

**Metrical Dissonance and Triple Hypermeter in  
the *Rondo alla zingarese* of Brahms's Piano Quartet No. 1, Op. 25**

**INTRODUCTION:**

The New Harvard Dictionary of Music defines meter as "the pattern in which a steady succession of rhythmic pulses is organized."<sup>1</sup> Most (if not all) classical musicians derive at least their initial sense of meter from the notated time signature of a musical work. As a result, the subdivisions of a measure implicitly adopt an alternation of strong and weak beats. Harmonic changes, melodic structure, and note placement typically further strengthen this alternating sense of strong and weak beats.

Often, however, a "succession of rhythmic pulses" can be perceived not only within the measure but also at the level of the measure itself. In other words, each measure can take on a "strong" or "weak" quality in relation to those measures surrounding it. Patterns of such strong and weak measures naturally group together. These "suprameasure units," as William Rothstein refers to them, "are perceived as if they were measures, because they exhibit a regular alternation of strong and weak 'beats' analogous to that of single measures."<sup>2</sup> Because this higher metrical structure occurs above the level indicated by the notated meter, music theorists refer to it as hypermeter. The "suprameasure units" that arise from this hypermeter are consequently called hypermeasures.

While a time signature clearly defines the meter of a piece, rarely does a score give any explicit reference to the piece's hypermeter. One pragmatic and significant reason for the lack of such reference is that, unlike meter, the hypermeter of a musical work from the common-practice era often undergoes various shifts and changes throughout the course of the piece. These shifts

and changes in hypermeter derive from shifts and changes in phrase construction, since a listener's sense of hypermeter "is highly influenced by phrase (grouping) structure."<sup>3</sup> Despite the analogous frameworks of meter and hypermeter, therefore, they occupy separate roles in a listener's perception of music: Meter is more regularly periodic than hypermeter.

A second important difference exists between meter and hypermeter: Both duple and triple meters are fairly common, whereas consistent triple hypermeter is quite rare. For example, musicians are all familiar with triple-based time signatures such as 3/4, 6/8, etc. No justifications or explanations of these metrical structures are required; they are intuitively understood and seem like natural environments. Yet most theorists "have recognized that phrases of two, four, eight, and sixteen measures enjoy a privileged status in tonal music."<sup>4</sup> Some theorists have even elevated the status of duple phrase lengths to such an extent that all phrases of non-duple (including triple) length "can be understood as variations of 'normal' phrases of duple length."<sup>5</sup> Because hypermeter and phrase length are so integrally related, the inference is that hypermeter, as opposed to meter, tends strongly towards duple models.

The question arises, therefore, as to why pieces with regular triple hypermeter are far more infrequent than pieces written in triple meters. Although such a question is beyond the scope of this paper, a closer look at works in which triple hypermeter plays a central role might help approach an answer to this question. One famous example of prominent, periodic triple hypermeter is the *Scherzo* from Beethoven's 9th Symphony. The development section of this movement begins with a marking of "Ritmo de tre battute" in bar 177. Richard Cohn, in his article from 1992, weaves this triple hypermeter into a dramatic hypermetric narrative that pits duple groupings of measures against triple groupings.<sup>6</sup> In the end, the privileged duple hypermeter emerges victorious; all has returned to normal.

The fourth movement (*Rondo alla zingarese*) from Brahms's Piano Quartet no. 1 in G minor, op. 25, provides another example of a work in which triple hypermeter plays a prominent role. Unlike the *Scherzo* from Beethoven's 9th, however, the triple hypermeter of the Piano Quartet's last movement does not appear merely as a foil to the opening and closing sections of duple hypermeter. Instead, triple hypermeter holds a far more pivotal and fundamental status. In fact, the roles as seen in Beethoven's *Scherzo* are here reversed: For the *Rondo alla zingarese*, duple hypermeter foils the locally normative structure of triple hypermeter.

### **OVERVIEW OF OP. 25:**

The uncommon hypermetric qualities of the last movement from Brahms's op. 25 derive from a fairly common stylistic setting. Rondo forms were often used to close multi-movement works in the late 18th- and 19th-centuries. In these rondos, folk and popular music routinely served as a typical thematic source.<sup>7</sup> The header of "*alla zingarese*," which translates from the Italian as "in the gypsy style," implies the folksy roots of themes from this final movement.<sup>8</sup> This "gypsy style," also known as the *Style hongrois*, became a fashionable exotic flavor in the concert repertoire of the 19th-century. The genre of *Style hongrois* is famous for its non-conformism, which musically manifests itself through unconventional harmonies, melodies, and rhythms.<sup>9</sup> Harmonies are characteristically non-functional, and pieces often pass suddenly to remote keys without any preparation or traditional modulation.<sup>10</sup> Similarly, rhythms are highly charged with syncopations and include many patterns otherwise rare in Western concert music.<sup>11</sup> All of these characteristics are evident in the *Rondo alla zingarese* from op. 25. In this light, the triple hypermeter of this final movement conforms to the *Style hongrois* through its non-conformism to traditional hypermeter of 19th-century art music.

Before delving into examples and analyses of hypermetric issues and other rhythmic characteristics of Brahms's *Rondo*, a preliminary overview of the movement's form is necessary. The piece consists of five main recurring sections, which is an atypically high number of thematic areas for a rondo. The initial appearances and basic internal forms of each section are as follows:

- 1) **Refrain** (mm. 1-30); *internal form*: rounded binary
- 2) **Episode 1** (mm. 31-60); *internal form*: AB
- 3) **Episode 2** (mm. 80-115); *internal form*: rounded binary
- 4) **Episode 3** (mm. 155-172); *internal form*: rounded binary
- 5) **Episode 4** (mm. 173-205); *internal form*: rounded binary

As should be evident from the above list, each main section contains a smaller, nested form that itself contains contrasting material. One may therefore be able to identify close to a dozen differentiated themes within this single movement. The large amount of varied thematic content creates a constantly changing musical surface that switches back and forth between numerous metric and hypermetric environments.

It is this variety of metric and hypermetric environments that sets up the main rhythmic and metrical narrative of the *Rondo*. The resultant issues are intertwined and related, but they can be codified into a few main points. Since the number "5" seems to play such a central role in this movement (as there are five main thematic sections), it would seem most appropriate to break down the issues of rhythm and meter of this piece into five categories:

- 1) **Triple hypermeter as normative**: Triple hypermeter exists as a normative, non-dissonant structure. The overall hypermetric trajectory of the piece is from this triple hypermeter to an area of purely duple hypermeter in Episode 4, and finally back again to triple hypermeter at

the end of the movement.

2) **Changing tactus creates metrical reinterpretations:** The changing tempi between sections necessitate a changing beat or pulse (i.e. "tactus"); arguably, this changing pulse requires a reinterpretation and reorganization of the metrical hierarchy in certain cases, especially if certain sets of tempi are selected for performance.

3) **Shifting levels of triple groupings:** Triple groupings manifest themselves at both a measure-to-measure level as well as a phrase-to-phrase level. In this sense, triple hypermeter can be seen as moving throughout the metrical hierarchy over the course of the movement.

4) **Metrical consonance versus dissonance:** The Refrain, Episode 2, and Episode 4, although internally different from one another in terms of hypermeter, display grouping structures that are consonant with the local hypermeter. These three consonant sections are bridged by Episodes 1 and 3, in which grouping and hypermeter are in a more dissonant relationship.

5) **Accent as metric cadence:** The pervasive use of triple hypermeter appears together with strong offbeat accents at the ends of phrases. These closing syncopations help give a sense of metric cadence to the atypically normative areas of triple hypermeter.

Each of these five global rhythmic and metric issues could be discussed separately. Many of these issues appear concurrently, though, and often influence one another. As an attempt to unravel the complex metrical issues, each thematic area will thus be discussed individually.

#### **METRICAL CHARACTERISTICS OF THE REFRAIN:**

The first 30 bars of the movement contain the recurrent Refrain of this rondo. Measures

1-12 lay out the movement's principal theme. Aside from the modified cadence in bar 30, this principal theme is literally repeated in mm. 19-30. A short contrasting passage in bars 13-18 provides an element of harmonic and melodic relief between the two outer parts. A small rounded binary structure is therefore obtained in these opening 30 bars.

An immediately salient characteristic of the music in this initial Refrain section is the grouping of the measures into units of three. Measures 4, 7, and 10, for example, all begin with the same melodic motive as in measure 1. This grouping of three-bar segments continues through the B section of mm. 13-18. The strong sense of triple hypermeter cannot be ignored here. Because periodic and regular triple (i.e. non-duple) hypermeter occurs much less frequently than duple hypermeter, one wonders how and why triple hypermeter makes such a prominent appearance at the beginning of this movement and what implications this triple hypermeter has for the rest of the piece.

As was mentioned in the introduction, one prevailing theory of non-duple hypermeters is that they can be derived from standard duple models. Heinrich Schenker, for example, related "at least some asymmetric time structures to simpler, usually duple models."<sup>12</sup> This notion of boiling down a phrase to a more basic model evokes the concepts of *prototypes* and *transformations*, which Carl Schachter discusses in his book *Unfoldings*. Through variation, expansion, or prolongation, a standard 2- or 4-bar *prototype* can become *transformed* into a 3-bar structure on the surface of the music.<sup>13</sup>

Perhaps the 3-bar segments in the Refrain have thus evolved out of some 2- or 4-bar ancestor. Figures 1a and 1b show possible 4- and 8-bar prototypes, respectively, for the first 6-bar phrase. With such a simple pedal point in the left hand, truncating the opening six measures or imagining some missing fourth and eighth bar is not too difficult. Despite the relative ease of

transforming mm. 1-6 into some duple model, however, these recompositions drastically change the rhythmic feel of the theme. Prototypes are, of course, implicitly inferior to their transformations, otherwise a composer would not have chosen to mold and shape the simpler model into something more complex. In Brahms's *Rondo*, however, duple prototypes of the opening measures inherently lose the theme's basic, defining metrical characteristic. The triple hypermeter is essential to the rhythmic drive of the theme and gives the theme a tangible sense of forward motion. Duple models thus seem too fundamentally different to be worthwhile prototypes in this case.

If the theme of the Refrain will not convincingly allow itself to be derived from a duple model, then the theme must natively exist with its triple grouping. Rothstein admits "there are many ways in which non-duple phrases may occur without being derived from, or reducible to, duple ones."<sup>14</sup> He gives numerous reasons why non-duple phrases might natively exist. For example, phrases may be constructed "on the basis of the number of principle tones contained in that phrase."<sup>15</sup> As well, non-duple phrases may sneak in "under the cover of a larger, duple phrase."<sup>16</sup> None of these reasons seems appropriate here, though, since no sequence of tones especially stands out nor does some larger 8-, 16-, or 32-bar phrase appear to contain any of the phrases in this opening.

Rothstein does give one situation, however, in which a triple hypermeter may naturally occur that seems particularly appropriate for this opening. He writes that in certain cases, "most common in rapid tempi, a repetitive motivic pattern may itself create a non-duple hypermeter."<sup>17</sup> Specifically important in the case of the Brahms's *Rondo*, "repetition provides the emphasis necessary to establish the awareness of equal spans."<sup>18</sup> Not only does the unbroken string of three-bar groups help establish triple hypermeter, therefore, but the static harmony and repeated

motivic figure from bar 1 help to hammer home the sense of triple hypermeter, too. Rothstein states this point even more clearly when he writes, "if two or more non-duple phrases, each of the same length, follow each other in direct succession, a feeling of regularly recurring accents is likely to be created, and with it a feeling of hypermeter."<sup>19</sup>

A significant reason why rapid tempi in particular more easily establish non-duple hypermeters relates to the speed at which the listener hears the basic beat, also known as the tactus. The tactus, although defined more intuitively than scientifically by music theorists, describes "the level of beats that is conducted and with which one most naturally coordinates foot-tapping and dance steps."<sup>20</sup> The tempo at which this tactus exists, according to some music theorists, "is invariably between about 40 and 160 beats per minute, and often close to the traditional Renaissance tactus of 70."<sup>21</sup> Psychological research further confirms that our sense of "maximal pulse salience," i.e. the range in which humans most often feel the beat, lies somewhere in the area of 500-750 ms, correlating to about 80-120 beats per minute.<sup>22</sup> Certainly a bit of numerical disagreement exists between music theorists and psychologists as to the exact range of the tactus, but a general trend toward the middle of the metric spectrum should be obvious.

After a small sampling of a few recordings of this movement, it seems that the tempo for these opening bars often lies around 150-170 beats per minute, with the beat in this case equal to a quarter note. Other performances are perhaps somewhat faster or slower, but one cannot imagine anything too radically different. Notice how the sample range of tempi falls well outside the range of maximal pulse salience given by psychologists and also lies on the very edge of even where music theorists postulate our sense of beat. The net result is that it is quite easy to shift one's hearing up a level in the metrical hierarchy, to begin to hear the measure as the beat



instead of the quarter note. By hearing the measure as a beat, the beats-per-minute figure drops down to about 75-85, which lies very comfortably in anyone's range of perceived tacti. Of course, some (if not many) people may hear the quarter note as the beat during these opening measures, especially if the performers choose a particularly slow starting tempo, but one must admit that a valid listening of these first 30 bars can involve shifting the beat to the measure level.

If and when the beat is perceived at the measure level in this opening, the triple hypermeter ends up sounding like consecutive bars of  $\frac{3}{4}$  meter. A trained musician unfamiliar with the score may, upon listening, even think the piece to be notated in a time signature of  $\frac{3}{4}$  instead of  $\frac{2}{4}$  as written. This  $\frac{3}{4}$  hearing can be shown more clearly via a durational reduction. In Figure 2, the durations of the first 30 measures have been halved, e.g. quarter notes become eighth notes, eighth notes become sixteenth notes, etc. Durational reduction is appropriate in this situation because it "helps to show the metrical organization of the pieces or passages when that organization is not completely reflected in the composer's notation."<sup>23</sup> Furthermore, "the use of durational reduction frequently shows a 'higher-level' metrical organization of measures."<sup>24</sup>

Indeed, Figure 2 does help show a "higher-level" metrical organization of these opening measures. For example, the first 12 measures of the piece reduce cleanly into four measures of  $\frac{3}{4}$ . As Figure 2 makes evident, the privileged duple hypermeter only manifests itself at a level above the notated measure. The contrasting middle section reduces down to two short bars, after which the four bars of the original theme basically repeat. In all cases, duple hypermeter obtains. Interestingly, the rounded binary structure of these 30 bars, once renotated in a  $\frac{3}{4}$  durational reduction, creates a pattern of five two-bar segments. The number five, as already mentioned, plays an important background role in this piece; it makes itself known here from the very

beginning.

The clearly-defined group of twelve bars in this opening theme forms what Richard Cohn terms a "metric complex." In his article on the *Scherzo* from Beethoven's 9th, Cohn develops the concept of metric complexes as well as a concomitant notational system with which to discuss shifting organizations of hypermeter.<sup>25</sup> One important distinction is the difference between *mixed* metrical complexes and *pure* metrical complexes. Pure metrical complexes are those obtained from groupings that use only a single prime number. For example, measures of 4/4 organized into 2-bar segments, 4-bar phrases, 8-bar periods, and 16-bar sections would be an example of a pure duple complex since all levels are divisible by the number "2." Mixed metrical complexes, on the other hand, include groupings of two or more prime numbers. A unit of 12 bars, for instance, is necessarily a mixed metrical complex since it must be divided into smaller parts that group into a combination twos and three. Consequently, the first 12 bars of Brahms's *Rondo* are a mixed metrical complex.

An important difference between pure and mixed metrical complexes is that "a pure metric complex has only one possible interpretation, since it has only one distinct factor... [whereas] mixed metric complexes have two or more possible interpretations."<sup>26</sup> Figure 3 reproduces an illustration from Cohn's article that shows the three basic organizational divisions (or "interpretations") of a twelve-unit span.<sup>27</sup> Using Cohn's notation for these three options, the opening 12 bars of the *Rondo* would be categorized as [ 2 2 3 ]. The appropriateness of this label should be obvious since the 12-bar unit divides into two 6-bar phrases and again into four 3-bar segments.

Another important difference between pure and mixed metrical complexes concerns their implications for the future development of the piece. While pure metrical complexes are

organizationally simple and metrically stable, Cohn comments that "mixed complexes invite conflict, instability, confusion."<sup>28</sup> Moreover, "[mixed] complexes have an inherent potential to host ambiguity and conflict."<sup>29</sup> Despite the normative structure of the triple hypermeter, therefore, the mixed complex of the opening 12-bars arguably sets up an instability that allows for the potential of metrical development over the course of the movement.

This potential metrical conflict derives from the basic difference between duple and triple groupings. Harald Krebs, in his book *Fantasy Pieces*, discusses ways in which duple and triple groupings create metrical dissonance.<sup>30</sup> Possibly foreshadowing further metrical dissonances in the *Rondo*, a small example of grouping dissonance appears in bars 4-9. These bars include the last three bars of the first phrase and the first three bars of its repetition. As Figure 4 shows, a descending bass line in the left hand serves to link these two phrases together and bridge a change in register for the left-hand part. This bass descent, though, effects an extension to the length of the previous bass part. By bleeding into the next phrase, the left hand creates what Krebs would call a 4-layer. In the right hand, the triple hypermeter of the opening continues unabated. Thus a momentary grouping dissonance, which Krebs would label as G4/3, occurs here between the 4-layer in the bass and the 3-layers in the melody. This dissonance is only fleeting, however, quickly overwhelmed by the pervasive sense of triple groupings in this opening; this grouping dissonance does set up an important hint, though, at ways in which the ambiguity inherent to a mixed conflict is developed and brought to the surface of the music.

### **METRICAL CHARACTERISTICS OF EPISODE 1:**

The potential ambiguity and conflict does not become fully realized until the beginning of the first episode in bar 31. During this first episode, the triple hypermeter from the previous

30 bars could easily be heard as continuing throughout this next section. Strong evidence for the continuation of the triple hypermeter can be found in the pattern of harmonic changes. For example, bars 31-33 outline sonorities in G-minor, bars 34-36 transpose the previous three bars into Bb-major, bars 37-39 imply a dominant chord on D, and bars 40-45 are solidly rooted in F#-minor. The conservative listener, therefore, who is apt to preserve the triple hypermeter from the opening 30 bars, may continue this pattern through Episode 1 with good reason.

A number of factors on the surface of the music work against this hearing, however, and create a situation where the listener may become confused in certain parts of this episode as to the location of hypermetric downbeats. Take, for instance, the initial bar of this new section: measure 31 repeats the cadential melodic gesture, F# to G, from the previous bar. By repeating the melodic content of measure 30, measure 31 acts as an echo of its preceding measure. The "echo-repetition" is a classic device used in the expansion of a phrase.<sup>31</sup> Measure 31 can thus be validly heard as grouping together with the prior 3-bar segment instead of starting a new 3-bar segment. As Figure 5 shows, the expansion of the final phrase from the Refrain creates a 4-bar segment, after which triple groupings begin anew. The cadential gesture in bar 34 also makes more sense as the end of a group instead of the beginning of a group.

Two types of metrical dissonance are caused as a result of the phrase expansion in bars 28-31. Firstly, another instance of grouping dissonance occurs, much like the grouping dissonance in bars 4-9. Again, the dissonance can be labeled as a G4/3 since the 4-layer of mm. 28-31 is dissonant against the 3-layer of mm. 32-34. In the Refrain, however, this G4/3 dissonance occurs between two layers at the same point in time, whereas at the transition to Episode 1, the different layers come one after another. Krebs provides terminology for this distinction when he writes, "I refer to dissonance resulting from superposition as 'direct

dissonance,' and that resulting from juxtaposition as 'indirect'. Indirect dissonance exists because of our tendency as listeners to maintain an established pulse for a short time after it is discontinued in actuality."<sup>32</sup> Thus the direct G4/3 dissonance apparent in the opening has been commuted into the indirect G4/3 dissonance of this new section.

A second metrical dissonance results from hearing measure 31 as an expansion of the previous phrase. For a conservative listener who continues to hear the periodic triple hypermeter from the opening as constant throughout this first episode, the grouping dissonance due to the phrase expansion has consequently shifted the location of the beginning of the 3-bar groups that start up again in measure 32. In other words, if the hypermeasures of the opening are heard as regular bars of 3/4 that continue through this episode, then bar 32, which arguably sounds like the start of a phrase, begins on the second beat of a 3/4 hypermeasure. The offset placement of the phrase's beginning has effectively been displaced by a single bar within the regular pattern of triple hypermeter. Krebs terms such a situation "displacement dissonance" and would formally label this case as an example of indirect D3+1 metrical dissonance.<sup>33</sup> The 3-layer starting in bar 32 is "congruent" with the 3-layer of the initial triple hypermeter but is positioned differently within the metrical hierarchy. To put the situation in different terms, the period of the grouping in bars 32-34 is the same as the triple hypermeter, but this grouping is now out-of-phase.

To further bolster the claim of D3+1 dissonance in bar 32, it is necessary to look ahead to measure 40. At measure 40, a sixteenth-note scalar run begins much as it did in measures 32 and 35. Now, however, the sixteenth-note pattern has been readjusted to be congruent with a background periodic triple hypermeter. Figure 6 shows how this readjustment takes place: another phrase expansion occurs at the end of the group that begins in bar 35. In mm. 38-39, two bars of echo-repetition are tagged onto the end of the previous segment to realign the offset

created by the single bar of echo-repetition from bar 31. The end result is that in measure 40, the indirect displacement dissonance is resolved, and the sixteenth-note figure becomes consonant with a conservative listener's sense of triple hypermeter.

According to Lerdahl and Jackendoff's Metrical Preference Rule 1, "where two or more groups or parts of groups can be construed as parallel, they preferably receive parallel metrical structure."<sup>34</sup> A listener would thus prefer to hear measures 32, 35, and 40 as having parallel metrical weight within the hypermeter. In order to effect this parallelism, however, one would have to hear the length of the hypermeter as constantly changing in this section. A more plausible situation is that the listener becomes very aware of the displacement dissonance in this episode as the listener attempts to reconcile similar motives that are placed at different starting locations in the background hypermetric structure.

The final instance of salient metrical dissonance in this first episode occurs as the first half of this episode repeats itself in bar 46. In bar 46, the measure of cadential echo-repetition from bar 31 reappears. Now, however, this echo is not preceded by what it is echoing. Instead, bars 40-45 are its predecessor. The cadential measure in bar 46 can thus be no longer viewed as an echo-repetition. Despite lacking its original derivation, bar 46 still acts as an expansion of the phrase prior, though; consequently, bar 46 creates a 4-measure unit that begins again the indirect grouping and displacement dissonance from bars 31-32. On first glance, for example, the G-minor to D7 progression in bar 45 may look like a half cadence. Upon listening to this section, however, it should be plainly clear that no half cadence exists in bar 45; the true cadence comes only in bar 46.

## **METRICAL CHARACTERISTICS OF EPISODE 2:**

Episode 2 introduces a new hypermetric state beginning in measure 80. Instead of triple groupings of measures, which have been relatively consistent up until this point in the piece, the metric structure shifts to groupings of four measures. In Episode 2, these four-measure segments combine to make a phrase that spans twelve measures. For example, the span up until the first double bar in m. 91 contains twelve bars. In this respect, both Episode 2 and the Refrain have initial thematic areas that consist of 12-bar units. The ways in which these 12-bar units are subdivided differ significantly, however.

In the Refrain, the first four bars created a metric complex of [ 2 2 3 ] since triple groupings were evident at the measure level. In Episode 2, however, the triple groupings rise to a higher level in the metric structure; the twelve measures are divided into three groups of four-measure segments. The metric complex for this episode can thus be represented as [ 3 2 2 ]. Notice how the triple grouping is moving around within the metric hierarchy. This mobility is facilitated by the inherently compound structure of any 12-based unit.

### **METRICAL CHARACTERISTICS OF EPISODE 3:**

An important change occurs in measure 155 that has deep ramifications for the metrical organization of the piece: the tempo changes from *Presto* to *Meno Presto*. The question of how much "less" presto this new section should be is a crucial yet unspecified one for performers. From sampling a few recordings, tempi for this new episode seem to often fall somewhere in the range of 90-100 beats per minute, with the beat equal to the quarter note. These tempi are drastic shifts from the 150-170 bpm readings of the opening of the piece. In a sense, the tempo can seem reduced to two-thirds its initial value if not almost cut in half.

Justin London astutely points out that "as the tempo changes there may be changes in the

perception of the perceived beat."<sup>35</sup> Moreover, London postulates that "as the tempo changes the number of possible hierarchic configurations does not remain constant."<sup>36</sup> These statements are particularly meaningful with respect to the changes that occur in bar 155. Whereas in earlier sections of the piece, the rate of quarter notes was potentially too fast to be heard as the tactus, in Episode 3, the quarter notes have slowed down such that their rate now lies comfortably within the range of maximal pulse salience. In fact, London notes the "special significance of periodicities" with tempi in the range of 90-100 bpm.<sup>37</sup>

While a listener may for good reason be hearing the beat at the level of the measure in the beginning sections of this movement, by bar 155 this hearing becomes untenable. To sustain such a hearing, the tactus would have to slow down to the range of 45-50 bpm, a range which is far from the ideal. Instead, it is more likely that with Episode 3, a listener shifts from hearing the measure as the level of the beat to hearing the quarter note as the level of the beat. In fact, the listener may even sense something like an increase in tempo as opposed to the reduction in tempo that is notated because of the necessary shift in metric organization.

Another issue that potentially influences the listener's sense of the tactus here is the change in the harmonic rhythm. Lerdahl and Jackendoff address the relation of tactus to harmonic rhythm when they write, "a piece with frequent functional harmonic change is heard with a faster tactus than a piece with equal note values but less frequent harmonic change. Roughly, each beat of the tactus must have only a single functional harmony."<sup>38</sup> In Episode 3, clear changes of harmony occur on every quarter note. In previous sections, harmonic changes can certainly be found between successive quarter notes within a measure, but the general sense of harmonic motion seems to be fairly static, and many of these harmonies can be subsumed under a broader local harmony for the measure.



The potential need to reorient the tactus with respect to the measure or beat level is also addressed by David Temperley's "Regularity Rule." This Metrical Preference Rule states a preference for "beats at each [metrical] level to be maximally evenly spaced."<sup>39</sup> In other words, listeners prefer to maintain a consistent tactus throughout a piece of music whenever possible. Temperley's rule derives from Lerdahl and Jackendoff's Metrical Well-Formedness Rule 4, which states, "the tactus and immediately larger metrical levels must consist of beats equally spaced throughout the piece."<sup>40</sup> Temperley recognized that, of course, natural shifts in tempo due to variations in performance as well as notated tempo variations in the score could not conform to Lerdahl and Jackendoff's requirements; the tactus must be slightly flexible. A preference exists, however, to keep the tactus as regular as possible. It is this preference that creates a possible hearing that shifts the tactus from the measure level of the opening to the quarter-note level in Episode 3. Admittedly, a shift in the level of tactus relies heavily on the particular performance of this movement, but gauging from a few performances, this possibility does not seem too remote.

The placement of the double bars in Episode 3 offers a final piece of evidence to strengthen a hearing of tactus reinterpretation. In previous sections of the piece with the tactus at the level of the measure, 12-bar phrases spanned twelve pulses of the tactus. Given a shift in tactus, the same number of tactus pulses now only spans six measures in Episode 3. It is therefore not surprising that the double bars in mm. 155-160 enclose only six measures instead of the twelve measures enclosed by the double bars of Episode 2.

If one accepts a new tactus at bar 155, the final missing metrical complex of [ 2 3 2 ] can be obtained from this new episode. Measures 155-160 divide into two three-bar segments, but these segments contain six pulses of the tactus instead of three. Triple groupings in measures

155-160, therefore, shift to the middle level of the metric complex. This upward shift of the triple grouping (in comparison to the Refrain) acts in complementary motion to the way in which the tactus has shifted down a level in the metrical hierarchy.

At whatever level one chooses to hear the tactus in this third episode, it is rather difficult to hear a strong beat at the very beginning of this section due to the initial eighth-note rest. A listener is immediately thrown off balance in bar 155 by this rest, which reappears in bar 158. These two bars, in fact, sound more like upbeat measures or prefixes than they do the beginnings of phrases. The most salient sense of a hypermetric strong beat, in fact, occurs in bars 156 and 159. Carl Schachter writes that often "upbeat measures function as insertions and are clearly heard as 'extra.'"<sup>41</sup> If this view of upbeat measures as extraneous is adopted with respect to Episode 3, then a native triple hypermeter does not seem to exist in this section. Bars 156-157 and 159-160 stand as simple duple groupings, which are expanded into triple groupings via the addition of an upbeat measure. The surface-level groupings of three-bar units are thus in conflict with the underlying duple derivation of the phrase. This conflict creates a slight ambiguity between triple and duple hypermeter during these measures.

The ambiguity and conflict at the beginning of Episode 3 harken back to a metrical dissonance seen in Episode 1. In Episode 1, a case of D3+1 displacement dissonance occurred when the sixteenth-figure was shifted forward a bar in the texture of triple hypermeter. In bars 155-160 as well, a label of D3+1 could be used to describe the effect of the upbeat measures 155 and 158. The hypermetrically-strong measures of 156 and 159 have been displaced from a potential background triple hypermeter. Figure 8 shows how this displacement dissonance arises. If a background of triple hypermeter is too hard to imagine for bars 155-160, then one only has to look forward to measures 161-166 where a consonant metrical texture appears. In mm. 161-

166, the phrase groups realign with the triple hypermeter. The reintroduction of the upbeat measure in bar 167 reverts back to the state of displacement dissonance.

#### **METRICAL CHARACTERISTICS OF EPISODE 4:**

In Episode 4, the listener is finally presented with an area of complete hypermetric consonance. Bars 173-176, 177-180, 181-184, and 185-188 form the four 4-bar main divisions of this sixteen-bar section. No longer is twelve (or its submultiple 6) the normative number of measures for phrase lengths. In contrast to the sections of mixed metrical complexes that surround it, Episode 4 therefore presents a pure metric complex comprised solely of duple groupings.

The inherent stability of this pure metric complex in Episode 4 has been prepared throughout the piece. Episodes 1 and 3 developed the potential conflict of the triple hypermeter and transition (in a broad sense) to this pure duple hypermeter. Appearing in the middle of the movement, this duple hypermeter foils the normative triple hypermeter that surrounds it. Episode 4 is the calm eye in the middle of the storm and gives a much-needed metrical respite.

#### **SYNCOPIATION AS METRICAL CADENCE:**

Because the thematic areas of this *Rondo* reappear throughout the movement without much significant alteration from their original instantiations, the characteristics of the metrical dissonances discussed in the preceding paragraphs stay mostly constant as the piece progresses. Brahms's use of syncopation, however, undergoes a change in placement and frequency over the course of the work. To trace this changing quality of syncopation, a separate discussion follows.

Let us turn back to the beginning of the work. The listener encounters a strong accent on

the second beat of measure 6. This second beat of measure 6 also displays both the highest and lowest notes heard thus far in the piece. It might be questionable to say that this accent in measure 6 is the most important accent of the piece so far, but the accent certainly is the most contradictory metrical moment of these opening bars. The metrical contradiction is heightened by the two eighth notes that precede it and weaken the first beat of the bar.

This accent in measure 6 is, of course, a syncopation. According to Ler Dahl and Jackendoff, a syncopation is "strongly contradictory yet not strong enough, or regular enough, to override the inferred pattern."<sup>42</sup> The second beat of bar 6 definitely goes against the notated meter as well as the implied triple hypermeter, but since the triple hypermeter continues unabated, the offbeat accent was not strong enough (or persistent enough) in establishing any new metrical hierarchy.

What, then, is the purpose of this syncopation if it does not help establish a new metrical area? Few authors seem to give many alternative compositional reasons for syncopation. Some write only that it is "aimed at increasing local metrical tension."<sup>43</sup> Others posit that it serves "to throw the music off balance" in order to create a need for a "restoration of balance" that "becomes the task of the entire movement at hand and directs the course of many of its events."<sup>44</sup> While both of these statements may hold true for the accent in measure 6, the resultant syncopation appears to have a more central function. Specifically, this syncopation functions as a metrical cadence.

The view of the syncopation in measure 6 as a metrical cadence arises from a number of factors. Firstly, no clear harmonic cadence exists in this measure, nor does any clear harmonic cadence exist in its sister bar at m. 12. The leading tone F# can certainly be seen as implying a dominant sonority, but the harmonies of these opening twelve measures have been alternating

back and forth between tonic and dominant; any sense of a structural dominant is thus weakened at this point. Secondly, even though triple hypermeter appears as a normative structure in these opening bars, the syncopation further emphasizes the end of a phrase. By accenting the offbeat of the final bar in the phrase, the syncopation puts on the metrical brakes (so to speak) and in the process helps delineate formal boundaries.

This end-accenting syncopation becomes further intensified in m. 18, where it acts as a sort of turnaround. Here, the syncopation is shifted more deeply into the metrical hierarchy, since the accent falls on the last eighth note of the bar. The *sforzando* chord in bar 18 creates a perceptible counterforce against the forward momentum of the falling sixteenth notes from the preceding five bars. By disrupting the rolling descent of this contrasting area, the syncopation catalyzes a return to the opening theme.

A similar use of syncopation occurs in Episode 2. Take for example the offbeat accents in bars 88, 89, and 90 or their counterparts in bars 112, 113, and 114. In these closing measures, the syncopations are echoed a few times immediately following the harmonic cadence. Apparently, the harmonic cadence alone is not sufficient to slow down the preceding flow of continuous sixteenth notes; a sequence of syncopations is required to dissipate their forward energy. Moreover, since the theme in this second episode consists of a triple grouping at its highest metrical level, the syncopations help clarify the end of the phrase in this non-duple environment, too.

Although syncopation plays an important role in defining the ends of phrases in the Refrain and Episode 2, a similar use of syncopation is missing from the other episodes. The lack of such syncopation in Episodes 1 and 3 is perhaps due to the ambiguity and displaced groupings in these sections; defining formal boundaries more clearly would go against the purposes of these

transitional episodes. The lack of syncopation in the fourth episode can be attributed to the consonant nature of this middle section; standard duple groupings and a slow tempo obviate the need for any metrical cadence or counterforce.

Further evidence of the role of syncopation in this movement appears near the end of the piece. At this point in the *Rondo*, the tempo has increased to *Molto Presto*. In part due to this increased tempo but also perhaps in part to remove any barriers to the climatic rush towards the final cadence, accents are conspicuously absent from bars 368 and 374. Admittedly, all accents are missing from the first twelve bars of this final recapitulation, but it is the absence of accents from bars 368 and 374 that seems most poignant. Of particular interest is the changed syncopation in bar 380. Now, instead of occurring on the last eighth note of the measure as it originally appeared in m. 18, the accent is shifted to the second quarter of the bar. Through this shift, the level of syncopation for this accent has been reduced. The reduction of syncopation in this bar testifies to the lessening of metrical counterforce in these closing bars. The music is kicked up a notch and as a result plows through any and all metrical barriers.

## **CONCLUSION:**

At a high organizational level, one may construct a narrative for the *Rondo alla zingarese* that pits mixed metrical complexes against the pure metrical complex of the fourth and final episode. The metrical storyline of the piece moves from these mixed complexes to a pure complex and back again. This basic motion of going away from something and then returning is germinal to so many musical works, but in this *Rondo* it takes on a wholly new form. The duple metrical environment, considered by many theorists to be the most stable and natural environment, acts not as a home base but as a foil to the arguably unstable environments that

surround it.

A number of factors facilitate the move from mixed metrical complexes to the pure duple complex. Foremost among these factors are hypermetric ambiguity and metrical dissonance, particularly evident in Episodes 1 and 3. A prominent D3+1 displacement dissonance is common to both episodes and works against continuations of the triple hypermeter. As well, confusion between duple and triple groupings in these two episodes helps transition to the pure duple complex.

Another factor also prepares the pure complex of Episode 4. Shifts of triple groupings throughout the metrical hierarchy arise from the unstable nature of the mixed metrical complexes. The Refrain forms a [ 2 2 3 ] complex while Episode 2 is in a [ 3 2 2 ] structure. If one allows the notated tempo changes to cause a changing level of tactus, the missing [ 2 3 2 ] complex can also be found in Episode 3 due to reinterpretations of the metrical hierarchy. These reorganizations of the metrical hierarchy create a dynamic and varied landscape in which the duple environment can mostly effectively provide maximum contrast.

More fundamental to the metrical environment of this work, though, is the normative structure of triple hypermeter. Partially, the comfortability of this triple hypermeter is directly tied to the fast tempo. However, many other features beside merely the rapid tempo allow for the normative quality of triple hypermeter. In many of the areas of mixed metric complexes, a main factor that strengthens the priority of triple grouping over duple grouping is the syncopated accent, which functions here as a metrical cadence. As a result, triple hypermeter in Brahms's *Rondo alla zingarese* seems to exist as naturally as any other piece exists within 3/4 meter.

**N.B.:** Score and recording located at:

<http://www.midside.com/etc/brahms/>

**END NOTES:**

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- <sup>1</sup> *The New Harvard Dictionary of Music*, ed. Don Randel (Cambridge MA: The Belknap Press, 1986), p. 489.
- <sup>2</sup> William Rothstein, *Phrase Rhythm in Tonal Music* (New York: Schirmer Books, 1989), p. 8.
- <sup>3</sup> *Ibid.*, p. 36
- <sup>4</sup> *Ibid.*, p. 33
- <sup>5</sup> *Ibid.*
- <sup>6</sup> Richard Cohn, "Dramatization of Hypermetric Conflicts in the Scherzo of Beethoven's Ninth Symphony," *Nineteenth-Century Music* 15, no. 3 (1992): 188-206.
- <sup>7</sup> Steven G Laitz, *The Complete Musician* (New York: Oxford University Press, 2003), p. 561.
- <sup>8</sup> *New Harvard Dictionary of Music*, p. 940.
- <sup>9</sup> Jonathan Bellman, "Toward a Lexicon for the Style hongrois," *The Journal of Musicology* 9, no. 2 (Spring 1991): 214.
- <sup>10</sup> *Ibid.*, p. 232.
- <sup>11</sup> *Ibid.*, p. 231.
- <sup>12</sup> Carl Schachter, *Unfoldings: Essays in Schenkerian Theory and Analysis* (New York: Oxford University Press, 1999), p. 103.
- <sup>13</sup> *Ibid.*, p. 102.
- <sup>14</sup> Rothstein, p. 34.
- <sup>15</sup> *Ibid.*
- <sup>16</sup> *Ibid.*
- <sup>17</sup> *Ibid.*, p. 38.
- <sup>18</sup> *Ibid.*
- <sup>19</sup> *Ibid.*, p. 37.
- <sup>20</sup> Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music* (Cambridge, MA: The MIT Press, 1983), p. 71.
- <sup>21</sup> *Ibid.*, p. 73.
- <sup>22</sup> Justin London, *Hearing in Time* (Oxford: Oxford University Press, 2004), p. 43.
- <sup>23</sup> Rothstein, p. 8.
- <sup>24</sup> Schachter, p. 54.
- <sup>25</sup> Cohn, p. 194.
- <sup>26</sup> *Ibid.*, p. 195.
- <sup>27</sup> *Ibid.*
- <sup>28</sup> *Ibid.*
- <sup>29</sup> *Ibid.*
- <sup>30</sup> Harald Krebs, *Fantasy Pieces: Metrical Dissonance in the Music of Robert Schumann* (New York: Oxford University Press, 1999), p. 31.
- <sup>31</sup> Rothstein, p. 65.
- <sup>32</sup> Krebs, p. 45.
- <sup>33</sup> *Ibid.*, p. 33.
- <sup>34</sup> Lerdahl and Jackendoff, p. 75.
- <sup>35</sup> London, p. 46.
- <sup>36</sup> *Ibid.*, p. 43.
- <sup>37</sup> *Ibid.*, p. 31.



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<sup>38</sup> Lerdahl and Jackendoff, p. 74.

<sup>39</sup> David Temperley, *The Cognition of Basic Musical Structures* (Cambridge, MA: MIT Press, 2001), p. 35.

<sup>40</sup> Lerdahl and Jackendoff, p. 72.

<sup>41</sup> Schachter, p. 102.

<sup>42</sup> Lerdahl and Jackendoff, p. 18.

<sup>43</sup> *Ibid.*, p. 279.

<sup>44</sup> Channan Willner, "Stress and Counterstress: Accentual Conflict and Reconciliation in J.S. Bach's Instrumental Works," *Music Theory Spectrum* 20 (1998): 281.

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Figure 1: Possible prototypes, mm. 1-6

Figure 2: Durational reduction of mm. 1-30 (2:1)

Figure 3: Three interpretations of a twelve-unit span (from Cohn 1992)

	<										
	2:	≤				<					
a. [2 2 3]	3:	x	x	x	x	x	x	x	x	x	x
	<					<					
	2:	≤				<					
b. [2 3 2]	3:	≤	<	<	≤	<	<				
	2:	x	x	x	x	x	x	x	x	x	x
	<					<					
	3:	≤				<					
c. [3 2 2]	2:	≤	<	≤	<	≤	<				
	2:	x	x	x	x	x	x	x	x	x	x

**Figure 4:** Direct grouping dissonance (G4/3) in mm. 4-9

**Figure 5:** Indirect grouping dissonance (G4/3) in mm. 28-34

conservative hearing: 3-layer 3-layer

radical hearing: 4-layer 3-layer

**Figure 6:** Indirect displacement dissonance (D3+1) in mm. 31-42

inherited hypermeter: 3-layer 3-layer

phrase structure: 4-layer 3-layer 5-layer

inherited hypermeter: 3-layer 3-layer

phrase structure: 5-layer 3-layer

Figure 7: Metrical dissonance in mm. 40-54

3-layer 4-layer

8va

V/F#m F#m Gm D7 D7 Gm

3-layer 5-layer

8va

Figure 8: Displacement dissonance in mm. 155-160

background hypermeter: 3-layer 3-layer

phrase structure: 3-layer 3-layer