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Studies of Musical Borrowing: Borrowing as Compositional Tool in Béla Bartók's Second Piano Concerto and The Influence of Luciano Berio on the Grateful Dead's Approach to Live Improvisation

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STUDIES OF MUSICAL BORROWING:

BORROWING AS COMPOSITIONAL TOOL IN BÉLA BARTÓK’S SECOND PIANO CONCERTO AND THE INFLUENCE OF LUCIANO BERIO ON THE GRATEFUL DEAD’S APPROACH TO LIVE IMPROVISATION

by

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Chapter 1
Borrowing as Compositional Tool in Béla Bartók’s Second Piano Concerto

In terms of influence, composers of the twentieth century enjoyed a unique spoil of riches in comparison to their musical predecessors. They could study the techniques that came before them using scores, attend performances of works by their musical heroes and access a wealth of music through sound recordings. While these factors seem obviously beneficial in that later composers enjoyed certain technical advantages over those who had come before, they were also faced with the conundrum of how to sound original while maintaining a connection to traditional, recognizable forms.¹ By reaching outside of their genre of classical music and borrowing elements derived from their respective folk traditions, modernist classical composers like Béla Bartók and Igor Stravinsky struck an effective balance between popular and high art aesthetics.² Borrowing enabled both composers to significantly expand their palette of musical resources by tapping into what Andrew Chester calls the intensional formal practices of popular music. As opposed to classical music’s extensional form of construction—deriving its complexity through the interrelations of simple “musical atoms” like theme and variation, counterpoint and a standardized, recognizable tonality—the intensional form of construction derives its level of complexity through expressive qualities inflected by the performer.³ An important point of differentiation between the two forms is their respective approaches to dealing with timbre. While extensional forms require strict adherence to prescribed timbres and leaves only marginal room for interpretation by performers, so as not to get in the way of the

composer’s conceptual vision, intensional development actually encourages free interpretation and a more personalized expression by the performer’s use of “modulation” and “inflexion.” Part of what makes twentieth century music so interesting is how composers combined intensional and extensional elements in their creations as a way to engage listeners by incorporating new ideas into older forms. Béla Bartók is an example of one who used traditional forms like sonata-allegro and ABA song form—not as a way to match the spirit of the work, but as a way to keep listeners engaged by delivering the more innovatory ideas in a recognizable package. For example, his Second Piano Concerto is modeled on the sonata-allegro form popularized by Classical composers like Beethoven. Taking Beethoven’s drive to emphasize contrast and conflict one step further, Bartók created a new type of form which borrowed its design from natural objects like shells and pinecones. Bartók’s arch form takes ABA form one step further by introducing new material in the central portion of the piece—ABCBA in the case of this Second Piano Concerto, for example. Unlike the outer movements that are thematically or otherwise related, this innermost movement C represents a uniquely free territory where Bartók’s ideas can run wild. If we think of Bartók’s A and B sections as achieving a balance of extensional and intensional elements, the C section was a trip to the extreme of the intensional realm—in other words, a space for freer forms of expression. Musicologist David Cooper suggests this section (scherzo-cum-toccata) was the most influential on later composers like Ligeti, Penderecki and Lutoslawski. While these moments of freedom might have sparked the interest in younger composers, Bartók surely knew it was the way these moments were contextualized that made them palatable for his audiences. By balancing intensional and

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4 Ibid.
extensional elements in the outer movements, Bartók gradually approached these more challenging moments like C. In order to get a better insight into how this balance was achieved, several authors (and Bartók himself) have pointed out a number of musical references to a variety of styles and composers in his Second Piano Concerto. By looking at these references in terms of musical borrowing as defined by J. Peter Burkholder, this study will help clarify the different ways Bartók borrowed in an effort to approach a deeper understanding of his compositional style.

In his article detailing the field of borrowing, J. Peter Burkholder defines musical borrowing as “taking something from an existing piece of music and using it in a new piece. This ‘something’ may be anything, from a melody to a structural plan.” Burkholder’s typology of musical borrowing provides helpful labels for the different kinds of borrowing. In this study, the focus will be on Bartók’s use of paraphrasing, modeling and stylistic allusion in the context of his Second Piano Concerto.

**Bartók: Background and Influences**

Born in 1881, Hungarian composer, ethnomusicologist and pianist, Béla Bartók, was receptive to a wide variety of influences throughout his life. In his own works, Bartók drew from his contemporaries like Debussy, Stravinsky and Schoenberg as well as older sources—especially Beethoven and Bach. Bartók’s ethnomusicological experience collecting, transcribing and cataloging peasant music of Hungary, Romania and Slovakia was especially influential in his

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mature works starting in 1926. Bartók himself acknowledged his shift in 1926 from an aesthetic less informed by Beethoven and more towards a style modeled on Bach. Bartók’s works also show influence of contemporaries like Stravinsky and Schoenberg. In describing Bartók’s approach of synthesizing the Expressionism associated with Schoenberg with the techniques of Neoclassicism associated with Stravinsky, János Kárpáti said:

[I]n Bartók’s art there is not a simple association between these two differing musical conceptions but an organic synthesis of them. Far from wishing to reconcile the two extremes, Bartók merely used them in forming his own creative system...he found a point upon which the heritage of the past and the revolution of the present—in Adorno’s words, restoration and progress—were converging.

Drawing from this variety of influences old and new (as well East and West), Bartók’s style can be described as eclectic to say the least. While Bartók was candid about his musical references to styles and forms borrowed from composers like Beethoven and Bach, he spoke less about references to his contemporaries. Gillies notes how Bartók “considered the concept of artistic originality an outworn Romantic-era obsession, and openly acknowledged his attitude to the use of materials by quoting Molière’s defence to a charge of plagiarism, ‘Je prends mon bien où je le trouve.’ [I take my good where I find it].” The Second Piano Concerto is an example of Bartók’s eclectic style since it incorporates a variety of generic styles (e.g., concerto grosso and peasant music) as well as specific works by individual composers. A formal analysis of the first movement is provided in Table 1.

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11 Gillies, “Bartók, Bela,” Section 9, “Interpretation and Analysis.”
Table 1. Bartók, Piano Concerto No. 2, first movement (Allegro), formal analysis

EXPOSITION
A First subject
  a (Pandiatonic)
    Piano theme 1 – mm. 5–6
    Piano theme 2 (up a fifth) – mm. 8–9
    Piano theme 3 – more improvisatory, confronts ostinato – mm. 13–23
    Piano theme 4 (abbreviated) – m. 24
    Transition – mm. 25–31
  b (chromatic) mm. 32–57
  a1 (mixture) – mm. 58–73
    Piano theme 1 – mm. 58–59
    Piano theme 2 (up a fifth) – mm. 60–62
    Piano theme 3 (chromatic, spinning out) – mm. 63–67
    Introduction/Fanfare – mm. 68–73
B
  Second subject (chords in 5ths) – mm. 74–81
  Tranquillo episode – mm. 81–94
  2nd statement of B (slower, more varied phrasing) – mm. 95–109
  Codetta – mm. 110–18

DEVELOPMENT — mm. 119–80
A
  Piano theme 1 – m. 119
  Piano theme 2 – m. 123
  Piano theme 1 – m. 125 un poco tranquillo
  Introduction, fanfare – mm. 128–35
B
  Recap of second subject – m. 136
  Fugato begins – mm. 155–79

RECAPITULATION, cadenza, coda – mm. 180–307
A
  Piano theme 1 – mm. 180–81
  Structural link – mm. 182–89
  Piano theme 2 – mm. 191–92
  Structural link (varied) – mm. 193–99
  b (chromatic)
    Triplets, chromatic – mm. 200–11
    Fanfare, intro (no piano) – mm. 212–21 (diatonic contrast)
  Cadenza – mm. 222–53
  b (orch plays A theme retrograde) – mm. 254–69
  A played by orchestra, structural link – mm. 269–81
  Intro, fanfare – m. 285

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12 This analysis synthesizes two analyses: Schneider, 193–5; and Jack Guerry, “Bartók’s Piano Concertos for Solo Piano” (PhD. diss., Michigan State University, 1964), 106–14.
Paraphrasing

Burkholder defines paraphrasing as using “an existing tune to form a new melody, theme or motive.”  

The following four examples will demonstrate the different ways Bartók used paraphrasing.

In his investigation of Stravinsky’s influence on Bartók, musicologist David Schneider suggests that while Bartók modeled his First Concerto after Stravinsky’s Concerto for Piano and Wind Instruments in order to emulate his hero, Bartók’s Second Piano Concerto represented his liberation from Stravinsky’s looming influence and subsequently a maturation of Bartók’s compositional style. Despite this shift in Bartók’s attitude towards Stravinsky’s influence, there is still evidence of Bartók borrowing from Stravinsky in the Second Piano Concerto. Here, according to Schneider, Bartók made more overt references to Stravinsky in order to critique Stravinsky’s break from using folk-derived materials into his new works. Interestingly, we see Bartók’s use of borrowing and his reasons for using it changed as his style matured. Schneider cites two examples of how Bartók paraphrased works by Stravinsky in the Second Piano Concerto. Bartók’s opening fanfare motto is seen as borrowing from Stravinsky’s theme from the finale of *The Firebird* (1910). Bartók’s principal piano theme is seen as borrowing from the Russian Dance from Stravinsky’s *Petrushka* (1910–11).

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13 Burkholder, 854.
14 Schneider, 195.
15 Ibid., 193.
Example 1. Stravinsky, *The Firebird*, theme from finale transposed from B major (above); Bartók, Piano Concerto No. 2, fanfare theme (below)

While Schneider rightly points out how the first six notes of both themes match exactly, in terms of intervallic content and contour (see Example 1),\(^\text{16}\) it is important to note how differently each functions in their respective works in order to approach a clearer determination of Bartók’s purpose for borrowing. In Stravinsky, the theme is a lyrical tune repeatedly sung in anthemic style, while in the Bartók, the tunefulness is lost due to it being condensed into a two-beat fanfare. Musicologist David Cooper says the fanfare functions as “the binding idea,” and is used as a kind of raw material to construct the contrapuntal, Baroque-inspired textures that characterize the work.\(^\text{17}\) Some scholars dispute the claim of borrowing directly from Stravinsky, preferring to point to pre-eighteenth century sources.\(^\text{18}\) Interestingly, Joseph Kerman suggests the fanfare—what he calls “primal-brass instrument behavior”—actually references Stravinsky’s Concerto for Piano and Wind Instruments due to the piano’s primitive character in that work. Referring to the fanfare as a “found object,” Kerman points out how its essence lies not so much in its intervallic content or order but in its textural contrast to the soloist.\(^\text{19}\) All this evidence feeds into the point that if Bartók did unintentionally paraphrase Stravinsky’s theme, by giving it such a contrasting function in his own work, Bartók was perhaps trying to capture the attention

\(^\text{16}\) Ibid.
\(^\text{17}\) Cooper, 251–52.
of Stravinsky’s admirers (maybe even the composer himself). Once he had their attention, he would showcase how he would make it new. Placing the theme right at the front of the work suggests the same rationale might have affected Bartók’s second main theme, the principal piano theme.

**Example 2a.** Stravinsky, “Russian Dance,” *Petrushka*

![Example 2a](image)

**Example 2b.** Bartók, Piano Concerto No. 2, principal piano theme

![Example 2b](image)

Stravinsky’s *Petrushka* theme (Example 2a) could be seen as four variations built on the G Mixolydian scale with an emphasis on the top interval of the fourth to give its unique coloration. It is comprised entirely of white notes on the piano with a static position in the right hand, making the fourth a constant across all four iterations of the two-bar theme. The first beat of Bartók’s theme (see Example 2b) is comprised of the same rhythms as the Petrushka theme (two sixteenths and an eighth note) but deviates at the arrival of the second beat. Bartók’s piano theme begins with the same upward contour using similar closed voicings in both hands, but with more intervallic variety in the top voices (i.e., seconds, thirds, fourths, fifths). In the Bartók, the
piano is the only instrument stating the theme, while in Stravinsky the entire orchestra plays in unison. Stravinsky’s theme is comprised of four statements of a two-bar gesture within the span of eight bars operating like a simple musical sentence. Bartók’s theme can also be divided into four sections comprised of two-bar cells; however, instead of stating the theme all at once, Bartók elongates its presence by using it in AABA song-form. Again, Bartók uses paraphrasing to create a starting-point from which he can exhibit his own ideas.

Although there are discrepancies among scholars as to whether these two instances of borrowing were consciously intended by Bartók, it seems clear that their individual components did not have major implications on the work’s overall structure. Even if the initial fanfare is repeated some nine times within the first movement as pointed out by Cooper, it is its textural components (rather than its melodic content) that serve Bartók in building his Baroque-inspired textures. Here we see Bartók treat Stravinsky’s themes as raw materials he subtly weaves into his larger structural ideas.

A more obvious instance of borrowing recognized by scholars occurs in the fugato section beginning at m. 155 where Bartók quotes J.S. Bach’s Two-Part Invention no. 13 (see Example 3). Guerry suggests that there was no way Bartók did not recognize the imitative sequential pattern of the fugato as a reference to Bach. Guerry suggests that the development of the initial fanfare motive reminded Bartók of Bach’s invention and he left it in the piece as a kind of gift for keen listeners and fellow composers. Like the fanfare, the fugato quotation—consisting of a downward sequence of major thirds—is treated like a found-object with its textural components being the largest contribution to the context. Perhaps by unabashedly

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20 Cooper, 251.
21 See Guerry, 96–7; Losseff, 122; Kerman, 35–6.
22 Guerry, 96–7.
quoting from the Baroque composer, Bartók uses this reference to draw attention to the contrasting, non-Baroque features of the work like the sudden stops and starts prevalent in the first movement (e.g., mm. 23–24 and mm. 80–82). Again, like the fanfare, this reference does not have major structural implications on the work, but due to its textural characteristics, functions as a seed for further invention.

**Example 3a.** Bartók, Piano Concerto No. 2, fugato section, mm. 155–58

![Example 3a. Bartók, Piano Concerto No. 2, fugato section, mm. 155–58](image)

**Example 3b.** J.S. Bach, Two-Part Invention No. 13, mm. 4–6

![Example 3b. J.S. Bach, Two-Part Invention No. 13, mm. 4–6](image)

Musicologist Nicky Losseff identified another example of paraphrasing in the middle section of the second movement *Presto*. Losseff notes how the “fly motif”—comprised of densely-packed intervals in a compact range—was borrowed from Bartók’s *Mikrokosmos* No. 142 (see Example 4). Losseff traces the same structural path in both pieces, noting how both flies “free themselves” at similar climactic points in their respective works (signaled by resuming less condensed intervallic spacing). As the intervals get closer and the “external protection” provided by the orchestra drops away, we reach the “eye of the storm” from which point we return to the

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23 Losseff, 126–7.
chaotic freneticism that characterizes the middle episode.\textsuperscript{24} Although the similarities between these two gestures is apparent, I hesitate to label this as paraphrasing since it is not really a “tune” but more of a textural device.

\textbf{Example 4a.} Bartók, \textit{Mikrokosmos} No. 142, mm. 51–60

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{example4a.png}
\end{figure}

\textbf{Example 4b.} Bartók, Piano Concerto No. 2, second movement, \textit{Presto}, mm. 72–93

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{example4b.png}
\end{figure}

\textsuperscript{24} Ibid.
Modeling

Burkholder defines modeling as “modeling a work or section on an existing piece, assuming its structure, incorporating part of its melodic material, imitating its form or procedures, or using it as a model in some other way.”\(^{25}\) Bartók used modeling in a variety of ways from a variety of sources in his Second Piano Concerto.

Bartók’s use of sonata-allegro form (complete with a rondo in the final movement) shows his attempt to maintain his strong connection with the classical tradition inhabited by musical giants like Beethoven.\(^{26}\) Bartók was often candid about Beethoven’s powerful influence on his compositions: “In my youth my ideal for what was beautiful was not so much Bach’s or Mozart’s creations as those of Beethoven. Recently this has changed to a certain extent; in the past few years I have been very occupied with music preceding Bach, and I believe that traces of this are revealed in the Piano Concerto and the Nine Little Piano Pieces.”\(^{27}\) Despite Bartók’s professed turn away from Beethoven’s influence in his First Piano Concerto, echoes of Beethoven can be felt through Bartók’s bold use of conflict and contrast in the Second. In his article, “Beethoven and Bartók–A Structural Parallel”, John Meyer shows how Bartók modeled the second movement of the Second Piano Concerto after the second movement of Beethoven’s Fourth Piano Concerto. In both works, soloist and orchestra are treated as opposing forces that avoid dialogue and maintain dramatically contrasting characters. In terms of texture, Beethoven achieves the contrast by pairing the *sempre staccato* block chords of the orchestra against the molto cantabile solo entry of the piano (see Example 5a). In the Bartók, the block chords of the muted strings playing non-vibrato sharply contrast the dolce solo piano (see Example 5b and 5c).

\(^{25}\) Burkholder, 854.
\(^{26}\) Kerman, 34 –5.

Example 5b. Bartók, Piano Concerto No. 2, second movement, *Adagio*
Beethoven achieved further contrast between piano and orchestra by avoiding exact repetitions of thematic material in favor of variation. Meyer suggests that by developing their own thematic material, each musical agent (soloist or orchestra) is less reliant and subsequently more independently defined in terms of musical identity. In both pieces, the respective thematic material of each musical agent maintains its own continuity regardless of being interrupted by the contrasting other. We see this play out in the Bartók, the way the strings of the Adagio return unchanged after each interaction with the piano’s peasant melody.

Losseff suggests Bartók’s development of arch form was heavily influenced by Beethoven’s use of related themes appearing throughout a work in order to give it cohesion (the conflict-resolution model), like as when resolution only arrives in the finale’s coda of the Second Piano Concerto. Bartók’s use of nesting is exhibited at micro and macro levels within the Second Piano Concerto—in other words, it is found in the larger formal structure of the piece, as well as within the individual movements themselves. For instance, if we think of the second movement of the piece as being divided into ABA form, we see how the alteration of piano and strings within both A sections can be used to subdivide each section into five parts: A B A B A. Arch form would be employed in subsequent works including his Fourth and Fifth String

Example 5c. Bartók, Piano Concerto No. 2, second movement, Piu adagio, mm. 33–36

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29 Losseff, 123.
30 Ibid., 120.
Quartets, suggesting Bartók’s satisfaction with his invention which simultaneously straddled the territory between traditional notions of form with his own modernist inclination to make it new.

There are also instances of Bartók recycling formal devices from his prior works or self-borrowing. In his own analysis of the Second Piano Concerto, Bartók says “In its lightheartedness it is sometimes almost reminiscent of one of the works of my youth, the orchestral Suite Op. 3 (1905).”31 Although the opening theme maintains its harmonic simplicity, the heavy use of syncopation and irregular phrasing give the principal theme of Op. 3 a driving, unpredictable feel. The spirit of lightheartedness is similarly achieved in principal theme of the Second Piano Concerto (see example 2b), drawing from the same fund of resources cultivated through Bartók’s deep connection to Hungarian folk music.32 The rhythmically propelling principal theme of Op. 3 (mm. 1–54) is dramatically contrasted by the more lyrical second subject (see Example 6a), effectively setting up a large-form drama between two conflicting characters.33 The second subject of the Second Piano Concerto is similarly comprised of an upward leap to a dissonant interval, emphasizes the major seventh interval and creates a shift in rhythmic presentation in contrast to its first subject (see Example 6b). In Op. 3, the rhythms change from irregular to regular; in the Concerto, they change from regular to irregular.

31 Bartók, 5.
32 Cooper, 251.
Example 6a. Bartók, Op. 3, second subject

Example 6b. Bartók, Piano Concerto No. 2, second subject


Op. 3’s second movement also shares a few traits with the second movement of the Concerto. In Op. 3, Bartók links together four episodes of contrasting character much like the three
contrasting episodes found in the Concerto as previously discussed. The way Bartók emphasizes each episode’s unique characteristics through the use of certain identifying textural components, Cooper suggests, foreshadows his concept of “night music” which would appear in its fully-fledged form in the second movement of the Concerto.34 Losseff summarizes the definition of night music as “colors and textures which evoke the atmosphere as well as the concrete sounds of the night.”35 In the second movement of Op. 3 (Example 7), droning French horns coupled with march-like repeated quarter notes in the pizzicato strings, harp and timpani create a haunting underlay for the lyrical English horn soloist. A similar textural combination appears in the Adagio of the Concerto where the stacked fifths of the muted strings create an eerie mood contrasted by the lyrical entry of the piano soloist (see Example 5b).

34 Ibid.
35 Losseff, 124
In both Op. 3 and the Concerto, materials derived from the second subject reappear at the start of the second movement. In Op. 3, the second subject’s emphasis on the major-seventh reappears in the opening gesture of the violins (see Examples 6a and 7).\textsuperscript{36} In the Concerto, rather than using a clearly defined theme for the second subject, Bartók takes a similar approach to the way he constructed the first subject out of three mottos.\textsuperscript{37} Like the first subject—composed of the basic building blocks derived from both themes borrowed from Stravinsky—the second subject is comprised of two seemingly contrasting characters which are subtly weaved together through the course of their interactions.\textsuperscript{38} At m. 74, the contrasting second subject B section begins in what is labeled in the Universal edition of the score as a “concertino” between piano, timpani

\textsuperscript{36} Cooper, \textit{Companion}, 52.
\textsuperscript{37} Cooper, 251–2.
\textsuperscript{38} Guerry, 106–14.
and tenor drum (see Example 6b). The song-like quality of the principal piano theme is contrast by B’s widely spaced stacked-fifth chords. The piano’s more percussive martellato attack is emphasized by the switch from a more homophonic texture (produced by both hands playing together) to a gesture stressing the rhythmic independence of each hand. Perhaps further emphasizing the piano’s percussive character, the second part of the second subject, the lush chords of the Tranquillo demonstrate the piano’s dynamic range of expression (see Example 6c). As Guerry points out, the harp-like chords reappear (transformed) in the muted strings of the Adagio (see Example 5b).

While both Op. 3 and the Second Piano Concerto contain materials that resurface at similar points and emphasize contrast, these tactics were common practice by composers (like Beethoven) seeking to create cohesion in large-form works. What constitutes this as a case of modeling are the similarities among the middle movements, both of which are comprised of contrasting episodes that flow continuously one into the next. The formal similarities between the two works, combined with the composer’s own testimony, suggest Bartók modeled his Concerto off of his Op. 3.

Stylistic Allusion

Burkholder’s category “stylistic allusion” is a type of borrowing where a composer alludes not to a specific work but to a general style or type of music. Styles alluded to in the piece include the concerto grosso style and Hungarian folk music.

40 Ibid., 93–4.
41 Burkholder, 854.
Several scholars have pointed to Bartók’s invocation of the concerto grosso style in the Con certo through his use of imitative counterpoint and more democratic roles of soloist and orchestra. Going one step further, Bartók alternates pandiatonic and chromatic sections of the work, suggesting his own innovatory approach to his version of the concerto grosso style. In his own analysis, Bartók says “I should add that neither of my piano concertos is for piano accompanied by orchestra, but for piano and orchestra. I have given the soloist and orchestra entirely equal roles in both.”\footnote{Bartók, 7.} In assigning equal roles to the soloist and orchestra in such a way, Bartók’s borrowing from the concerto grosso affects both stylistic and formal characteristics of the work. In the first movement, for example, the way the piano backs off to accompany the orchestra between statements of the principal theme allows for the orchestra to develop its own thematic and textural materials. With this greater abundance of ideas to develop and intertwine, the soloist’s development section—playing a less potent role than its usual function of introducing new ideas—is markedly short. Materials from the parallel development of the soloist and orchestra are eventually reconciled in the third movement, showing a melding of techniques borrowed from both the Classical and Baroque concerto traditions.

Mirroring Stravinsky’s technique of borrowing a folk theme, Bartók goes one step further by using formal aspects of a popular song form (AABA) as a model to organize the materials of the first movement.\footnote{Schneider, 194–5.} Characteristically, Bartók’s AABA is not delivered in a traditional way. By interrupting each section of the song-form with the materials being developed in the orchestra, Bartók intertwines his influences from concerto grosso and folk traditions. Avoiding repetition, the principal piano theme returns each time with its own unique rhythmic phrasing, perhaps
alluding to similar kinds of rhythmic inflections found in folk-based singing styles (see example 8).

Example 8a. Bartók, Piano Concerto No. 2, principal piano theme 1

Example 8b. Bartók, Piano Concerto No. 2, principal piano theme 2

Example 8c. Bartók, Piano Concerto No. 2, principal piano theme 3

Example 8d. Bartók, Piano Concerto No. 2, principal piano theme 4

After the theme’s first iteration, it is repeated transposed up a fifth. After each of the first two statements by the piano, the fanfare motto is restated in the orchestra in what seems to be the beginnings of a dialogue. However, the pauses in between the piano’s themes become longer each time (2, 3, and 26 bars respectively) suggesting a shift in the focus of attention from soloist to orchestra. Piano theme 3 further defies expectations when it enters as an accompaniment, giving special attention to the orchestra. At m. 25, an abbreviated version of the theme rounds
out the AABA song-form in a grand gesture evoking the completion of a gypsy dance. Here we see how the fluctuation between soloist and orchestra (an allusion to concerto grosso) works in cooperation with the AABA phrases (an allusion to popular music) to create a unique combination of the two styles.

One example of stylistic allusion not mentioned in the literature involves the second part of the second subject (B in Table 1). Marked in the score as *Tranquillo*, this sudden shift to the lush, arpeggiated chords built on fifths—moving in parallel and contrary motion—suggest a possible borrowing from Debussy’s *Sarabande* (see Examples 6c and 9).

**Example 9.** Debussy, *Sarabande* (1901)

Conclusion

In his Second Piano Concerto, Bartók unabashedly highlights his eclectic style by overtly referencing both historic and contemporary influences. The piece’s references to the Classical-style of concerto composition are made obvious by the use of sonata-allegro form in the first movement as well as the third movement rondo where the earlier themes reappear. The
democratic treatment of the soloist and orchestra, coupled with the contrapuntal textures demonstrate Bartók’s fluency with techniques borrowed from the concerto grosso. The stops and starts that appear throughout the first movement allow for brief stylistic references like the Debussian chords of *Tranquillo* or the Primitivism of the second theme. The piece begins with two clear references to Stravinsky—two of his most popular themes which Bartók transforms for his purposes. Expanding on Stravinsky’s older practice of borrowing folk-music melodies, Bartók shows how borrowing both stylistic and formal aspects of folk-music can contribute to a piece’s ability to engage listeners. Another paraphrase from the first movement appears in the development section, which, like the Stravinsky themes, does not have significant effect on the piece’s overall aesthetic. In other words, the melodic content of these themes easily could have been slightly altered in order to avoid such a clear reference; however, Bartók chose to leave them in unaltered. The fast, middle movement’s “fly motif” is another example of paraphrasing—in this case, recycling an idiosyncratic piano technique due to its intense textural effect. Another example of self-borrowing, his Op. 3 also contains a number of structural similarities to the Concerto, suggesting it was used as a model. The middle movement of Bartók’s Concerto is modeled off of the middle movement from Beethoven’s Fourth Piano Concerto. Bartók takes Beethoven’s emphasis on contrast one step further by inserting the contrasting middle section of an arch form as a unique moment of unadulterated freedom.

Bartók used borrowing as a compositional tool that affected musical parameters like form, thematic content, instrumentation, rhythmic style and mood. As evidenced by the above examples, such parameters borrowed by Bartók served as starting points for his own innovative ideas. In the context of the Second Piano Concerto, Bartók used borrowing to achieve the synthesis of styles he sought.
Chapter 2

The Influence of Luciano Berio on the Grateful Dead’s Approach to Live Improvisation

As musicologist Melvin Backstrom details in his dissertation on Popular Music and the Avant-Garde, a kind of balancing act between the ideals of high art and popular forms was playing out amongst artists and musicians in the San Francisco Bay Area during the 1960s. Although a number of rock bands were experimenting with long-forms during this time—inspired by a variety of musical traditions including jazz, Indian-classical, classical and electro-acoustic music—the Grateful Dead are the best example of a band that successfully bridged the gap between popular and high art forms. Although the Dead were scrupulous in acknowledging their influences, scholars have only begun to explore how these ideas played out in the band’s music. Although bassist Phil Lesh credits John Coltrane and Charles Ives as the two main forces behind the Dead’s initial approach to their unique brand of long-form composition, evidence in their music suggests Luciano Berio’s ideas on form also played a big part in shaping the Dead’s compositional style which emphasized smoothness and authenticity. This study will detail the Dead’s musical connections to classical composer Luciano Berio. Through a comparative analysis of Berio’s *Différences* and a multi-movement work by the Dead, I will highlight commonalities in their approaches to form, timbre and orchestration. By analyzing works by Berio and the Dead through the lens of musical borrowing, I hope to offer some new ways of thinking about and understanding the Dead’s more challenging music.

Born in 1925, Italian composer Luciano Berio began composing in his teenage years and would attend the Milan Conservatory at age 20. He attended performances by Milhaud, Bartók,

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Stravinsky and Schoenberg. His early compositional pursuits were modeled after a wide range of influences including Ravel, Prokofiev and Stravinsky. He would go on to study serialism with Luigi Dallapiccola at the 1952 Tanglewood festival in Massachusetts. While in the U.S., Berio attended a concert featuring a performance of electronic music by Ussachewsky in New York City. This concert sparked a career-long fascination with the musical possibilities of electronics. When he returned home to Milan, he found a job at a radio station where he gained experience working with sound technology. In 1953, he produced his first piece for tape (*Mimimusique no. 1*). He met Bruno Maderna and Karlheinz Stockhausen at a conference on electronic music and would go on to collaborate with Maderna in establishing the *Studi di Fonologia* in 1955. As well as serving as a laboratory for his own research into the production of electronic sounds and the different ways of manipulating tape, the studio also accommodated projects by composers like Henri Pousser and John Cage. His collaboration with Umberto Eco sparked Berio’s interest in the relationship between linguistics and music. Using text by James Joyce as the basis for his piece *Thema (Omaggio a Joyce)* and injecting Eco’s ideas of semiotics into the conceptual frameworks of his works are two examples of Berio’s tendency to borrow from his contemporaries. During this time, Berio continued to compose orchestral and chamber works including his piece *Différences* (1958–9) which combined five instrumentalists and tape. In the spring of 1962, Berio took a job teaching composition at Mills College, substituting for Darius Milhaud. After a successful first semester, he was asked to continue on through the 1963–4 academic year. The influence of other art forms, namely theater, continued to seep into Berio’s compositions of the 1960s. As Berio scholar David Osmond-Smith points out, this emphasis on theatrical events achieved through experimental approaches to texture and orchestration “engaged listeners who normally felt neither affection nor curiosity for the works of their
contemporaries. The imaginative framework for much of this work was still nourished by the structuralist tradition. He succeeded in transcending the closed world of the European avant garde to address a wider public.”

Interestingly, after Berio’s foray into electro-acoustic music of the 1950s, most of his works up until his death in 2003 were for orchestra. While he followed in the footsteps of the great orchestrators—like Mahler, Ravel, Debussy, and Stravinsky—Berio’s background with electronics also informed his approach to orchestration. Achieving a similar effect to the one created by superimposing small chunks of tape in his early electronic pieces, Berio would use unified groups of related instruments to create unique timbres that were then superimposed over other, differing groups. In *Epiphanie*, for instance, we find a combination of flutter-tongue flutes and trumpets; and in *Sinfonia*, eight amplified voices that travel as a cohesive unit. This technique reflects Berio’s general approach to mediate the opposition between soloist and orchestra—in other words, Berio’s style places a greater emphasis on the ensemble as opposed to the soloist.46

**Background to Différences**

In 1952, Berio attended a concert of electro-acoustic music which included a performance of Vladimir Ussachewsky’s *Sonic Contours*. Berio would later describe his particular interest in the piece’s “montage of taped piano sounds that had been speeded up, slowed down, reversed, etc.”47 to create a soundscape which included both naturally-occurring and electronically-altered sounds of the piano. According to Osmond-Smith, Berio borrowed Ussachewsky’s idea of montage and developed it in his composition for tape *Perspectives* (1957). Instead of an acoustic instrument,

46 Ibid.
Berio used sine-tone generators to develop raw materials which he would then manipulate. Small chunks of tape were stitched together in such a way to create short cells of pitch groups. As these cells were continuously repeated, or looped, they would be layered onto other cells and then sped up, slowed down, and/or reversed. Berio had found a way to create unique timbres by toggling the speed at which the cells were played back, which turned out to be an efficient alternative to Stockhausen’s painstaking process of building sound from scratch (by choosing a sound’s individual components, i.e., pitch, velocity, decay, etc.). Berio would later comment “I began to feel musical ease with *Perspectives*, a piece in which the extreme acceleration of little sound cells with different characteristics transformed relationships of duration and frequency into timbre.”

Berio’s experimental, quick-and-dirty approach to the craft of composing reflects his prevalent attitude on notions of control and indeterminacy.

Since the idea of pairing acoustic instruments and tape was still relatively new at that time, composers were forced to reevaluate the way they thought about how musical materials function. While some of Berio’s contemporaries composed works which explored the dialogic relationship between tape and instrument (for instance, Brunco Maderna’s *Musica su due dimensioni* and Henri Pousseur’s *Rimes*), Osmond-Smith says Berio’s next pieces *Omaggio (Thema a Joyce)* and *Différences* represented Berio’s answer to the newfound problem of how to pair electronic sounds with traditional instruments in a less experimental, more musical way. Both these pieces would come to represent a more-matured approach to electro-acoustic music, beyond mere sound experimentations. As Berio himself put it, “In *Thema*, I was interested in obtaining a new type of unity between speech and music, developing the possibilities of a

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49 Ibid., 117. An example of this technique can be heard from 2:00-2:20 at https://www.youtube.com/watch?v=HpcEu1hgRjw
continuous metamorphosis of one into the other." Rather than pitting the two musical agents against each other, Berio was interested in exploring the connections between them that would enable him to develop large-scale processes for composition as opposed to momentary interactions. Berio’s explanation of the piece will shed some light on the piece’s conceptual framework:

*Différences* was the first attempt to develop a relationship in depth between an instrumental group and the possibilities of electro-acoustics; with *Chemins V*, on the other hand, I want to make the performance of a clarinet solo interact with the programmed functions of a digital filter. To realize the tape for *Différences*… I began by recording in Paris, with the same musicians that would perform the piece in public just over a year later, sections for solo instruments of four different combinations of the five (flute, clarinet, harp, viola and cello). In *Différences*, the original model of the five instruments coexists alongside an image of itself that is continually modified, until the different phases of transformation deliver up a completely altered image that no longer has anything to do with the original model…. redundancy is guaranteed at several levels: every further transformational phase (there are five of them) always departs from (and returns to) a maximum identity and fusion with the musical characteristics being developed by the instrumental group on stage. On the other hand, the instrumental group follows, provokes and confirms, as best it may, the electro-acoustic transformations on tape, which thus acquires in part the function of a distorting mirror: it deforms and transforms the density of the instrumental group, it transforms the extension and speed of articulation, the intensity, the harmonic characteristics, and thus the acoustic properties of the ensemble. There’s sort of implicit musical dramaturgy in the different transformational phases, and in the continually varying relations between performance and recording. So, I understand how Pousseur, to whom the piece is dedicated, can hear in *Différences* a scene from the Commedia dell’Arte, with the various alternating characters squabbling with one another, putting on masks, taking them off again, etc. I understand even though I don’t share this view. The progress of *Différences*, firmly anchored to the five instruments on stage, is made up of two simultaneous developments, in different dimensions, of the same material.52

As Berio mentions, *Différences* is his attempt to mediate two seemingly opposing musical forces: acoustic and electronic sounds. The drama of the piece is how the maximum identity of the

50 http://www.lucianoberio.org/node/1503?948448529=1
51 *Berio*, 14–15.
52 *Two Interviews*, 126.
electronic sounds—exemplified in the piece by sounds unachievable by acoustic instruments—changes the identity of the group of live instrumentalists (the Group). While each member of the Group has its own unique identity that gradually changes through the course of the piece, Berio emphasizes the group’s unifying identity using texture. First, Berio uses the opening gesture of the piece—a single bowed note on the viola—as a way to define the maximum identity of the Group. He does this by repeating the same single-note texture at key structural points in the piece as a way to mark off the different sections. As Table 1 shows, the bowed-note gesture (maximum identity $x$) only appears within the sections for the Group (A) and—in four out of six sections scored for the Group alone—appears right at the start of the section. This has the dual effect of creating a sense of return to familiar territory as well as establishing cohesion between the alternating A sections. Rounding out its symmetrical form, the piece ends by returning full circle to $x$. 
Table 1. Berio, maximum identity $x$, *Différences*

<table>
<thead>
<tr>
<th>Section</th>
<th>mm.</th>
<th>instr.</th>
<th>pitch</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>1</td>
<td>vla</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>2.5</td>
<td>vla</td>
<td>D/E</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>harp</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>45</td>
<td>vlc/vla</td>
<td>D</td>
</tr>
<tr>
<td>B1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A2</td>
<td>74</td>
<td>flute</td>
<td>E</td>
</tr>
<tr>
<td>B2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A3</td>
<td>103</td>
<td>vla</td>
<td>D</td>
</tr>
<tr>
<td></td>
<td>115–6</td>
<td>clarinet</td>
<td>D</td>
</tr>
<tr>
<td>B3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A4</td>
<td>162</td>
<td>harp</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>167</td>
<td>vla/cl/fl</td>
<td>F-E-A</td>
</tr>
<tr>
<td>B4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A5</td>
<td>184</td>
<td>harp</td>
<td>D#</td>
</tr>
<tr>
<td>B5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A6</td>
<td>242</td>
<td>harp</td>
<td>C/B#</td>
</tr>
<tr>
<td></td>
<td>269</td>
<td>clarinet</td>
<td>C</td>
</tr>
</tbody>
</table>

In Berio’s music, transformation can affect any parameter of music including the melodic, rhythm, dynamic, textural and/or timbral content of both individual instruments as well as the combined characteristics of groups. Furthermore, as Berio explained, the force of a given transformation is based on the level of “tension” achieved through the variable level of change a given parameter undergoes. If a given identity is defined by its soft dynamics, for example, maximum tension would be expressed by a switch to loudness. The flutter-tongue flute, Berio said, represents maximum tension when related to more traditional notions of flute sound. We see this same approach taken in *Différences*, where the Group uses extended techniques as a way to increase tension.

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54 *Two Interviews*, 97–8.
The pre-recorded and altered sounds on the tape (the Tape) also has an identity. The Tape’s maximum identity is exhibited in the two minute-long episodes for solo tape where the listener experiences the wildly expressive sounds associated with avant-garde tape music. Like the Group’s use of extended technique, these more electronic (or “transformed”) sounds are employed to express the Tape’s heightened level of tension.55

While transformations affecting individual members of the Group are prevalent in Différences, the main concern of this study is how Berio gradually approaches moments of maximum tension. The following formal analysis (Figure 1) will help illustrate this point.

**Figure 1.** Berio, Différences, formal analysis

In the first two phases, the tape part mostly consists of unaltered recordings of the acoustic instruments that essentially double the instrumentation. The third transformational phase (B3) is divided into three parts with the middle section for solo tape. This middle section is where the “possibilities of electro-acoustics” are unleashed, creating the piece’s climax in tension. B4 is similarly divided into three parts with a middle section for solo tape; however, in comparison to B3, the solo tape section is more subdued in terms of tension. The tension of B5 is similarly reduced, further demonstrating Berio’s gradual movement toward (and away from) tension.

The alternating sections of the piece point to Berio’s use of symmetrical form (i.e., arch or shell form) pioneered by composer Béla Bartók, whereby the outer movements of a piece are related (thematically or otherwise) while the inner movement is markedly contrasting. For example, Bartók’s Second Piano Concerto represents an expansion of this idea into five movements (ABCBA form), giving special emphasis to the innermost movement. In *Différences*, the idea is expanded to eleven sections, giving the sixth and innermost section (B3) particular significance (see Figure 2). Since electro-acoustic music has more of a focus on timbre and texture as structural building blocks, an examination focusing on the orchestration and timbral characteristics of each section will help determine any interrelations between sections.

**Figure 2.** Berio, *Différences*, 11 sections

<table>
<thead>
<tr>
<th>Section</th>
<th>mm.</th>
<th>mm.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>1-35</td>
<td>46-82.5–</td>
</tr>
<tr>
<td>B1</td>
<td>52.78</td>
<td>95-102</td>
</tr>
<tr>
<td>A2</td>
<td>102-112</td>
<td>115-125</td>
</tr>
<tr>
<td>B2</td>
<td>161-164</td>
<td>165-167</td>
</tr>
<tr>
<td>A3</td>
<td>167-169</td>
<td>179</td>
</tr>
<tr>
<td>B3</td>
<td>180-184</td>
<td>185-241</td>
</tr>
<tr>
<td>A4</td>
<td>242-260</td>
<td></td>
</tr>
</tbody>
</table>

A1. The piece begins with a single bowed note (maximum identity $x$) from the viola which gradually builds to this lone item’s first *difference*: a pair. Mirroring the dynamics of the initial $x$, the second $x$ is loud, accented but dies away. The single voice returns with a stark, angular climb up to high G before circling back to the original D now bowed at *sf*. This signals the entrance of the cello at m. 4. The difference of note D, first expressed from within itself, gradually sees itself mirrored in the outside world. The harp is added (first joining at mm. 11–14 and then taking a more prominent role in mm. 25–35 when it clearly marks an arrival at D4 with *fff*). The strings

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56 Bartók, 5; see also Chapter 1 of this thesis.
(vla/vlc) take over momentarily to recapitulate \( x \), signaling the entrance of the next difference: their counterparts from another dimension at m. 45—in other words, their taped selves. Musical characteristics of note within this section include the use of vibrato, crescendos and decrescendos, natural and artificial harmonics, variable use of arco and pizzicato, and balanced use of consonant and dissonant intervals (with particular attention given to interval class 1 [01]).

B1. The tape enters at m. 46 as a slightly altered restatement of \( x \) (vla/vlc) while the live group accompanies. The two groups (the Group and the Tape) mimic a dialogue, resting while the other speaks, before joining together (tutti) to end the first transformation at m. 62, signaled by the change in timbre at m. 63 with the addition of clarinet and harp to the live group.

A2. The music on tape is a recording of all members of the Group, thus essentially doubling the texture (two vla & two vlc) during tutti moments. The moments where the tape plays solo and the live players rest toy with the perceptions of audience members who begin hearing sounds without seeing anyone produce them. This initial contact with the other dimension only subtly affects the music of the live players. After all, the tape music from B1 was itself subtle—a rather undistorted mirror image of what was happening in the dimension of the live players. At m. 65, the strings add special effects using the mute (vlc) and playing col legno (vla) while the clarinet seems detached, quietly coloring the frantic dialogue between vla and vlc. The freneticism intensifies with the entrance of harp and flute (with its flutter-tonguing) as the group approaches B2.

B2. At m. 79, all members of the Group play in tremolo (perhaps shaking from fear) as the Tape’s cello plays \( x \), mimicking its live counterparts from earlier. The bowed strings have a more engaged dialogue, a sort of condensed version of the one from B1, except this time more continuous. The harp signals the ece’s first orchestral density of both recorded and live groups
playing rhythmically together, dramatically ending B2. Up until now, the sounds on tape have played a supportive/submissive role to the live players.

A3. The clarinet anchors this interlude to the pivotal pitch D. The orchestration is the same as A2 with all players continuing their respective roles.

B3. This transformation, the centerpiece of the entire work, resumes the *tutti* dialogue between both groups, with the taped-viola mimicking phrase A while the live group recedes, giving way to the piece’s first dialogue between live-flute and its taped counterpart. At approximately m. 141, the tape part is played sped up, resulting in leaps to notes in the extreme high register of the instrument (that would be unattainable by a live flautist) before resuming its prior character. The drama of the two flutes in dialogue with each other intensifies until the live flute drops out at m. 154. at which point all the live players sit tacet. The sounds on tape begin to sound like a collage of all five instruments made up of small chunks of material from each player in an irregular rhythmic fashion. Splashes of each timbre create a collage of related sounds. The strings take the lead and varying levels of volume draw attention to their unique playfulness with dynamics. The strings continue their jolting dialogue until one of the piece’s most dramatic moments: the wild, swooping sound of sped up tape one might stereotypically associate with early experimental electronic music (the effect, however, is more cathartic than cliché). After this giant swell in volume and density, the cello and harp engage in a playful moment of back-and-forth having now returned from the stratosphere. The flute follows suit, resuming the same flutter-tonguing character from before. The live and taped groups rejoin from notated m. 154 onwards, playing together until the end of T3 at m. 162, giving this inner section its own ABA-type symmetry (see Figure 3).
A4. These four measures show the disoriented temperament of the live group with the harp exclaiming the pivotal D transposed up a whole step to E. The clarinet similarly avoids the pivotal D, leaping from high Eb to low C#. The harpist strikes the table for the first time in m. 166. The cello/winds chords die away, making way for the reentry of the tape.

B4. This section shows the live group succumbing to the strong forces of the tape’s maximum identity, demonstrated in its grasping for earlier material now presented through tremolo and mimicking the tape through extended technique like col legno in the strings (mm. 171–72). The identity of the tape dominates, leaving the live group silent for another sixty seconds. This time when the live players drop out, the solo tape introduces more transformed sounds right from the start in the form of sped up tape mixed with distorted, randomized pizzicato. After about twelve seconds, the plucked string notes start to become gradually more distorted until they are rendered unrecognizable. More special effects come into play as the recorded tracks are run through effects available to composers at that time (i.e., ring modulator, pitch shift, sine-tone generator, white noise, etc.). These new sounds are used in musical ways, and develop a rhythmic motive of two sixteenth notes followed by an eighth note. Here we witness how the musicality associated with the Group’s maximum identity has affected the Tape’s maximum identity. At about thirty seconds, a familiar timbre peeks through the denseness—a harp playing tremolo. The maximum
identity is redefined once more with a section demonstrating the vast range of electronics. The journey is cut short by the sobering sounds of the live group. The strings of the live group return at the end of B4 uncharacteristically in a rhythmic *pizzicato*, altered in character but nevertheless present in their role in balancing out the ABA form.

A5. The harp’s strained, quick chords sound reminiscent of gestures introduced on the tape. The leaps in range, dissonant intervals, disjunct rhythms and use of extended technique mimic the transformed sounds of B4. The harp plays $x$ at m. 184.

B5. The dialogue continues led by the harp’s punctuated chords, echoed back from the other dimension becoming increasingly transformed and dominant. The flutter-tongue flute reappears at m. 194, adding a new color. The flute wrestles the control away from the others for a moment before leading the live group to a dramatic, punctuated chord at m. 205. The live group starts up again as a cohesive group, but with the transformed taped sounds softly murmuring in between outbursts by the live group. The coordination between the two forces has become more prevalent in the form of more homogenous gestures and a clear, less polyphonic dialogue. At m. 240, the live group makes way for the swarm of sped-up sounds made up of recognizable gestures introduced by the live players. The solo tape continues on as the live group creeps in with a somber chorale with unusually accented phrasing, like somebody who forgot how to speak their own language.

A6. Similar to the orchestral textures introduced in the earlier phases, the two groups play as a cohesive group during this final section. However, the taped sounds are no longer considered transformed since they represent less *distance* with respect to the instrumental material. The last gasps of the humanistic, live group peter out and we are left with the deranged, machine-like
character of the live players evoking the musical sounds of dissonant feedback expressed through non-vibrato bowed notes, randomly, rhythmically punctuated as the players gradually drop out one by one to end on the lone pitch C.

**Figure 4.** Seating and equipment staging graph from Berio’s *Différences* \(^{57}\)

![Seating and equipment staging graph from Berio’s *Différences*]

The Universal edition of the score includes a foreword with details on how to stage the performers and sound equipment. The engineer is instructed to use the speakers 2 and 3 positioned behind the Group for “untransformed sounds” and the outer speakers 1 and 4 for “transformed sounds” (see Figure 4): “Therefore in sections I, II and VI of the tape, the sounds should remain on the inner loudspeakers, whereas during sections II, IV and V, which represent gradually greater distance with respect to the instrumental material, the sound should ‘grow’ a lot through the outer loudspeakers; in these sections the sound director can ‘play’ with volume levels repeatedly changing perspective.” \(^{58}\) These instructions on dealing with “sound in space” are crucial to understanding how Berio achieves his stated intention to alter the acoustic properties of the group. \(^{59}\) In sections B1, B2 and A6, the Tape plays through the inner speakers, blending together to create a denser texture. In sections B3, B4 and B5, the Tape plays through the outer speakers, spreading the texture out across a larger space. This shows how Berio was not only using the sounds on the Tape to create tension, but also how and where those sounds were

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\(^{57}\) *Différences* score (2003), 2.

\(^{58}\) Ibid.

\(^{59}\) For a discussion on sound in space, see Sara Overholt, *Stockhausen’s Musical Shapes: How a Master Composer Moves Sound* (Saarbrucken: Verlag, 2008).
actualized. Certainly, one can surmise, Berio was well aware of the physical effects of music on his audience members and intended for *Différences* to be experienced in person.

In summary, *Différences* is a piece that attempts to marry two seemingly irreconcilable musical resources by showing how they change one another through their interactions. The two main musical agents (the Group and the Tape) each have their own identities and express varying degrees of tension. The Tape’s maximum identity is realized through the combined use of electronic sounds spread out across a wider distance. But there are other transformational phases that operate more subtly by combining with the density of the Group and utilizing less electronic, more familiar sounds. By alternating sections for the two separate groups and ending the piece in a similar fashion to the way it begins, Berio is invoking the same long-form approach taken by previous composers working with more traditional means.

**The Grateful Dead’s Phases of Transformation**

In his autobiography, the Dead’s bassist Phil Lesh speaks fondly of his experience performing *Différences* with Berio at the 1963 Ojai Music Festival in Ojai, California.\(^{60}\) Lesh was in charge of running the tape and panning the sound as described above. In an interview with historian David Gans, Lesh commented on *Différences* saying, “Those instruments recorded on tape and other parts of the music are modified, and there’s purely electronic sounds…so there’s a complete spectrum between the actual acoustic instruments and electronic sounds…It was all available…”\(^{61}\) Lesh had studied and performed with Berio while attending Mills College and

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surely gained a deep understanding of the work’s technical and conceptual makeup. Interestingly, if we analyze the music of the Grateful Dead using Berio’s concepts of maximum identity, tension and transformation, we start to unveil some striking similarities in their respective approaches to long-form composition and dealing with dissonance. If we think of the Dead’s instrumental interludes (or jams) as functioning like Berio’s transformational phases of varying degrees of tension, we see how the Dead similarly approach maximum tension in a gradual manner. Berio’s terms redundancy and transformation can be related to what David Malvinni calls the Dead’s process of alternating “structure and fantasy” in that both approaches utilize alternating sections of stability and change. Berio’s process can be seen as analogous to the idea of ABA song form in the sense that something is established, travels through a contrasting landscape and then returns home. One of the finest examples of the Dead’s long-form jamming from this period took place at the Boston Garden on June 28, 1974. Towards the end of their second set, the Dead performed over 53 minutes of continuous music constructed of a suite of songs and instrumental episodes (the Suite). The 32-minute instrumental section—comprised of seven episodes of contrasting style and form—will be the focus of this analysis.

**Figure 5.** Grateful Dead, formal analysis of the Suite, 6/28/1974 Boston Garden, “Weather Report Suite > Let it Grow > Jam of Various Themes > U.S. Blues”

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Where Berio uses an identifiable gesture (x) to set up a sense of stability, the Dead use songs and what Malvinni refers to as “song-like jams” in which short, pre-composed chord progressions appear within the context of more free-flowing jams.64 Two songs (“Weather Report Suite > Let Grow” and “U.S. Blues”) bookend the 53-minute piece in question, alluding to its symmetrical form (ABA). The middle 32-minute instrumental section might be thought of as one long B which can be further subdivided into different types of jams. This middle section is the “Jam of Various Themes” (JVT), where the Dead smoothly connect eight distinct episodes of contrasting identity using improvised transitions. The types of jamming used in the JVT are as follows (listed diachronically): I. Jamming, II. Sounds, III. Song-like, IV. Jamming, V. Jamming, VI. Sounds, and VII. Sounds. Episodes comprised of Jamming are improvisational vamps centering around one or two chords over a regular pulse. Sounds—to borrow ethnomusicologist Michael Kaler’s term—are moments of free improvisation without a fixed beat or, as Kaler described them, “the points in the Grateful Dead’s improvisations when melodies, chords, and other normal delineations of music dropped away, along with conventional uses of their instruments and when the band created sound collages and musical space.”65 Episodes II, VI and VII of the Dead’s Boston Garden show squarely fit into this category. Episode VII (labeled C3 in Figure 5) contains the point of maximum tension in the piece—the relentless high-register wailing of the lead guitar over high-energy free drumming—and has been aptly named “Tiger Jam” by Dead fans. The intensity produced by this moment does not appear abruptly, however, and the way it is transitioned into and away from help illustrate the Dead’s flowing nature. As Kaler notes, “The Grateful Dead’s overall preference was for continuous but non-mechanical, ever fluctuating movement. Even when that continuous movement led the listener to some very

64 Malvinni, 130.
odd and distant places... still the operative word is ‘lead,’ rather than say ‘catapult.’” Kaler also points out how the Dead separated Sounds from songs, “thus implicitly validating the distinction between the two approaches to music, and furthermore increasing the sense of motion in the music.”

In the JVT, the seven transitions between episodes lead the listener to new musical territory in a subtle way—most notably the transitions between episodes II–III and VI–VII. After the peak of tension during VII, the band swiftly (but not jarringly) transitions to a contrastingly smooth timbre with a steady beat. Outside of these transitional moments, however, each episode demonstrates how the band does not mix styles of jamming in a possible attempt to avoid coming across as ironic or inauthentic. The timeline in Figure 6 and the guided-listening in Appendix A help illustrate the points mentioned above.

**Figure 6. Formal Analysis of “Jam of Various Themes,” Boston Garden, June 28, 1974**

<table>
<thead>
<tr>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
<th>VII</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1</td>
<td>C1</td>
<td>A2</td>
<td>B2</td>
<td>B3</td>
<td>C2</td>
<td>C3</td>
</tr>
<tr>
<td>&quot;Let it Grow&quot;</td>
<td>&quot;Atmosphere of Love&quot;</td>
<td>&quot;Mood Swing&quot;</td>
<td>&quot;Dark Star progression&quot;</td>
<td>&quot;Take Five at 60&quot;</td>
<td>&quot;Atmosphere of Love&quot;</td>
<td>&quot;Tiger&quot;</td>
</tr>
<tr>
<td>Modal jazz</td>
<td>Country rock</td>
<td>Modal jazz</td>
<td>Acoustic gitar</td>
<td>Jazz</td>
<td>Acoustic gitar</td>
<td>Nature music</td>
</tr>
</tbody>
</table>

The beginning of Episode I is marked by the increased interaction of the drummer’s snare drum. A technique found in jazz, the drummer’s snare drum engages in dialogue with Guitar1 and the other lead players of the group, seemingly balancing around a West-African-clave-influenced drum feel. A high-energy passage, all members of the group participate which dramatizes the change in texture at 0:40.

Episode II is a *concertino* between both guitars and drums. In this episode of Sounds, the three players seem to diverge into their own directions before reconvening at 8:15. Guitar1’s

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66 Ibid., 98.
chromatic dyads (sounding almost like an exercise for fingering technique) demonstrate a reticence to reciprocity, a breaking down of the previous structure. References to diatonicism are strictly avoided. The wah effect on Guitar1 adds a new, otherworldly timbre.

Episode III signals the tonal and rhythmic reunification of both guitars with what begins as a duet between the two. Guitar2 vamps the four-chord progression of this section for almost 40 seconds before Guitar1’s solo begins and the drums rejoin with a quiet accompaniment. At the B section, the full power of the band returns ff in dramatic effect. The drummer’s switch to ride cymbal reciprocates the sectional change. The AB form is repeated but this time with the full band’s involvement. The second B section is elongated and infused with a rock backbeat (as opposed to the earlier jazzy use of the ride cymbal). The change back to A triggers another transitory moment with members vying for one direction or another starting at 13:57.

Episode IV begins by Guitar1 signaling the chord progression for “Dark Star,” which represents “comfortable territory” for the band and listeners. Here we hear the band interacting with their trademark polyphonic accompaniment, with Guitar1 floating atop using a pick.

Episode V relates to Episode I in that we hear a return of the drummer’s ride cymbal and more interactive snare. Another of the Dead’s jazzy moments (but now in 12/8 time), this return could be seen as a transformed version of the earlier episode. Guitar1’s addition of the wah effect adds to this episode’s particular timbral identity.

Episode VI takes the listener back to the realm of Sounds. However, as opposed to the earlier concertino, it is characterized by a more aggressive, abrasive dissonance. Guitar1’s use of the wah effect transforms the character of the guitar.

For detailed discussion on “Dark Star,” see Malvinni, 72–119.
Episode VII begins with sound effects created through Guitar1’s use of extended techniques. The downward tremolo, mandolin-style speed picking, and pick-scratching the wound strings are three of the extended techniques used by Guitar1 that are unique to this section. The peak dissonance is reached at 29:11, exemplified by the high-register wailing of Guitar1 and the band’s impression of avant-garde noise. The intensity of the moment of noise is quickly foiled by the drums’ return to time. Another transition signals a change to more familiar territory at around 31:50, as the drummer switches to the swing feel of the Dead song “U.S. Blues.”

A few generalizations about the Dead’s technique of developing jam can be drawn from the above analysis. The shifts in timbre from Guitar1 and Drums are the best indicators of a change to a new episode. What is usually initiated by Guitar1’s melodic and/or harmonic signals, the drum feel plays the most crucial role in defining a jam’s identity. In the live performance, shifts in episodes align with textural changes in the drums (see Figure 6). We observe Guitar1’s timbral palette is comprised of flatpicking, finger-picking, wah-effect, distortion, and extended techniques (pick-scraping and pinched harmonics). While flatpicking is Guitar1’s most prevalent musical identity during episodes of Jamming, more extended techniques are reserved for moments of Sounds.

Conclusion

By focusing on how contrast and dissonance are treated in works by Berio and the Dead, several striking similarities become apparent. Both Berio’s Différences and the Dead’s Suite are
structured symmetrically, stressing a narrative approach to long form composition. Although this technique was common practice among their contemporaries, the individual styles of both Berio and the Dead emphasized smoothly transitioning from one clearly defined musical space to another. Both pieces examined in this study contain a middle section where a peak in density occurs which is approached gradually as opposed to suddenly. In *Différences*, the section for solo tape challenged traditional notions of what should be considered music as opposed to noise. The Dead’s Tiger Jam seems to impart a similar feeling. In both pieces, the context of these noise-like moments is what makes them musical. Both Berio and the Dead show a similar approach to dealing with change: sometimes more subtly, sometimes more intensely but always musically.
Appendix A. “Jam of Various Themes” Guided Listening

I 0:23  jamming
  2:20  Billy points (rejected)
  3:42  JG cantabile

II 4:03  JG quarter-note strums, micro-timing suggests pointing, Keith answers
  4:16  Billy follows, drops time
  4:26  JG + Billy, tremolando
  4:35  JG, F-E-Eb-Ab
  4:46  drums out, JG + Bob duo, atonal playing
       Endless descending, atonal
       sounding familiar now, time for a change?
  6:22  JG crescendo, 12-tone row emerging?
  6:53  JG, “O chi chornia” lick
  7:12  JG, wah on
  7:48  Bob alludes to chord progression, a la Bartok

III 8:15  JG, builds climax before falling back into new territory

IV 9:04  “Mind Left Body” JG plays head
  9:36  crowd
  9:48  JG starts improvising on changes
 10:54  JG starts another chorus
 10:39  B section (8 bars)
 11:53  A section
 12:13  B section (8 bars)
 12:28  A section
 12:51  coda (vamp on A)
 13:00  slow decrescendo
 13:33  B section sfz, rock feel now (16 bars)

V 13:57  Crash cymbal, stays on E
 14:11  JG points to “Dark Star”
 14:15  Billy follows, starts slowing down tempo

IV 14:35  new tempo confirmed
 16:40  sounding too familiar now
 17:03  drums only, wandering
 17:15  Bobby harmonics

V 17:23  Billy cymbal wash, no time
 17:30  crowd
 17:45  JG points, “Take Five” in 12/8

V 18:30  new chord progression confirmed
 19:29  JG solo begins
 19:49  JG teases “Take Five”
 20:14  turn to dissonant interval
 20:35  drums reacting
 20:51  JG going to new territory, pointing

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68 “JG” = lead guitarist Jerry Garcia; “Bobby” = rhythm guitarist Bob Weir; “Keith” = keyboardist Keith Godchaux; “Billy” = drummer Bill Kreutzmann.
21:08  JG wah confirms
21:45  climaxing
22:30  coming down
22:45  JG teases “Take Five”
23:27  Billy switches to hi-hat, pointing
24:00  JG, tremolo tease, pointing
       Drums continue grooving
VI  24:40  Billy dissolves time
25:04  crowd
       Trio: Drums, JG wah and Bob
25:48  Keith chords punctuate
25:59  duo: JG and Billy
26:06  Bobby *tremolando*, clean tone
VII  26:35  Nature music begins
       Scratch
       Cricket?
27:11  squeal
27:55  toads?
28:08  laughing tiger?
28:40  building tension
28:50  Keith points to peak
29:11  peak 1
29:26  peak 2, sudden drop-off
29:32  crowd
29:36  Keith downbeat confirms new territory
       Billy falls into time, shuffle pattern
29:50  JG rejoins group, new tone, less distortion
30:02  Jg solo begins, jamming
30:28  JG blues line, points
30:45  rhythm section vamping
31:20  JG, *cantabile*
31:50  rhythm breaks down, changes into shuffle pattern
VII  32:00  U.S. Blues
Bibliography


