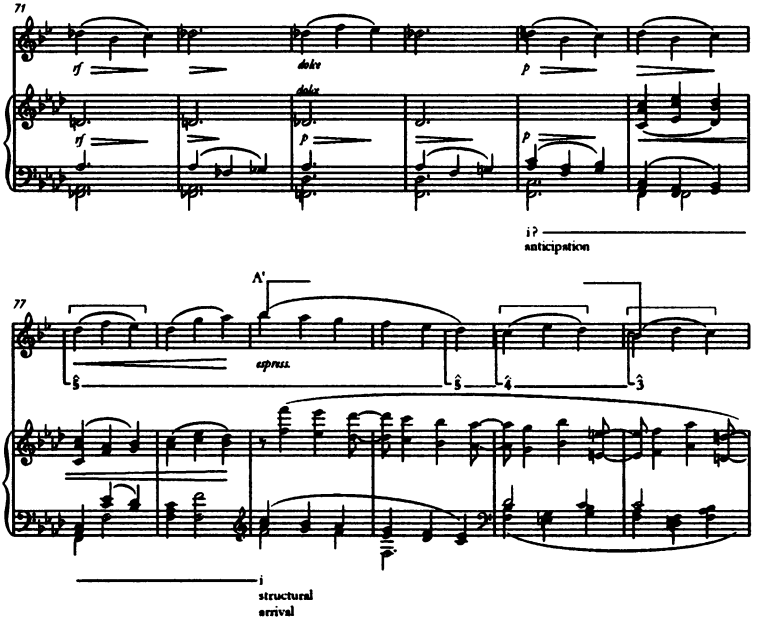


at m. 26 causes the dominant to extend across the onset of the new formal unit, in place of the tonic function that would conventionally emerge there. Thus rather than tonic anticipation via a cadential $\frac{6}{4}$ and $V\frac{5}{3}$ elision, the quintet achieves tonic delay. Notice that the continuity of vertical sonority is not as thoroughgoing as in previous examples: the first violin's 4-♯3 motion in m. 25 is joined by a ♭9-8 rather than 6-5 suspension in the second viola. Brahms nevertheless creates a vertical connection between the first beat of each measure via the mutual dominant harmonization: the linking motive functions as 4-♯3 in both locations. Moreover, like the earlier examples, the $\frac{6}{4}$ chord achieves a hint of tonic function. Although the bass rearticulation of A extends the dominant, the location of the $\frac{6}{4}$ chord at the thematic beginning allows its pitch-class content to allude to the very tonic whose articulation it delays.

The passage in Ex. 11 from the trio of the third movement of the F-minor Clarinet Sonata, op. 120, no. 1, unfolds in nearly the opposite manner. Here we have a case of tonic anticipation rather than delay, as Roman numerals beneath the score indicate. Yet it is through an $F\frac{5}{3}$ chord rather than a $\frac{6}{4}$ sonority that the trio foreshadows the structural tonic return at the A' reprise of m. 79. The harmonic linkage thus has more in common with the tonal continuity in the retransition of the violin sonata than with our other examples. The difference is that the immediate harmonic context does not prepare the F sonority at m. 75 so that it *sounds* like a tonic. (Recall that, in the sonata, multiple V-i progressions clearly define the retransition's G-minor harmonies as tonics.) The similar lack of dominant preparation for the reprise means that tonic function emerges through the signals of formal return rather than tonal articulation. Paradoxically both the continuity of sonority and absence of dominant preparation participate in a beautifully intense moment of recapitulation whose content more than justifies Brahms's *espressivo* designation.[11]

[11] See McClelland 2004, 246-48 for a similar analysis of this passage.

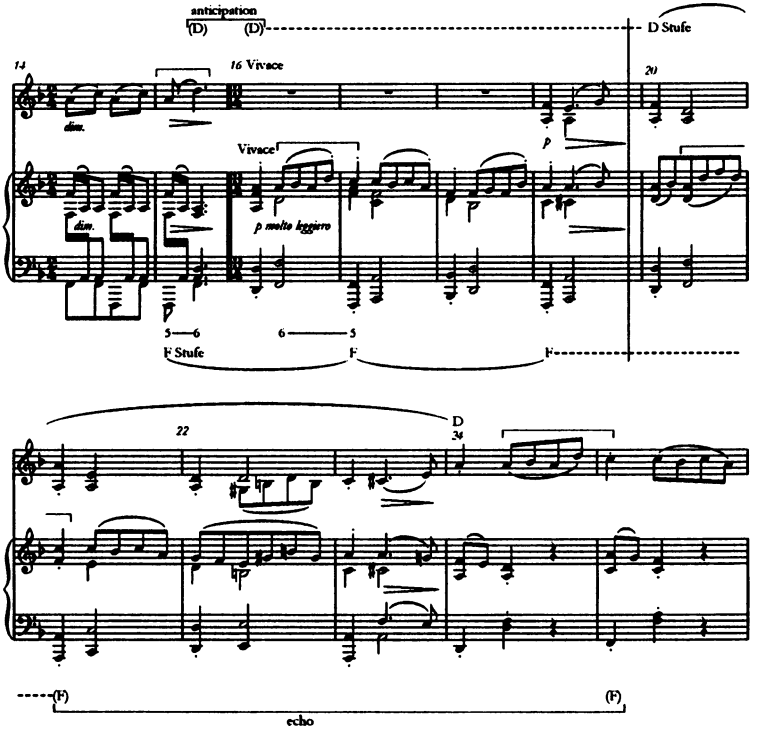
Example 11. Brahms, F-minor Clarinet Sonata, op. 120, no. 1, III, mm. 71-82.



Up to this point, all of my analyses have centered on dominant-tonic relations. Brahmsian linkage, however, also may involve third-related harmonies and specifically third relations that arise via the 5-6 technique. Like previous examples, passages of this second type manifest a tension between structural segmentation and associative continuity that is characteristic of harmonic linkage generally.

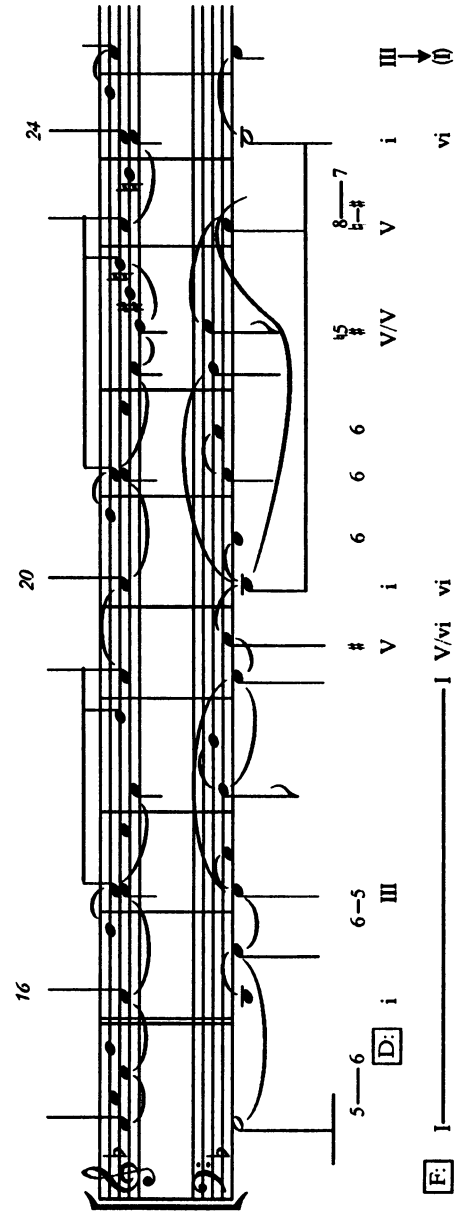
The excerpt from Brahms's A-major Violin Sonata, op. 100, in Ex. 12 illustrates the potential for third-related harmonies to join the motivic dimension in creating linking relationships. Of interest here is not just the A-D melodic linkage, which stitches across the seam between the refrain and the first episode of the movement's rondo form. More remarkable is the relationship among D

Example 12. Brahms, A-major Violin Sonata, op. 100, II, mm. 14-25.



sonorities across the I-vi prolongational shift, as well as the relationship among F sonorities across the same structural divide. As the graph in Ex. 13 indicates, the situation involves tension between the onset of a new section in D minor at m. 16 and the delay of a structural D tonic until m. 20 or even m. 24. The contrapuntal 5-6 alternation articulated by the linking motive extends the refrain's F *Stufe* into the B section, even as the D and F sounds shift to local tonic and mediant function, respectively.

Complexity within this prolongational interpretation arises from linkage among the D sounds within the resulting formal overlap. The initial D sonorities (mm. 15-16) do not function as harmonic inversions, but rather as byproducts of the 5-6



Example 13. Brahms, A-major Violin Sonata, op. 100, II, graph of mm. 14-25.

alternation. Yet because they enter at the beginning of a new section and as part of a modulation to D, these apparent D chords do indeed anticipate the structural D tonic. Crucial to this extra-prolongational continuity is the recurrence of the same melodic material at the articulation of the embellishing $\frac{6}{5}$ chords and the structural D tonics. The melodic repetition participates in a gradual rather than instantaneous prolongational shift. The first thematic statement at m. 16—itself anticipated by the 5-6 motion in m. 15—articulates the D sonority as part of further expansion of F. The second D chord at m. 20 articulates D as a structural harmony following its own dominant. This D nevertheless functions as an anticipation of the still more emphatic harmonic arrival at the third statement of the B theme at m. 24. Note that a similar continuity, also supported by melodic parallelism, arises among F sonorities before and after the onset of the D *Stufe*. Even as the F *Stufe* extends beyond the boundary of the refrain, the up-and-coming D *Stufe* begins to emerge. Similarly after D has taken control, F lingers in the episode as an echo of its former self.

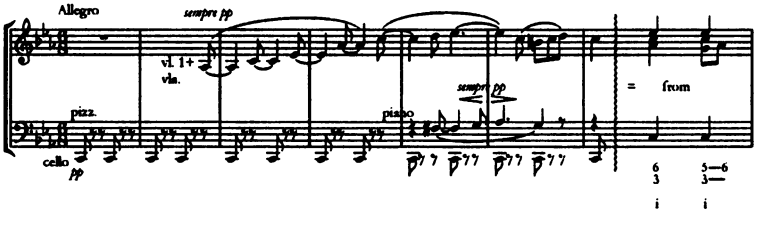
This linkage raises the same theoretical issues explored previously in relation to connections between $\frac{6}{4}$ chords and structural tonics. Even if we conceive the harmonic continuity in associative terms, such relationships among linking harmonies contradict a fundamental premise of Schenkerian theory: the principle that harmonic relationships should be based on chordal function within the horizontal dimension rather than on mere Roman-numeral identity. Under normal circumstances we would hesitate to assert a connection between a structural D tonic and a D sonority that is incidental to a 5-6 motion. Similarly we would avoid connecting an F mediant that is subsidiary to a D *Stufe* and a structural F harmony that controls its own prolongational span.

Yet under the special circumstances of linkage, these very harmonic continuities stand at the center of our perceptual experience. To deny them would be to deny one of the most arresting—or in Schenker's terms, magical—characteristics of the passage. Indeed, as I have argued elsewhere, the intermingling of tonic and submediant reverberates on the largest levels of the movement's form. At each rondo return, the D *Stufe* of the episodes invades the F-major space of the refrain. Thus when the final refrain culminates in its closing 5-6 motion (mm. 160-61), it

almost seems as if the movement is about to shift into D yet again and perhaps even close in that key. It is only with the ensuing coda that Brahms allows F to triumph as overriding tonic.[12]

My second example of linkage involving the 5-6 technique similarly engages harmonic overlap at points of formal articulation, including the onset of tonal closure. The main theme from the scherzo of Brahms's Piano Quintet, op. 34, articulates its opening tonic through a $\frac{6}{3}$ chord above C rather than a more conventional $\frac{5}{3}$ sonority, as Ex. 14 illustrates. Here the underlying 5-6 voice leading is implicit rather than explicit: the 6 substitutes for 5 rather than embellishes it. That is, the theme elides the 5 of the 5-6 motion. This contrapuntal idiosyncrasy reverberates in crucial ways throughout the movement, above all in its effect on the character of tonic articulation each time the theme returns. A representative example occurs in the linkage across the thematic restatement at m. 47; another arises in the approach to closure just prior to the coda at m. 158.[13]

Example 14. Brahms, F-minor Piano Quintet, op. 34, III, mm. 1-6 (simplified).



[12] Smith 1997, 191-93. See also the brief comments on pieces that alternate keys via the 5-6 technique in Schachter 1987, 294-95.

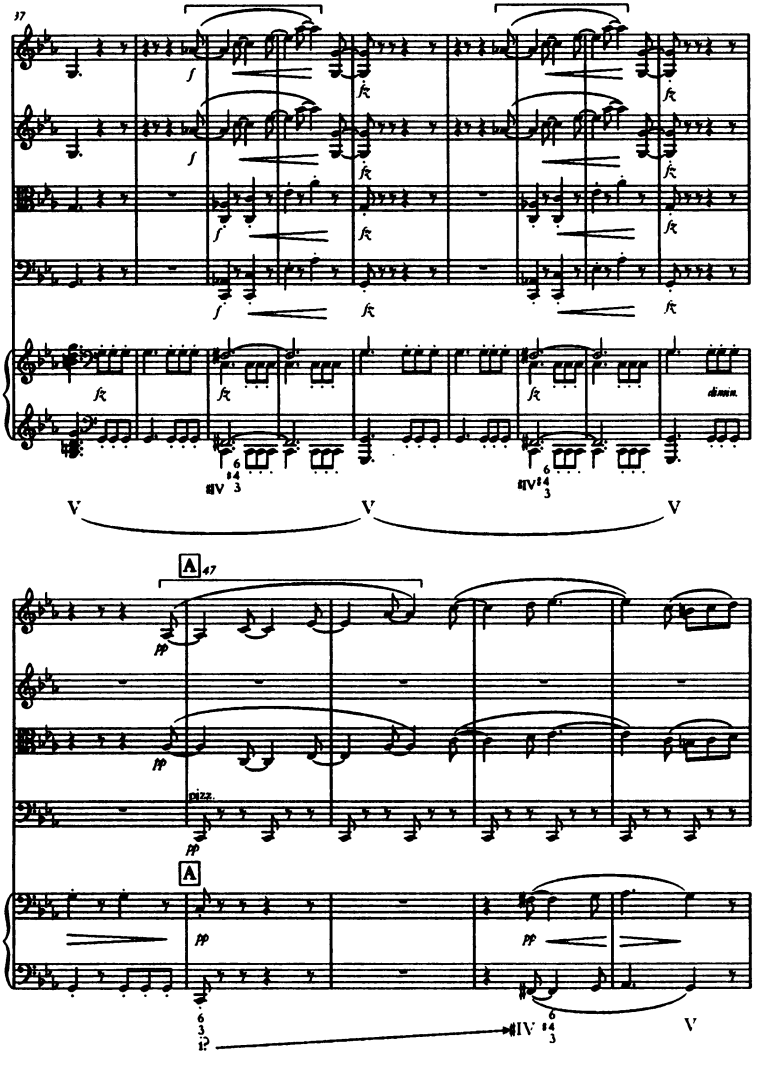
[13] The scherzo's opening $\frac{6}{3}$ chord itself participates in a linking relationship with the final A♭ tonic of the slow movement. For a discussion of this cross-movement linkage as one manifestation of a larger motivic network involving $\frac{6}{3}$ chords throughout the quintet, see Smith 1997, 175-91. McClelland 2004, 110-13 also interprets the opening $\frac{6}{3}$ chord as a functional tonic with an elision of the 5 in an implicit 5-6 motion.

In the first instance shown in Ex. 15, Brahms uses the head motive to embellish the retransitional dominant and thus to create a linking relationship with the return of the main theme. Here again the linkage is harmonic as well as melodic. The A♭ arpeggiation of the thematic return enters in the same rhythmic position in relation to the immediately preceding dominant, as the A♭ embellishing harmonies within the retransition. What turns out to be a reprise initially sounds like another repetition of the retransition's neighboring chord. Moreover, Brahms emphasizes C in the bass for the retransitional A♭ repetitions, thereby weakening the articulative strength of the tonic bass at the reprise. Once again we find extra-prolongational continuity between two verticalities that are part of different prolongational strands. The A♭ sonority in the retransition is subsidiary to the V *Stufe*, which is itself subsidiary to the C tonic articulated by the linking repetition of the A♭ arpeggiation.

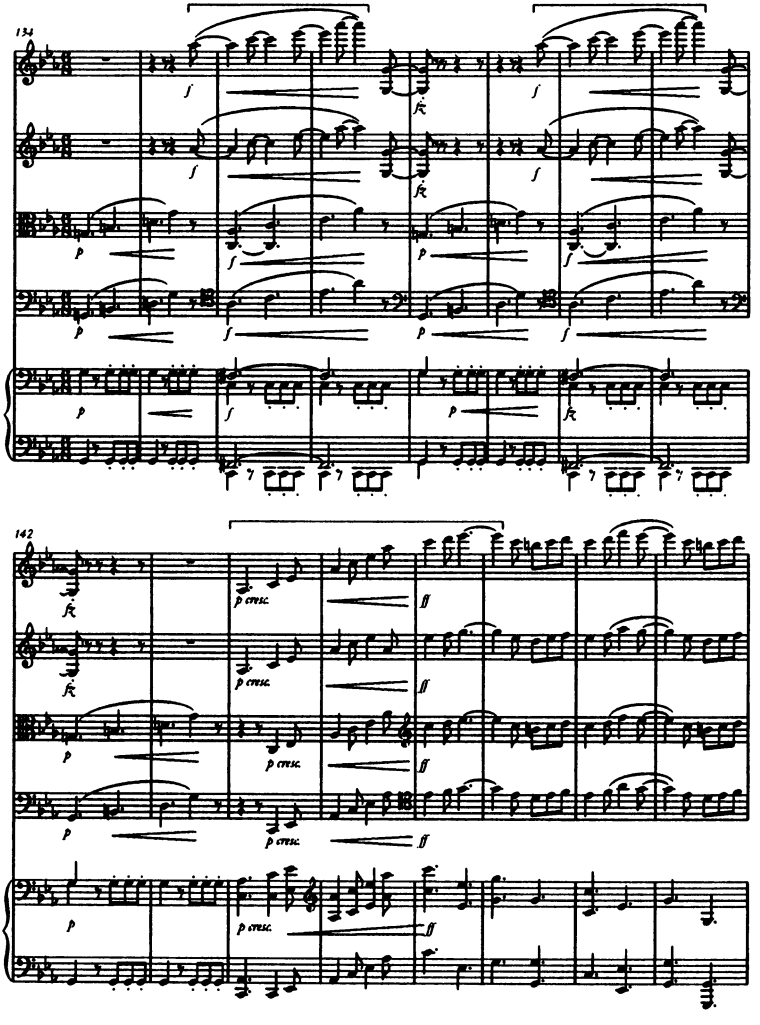
It is true that the sudden absence of F♮ in the A♭ sonority of m. 47—a pitch that helps to highlight the controlling status of G throughout the retransition—hints at a prolongational shift to tonic. The reprise also includes a registral shift and a drop to *pianissimo*, in contrast to the sustained *forte* across the retransitional statements of the head motive. Yet, immediately after this tonic articulation, F♮ rejoins the A♭ sonority in m. 49 as part of the motion to V within the main theme. Not only do the elision of the tonic $\frac{6}{3}$, the melodic linkage, and the continuity of the A♭ sonority soften the impact of the tonic return, but the linking relationship even expands to include the tendency for the $\frac{6}{3}$ chord to lead urgently to V.[14]

[14] I discuss the equivocal character of the tonic articulation at m. 47 in Smith 1997, 175-81, although without my current emphasis on melodic-harmonic linkage. McClelland 2004, 110-18 does likewise, again without a focus on linkage per se.

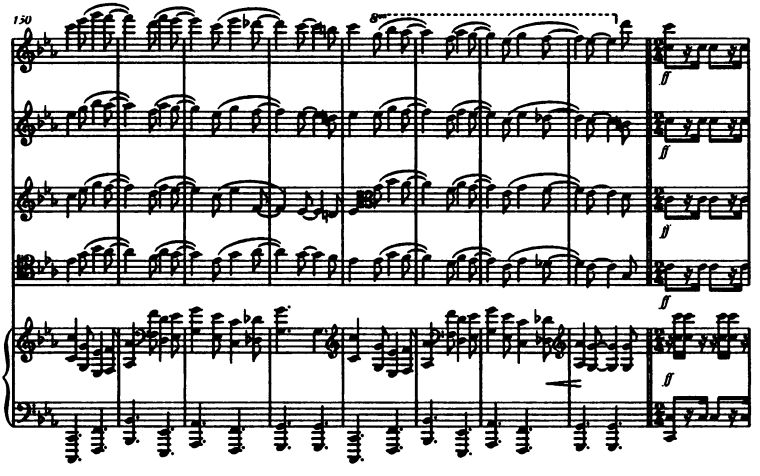
Example 15. Brahms, F-minor Piano Quintet, op. 34, III, mm. 37-50.



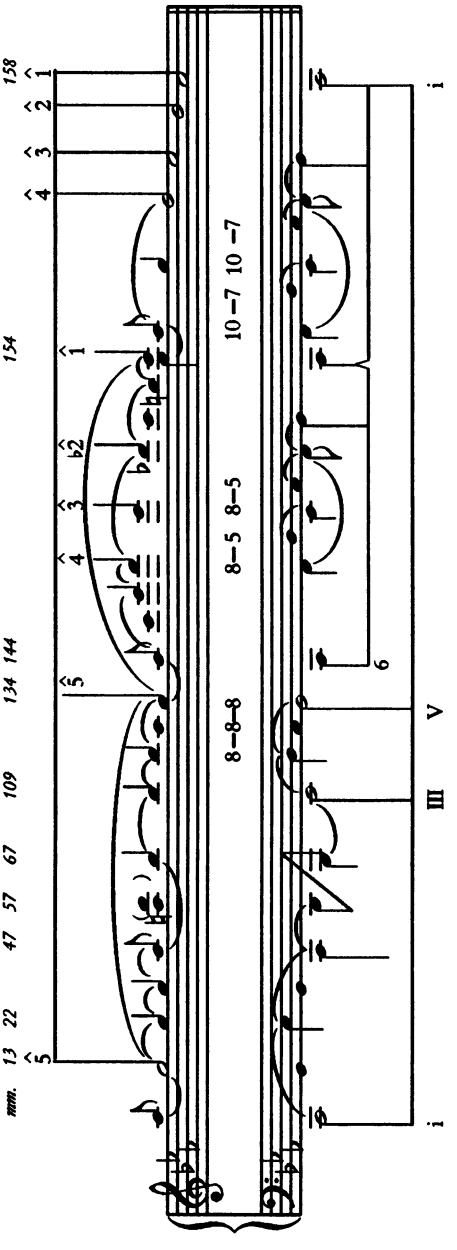
Example 16. Brahms, F-minor Piano Quintet, op. 34, III, mm. 134-58.



Example 16 cont.



The approach to closure similarly exploits linkage to problematize tonic articulation. Brahms again prolongs his retransitional dominant with neighboring repetitions of the A♭ head motive, as highlighted in Ex. 16. These motivic repetitions create linkage with the return of the main theme in m. 144, similar to the reprise of m. 47. Another *piano* dynamic, drop in register, and sudden absence of F♯ mark this point as a formal boundary. Yet the pace of the A♭ arpeggiation suddenly accelerates in order to reach the climactic higher register of m. 146. The *crescendo* and rhythmic acceleration combine to rob the thematic entrance of its full dramatic impact, in favor of an anacrusic motion to the high E♭ in m. 146. Indeed, since the shift to tonic $\hat{5}$ occurs at this later point, it is unclear whether the entrance of either the anacrusic motion or the E♭ arrival marks the formal boundary, or if it is even correct to speak of a boundary at all. Rather it appears that linkage once again fulfills its functions of effacement and overlap.



Example 17. Brahms, F-minor Piano Quintet, op. 34, III, graph of mm. 1-158.

One consequence of this effacement is that the retransitional dominant remains in the air without the direct motion to a tonic $\hat{5}$ that we associate with resolution. The linking A♭ anacrusis intervenes instead, both recalling the unstable A♭ sonorities of the retransition and delaying the tonic $\hat{5}$. Thus, although the final climactic transformation of the main theme centers on the tonic, I interpret this tonic in the graph of Ex. 17 as an anticipation of the coda's closing C *Stufe* (m. 158). It is only at that later point that a deep level tonic finally arrives as part of an unambiguous point of formal articulation.[15]

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From the infinity of situations into which [a composer's] motif could conceivably fall, he must choose only a few. These, however, must be so chosen that the motif is forced to reveal in them its character in all its aspects and peculiarities.

Heinrich Schenker, *Harmony*, 1906[16]

Let us now turn to rhythmic aspects of linkage, which I explore in one complex yet representative example: the *Rondo alla Zingarese* finale of Brahms's G-minor Piano Quartet. I have already made some observations about the role of linkage in the movement's G-major episode at the beginning of this study. Now we are in a position to trace the impact of the technique as it resonates throughout the finale. The omnipresence of linkage and

[15] McClelland 2004, 118-24, by contrast, hears a V-i resolution at m. 144. His Schenkerian graph (his Ex. 3.10), however, depicts this resolution as a rearticulation of the movement's overriding opening tonic. The retransitional dominant (mm. 134-43), for him, thus resides on a lower structural level than in my analysis where it functions as the main deep-level V *Stufe*. He assigns that function instead to the dominant of m. 157. McClelland supports his interpretation with sensitive observations about what he hears as aspects of both tonal and rhythmic-metric resolution in the final reprise of the opening material. I nevertheless still find the melodic-harmonic linkage to be disruptive enough to delay structural tonic return until m. 158.

[16] Schenker 1954, 13.

its interaction with large-scale form will make it necessary for the reader to have a score of the entire movement handy in order to follow the analysis.

As is often the case with Brahms's "gypsy-flavored" compositions, this movement manifests a curious dichotomy between the vernacular tone of its materials and the compositional sophistication of their treatment, what John Daverio calls the "marked dissociation of structural conceit and affective surface, of 'tendency' and 'tone'."[17] The result is an apotheosis of gypsy style in one of Brahms's most rousing finales. One of the chief means through which Brahms achieves this apotheosis is through the movement's formal organization, a highly complex rondo noteworthy for its systematic exploration of ternary formal principles. ABA patterns of statement, contrast, and return govern the progress of events on nearly every level, from the phrase groupings of the refrain up to the movement's global organization. We have already seen an example of this ternary tendency in the organization of the G-major episode. Yet the articulation of the movement's ternary patterns is anything but schematic. Rather, the rondo presents an uncanny blend of continual development within a form that is almost constantly engaged in processes of recapitulation.[18]

A tendency towards systematic treatment of material also permeates the rondo's rhythmic dimension. Scott Murphy has recently traced the thoroughgoing manner in which the movement works its way through various hypermetric articulations of its basic 12-measure phrase unit.[19] What remains to be explored, however, is the systematic manner in which Brahms develops metric aspects of the F♯-G linking dyad that we saw at play in the G-major episode. Specifically, Brahms develops this motive's potential for either strong-weak or weak-strong placement on multiple rhythmic levels, in a process seemingly crafted to reveal the dyad's rhythmic character "in all its aspects and peculiarities." Moreover, the motive develops in such a way as to create tantalizing moments of metric ambiguity, as the linkage simultaneously smoothes the sharp

[17] Daverio 1993, 152.

[18] For an analysis of this formal paradox, see Smith 2001a, 218-23.

[19] Murphy 2007.

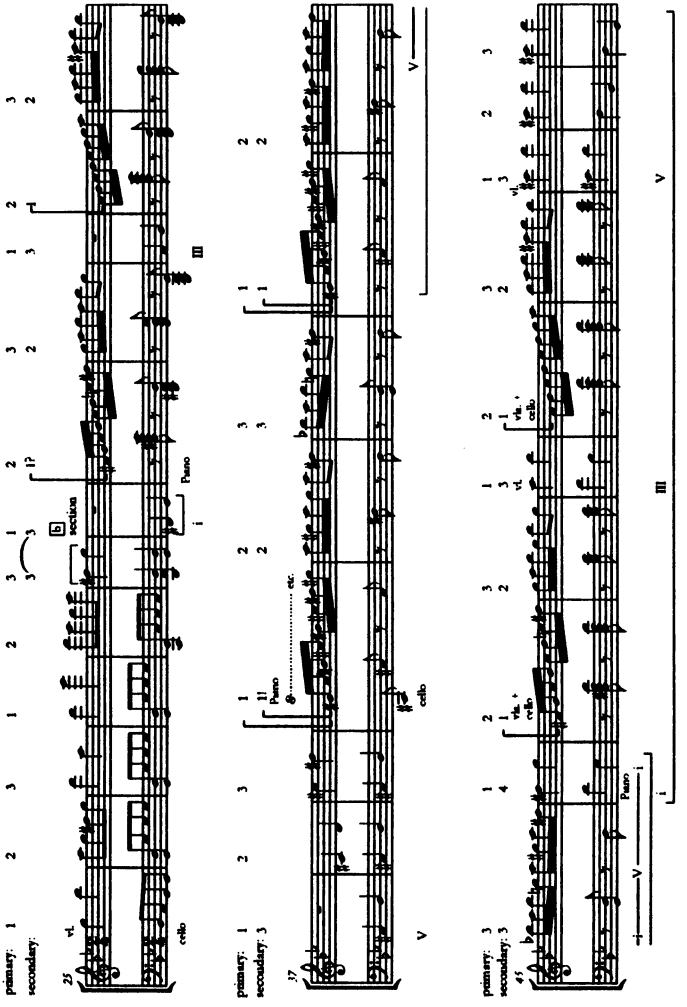
edges of the rondo form. As my analysis progresses, we will also see that rhythmic development of the dyad functions as one means of creating both contrast and continuity within and across the movement's multiple ternary patterns.

The excerpt in Ex. 18 provides a representative illustration of the dyad's potential for metric development. Up to this point, the refrain has articulated an unambiguous three-bar hypermeter, perhaps the most fundamental manifestation of the rondo's obsession with tripartite patterns. The F♯-G statement that closes the refrain's [a] section at m. 30 thus enters in a weak hypermetric position. Repetition of the dyad as a link into the beginning of the refrain's [b] section raises a question of metric interpretation: Does the linking motive initiate a new three-bar group? Or does the repetition function as an extension of the previous unit and thus as an "extra" third hyperbeat? Annotations in Ex. 18 illustrate both possibilities. Initially the first interpretation appears more plausible. Note that the i-III-V bass arpeggiation highlighted in the example continues to articulate the original hypermeter with the linking dyad in the accented position.

Nevertheless by the end of the [b] section's first phrase, the triple statement of the linking motive in mm. 37-39 brings the second interpretation to the fore. Now it appears that the [b] section's sixteenth-note idea does indeed initiate the hyperbars with the C♯-D dyad of m. 39 in the weak position. This shift has both retrospective and prospective impact on metric interpretation. It breathes new life into the secondary interpretation of the initial linking passage, immediately after the first phrase seemed to have settled the issue in favor of continued hypermetric regularity. In addition, it helps further to sustain notions of ambiguity as the next formal segment emerges.

The overlap at the entrance of this next segment (m. 46) intensifies the duality of metric treatment established by the previous two phrase articulations. It builds on the potential for the linking dyad to function as a weak concluding gesture by using it to complete the harmonic progression of the previous hypermetric unit. Observe the similarity here with the secondary interpretation of the original linking statement of m. 31 as a phrase extension. At m. 31, the sense of overlap is not as intense because the [a] section

Example 18. Brahms, G-minor Piano Quartet, op. 25, IV, mm. 25-54 (simplified).



reaches its closing tonic within its own hypermetric space at m. 30. At mm. 45-46, however, the harmonic motion overflows the three-measure unit. Since all cadences up to this point have been hypermetrically unaccented and since we have just heard the linking dyad as preparation for metrically strong placement of the sixteenth-note idea at m. 40, there is an increase in the ambiguity first intimated at the beginning of the [b] section.[20]

As the phrase continues, however, another i-III-V bass arpeggiation articulates the triple hypermeter, with the linking dyad in the strong metric position. Thus in retrospect it turns out that the F♯-G statement of m. 46 was indeed strong after all. Despite this retrospective clarification, however, a significant source of the [b] section's charm resides in its tantalizing moments of metric uncertainty rather than in notions of absolute metric clarity at all points of the listening experience. Paradoxically these moments of ambiguity arise within what, we eventually realize, is an entirely regular continuation of the refrain's triple hypermeter.

Up to this point, my analysis has focused on rhythmic reinterpretation and ambiguity on the hypermetric level. What is even more remarkable is the manner in which these shifts also penetrate metric and even submetric levels, as the linking motive undergoes rhythmic augmentation and diminution. Put another way, it is not so surprising that linkage will involve some hypermetric relocation. If a measure-long motive is to end a formal unit and then also initiate the next unit, then hypermetric reorientation is virtually inevitable. From this perspective, what is noteworthy about the passages from the quartet is not the reorientation per se, but how the initial and subsequent moments of formal articulation develop this inherent duality in a dynamic process of reevaluation.

As this development continues on metric and submetric levels, the movement explores a multitude of possibilities for reinterpretation, in a kind of *Auskomponierung* of rhythmic space. Development on the quarter-note level begins with the G-major

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[20] The overlap becomes still more intense in the repetition of the passage that occurs in mm. 270-71. There the cadential dominant does not even arrive until the measure of overlap. Thus a i-VI-(IV/VI)-VI-V-i progression straddles the formal boundary.

Meno Presto theme of Ex. 1b discussed earlier. Recall that there the linking dyad shifts from its strong-weak position to a weak-strong placement. Notationally this looks like a rhythmic diminution accompanied by a submetric rhythmic shift. Yet as Scott Murphy has documented, evidence among recorded performances suggests that the *Meno Presto* section is usually executed at approximately half the speed of the movement's original *Presto* tempo.[21] Thus the notated eighth-note shift to weak-strong placement represents a heard displacement of the original quarter-note version.

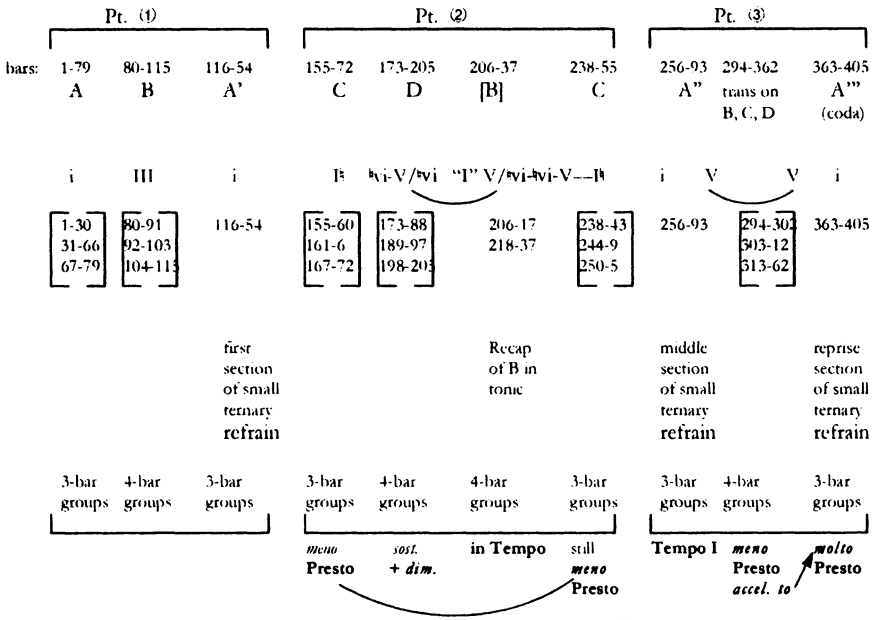
Brahms makes the connection between these notationally distinct versions palpable through a linking relationship across the emergence of the *Meno Presto* theme. As part of the close of the first refrain (mm. 116-54), the linking dyad returns in its original form, both aligned with the notated meter and positioned on the third hyperbeat. The transition to *Meno Presto* involves a written-out *ritard* in mm. 146-54 that recasts the linking motive as part of an extended anacrusis. Thus even as the end of the refrain reminds us of the downbeat orientation of the motive, it foreshadows the new anacrusic placement of the F♯ that emerges with the shift to G major.

A similar metric shift also occurs within the G-major theme itself. The end of the episode's opening phrase returns to the linking dyad at m. 160 in its original strong-weak position, as noted in my earlier discussion and highlighted in Ex. 1b. Now, however, the notated quarter notes represent a rhythmic augmentation of the original version. Recall that this augmentation prepares another shift in accentuation across a formal boundary as the cadential strong-weak "halves" link with the weak-strong "quarters" of the phrase repetition.

All of this metric play represents more than merely local motivic development. The shifting metric identities illustrate the manner in which rhythmic processes also play a role in articulating the movement's form. As I already mentioned, the movement articulates a gigantic three-part form within which multiple layers of tripartite organization are nested. Ex. 19 provides an overview

[21] Murphy 2007.

Example 19. Brahms, G-minor Piano Quartet, op. 25, IV, formal outline.

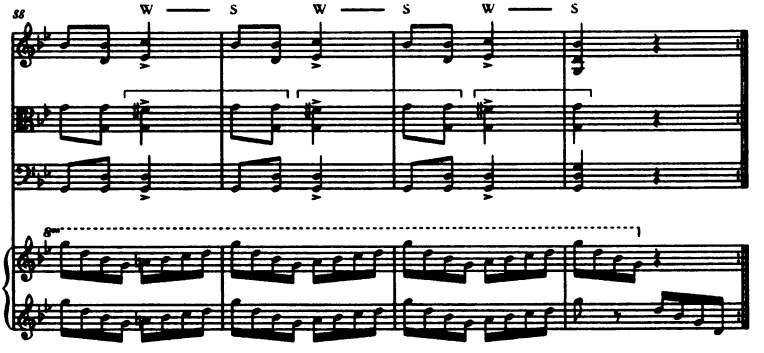


of these recursive ternary patterns.[22] The main first part—Part 1 in the example—centers on G minor and its relative major, and consists of the ABA alternation of refrain and first episode. As we have seen, the linking dyad tends to appear aligned with the meter on the quarter-note level in this section. The middle section (Part 2), by contrast, centers on G major and its relative minor as part of its own CDC alternation of episodes. (The tripartite organization of this second main section is complicated by the return of B material transposed to G major, thus CD[B]C.) The G-major section's shift to weak-strong placement helps to create the sense of contrast appropriate for the initiation of a new large-scale formal section.

Despite the contrast provided by this rhythmic shift, however, the reorientation does not occur entirely without preparation. Rather, the reorientation represents a more fully realized manifestation of a potential hinted at in several locations within Part 1. The B♭-major B episode, for instance, concludes its first phrase with a cadence in G minor, as shown in Ex. 20. The viola

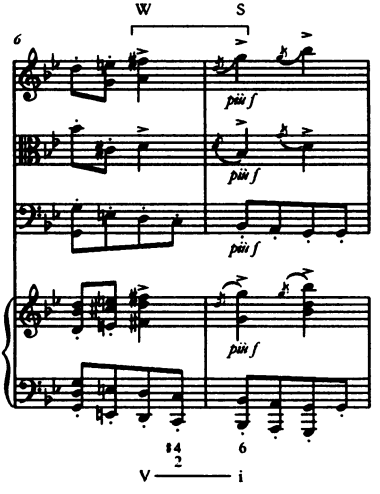
[22] I discuss this multi-leveled ternary patterning in Smith 2001a, 218-23.

Example 20. Brahms, G-minor Piano Quartet, op. 25, IV, mm. 88-91.

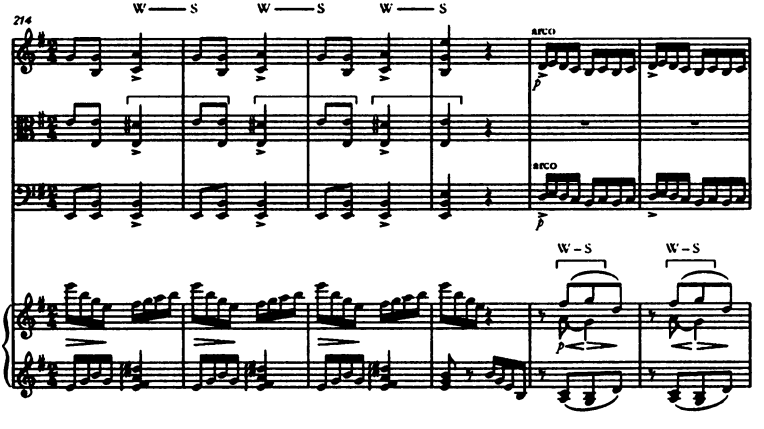


emphasizes the F♯-G dyad in weak-strong position as part of this tonicization. Thus the modal and tonal contrast *within* the ABA ternary pattern of Part 1 also includes a contrast in placement of the linking dyad, just as the similar contrast *between* Part 1 and Part 2 does. But even on the level of the ABA in the first part, the situation is not so schematic. Similar to the largest ternary level, the weak-strong potential of the F♯-G motive in the B episode is hinted at within the very first statement of the opening G-minor theme itself. As annotations in Ex. 21 indicate, the V^4_2—i^6 progression across mm. 6-7 encourages the hint of a weak-strong F♯-G continuity despite the grouping boundary at this point in the phrase. Thus even as the middle sections on multiple levels create contrast via metric reorientation, they also make explicit rhythmic possibilities hinted at within surrounding formal units.

Example 21. Brahms, G-minor Piano Quartet, op. 25, IV, mm. 6-7.



Example 22. Brahms, G-minor Piano Quartet, op. 25, IV, mm. 214-19.



The third section within Part 2—the [B]C passage—builds yet further on the contrasting treatment of the motivic dyad. Brahms integrates the return of material from the B section both tonally and rhythmically, as he invests his rondo with a component of sonata recapitulation. In tonal terms, the sonata-like transposition

of the B material into G major creates obvious continuity with the overriding tonic for Part 2. But less obviously it also creates a connection with the D section's E minor key: the modulation from B♭ major to G minor in the original version becomes a G-major to E-minor motion upon transposition (cf. mm. 88-91 with 214-17). Moreover, as Ex. 22 indicates, a connection also arises between the weak-strong placement of the motivic dyad at the E-minor cadence of mm. 216-17 and the *Meno Presto* theme's anacrusic version in the following retransition (m. 218 ff). The contrapuntal combination of the *Meno Presto* head motive and the B material's sixteenths in this retransition solidifies the integration of the material. Up to this point, Part 2 has juxtaposed shifted versions of the motive in its quarter-note form with aligned versions on the half-note level (notated as eighths and quarters, respectively). Now shifted "halves" connect with shifted "quarters" for a greater degree of integration.

Finally, the aligned version at the cadence of the C material that closes Part 2 (m. 255) provides a link to the beginning of Part 3. Brahms initiates Part 3 not with the main theme but with the middle section of the refrain, as highlighted in Ex. 19. The result is a linking relationship between the strong-weak "halves" of the *Meno Presto* section and the strong-weak quarters of the refrain. The addition of trills to the linking dyad at m. 256 intensifies the continuity with the closing cadence of the G-major section. Thus just as the weak-strong version becomes a source for cohesion *within* Part 2 even as it recapitulates material from Part 1, the strong-weak version becomes a means of transition *across* formal boundaries on the larger ternary level. What had been "long-distance" relationships in the first part of Part 2 now become a matter of immediate continuity.

The remainder of the movement blends elements of recapitulation with further development of ideas from Parts 1 and 2, as Ex. 19 outlines. This development finally carries the treatment of the linking motive down to the submetric level, following Part 2's augmentations. Brahms returns to *Tempo I* at the beginning of Part 3, for the first time following Part 2's *Meno Presto.* As a consequence, the developmental treatment of the C material at m. 313 now presents its weak-strong version of the motive on the aurally present eighth-note level. On the other end of the

rhythmic spectrum, the approach to closure at the coda (m. 363) further augments the "half-note" version from the C theme. It also shifts from the strong-weak placement of the "half-note" version to a weak-strong orientation as the F♯ in the final two measures of the structural anacrusis of mm. 355-62 resolves to G at the coda's structural downbeat.

In a final brilliant stroke of rhythmic development, the coda's climactic unison passage (mm. 391-98) gains some of its power through a reference to the metric drama of the linking dyad. It presents both the strong-weak version at the F♯-G level and the weak-strong version at the C♯-D level. (Just as the passage is about to arrive at its cumulative G-D alternation, a last iteration of the C♯-D dyad in m. 396 shifts to a strong-weak position.) The coda's *Molto Presto* tempo indicates that this final eighth-note version manifests a further intensification at the submetric level, as the climax liquidates into the movement's closing V-i progressions.[23]

The finale demonstrates just how thoroughly the development of a linking motive can permeate the formal and tonal processes of a movement. Linking repetitions straddle points of articulation on nearly every formal level, as these repetitions simultaneously travel up and down the movement's metric hierarchy. Moreover, the patterns of rhythmic development mirror the rondo's patterns of tonal and formal contrast, while they also function as a means of integration for previously disparate material, as the form demands. Also characteristic is the contribution of linkage to passages of metric reorientation and ambiguity. In the piano quartet and Second Symphony, we have seen this proclivity for rhythmic reorientation on hypermetric levels. Recall that the quartet presents its linking dyad in shifted positions in relation to the notated meter as well.

One characteristic the quartet does not exemplify, however, is the possibility for these shifts to introduce outright metric displacement into the rhythmic process. In each passage that the

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[23] Murphy 2007 also assigns a crucial role to the unison passage in his hypermetric analysis of the movement. Unlike my interpretation, which hears these final repetitions in relation to the notated meter, he posits a shift to a dotted quarter pulse based on the repeated E♭-C♯-D and A-F♯-G melodic pattern.

linking dyad shifts, the notated meter nevertheless remains clear. Such metric clarity, however, is far from the norm in passages of Brahmsian linkage. Indeed, Brahms often exploits shifting positions of a motive to obscure the notated meter, either in the service of metric ambiguity or to make a notated weak-strong repetition sound like a strong-weak metric shift.

A final, brief look at another of Brahms's gypsy-influenced works—the first movement of the Double Concerto, op. 102—provides a glimpse of what is involved.[24] The concerto features metric displacement as a characteristic of its numerous passages of linkage; Ex. 23 provides just one instance. Note that the transition to the solo cello's thematic statement presents the linking E-D dyad in both strong-weak and weak-strong positions (clarinet, mm. 148-52). Thus when the cello enters, there is some doubt as to whether we should still hear the theme in relation to the notated meter or as part of a metric displacement, with accents on beats 4 and 2. The situation is further complicated by the accompaniment, which corresponds with the notated meter but can easily be heard to form a syncopation. The question of metric interpretation remains open even after the notated meter has unequivocally resurfaced towards the end of the cello's phrase. Note that just after Brahms has seemingly settled the issue in favor of the weak-strong identity indicated by the notation all along, the solo violin's linkage reawakens the possibility for strong-weak displacement.[25]

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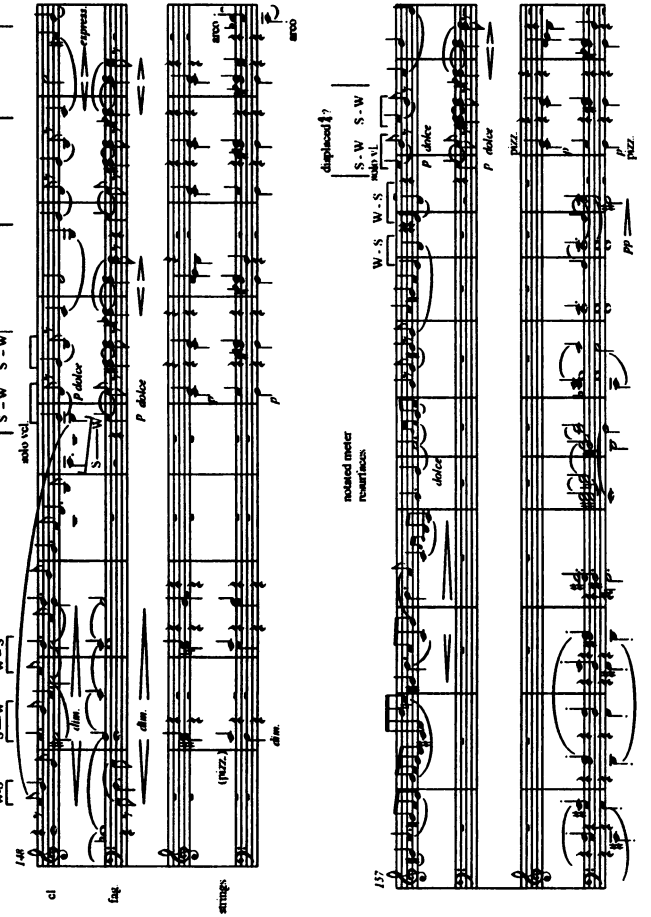
[24] Daverio 2002 provides a thoroughgoing exploration of gypsy-style elements in the concerto.

[25] For analysis of linkage's role in creating metric ambiguity throughout the movement, see Smith 2006, 71-76. Other compositions in which linkage participates in passages of metric ambiguity and displacement include the first movements of the E♭-major Horn Trio, op. 40, the A-minor Clarinet Trio, op. 114, and the C-minor Piano Quartet, op. 60. I discuss both trio movements in Smith 2001b. Smith 2006 includes discussion of the metric aspect of linkage in the C-minor quartet.

Example 23. Brahms, Double Concerto, op. 102, I, mm. 148-68 (simplified).



Regardless of how any individual listener negotiates these metric complexities, few would question the idea that the various dyadic statements, either here or in the piano quartet, represent genuine motivic repetitions. More doubts are likely to arise in cases of harmonic linkage where the continuities I have proposed conflict with segmentations in the voice-leading hierarchy. Metric linkage presents nothing comparable to the prolongational-like continuity of harmonic linkage and thus creates no conflict with prolongational boundaries. Yet in either case, we are confronted with the repetition of what is in some sense the same musical object, but that undergoes an identity shift in relation to its context. In the case of metric linkage, a melodic cell migrates across the metric grid. In the case of harmonic linkage, a vertical sonority is reinterpreted in relation to the tonal structure; an incidental or apparent version of a chord becomes a structural pillar or visa versa.

How should we respond to the complexity of such identity transformations in the tonal dimension? My own sense is that both prolongation itself and the relationship of tonal structure to other musical dimensions are already highly complex and should not be so narrowly circumscribed to prohibit the kinds of continuities I have proposed. The beginnings and endings of prolongational spans, for instance, do not always correspond with articulations provided by the thematic and key scheme dimensions of form. Nor is it unusual for the key orientation of a passage to shift over the course of the prolongation of a single harmony. Likewise, the boundary between two keys may itself be fuzzy rather than razor-sharp. Why then should it be impossible for a prolongational shift to occur through a gradual process rather than instantaneously? Moreover, why should our ears remain closed to the possibility of an overlap of harmonies in prolongational space? Indeed to prohibit such overlaps and, more generally, the extra-prolongational continuity of linking harmonies would be to deny one of the most magical effects of Brahmsian linkage.

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