Ur-Motifs in the Piano Works of John Adams

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ROYAL IRISH ACADEMY OF MUSIC

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Introduction

> "A close friend, the pianist Mack McCray, proposed that I write a big solo piece for him, something grand and virtuosic that would play to his powerful hands with their subtle control of pianistic colors. To compose the piece for him I moved a battered spinet piano into my tiny cottage by the beach. The room where I worked was so small that even that little spinet sounded thunderous, and I banged away at it for months, testing out ideas for the music that would ultimately become *Phrygian Gates*, my first mature composition, my official "opus one". By the time Mack played it in March 1977 at Hellman Hall at the Conservatory, I had just turned thirty. It had taken that long to find my voice."[1]

What *is* a composer's voice? What constitutes a composer's unique sound, which we might describe metaphorically as their "signature" or their "fingerprint"? If we hear a work for the first time, and recognise its composer, what are we recognising?

The answer can only be short ideas that recur throughout that composer's works, including but not limited to rhythmic motifs, intervalic patterns within their melodies, recurring chords, and patterns of orchestration. The ideas must be short, because such recognition can take place in an instant. Such ideas can be transmitted between composers, consciously or unconsciously, allowing us also to hear who has influenced whom. There must also be nested hierarchies of motifs; at the highest level would be those motifs shared only by a composer and their closest associates - students, teachers, contemporaries - and at lower levels would be those motifs shared by wider circles of composers. One set of motifs, for example. may be shared by all composers whose music "sounds" French, another by those whose music sounds Russian, or English, or in this case American.

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[1] John Adams, *Hallelujah Junction: Composing an American Life.* London: Faber and Faber, 2008

I refer to these recurring ideas as *ur-motifs* in this analysis; they are the most primitive, ancestral, purest distillation of compositional ideas, the building blocks of a composer's musical vocabulary, which are then combined and sometimes distorted to form the motifs that we hear in the music. This analysis is my attempt to untangle some of these common threads.

Adams gives relatively free reign to his unconscious compositional impulses, describing the act of composition in terms that cast him as an observer to an autonomous process:

> Sometimes I liken the creative act to that of being a good gardener. The musical material itself, the harmonies, rhythms, the timbres and tempi, are seeds you have planted. Composing, bringing forth the final arrangement of those elements, is often a business of watching them grow, knowing when to nourish and water them and when to prune and weed. [2]

He has described *Grand Pianola Music* as having been provoked by a vision from an LSD trip, and the two outer movements of *Harmonielehre* as having been inspired by images that came to him in dreams. About *Harmonielehre*, he also wrote "I sat down in my studio to find, almost as if they were waiting for me, the powerful pounding E-minor chords that launch the piece", and "I can't even find the proper term to describe my mental state while composing, so quickly did the ideas come and so free was my spirit of accepting them into the fold."[3]

From the evidence of his published works, there is reason to believe that he has begun to take a more deliberate role in the working out of his musical material since the early 2000s, as the use of

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[2] Ibid, pg. 171

[3] Ibid, pages 130 and 131

the ur-motifs has become ever more fragmentary. But his works between 1978 (the year of his first published composition) and 2000 provide a fertile ground for studying his compositional impulses, because a motivic analysis of the music is, to some extent, an analysis of its composer's unconscious.

This analysis focuses on the works for piano. Partly for practical reasons, I have limited the scope of this analysis to the piano works. While Adams is not best known for his chamber or solo works, he has composed for the piano at several important junctures in his career, including his official "opus one" in 1977, and at a significant harmonic turning-point in 1989. The first part of this analysis is the description, history and usage of the ur-motifs that I have identified. The second part is an analysis of *Hallelujah Junction* (1998), for two pianos, to show how much of the music can be explained with reference to the ur-motifs. Throughout the analysis, Adams' music will be compared and contrasted with Steve Reich and Philip Glass, the two composers with whom he is most frequently grouped.

The list of ur-motifs described in this analysis is not exhaustive. Some other ur-motifs may yet lie undiscovered in the piano works. Other ur-motifs appear in his stage and orchestral works, but are excluded from this analysis because they do not appear in his piano works. An analysis of Adams' writing for string instruments, or his writing for voice, would uncover several more instrumental and melodic ur-motifs, and a study of his orchestration alone would yield many more.

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Melodic / Structural Ur-Motifs

1. Loops

The most consistent feature of minimalist music is its use of repeated cells to establish a harmonic and rhythmic texture. A famous example of this is Terry Riley's *In C*, written in a modular format where players repeat each bar an indeterminate number of times before moving, independently, to the next. Because the players do not begin together, this creates the use of unison canons. Minimalist texture, since that time, has been characterised by the pervasive, exact repetition of material, both in the form of constantly repeating cells, and through repeating a cell out of phase with itself in the form of canonic imitation. Other composers, though aware of Riley and *In C*, claim to have happened upon unison canons by other means. Steve Reich worked with tape loops before applying the phasing principle to piano, violin, drums and other instruments; Adams credits his experiments with synthesisers and digital delay effects.

Adams is a descendant of minimalists, although his music has never fit comfortably into the same category as early Reich or Glass, let alone Riley or LaMonte Young. Early, "classic" minimalism can be described either in terms of its musical features, or by the effect of listening to it, which can bring about a meditative, trance-like, or otherwise altered state of consciousness, similar to that experienced during extended meditation, ritualistic chanting or dancing, non-Western spiritual practices by which the above named composers were influenced.

Reich stresses the importance of the listener's powers of concentration:

> I am interested in perceptible processes. I want to be able to hear the process happening throughout the music. To facilitate closely detailed listening a musical process should

> happen extremely gradually… By "gradual" I mean extremely gradual; a process happening so slowly and gradually that listening to it resembles watching a minute hand on a watch - you can perceive it moving after you stay with it a little while.[4]

Philip Glass describes the music like an austere physical force:

> *Music in Similar Motion* is a string of eighth notes that goes on for fifteen minutes or so. It's unrelenting. You could get high from it, and people did… Listening to this music was like standing in a very strong, cold wind and feeling the hail and sleet and snow pounding your flesh. It was definitely bracing. The music had the feeling of a force of nature… It was not meant to be mindless, but to be organic and powerful, and mindful, too.[5]

Adams found these sound worlds enchanting, but believed that he could not settle for writing exclusively within such a confined style:

> …as much as they enchanted me, these Minimalist compositions felt like latter-day descendants of Baroque compositions from the eighteenth century. As musical organisms the pieces were largely monolithic, their expressive worlds more often than not confined to a single affect. One spoke of trances or hypnotic states. That was both the brilliance of the style's originality and the conundrum of how to make it evolve into a language of greater subtlety. As enchanted as I was by this marvelous new music, I missed the shock of the unexpected.[6]

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[4] Steve Reich, from his manifesto *Music As A Gradual Process*, retrieved from http://ccnmtl.columbia.edu/draft/ben/feld/mod1/readings/reich.html

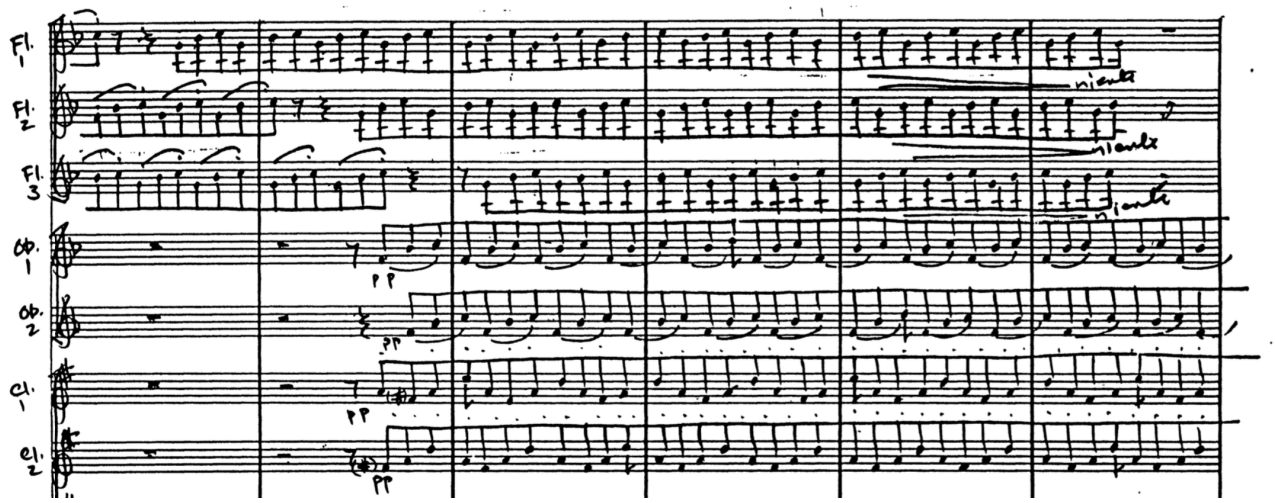
[5] Philip Glass, *Words Without Music*. London: Faber and Faber (2015)

[6] John Adams, *Hallelujah Junction: Composing an American Life*

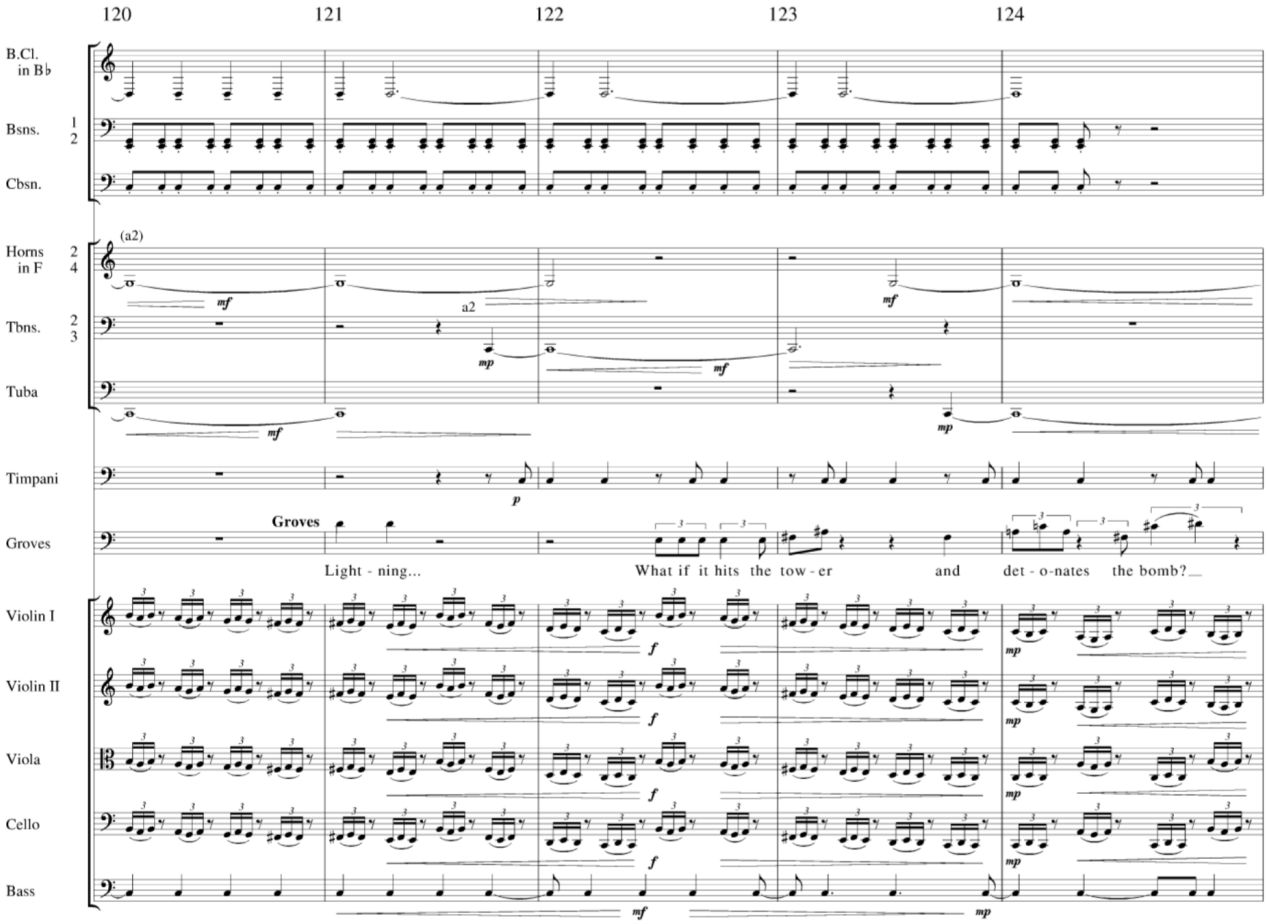
Classic minimalism achieves this effect through the extended prolongation of simple musical material, through repetition of short phrases or (in Young's case) drones. The repetition is therefore highly distinct from repetition in other genres of Western music. In other genres from the "Classical" tradition, repetition is used for emphasis of a particular phrase, or the delineation of the musical structure. The 'goal' of the music is to craft a pleasing form through the use of tension and resolution, and repetition is one means to that end. To draw an analogy with the spoken word, non-minimalist music uses repetition as a rhetorical device, as an orator would, for the purpose of emphasising a point. Classic Minimalism, in contrast, uses repetition the way that a practitioner of meditation might repeat a mantra, for the purpose of achieving an altered state of consciousness.

John Adams' music does neither of those things; repetition of small motivic fragments is present throughout most of his pieces, but this repetition is neither used to emphasise a rhetorical point, nor to lull the audience into a trance. It is simply a part of the background. His is a style that may be described as *post-minimalist.*

Adams' use of repeating cells is most evident in his early works, which could be represented by modular scores, and indeed *Shaker Loops* was first published in that format. Over time, his use of repetition has fractured greatly, obscured by constant transformations of the cells, but the basic principle of repeating motifs remains visible as a textural element, even in his most recent works. In the first example from *Common Tones in Simple Time* (1980)*,* flutes play a three-note cell in canon, oboes play a slightly different three-note cell in canon, and clarinets play a four-note cell in canon. In the second example, from *Doctor Atomic* (2005), Adams uses more rapidly changing cells in a depiction of a thunderstorm.



Common Tones in Simple Time, b.224 - 229



Doctor Atomic (2005), Act 1 Scene 3

Throughout all this time, from 1978 to the present, Adams has frequently worked with repeating cells of different length, which I will describe collectively as *Loops*. This term, originating from Shaker Loops, is one of the few ur-motifs for which Adams himself has supplied both the word and a definition:

> The "loops" are melodic material assigned to the seven instruments, each of a different length and which, when heard together, result in a constantly shifting play among the parts. Thus, while one instrument might have a melody with a period of seven beats, another will be playing one with eleven while yet another will repeat its figure every thirteen beats, and so on. [7]

This particular use of non-literal repetition is one of the signature traits that distinguishes Adams' use of repetition from Reich and Glass.

In Philip Glass' music, all cells repeat together. Where some cells contain their own internal repetition, implying multiple cells of different length, each repeat of the *longest* cell in the texture begins a literal repeat.

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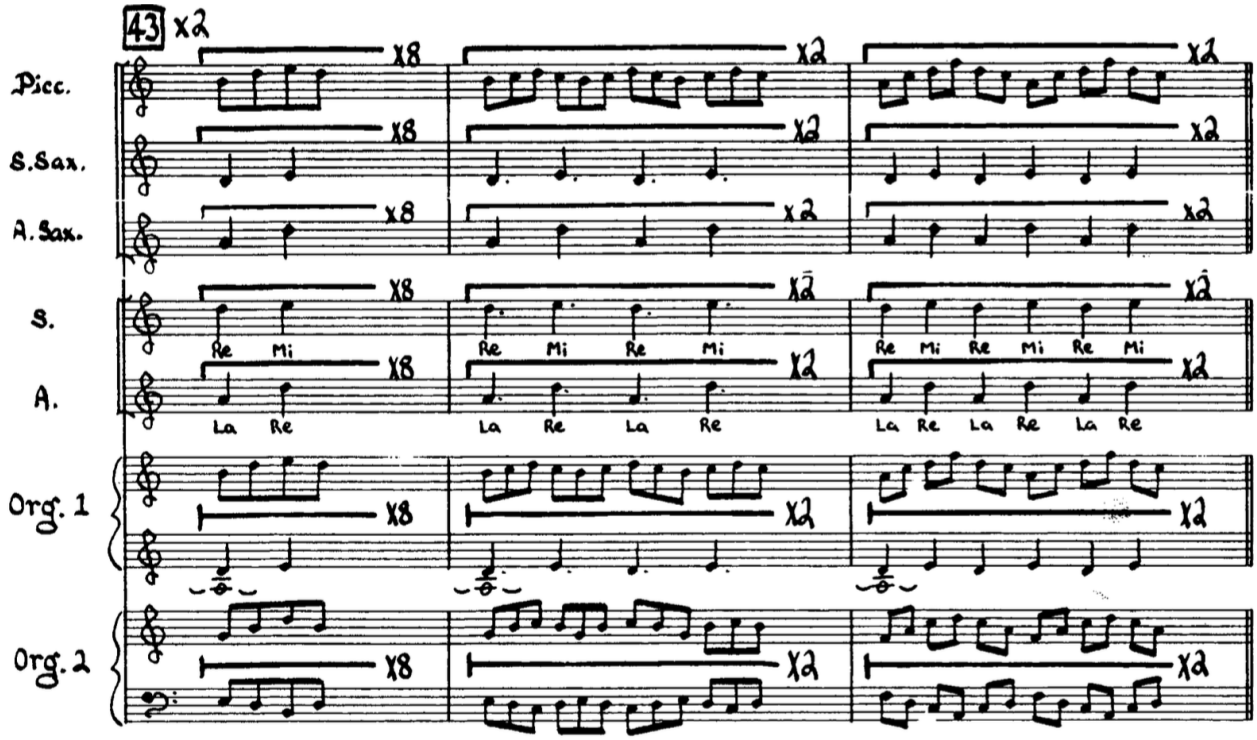
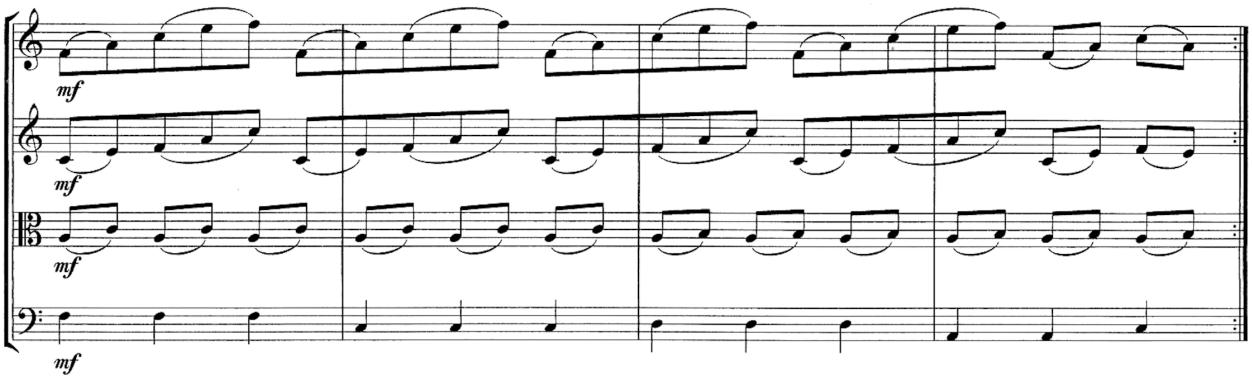
[7] Adams, *Shaker Loops*, preface to the published score (revised version), New York, Associated Music Publishers, 1983



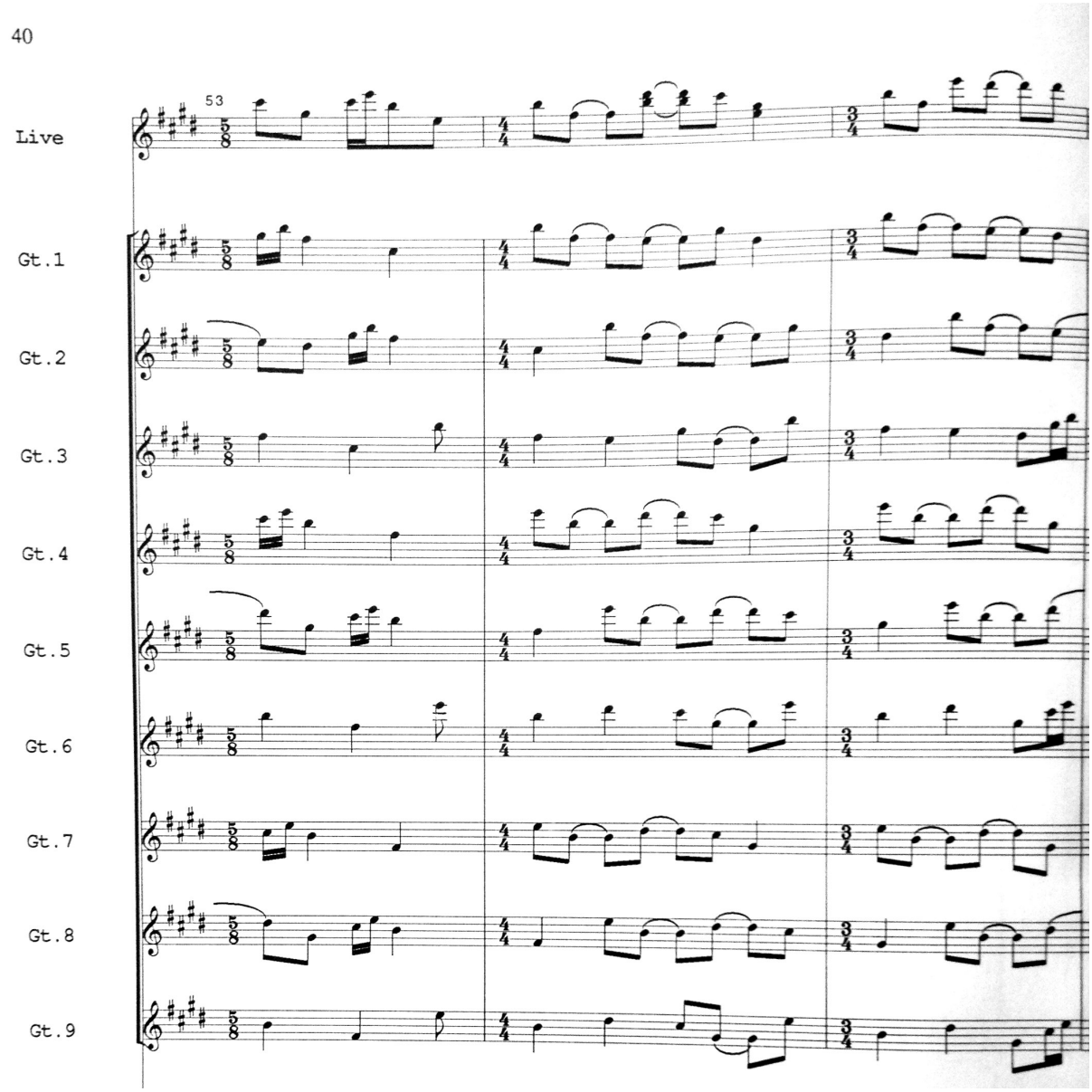
Glass: *Einstein on the Beach*, excerpt from "Dance 1"

The following excerpt from a later work by Glass, shows this process from an even more revealing angle. Here, the violins play a repeating five-note cell against the viola's two-note cell. This would result in a literal repeat after five bars, but Glass alters the pattern so that the whole phrase can fit neatly into four bars.



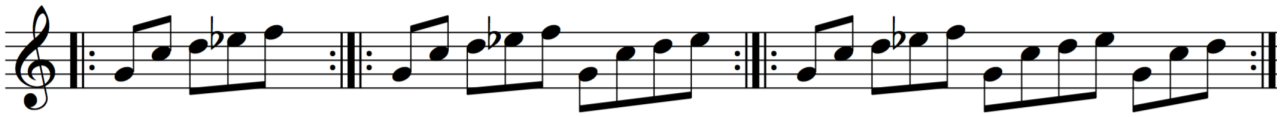
Glass: String Quartet no. 2, *Company*, 2nd movement, b.21 - 24

Steve Reich uses a combination of literal repeats and non-repeating material. In the next excerpt, from *Electric Counterpoint*, guitars 1, 2 and 3 play in canon at the unison, doubled by guitars 4, 5 and 6 a fourth above, and guitars 7, 8 and 9 a fifth below. Because all instruments are playing the same line in canon or transposed, the entire pattern repeats every three bars, for the duration of the movement. Three additional guitars and two electric basses, not pictured here, and a "Live" Guitar provide the non-repeating material. The lower guitars and basses play pulsating chords, and the Live Guitar picks out "resulting patterns" from the interaction of the nine repeating guitars.



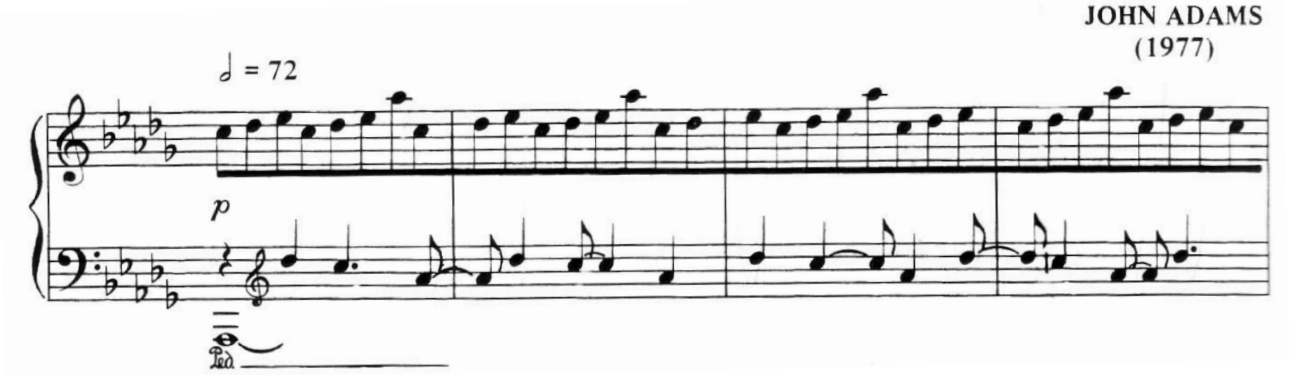
Reich: *Electric Counterpoint*, 2nd movement, b.53 - 55

Adams was unmistakably influenced by the early minimalist works of Philip Glass when he composed *China Gates* and *Phrygian Gates*. Glass had arrived at Minimalism by way of traditional Indian music, where musical material is extended through repetition with additive or subtractive processes. He applied these principles to his own work. *Two Pages* (1968), for any combination of instruments, is a typical piece from Glass' early minimalist period. The score consists of __ bars, each to be repeated an unspecified number of times before moving on to the next one. Bar 1 is a five-note cell. Every subsequent bar adds a repeat of the previous cell but subtracts one note from the end each time. The process is easier to see than to describe:

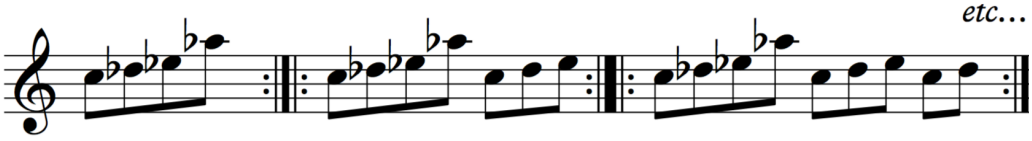


Glass: *Two Pages*, modules 1 - 3

The additive process creates a musical line containing truncated internal repetitions. *China Gates* begins with musical material that appears to have undergone one iteration of this process already.

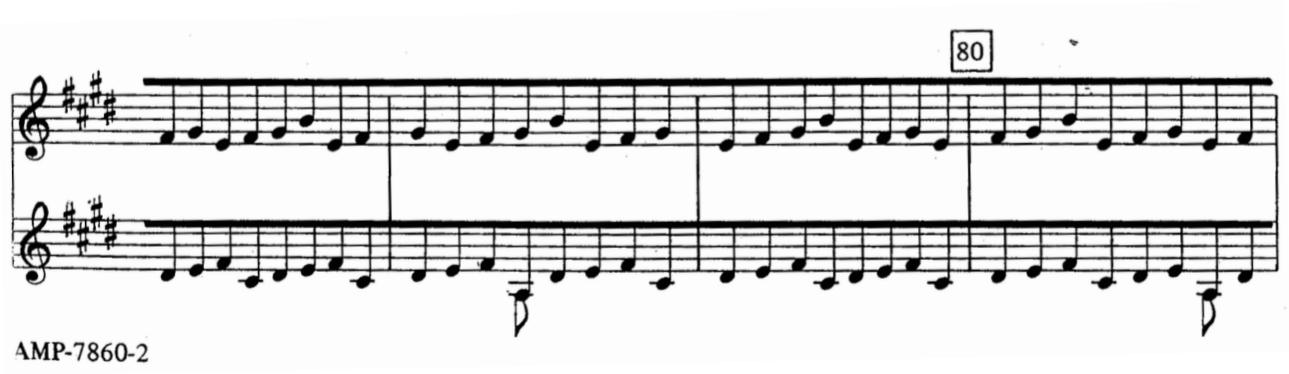


Theoretically:

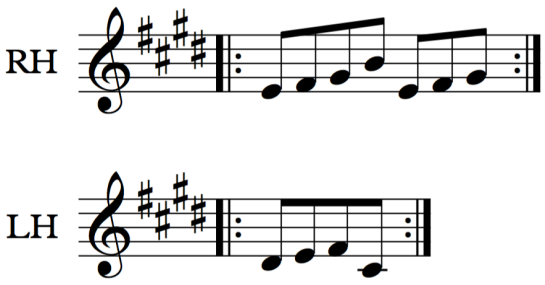


This loop is seven quavers long, as is the left hand's first loop, meaning that the first three repeats of *China Gates* are literal repeats. From this point on, however, while the right hand plays only one loop per section (where each section is delineated by a harmonic **gate**), the left hand **mutates** its loops freely, avoiding the use of literal repeats for most of the piece.

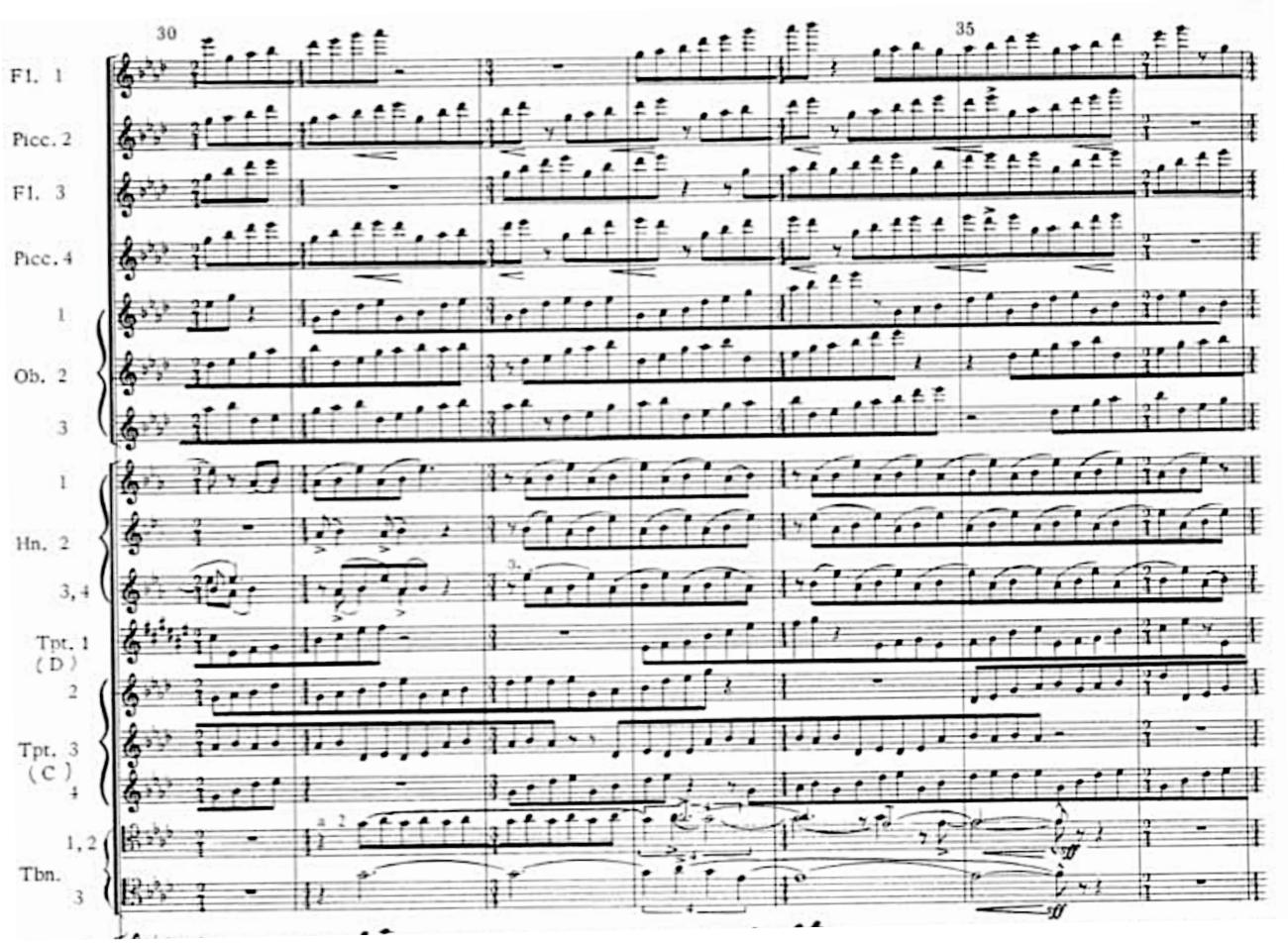
In *Phrygian Gates*, both hands mutate their loops independently. These loops, seven and four quavers in length respectively, would only result in a literal repeat every seven bars.



This could be represented by a modular score, in which the left hand's A at bars 78 and 80 are an intrusion, breaking the pattern:



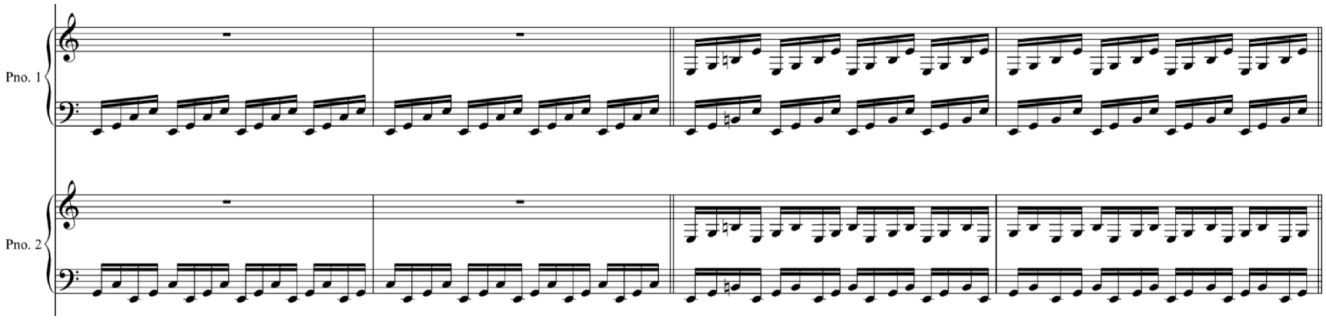
The orchestral works from the early 1980s apply these techniques to the full orchestra, with the addition of unison canons. In this excerpt, loops with internal repetitions can be seen in all instruments except for trombones, who are doubling the choir.



Harmonium, 3rd movement, “Wild Nights”, b.30 - 36

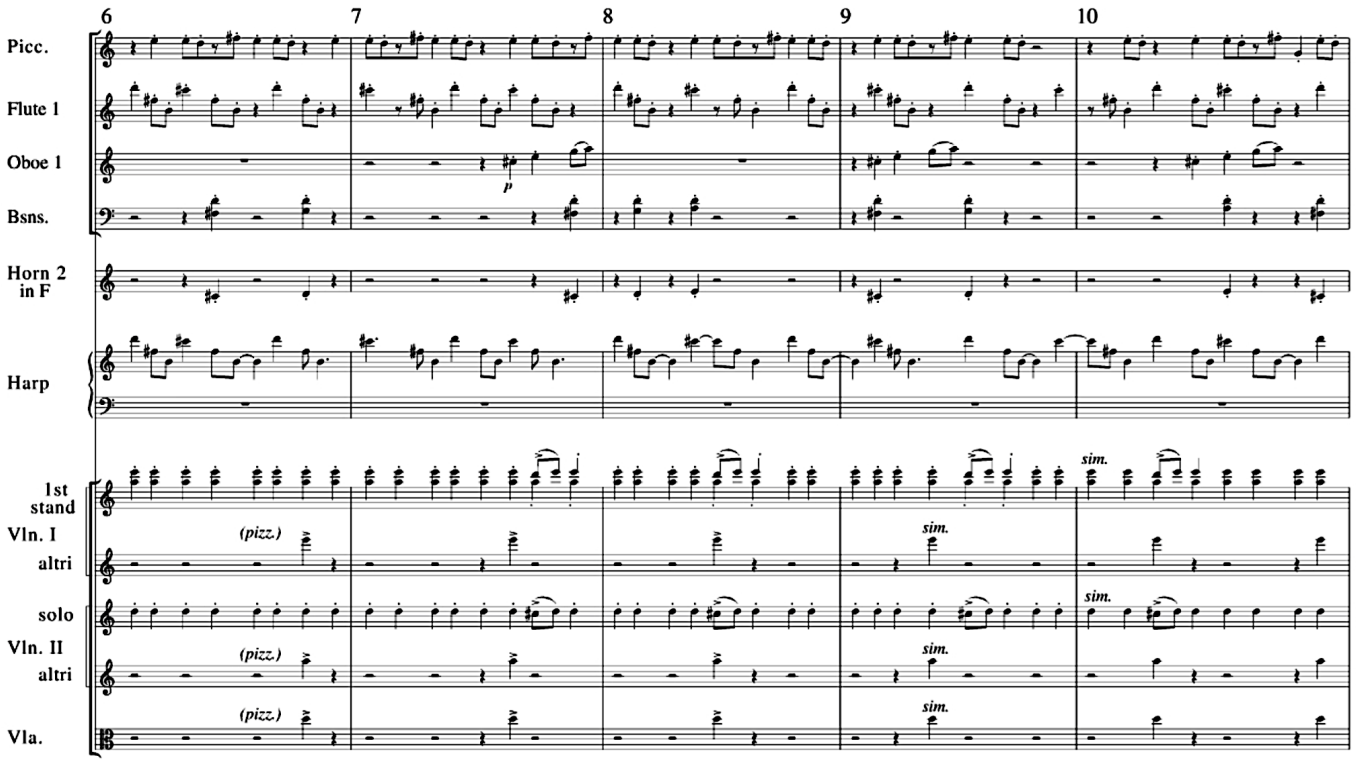
In the *Gates* piano works and the early orchestral pieces, Adams made use of loops with long, irregular lengths, such as 5 against 11, to minimise the appearance of literal repeats. His later works contain fewer repeats because of their faster rate of change and mutation within the music, rendering long or irregular loops superfluous. Shorter loops, such as threes against fours, are now more common. A vestigial form of this motif is the **three-within-four** pattern, where a rhythmic or

melodic figure of three notes duration repeats within a context where the beats align in groups of four. This originated as a loop,but now survives as a stand-alone motif.



Nixon in China, Act 1, Scene 1, b.314 - 317. Piano 2 plays a three-within-four pattern.

Loops in the earlier pieces most commonly take the form of constant streams of notes. In later works, Adams applies the looping principle to lines which incorporate rests, as in the opening to *Century Rolls* (1997):



Century Rolls, 1st movement, b.6 - 10

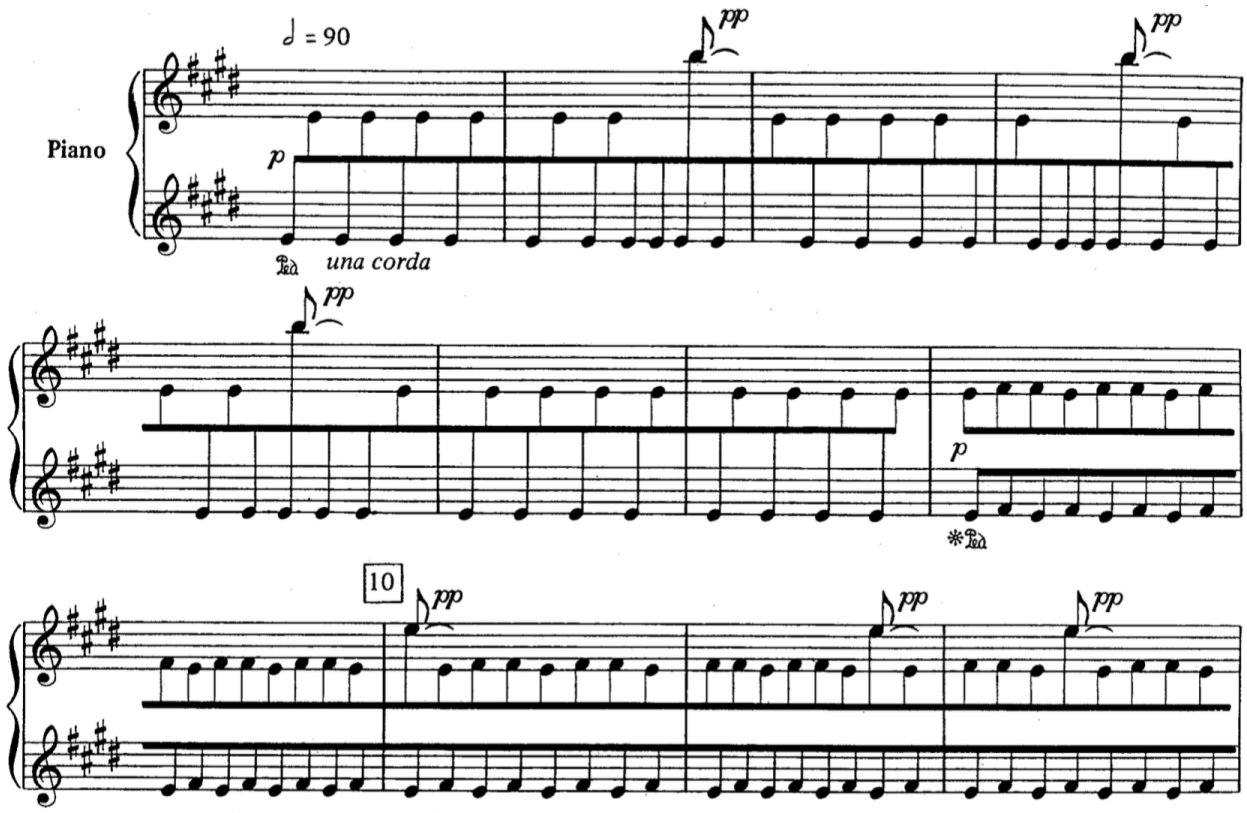
Every instrument shown here is playing looping material. The loops are interacting with other ur-motifs yet to be discussed, in this case primarily *oscillations* and the *offset fifth*, but more importantly *mutation*; the loops are simply changing length too frequently for their looping nature to be obvious.

2. Oscillation

Adams, like Beethoven, is a master of form and motivic development. But, also like Beethoven, he is not a naturally gifted melodist. His earliest works are primarily explorations of texture. Melody is largely absent, and, in Adams' own words, "…my compositional language [in the 1980s] was principally one of massed sonorities riding on great rippling waves of energy. Harmony and rhythm were the driving forces in my music of that decade; melody was almost non-existent."[8]

Origins

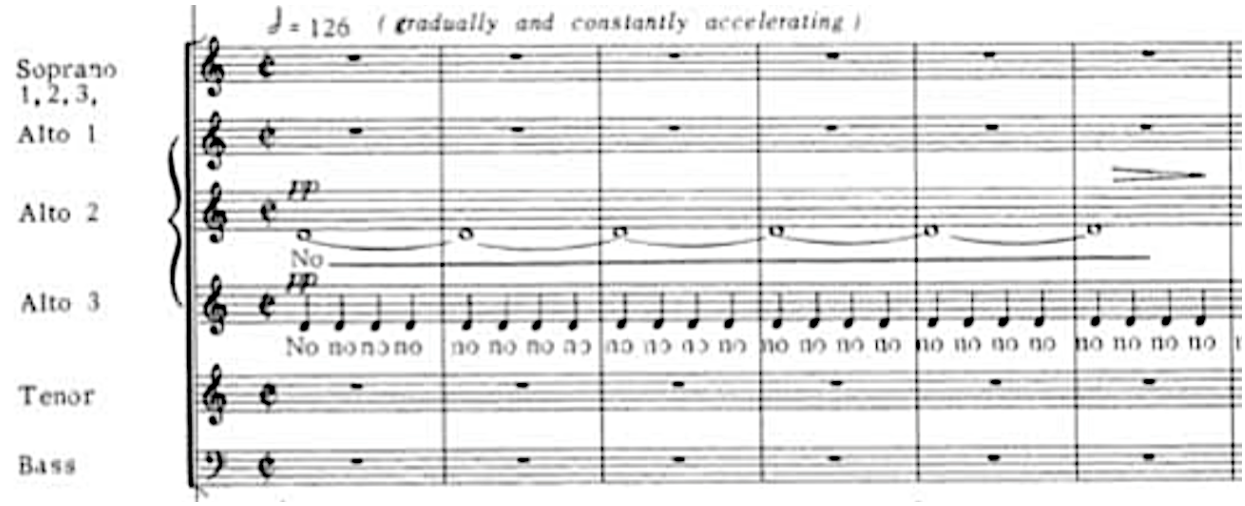
Oscillations first appeared in his earliest works as a way to create rippling, wavelike textures from a static beginning, and to expand the harmony from what was typically just one or two notes. *Phrygian Gates* (1979) begins with a repeated E, which expands into an oscillation with F#.



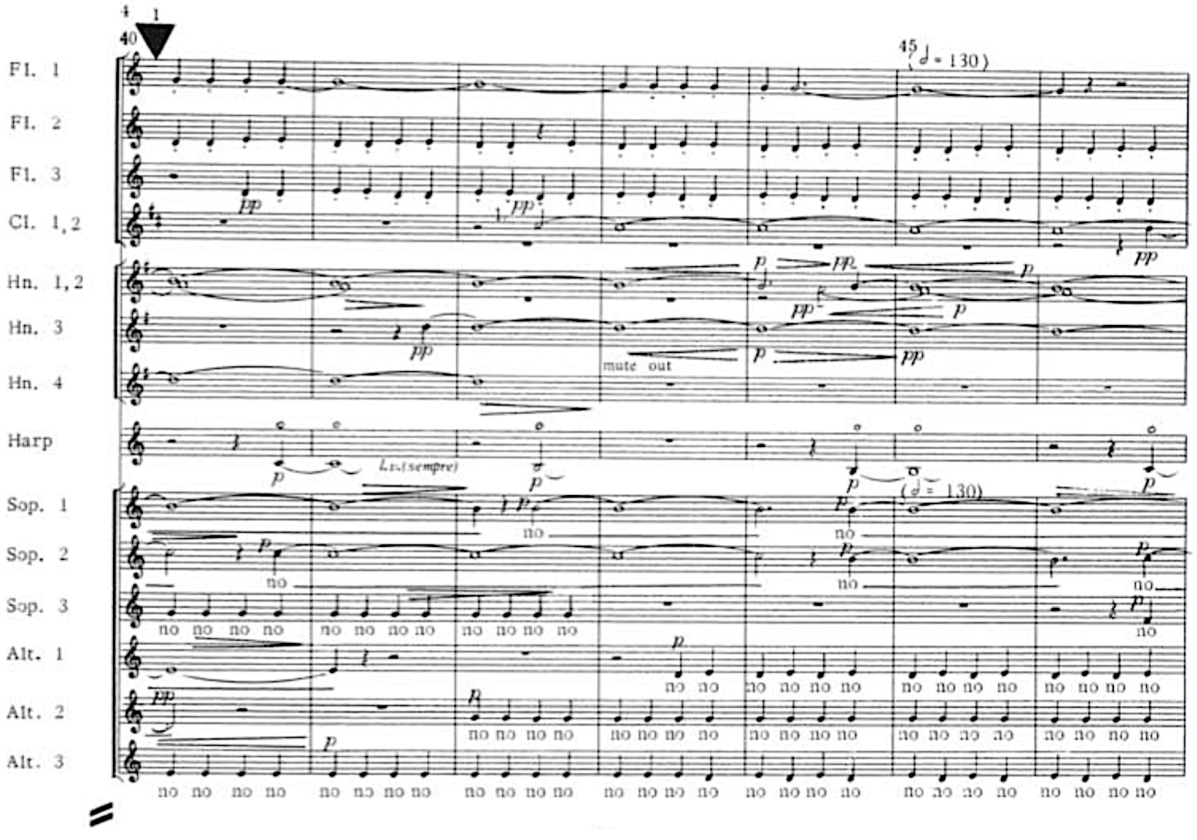
[8] Programme notes to *Violin Concerto.* Retrieved from http://www.earbox.com/violin-concerto/

As the piece continues, this oscillation expands gradually into a wave, encompassing D#, then C#, then G#.

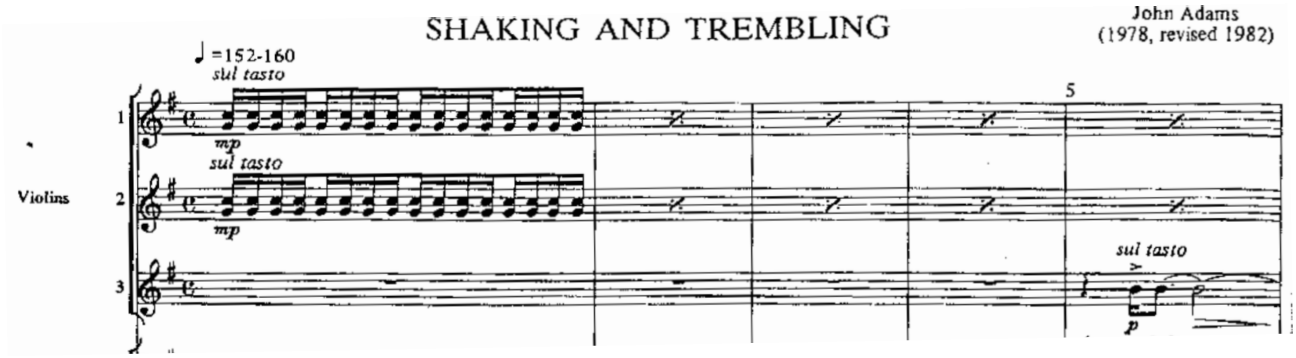
Harmonium begins in a similar fashion, on a single pitch.



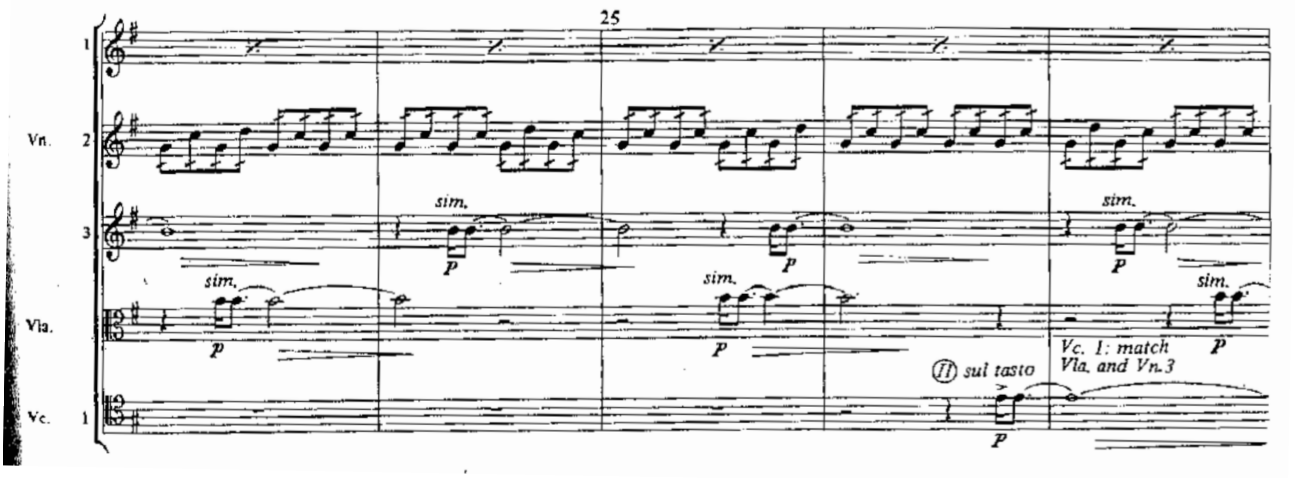
Adams initially expands the diatonic cluster by adding other single notes, but then begins to oscillate at bar 40. Short, textural oscillations appear in the flute and alto lines, while longer, melodic oscillations appear in the clarinet, harp and soprano lines.



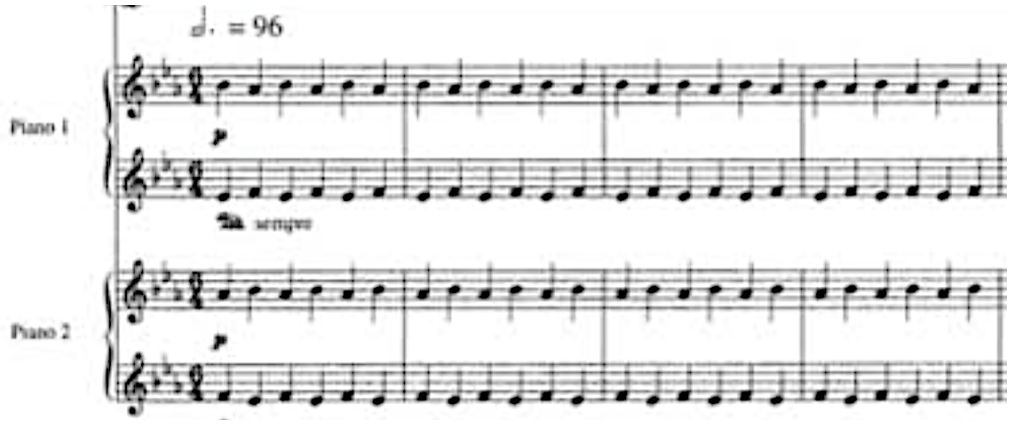
Shaker Loops begins with a two-note tremolo on G and C in the first and second violins, to which the note B is added by the third violins and viola; not an oscillation with the C *per se*, though a very similar effect.



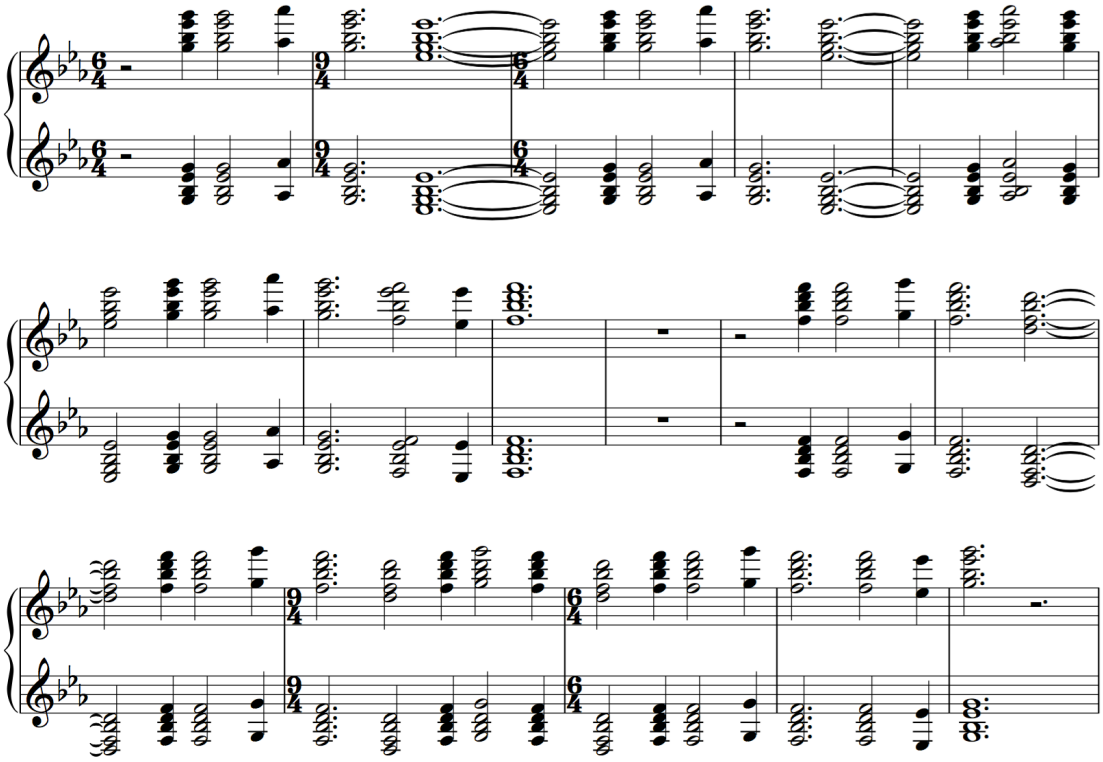
Genuine oscillation begins at bar 23, with a C/D pattern in the second violin:



Returning to the piano repertoire, *Grand Pianola Music* begins with the same process of gradual addition and oscillation *in media res*. Four notes are audible from the start, appearing in the form of twin oscillations on Eb/F and Ab/Bb:

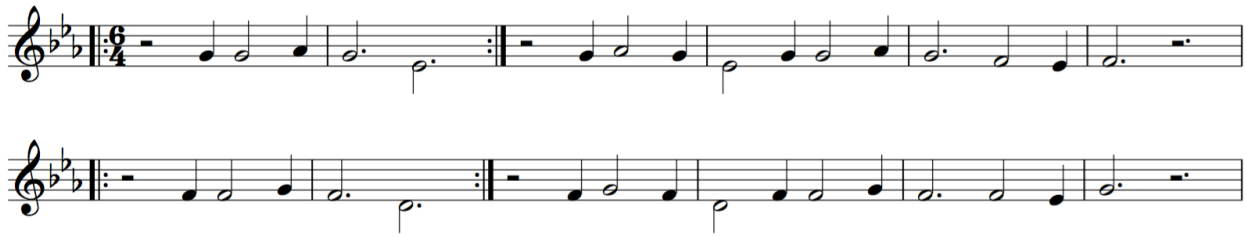


Oscillation is present throughout the texture for most of the work, and when the "big tune" arrives in the finale, it too is built from oscillations:



Grand Pianola Music, 2nd movement, b.104 - 119

Theoretically:

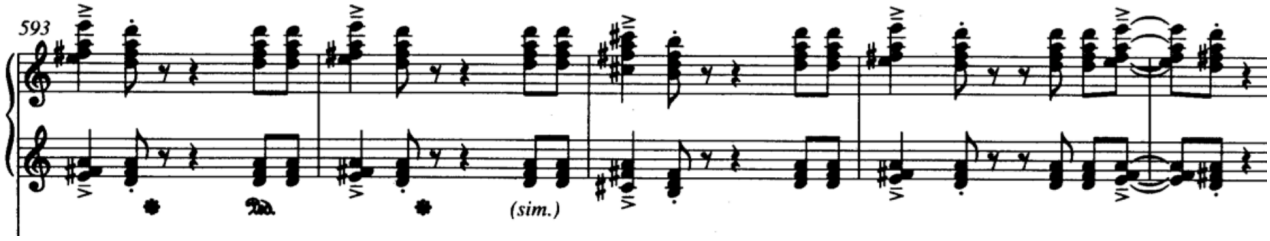


Usage

Oscillating notes are by far the most common melodic device in all of Adams' music. If applied to single notes, as in the openings of his earlier works, they are the beginning of rippling motion which can expand into waves and diatonic clusters. Applied to triadic chords, as in the works from his middle period, they act as a thickening agent, adding fourths, sixths, sevenths and ninths.

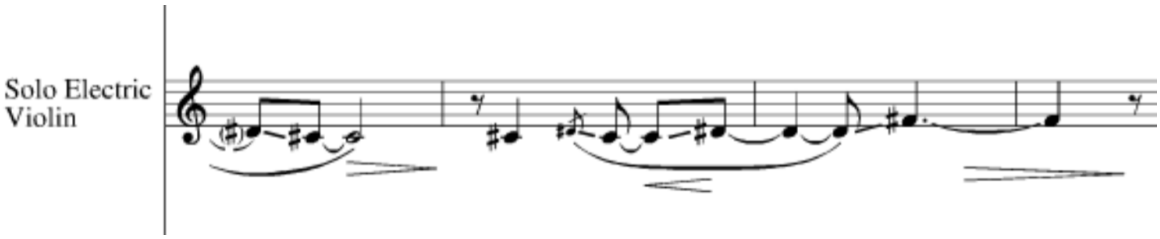
Oscillations can occur between any two notes of the scale:

Between the root and second:



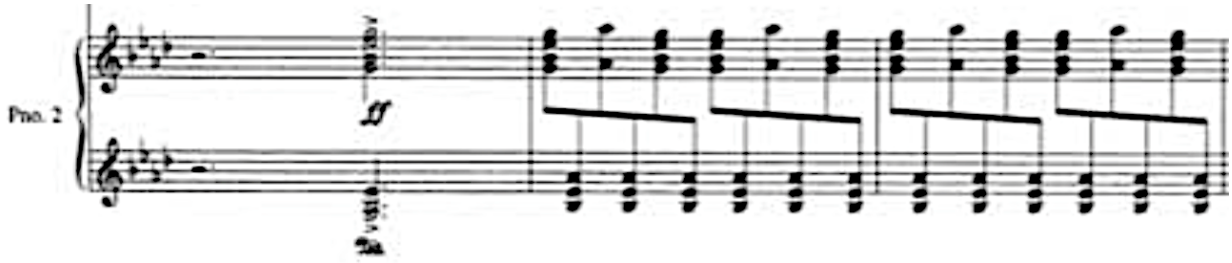
Hallelujah Junction, b.593 - 597 (excluding the third phrase)

Between the second and the third:



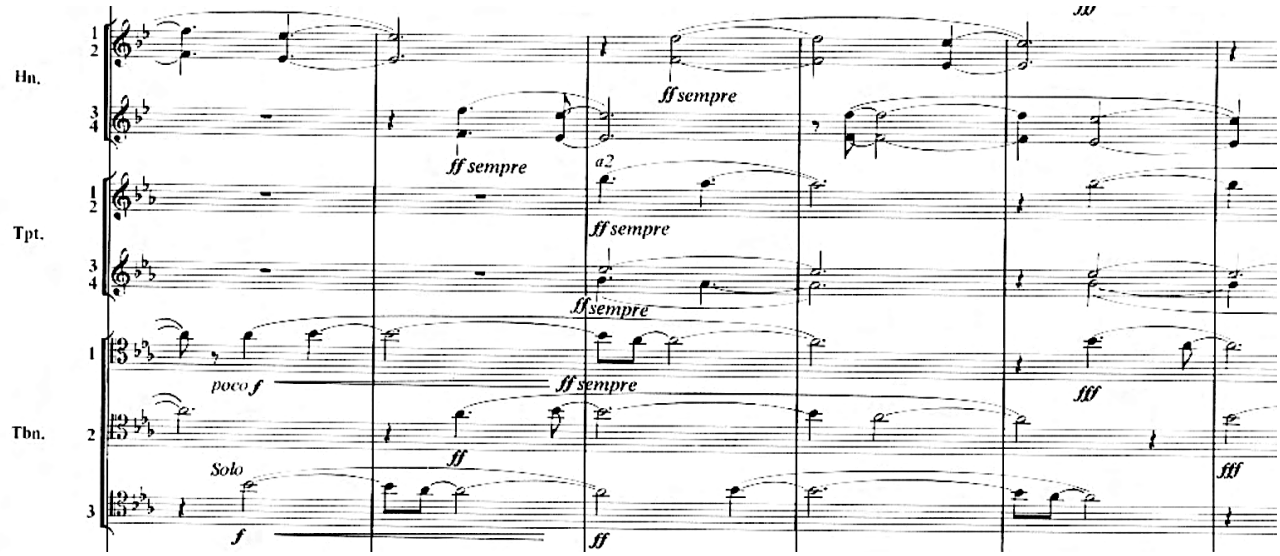
The Dharma at Big Sur (local harmony is B major)

Between the third and the fourth:



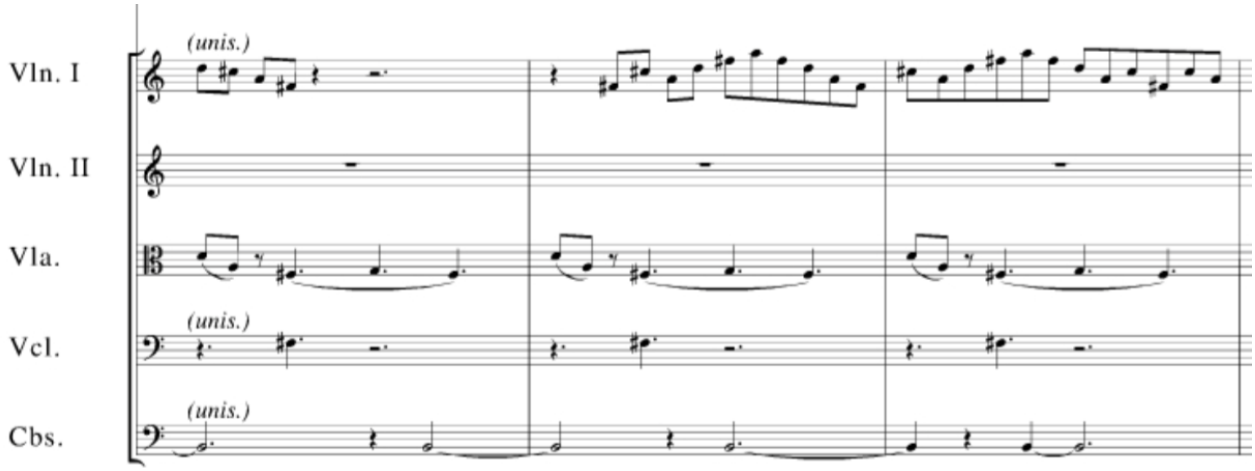
Grand Pianola Music, second movement, b.82-84

Between the fourth and fifth:



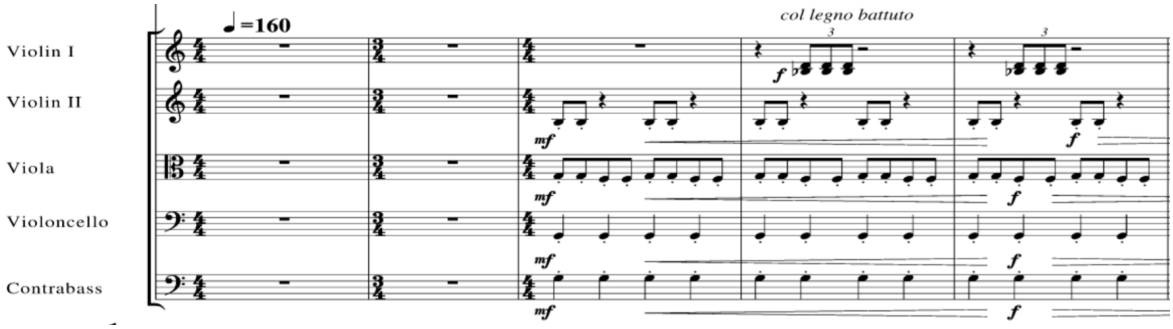
Harmonielehre, third movement, b.376-370, local harmony is E-flat major.

Between the fifth and sixth:



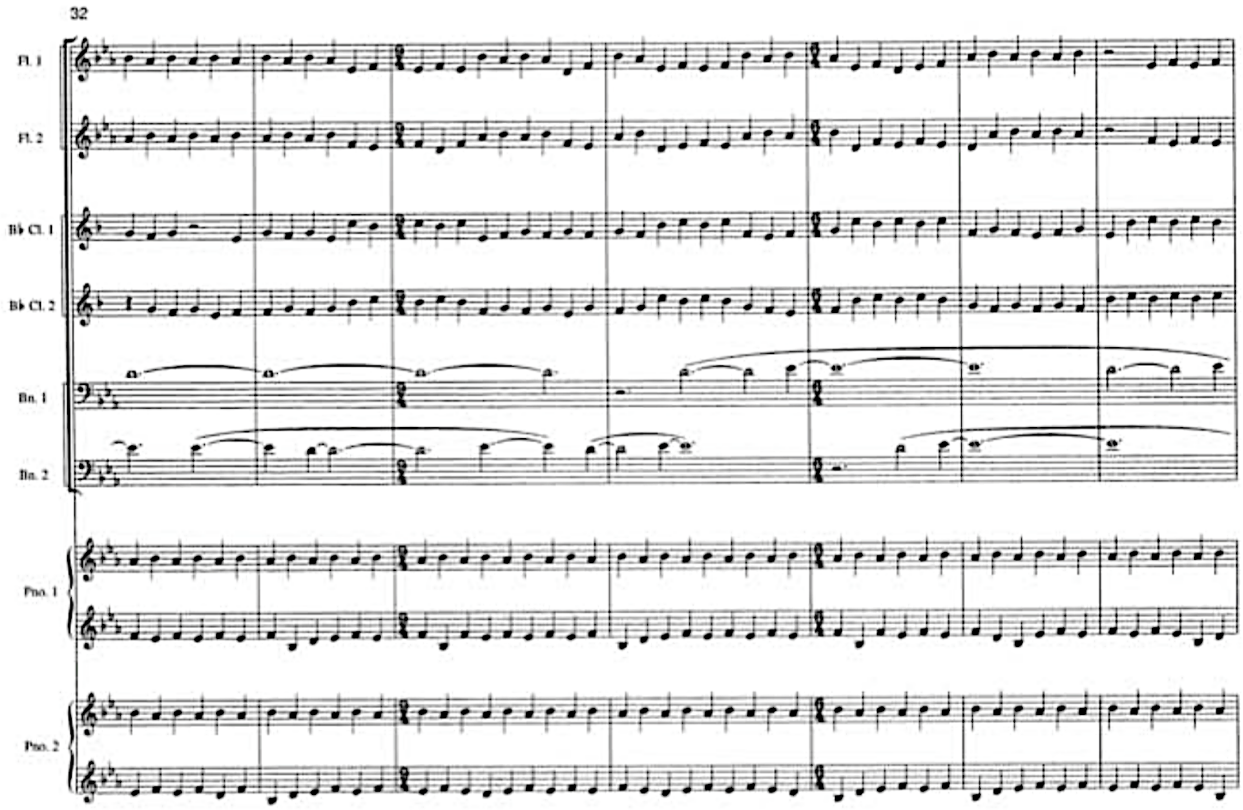
Century Rolls, b.254-256, local harmony is B minor, oscillation in viola

Or between the seventh and the root:



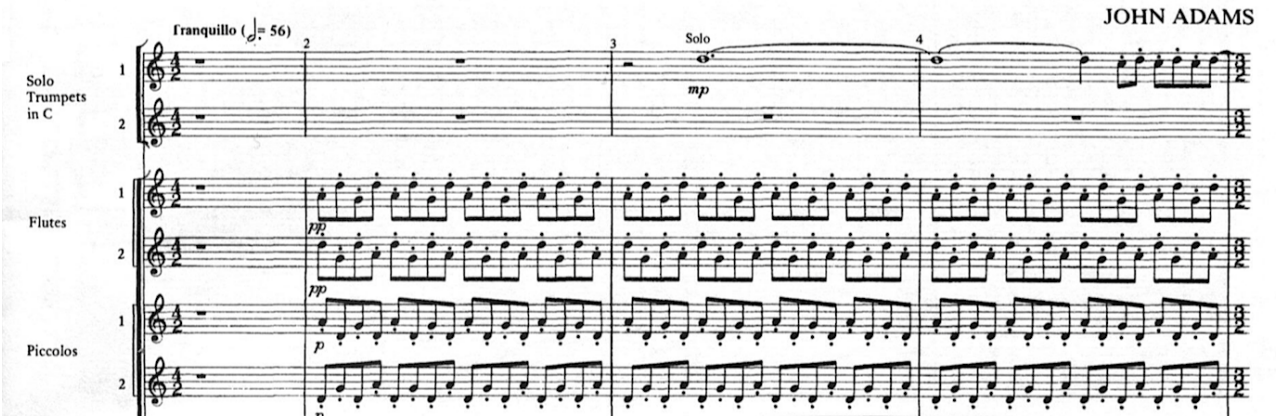
Fearful Symmetries, b.1-5, local harmony is G major/minor, oscillation in viola.

Oscillation can be a melodic feature (indeed, some of Adams' melodies contain little else), or it can be a textural / harmonic feature, adding more movement to the background.



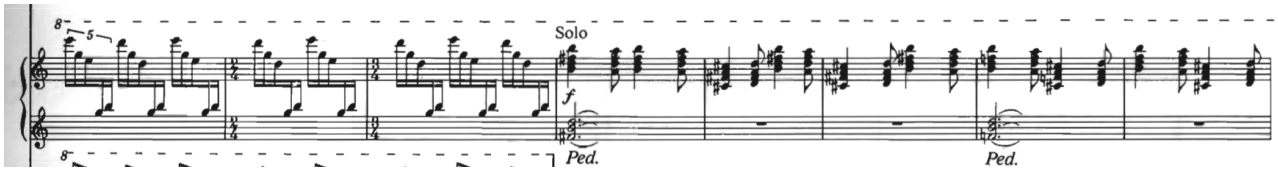
Grand Pianola Music, b.32. Flutes, clarinets and pianos play textural oscillations on Ab/Bb and Eb/F, while bassoons play melodic oscillations on Eb/D.

The same technique, used in *Tromba Lontana*: a solo trumpet plays a melodic oscillation on C/D, while flutes and piccolos (and, not shown, harp and piano) play a textural oscillation on A/G.



The above appearances, where oscillations occur as a simple motion between two adjacent notes, are the most easily seen and heard. Other examples are less obvious, but applying one of Heinrich Schenker's basic principles of analysis will reveal them. In Schenkerian analysis, stepwise movement in any single line is said to 'erase' any trace of the preceding note. A leap away, on the other hand, allows the 'memory' of the note to linger in the mind. Over the course of several bars, this creates the impression of multiple voices operating at once within a single line. It is a well-known principle, used to great effect by J.S. Bach to create the illusion of counterpoint within a single line of music.

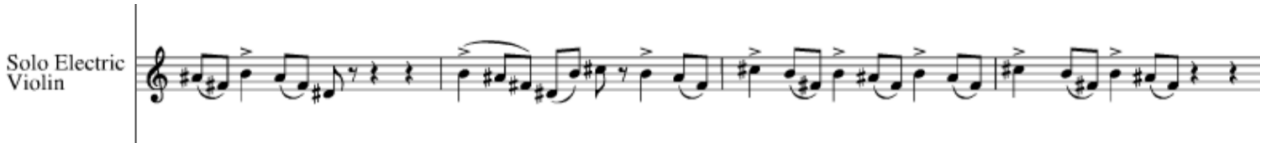
One example of this is found *The Chairman Dances*, a study written prior to the composition of *Nixon in China*.



The Chairman Dances, b.398-405

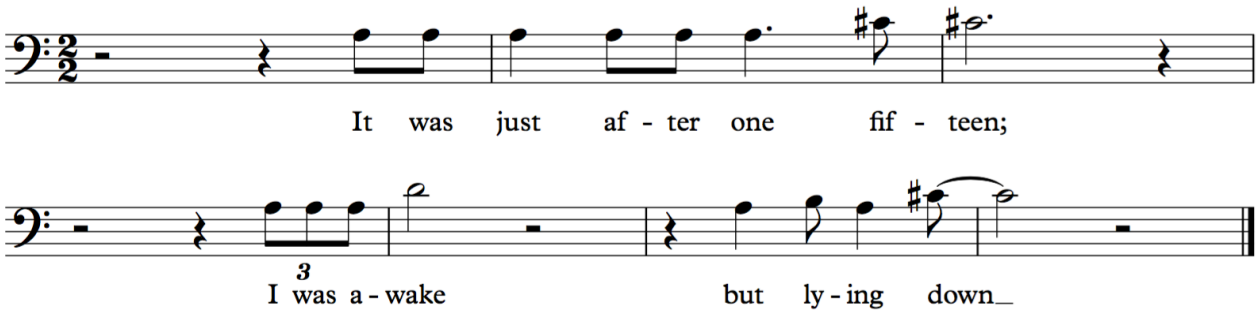
From b.401, marked ‘Solo’, what could be read as a more wide-ranging melody is in fact a double oscillation; an upper B/A and a lower D/C#.

Oscillations can occur at a slower pace, at a background level in Schenkerian terms, for example in *The Dharma at Big Sur*, where the solo electric violin’s descending phrases begin alternately on B or C#. The composer’s accents highlight the background level oscillation.



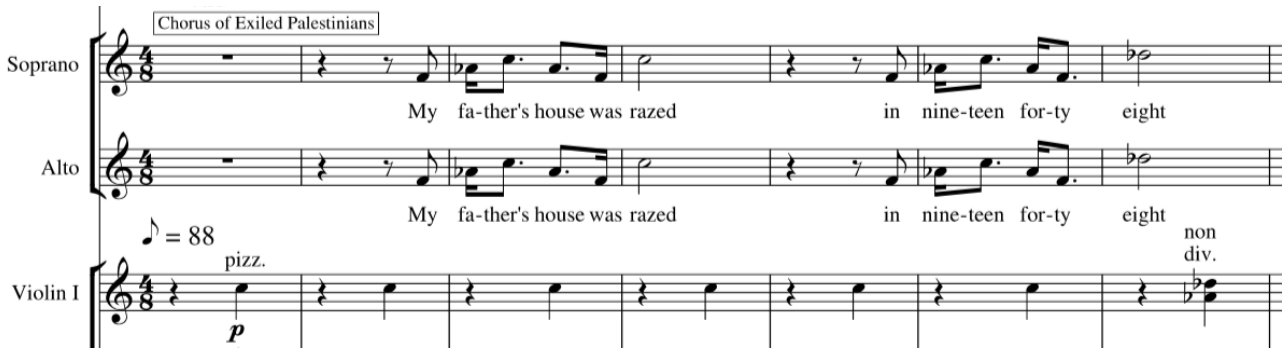
The Dharma at Big Sur, b.284-287

A similar example, though not as easily seen because the oscillation is not repeated or accented, is found in the opening scene from *The Death of Klinghoffer.* The Captain begins his monologue with an oscillation hidden between C# and D.



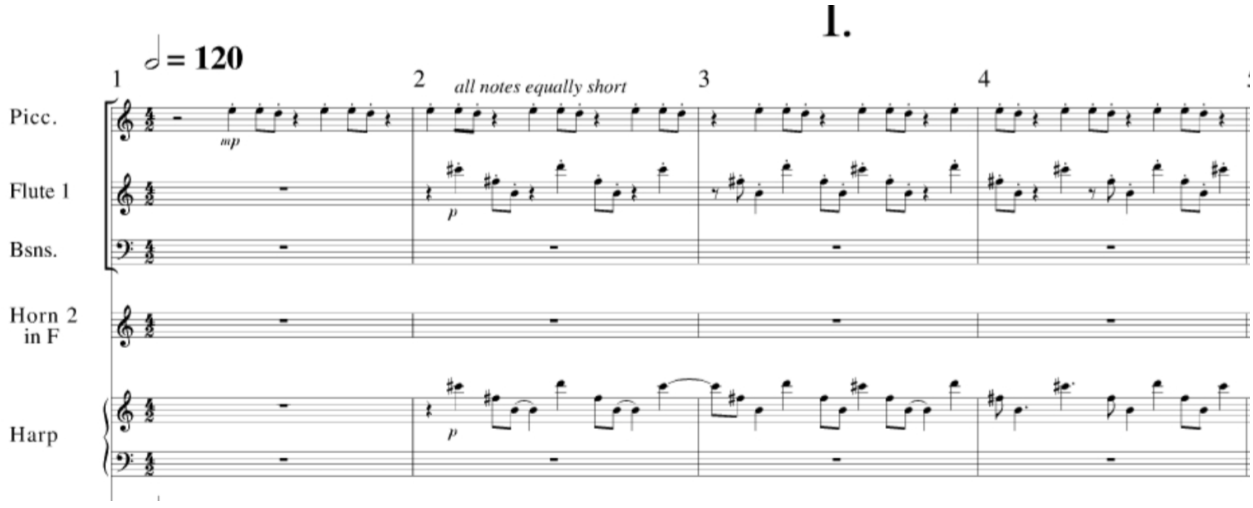
The Death of Klinghoffer, Act 1 Scene 1, b.2 - 8

Similarly obscured through lack of repetition, the opening Chorus of Exiled Palestinians sings a hidden oscillation between C and Db, shadowed by the first violins.

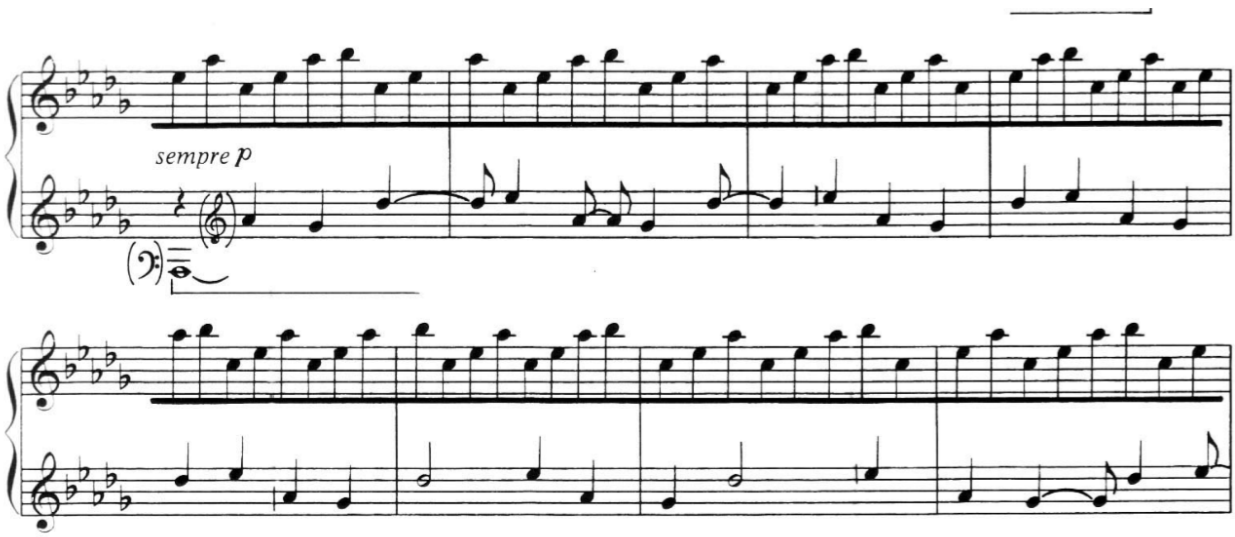


The Death of Klinghoffer, prologue, b.1-7

Such background and foreground oscillations are often found side-by-side in the same textures, as in this excerpt from the piano concerto *Century Rolls*, which contains two: one foreground oscillation between E and D in the piccolo, and one background oscillation between C# and D in the flute and harp.



Similarly, this excerpt from *China Gates* contains three oscillations:

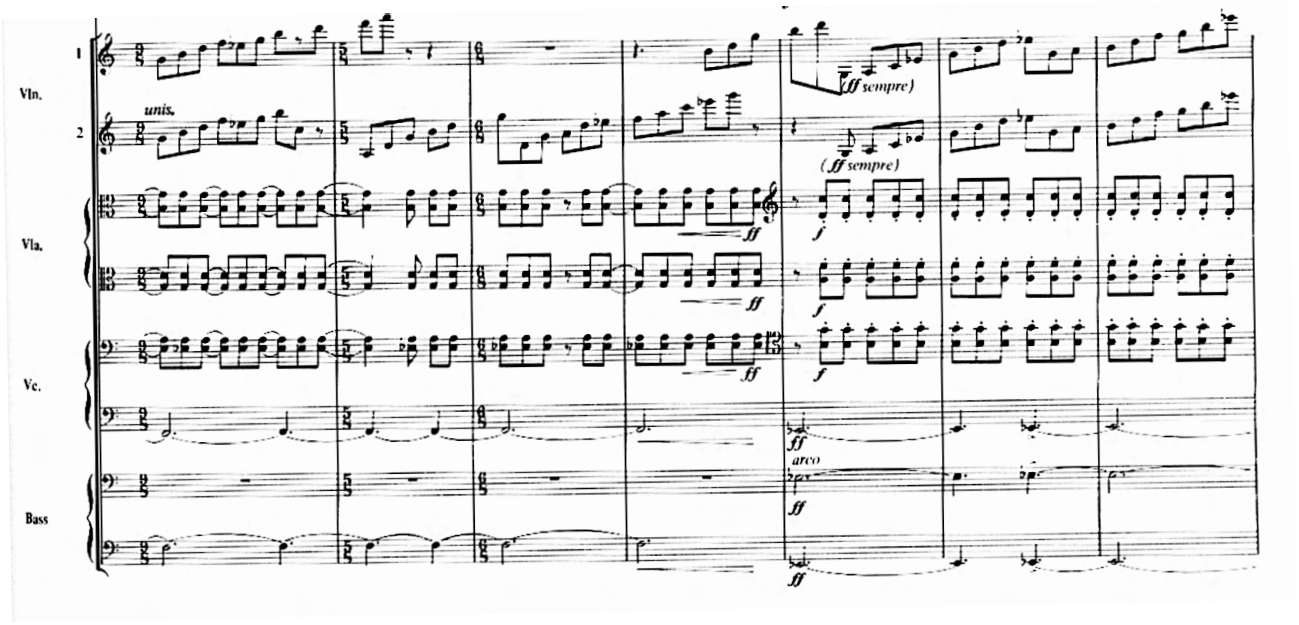


China Gates, b.30-38

Two are contained in the left hand part, Ab/Gb and Db/Eb, like a outline version of the theme from *The Chairman Dances*. The third is the Ab/Bb played at a background level between the uppermost notes of the right hand.

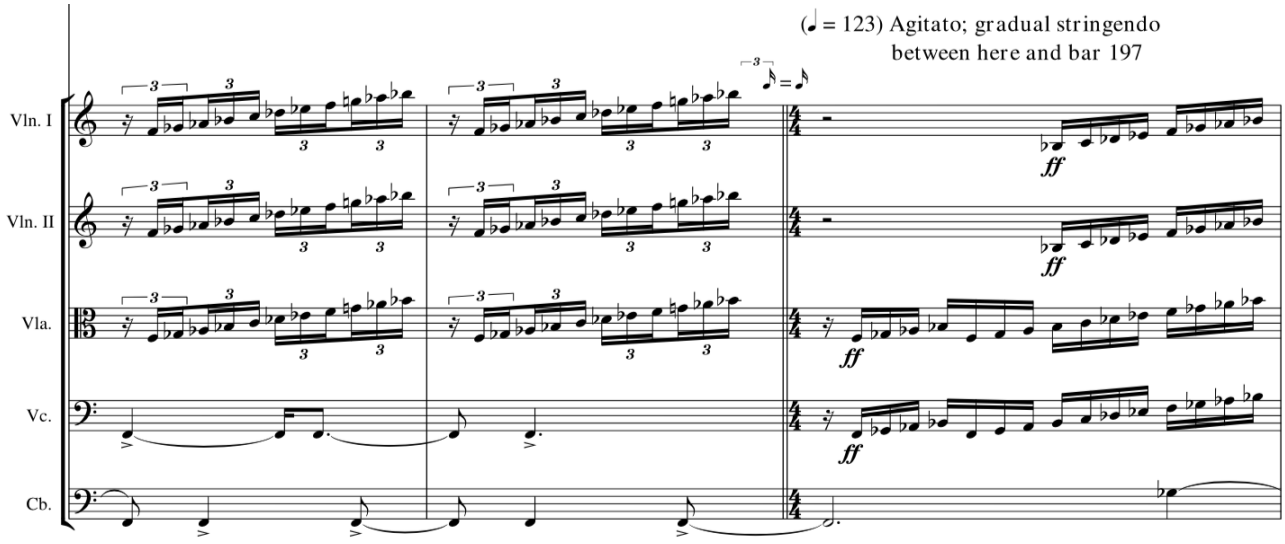
Variation: Compound Bass Oscillation

A motif related to oscillation is sometimes found in the bass register during moments of greatest urgency and drama, where the oscillating notes are compounded by an octave leap; oscillation occurs over the interval of a ninth rather than a second. This appears for example in climactic moments of *Harmonielehre*, doubling the cellos who play the oscillation without the compound leap.



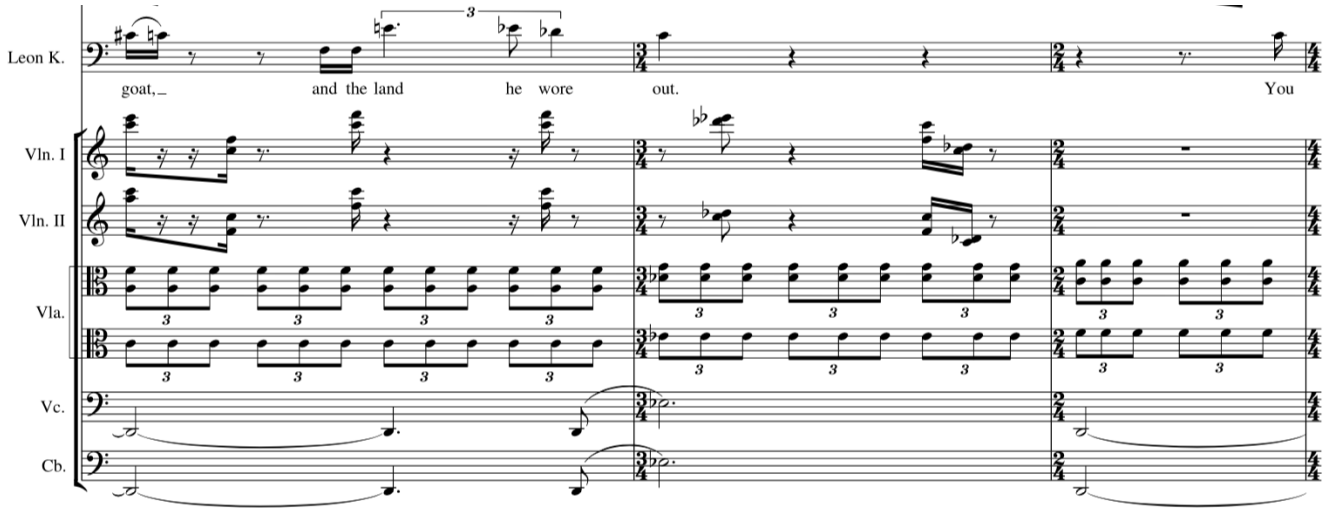
Harmonielehre, first movement, b.530-536

It is found here in the prologue to *The Death of Klinghoffer*, just before the Chorus of Exiled Palestinians sings its final line "let the supplanter look upon his work. Our faith will take the stones he broke, and break his teeth."



The Death of Klinghoffer, prologue, b.184 - 186

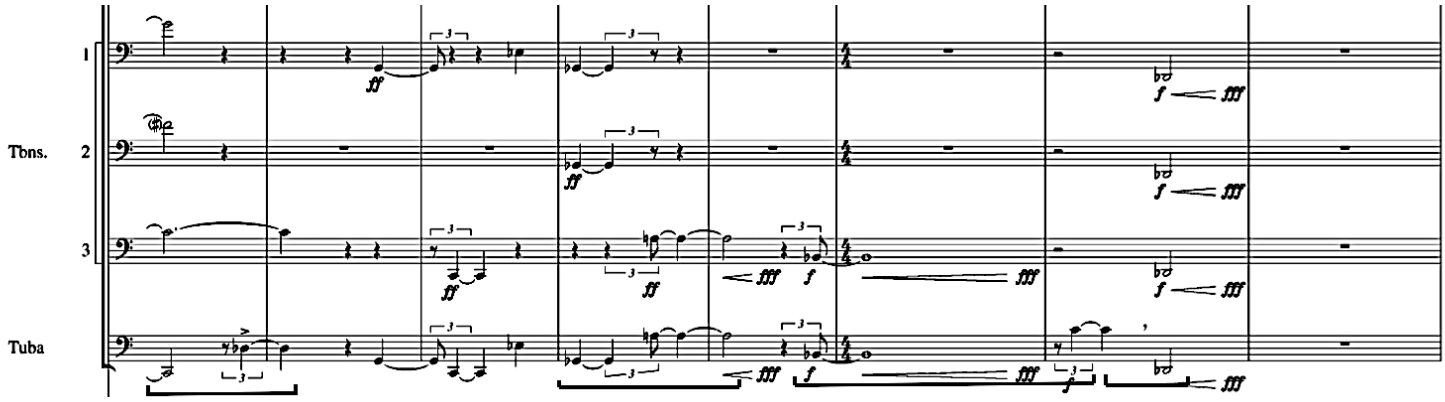
It also appears when Leon Klinghoffer angrily denounces the terrorists, saying “you don’t give a shit - excuse me - about your grandfather’s hut, his sheep and his goat, and the land he wore out. You just want to see people die”



The Death of Klinghoffer, Act 2, Scene 1A, b.225 - 227

It also appears in *Doctor Atomic* (2005), although by this late stage in his career the analysis becomes more conjectural. Adams’ later works have drifted further from his minimalist roots, and as his use of the ur-motifs grows ever more fractured and rapidly mutating, they become more difficult to positively identify. This principle applies broadly to the usage of all ur-motifs in Adams’ more recent works.

Here, the tuba plays rising and falling leaps, emphasising ninth relationships, during an intensely dramatic passage, but the motif has detached itself from its origins as an oscillation.

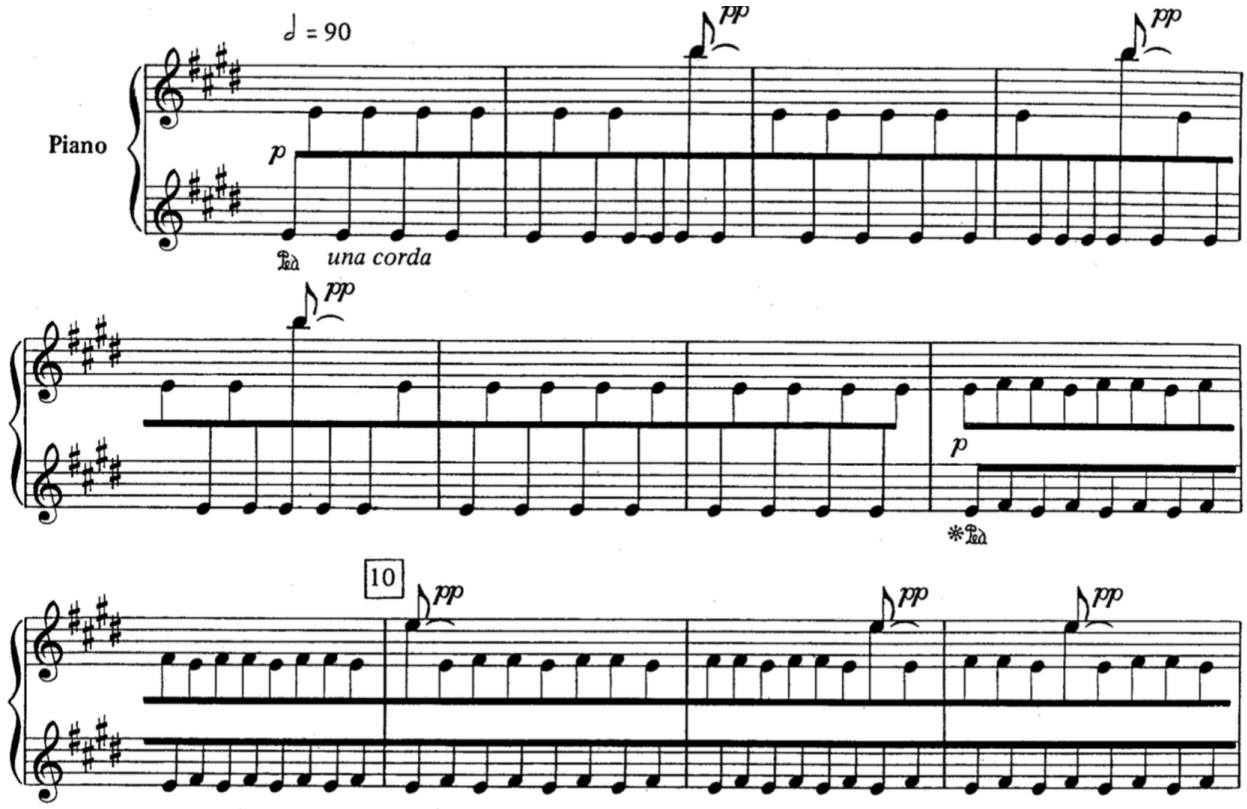


Doctor Atomic, overture, b.18 - 26

3. Pings

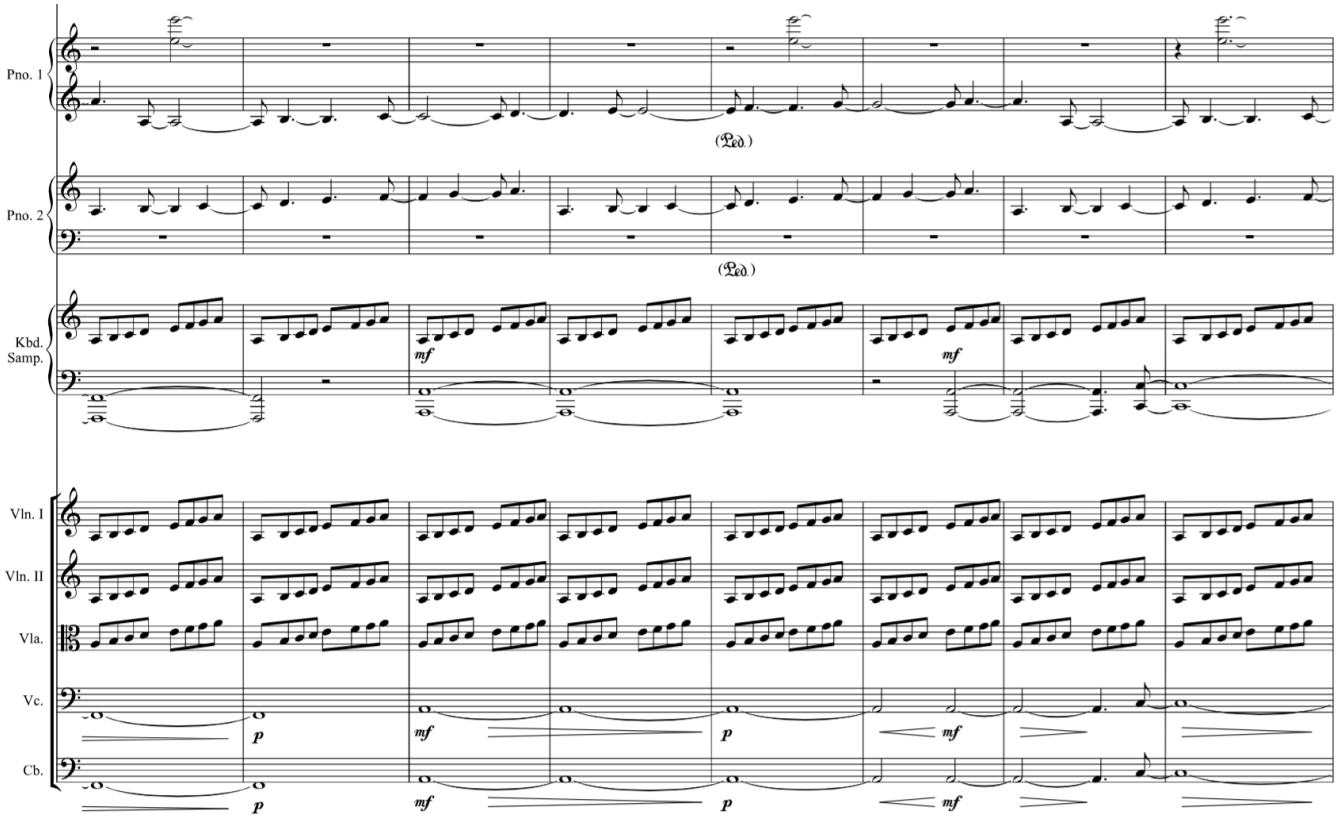
A *ping* is a textural and sometimes melodic motif, consisting of a single note, or chord, significantly higher in pitch than the surrounding texture. Adams used these extensively in his works from 1979 - 1987. In his works since 1987, he is less likely to use single notes or chords in exactly this manner, but he retains an urge to puncture mid-range textures with higher pitches.

Adams refers to *marks* in the performing instructions to *Phrygian Gates*, "double-stemmed notes which indicate structural points", and cautions the player that they "should not necessarily be played louder than their context, except where indicated." During the opening pages of Phrygian Gates, these marks are high notes, corresponding with my definition of *pings*. However, the use of marks throughout *Phrygian Gates* is not confined to higher notes, whereas isolated high notes *are* common textural devices in his other works from this period.



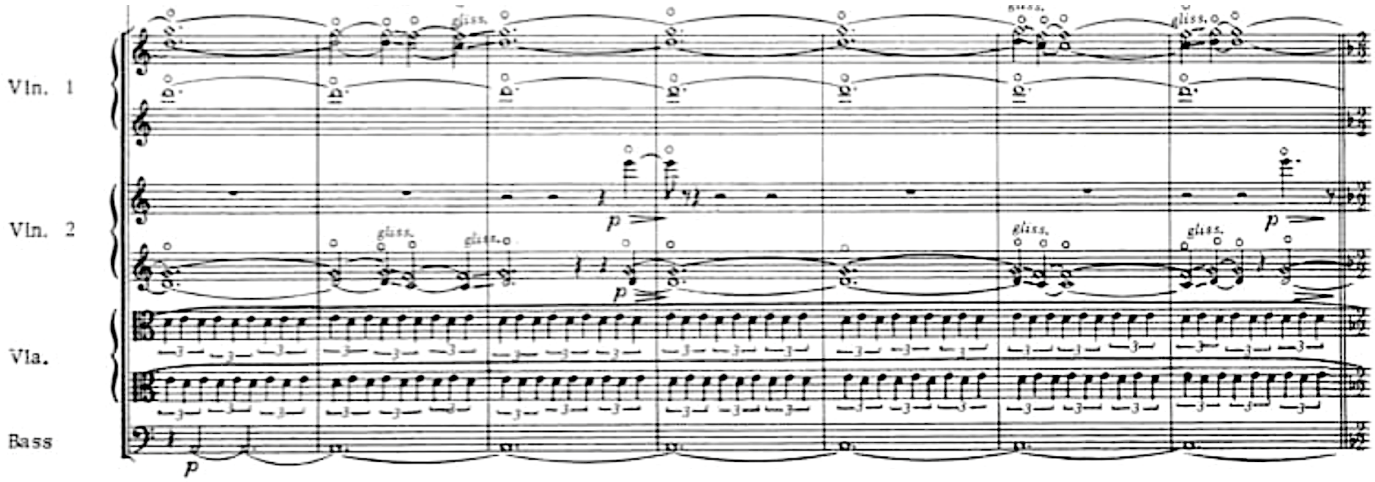
Phrygian Gates, b.1-12.

In the overture to *Nixon in China*, Piano 1 provides high E pings above the rising scales:



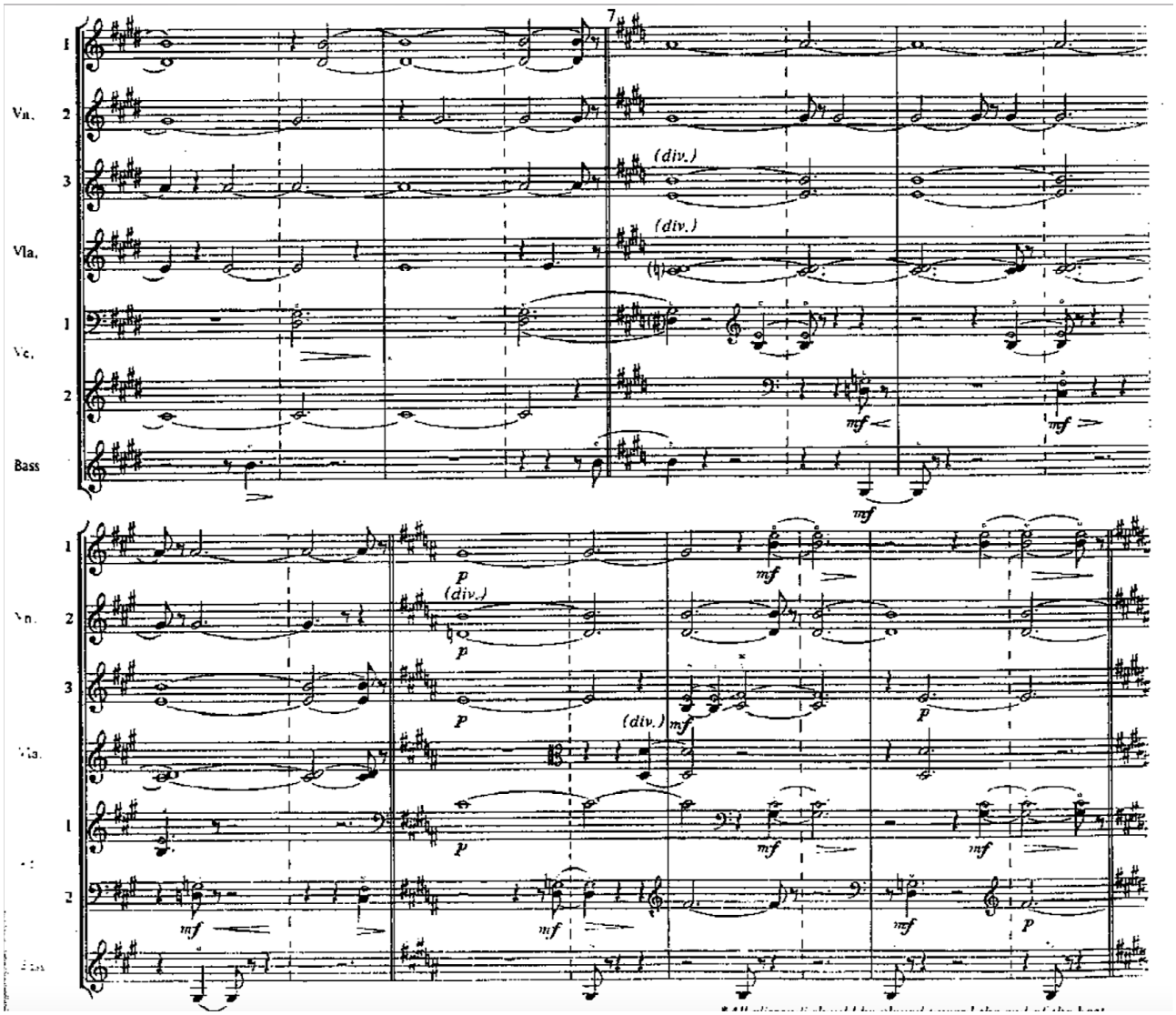
Nixon in China, Act 1, Scene 1, b.13 - 20

If no piano is available in the orchestra, Adams often substitutes string harmonics. In this excerpt from the first movement of *Harmonium*, the upper second violins play pings on a high harmonic E, while upper first violins and lower second violins play slow melodic oscillations, and violas play rapid textural oscillations:



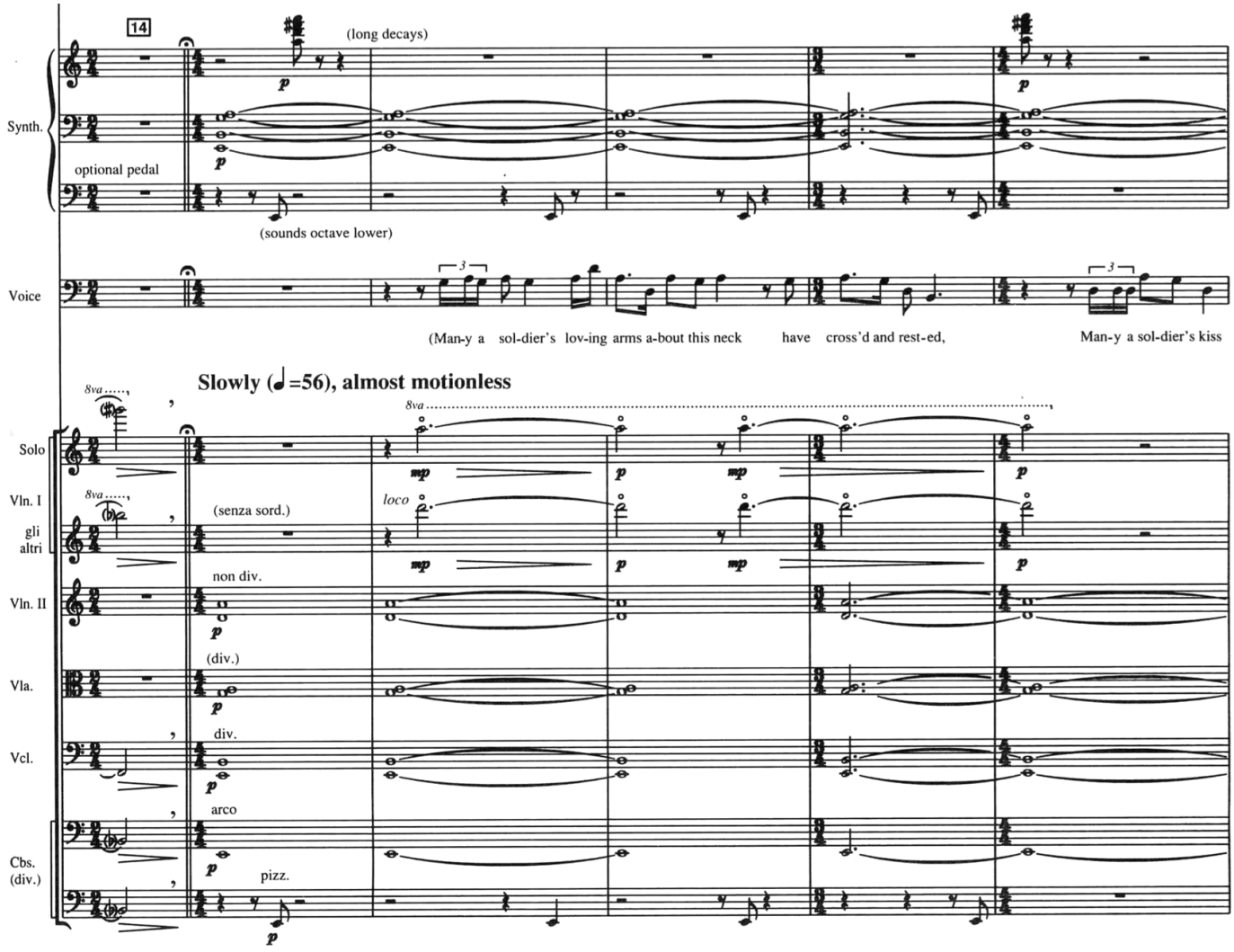
Harmonium, first movement, b.163 - 169

In *Shaker Loops*, numerous high harmonics from violins, violas and cellos puncture the mid-range texture.



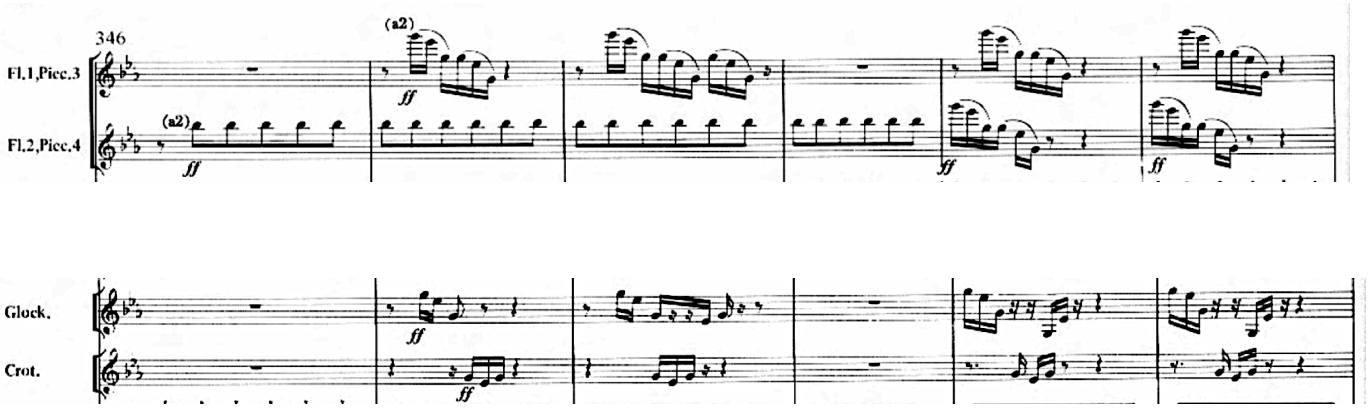
Shaker Loops, 2nd movement, “Hymning Slews”, b. 5 - 12

In this excerpt from *The Wound Dresser*, pings are played by both synthesiser and violin harmonics:



At other times, Adams uses high woodwind instruments to puncture the texture, although in these cases, because of how floridly he orchestrates for winds, the ping is more likely to be a short phrase rather than a single note.

In this example from *Harmonielehre*, piccolos and flutes play ping-phrases, doubled by glockenspiel and crotales:

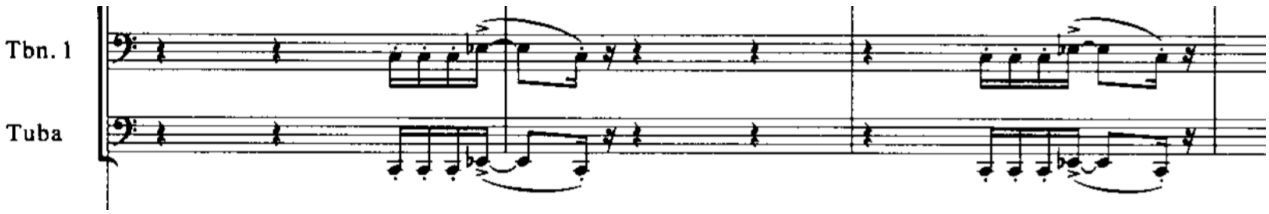


Harmonielehre, 1st movement, b.346 - 341

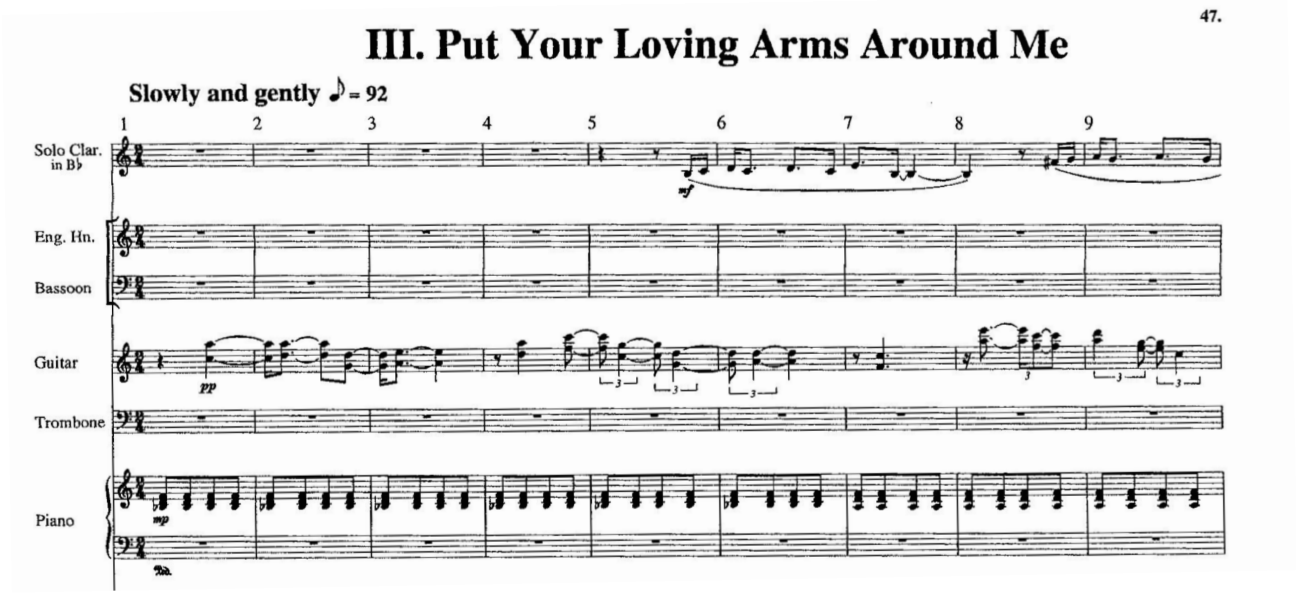
4. Speech imitation

The influences of the spoken word are more a sub-category of motifs than a single one, although some can be dealt with briefly here because they are not found among the piano works.

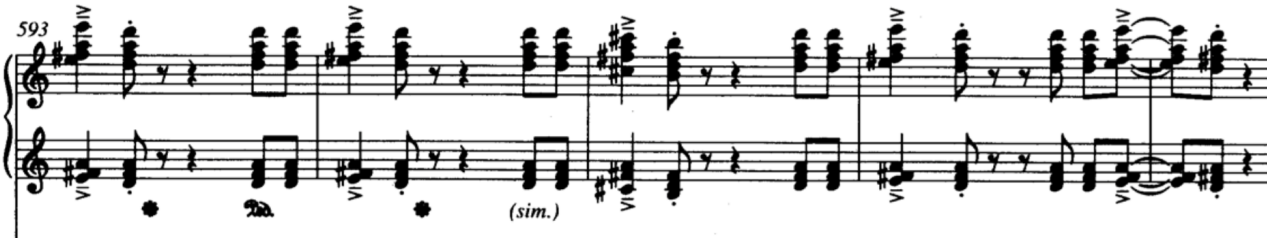
One of the more obvious of these is Adams' tendency to write themes which match the syllabic rhythm of the work's title. Examples of this include *Lollapalooza*, for orchestra, where the brass theme imitates the sound of the word "Lollapalooza":



In the third movement from the clarinet concerto, *Gnarly Buttons*, the solo clarinet plays a melody to fit the words "put your loving arms around me".



Direct speech imitation appears only once in the piano works, in *Hallelujah Junction.*



(*Hal-le - lu - jah)*

Another obvious influence is in his writing for voice, where he writes rhythms which very closely match the sound of natural speech. This is because Adams composes vocal lines by repeatedly speaking the text aloud until he hits upon a melody:

> When I set a text I speak it out loud line by line, repeating it over and over until I have found its most effortless expression. Then I search for the most precise musical notation to reproduce those rhythms and the contours, the ups and downs of its inflections.[9]

The many recurring rhythmic motifs which result from this method lie outside the scope of this analysis. However, one melodic aspect of speech imitation is found throughout his work, including the piano writing.

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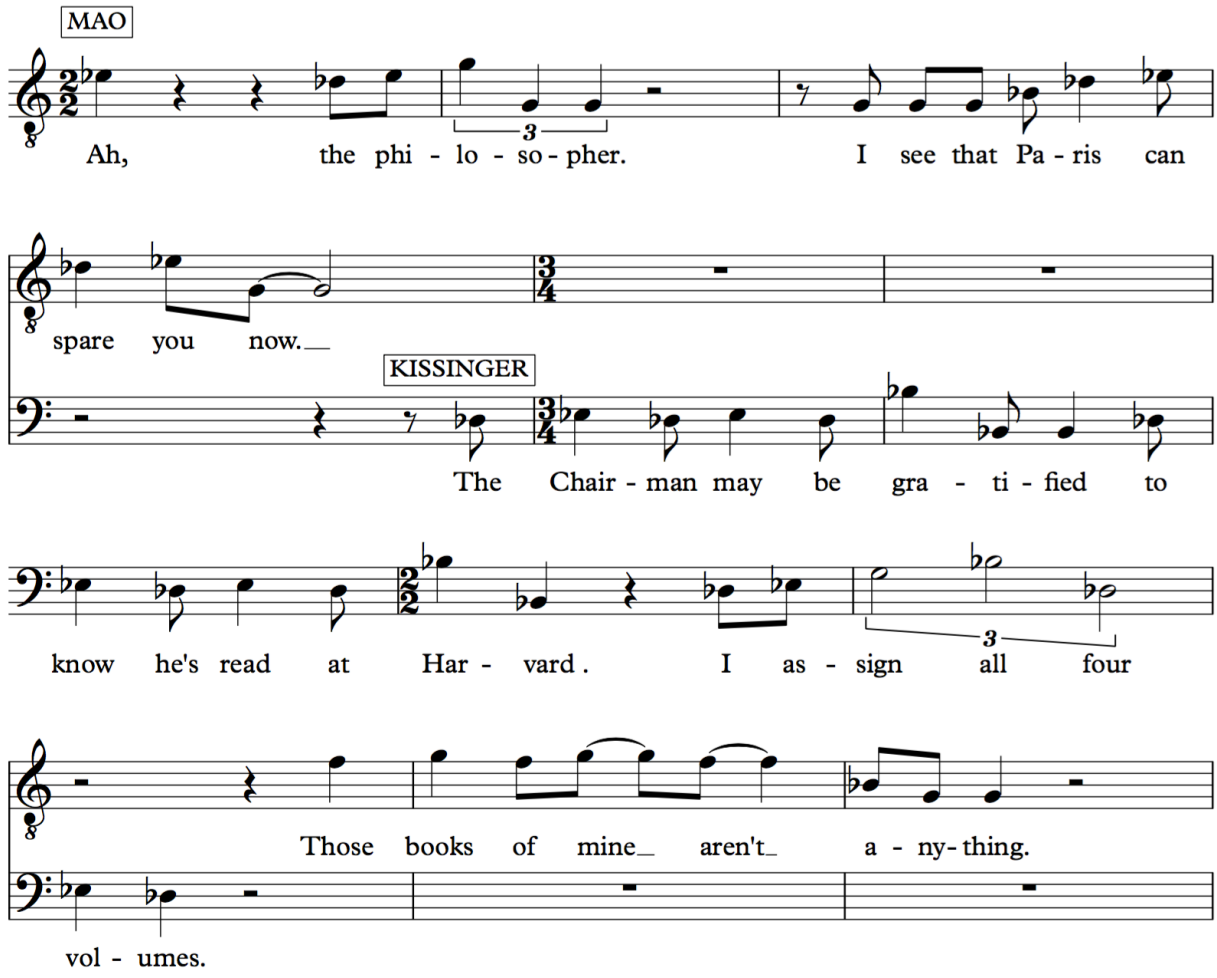
[9] Adams, John: *Hallelujah Junction: Composing an American Life*, London, Faber and Faber, 2008, pg. 223

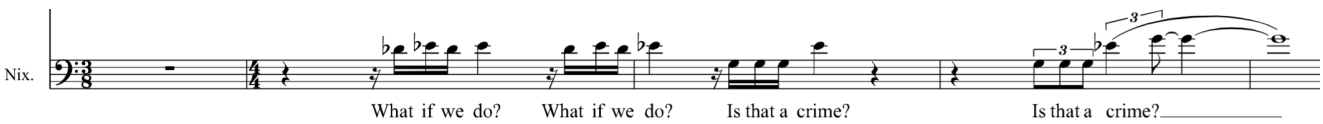
The Falling Terminal

In the field of linguistics, a falling terminal is the tendency of speakers to drop the pitch of their voices at the end of a declarative sentence. A rising terminal, by comparison, indicates a question. Adams very frequently mirrors this in his vocal writing, ending phrases with a downward leap:



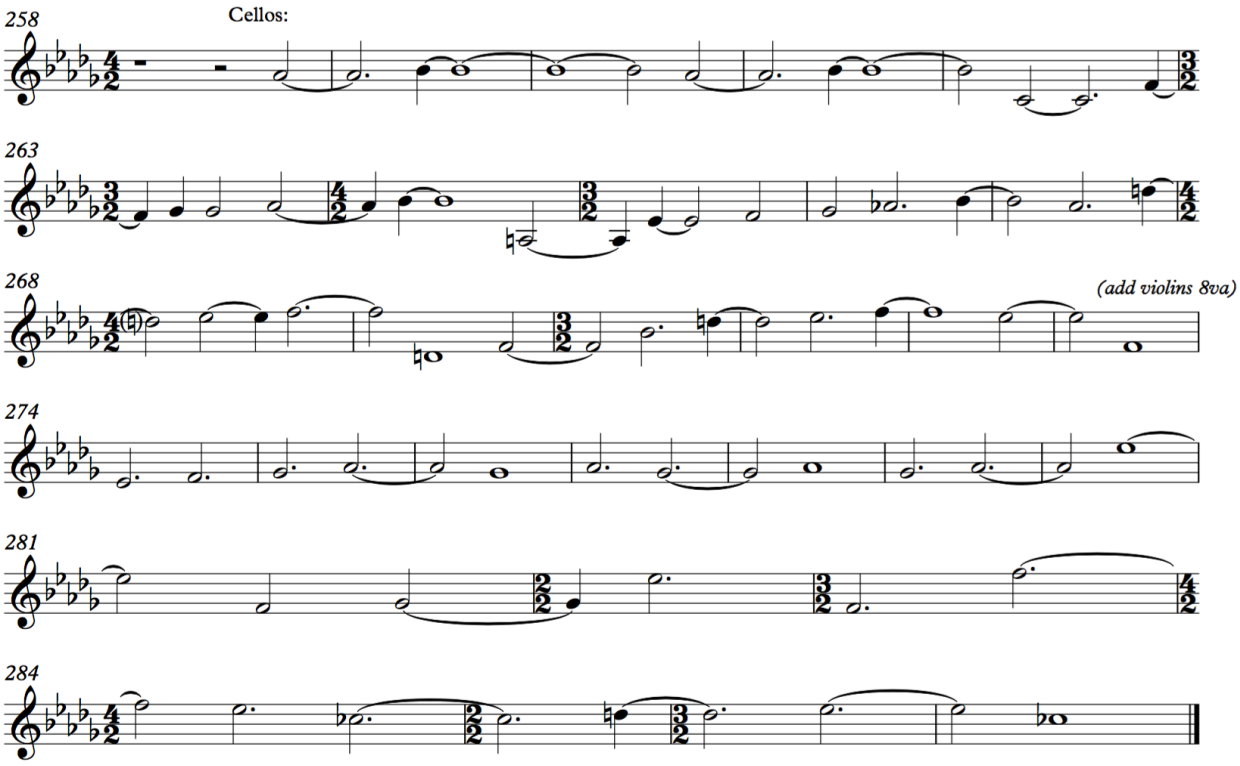
Nixon in China, Act 1, Scene 2, b.83-94

If the character is asking a question or is feeling agitated, the vocal line rises at the end, again mirroring natural speech patterns:



Nixon in China, Act 1, Scene 2, b.255-265

This pattern carries over into Adams' instrumental melodic writing. *Harmonielehre* contains one of Adams' first extended melodic passages:



Harmonielehre, first movement, b.258-287.

This melody begins with a single "statement", an **oscillation** on Ab/Bb concluding with a falling terminal. The statement is repeated and expanded by a process of mutation, so that the oscillation expands into a rising scale and the falling leap at the end grows larger each time.

Grand Pianola Music features, in its second movement, a melody which is heavily emphasised as a "big tune".

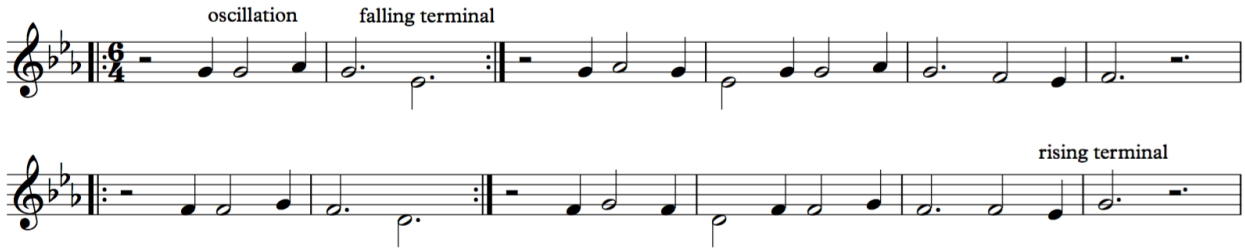
> "On the Dominant Divide" was an experiment in applying my minimalist techniques to the barest of all possible chord progressions, I-V-I. I had noticed that most "classical" minimalist pieces always progressed by motion of thirds in the bass and

> in all cases strictly avoided tonic-dominant relations, which are too fraught with a pressing need for resolution. What resulted was a swaying, rocking oscillation of phrases that gave birth to a melody. This tune, in the hero key of Eb major, is repeated a number of times, and with each iteration it gains in gaudiness and Lisztian panache until it finally goes over the top to emerge in the gurgling C major of the lowest registers of the pianos.[10]

The melody repeats continuously, five-and-a-half repetitions in total, over 71 bars of music. Adams takes evident pride in his creation:

> …What follows is a melody that sounds utterly familiar, like an "Ur-melodie." You think you've heard it before but can't quite recall when or where. In fact it is an original tune.[11]

This melody, a series of oscillations, is built as three falling "statement" phrases and one rising "question" phrase in the tonic key, followed by three more statements and one question in the dominant key. Concluding each key section with a questioning gesture allows the melody to continue cycling through tonic and dominant, without sounding as though it has reached a conclusion.



[10] Adams, John, *Grand Pianola Music*, New York: AMP / Hal Leonard, 1982, preface to the score

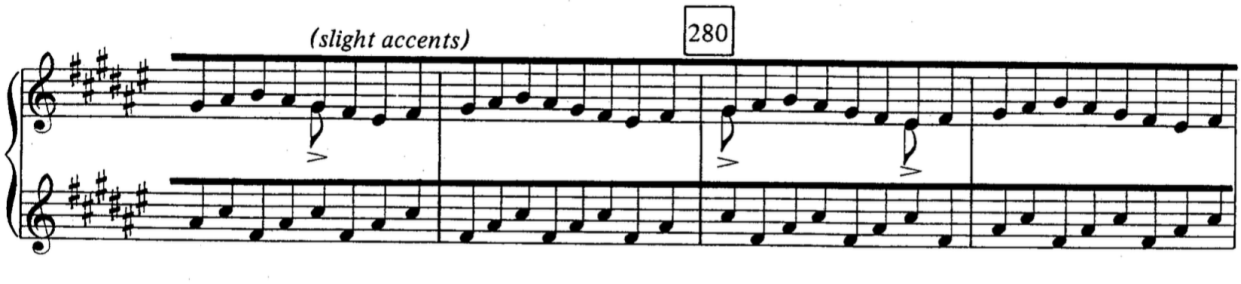
[11] Adams, John, *Hallelujah Junction: Composing an American Life*, p.117

Harmonic Ur-motifs

5. Diatonic Clusters

Diatonic clusters, also described by some theorists as *white-note* tonality, are self-explanatory. Since his earliest pieces, Adams has tended to thicken his harmony until it contains every note, or all but one, of the scale. Diatonic clusters, like all of Adams' harmonic ur-motifs, allow the composer to exploit the resonant power of consonance, combined with the pathos and expressiveness of dissonance, but freed from the baggage of expectations engendered by the rules of tonal harmony.

In his works from 1978 - 1982, Adams would begin with a single repeated note (*Phrygian Gates*, *Harmonium, Common Tones in Simple Time*) or two notes (*Grand Pianola Music, Shaker Loops*), which would expand outwards to adjacent notes, creating clusters in its wake, until the scale was complete.



Phrygian Gates, b.278 - 281

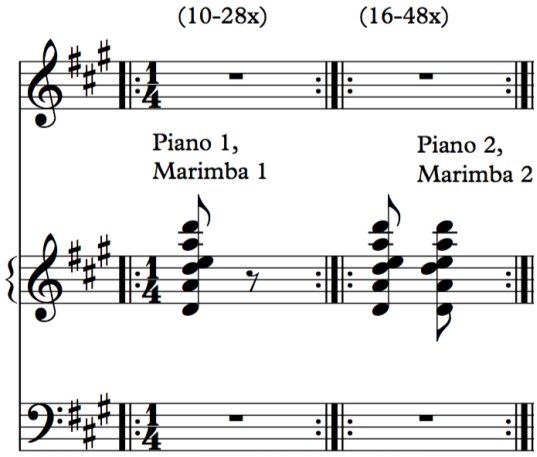
In works from the mid 1980s, his harmonies were primarily formed from triads with added oscillations. Though the construction is different, the effect is the same; when oscillations are added to triadic chords, diatonically clustered harmony results.

In works from the late 1980s and later, when he began making use of quintal harmonies, as we shall see in *Eros Piano*, diatonic clusters can still be constructed by combining fifths from closely related keys.

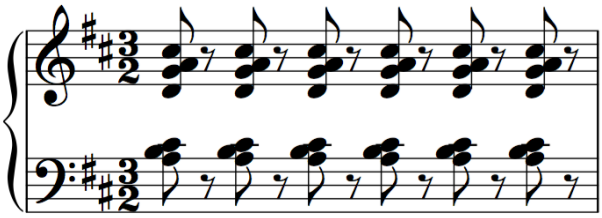
Minimalism is characterised by consonance, or at least by its relative consonance, compared to the serialist and modernist movements which it was a reaction against. But minimalism is also characterised by its very slow rate of harmonic movement, and static consonance would very quickly grow tedious. Listeners require tension and resolution to sustain their interest, which traditional tonal harmony supplies in the form of dissonance resolving into consonance. Diatonic clusters enliven a static harmony in a comparable way, by combing consonance and dissonance into a single chord.

Therefore, it goes without saying that diatonic clusters are not unique to Adams. Steve Reich, in particular, uses them exclusively. Nevertheless, a Reichian diatonic cluster chord is aurally distinguishable from an Adamsian one. How can this be?

There are three strands of difference between Adams and Reich in the use of cluster chords. First, Reich's chords are often characterised by their tonal ambiguity. Reich will frequently omit the 3rd of the chord while adding other scale-tones, as in the following examples, which are rooted on D.

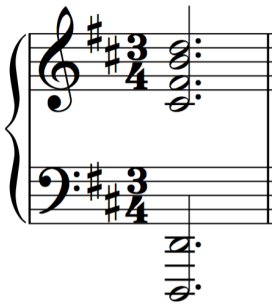


Reich: *Music for 18 Musicians*, b.1

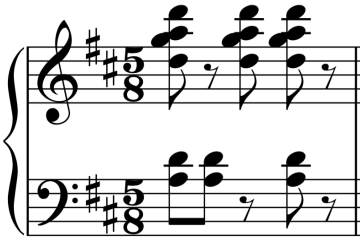


You Are (Variations), b.1

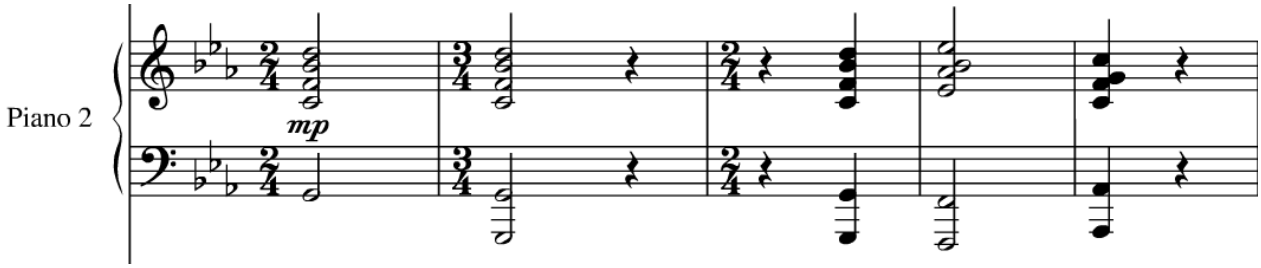
Secondly, Reich's chords often emphasise quartal relationships, whereas Adams favours scales, triads and, as we shall see next, fifths.



Reich: *Double Sextet*, b. 522



Double Sextet, b.1108



City Life, b.1 - 5

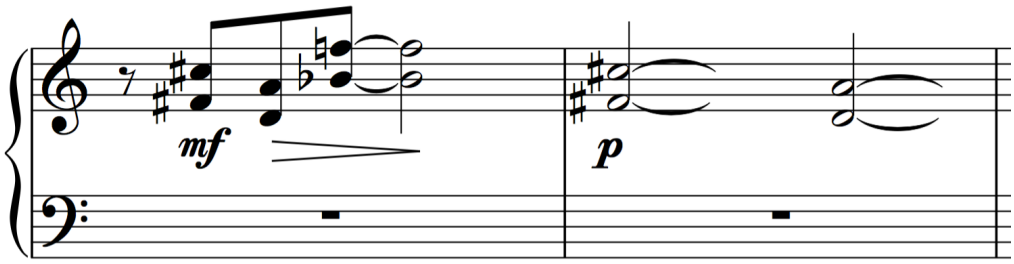
A third difference involves how the chords are presented. Reich writes his clusters in solid blocks, while Adams' clusters are more often inferred by proximity, with the aid of the sustain pedal.

6. Stacked, Interlocking and Offset Fifths

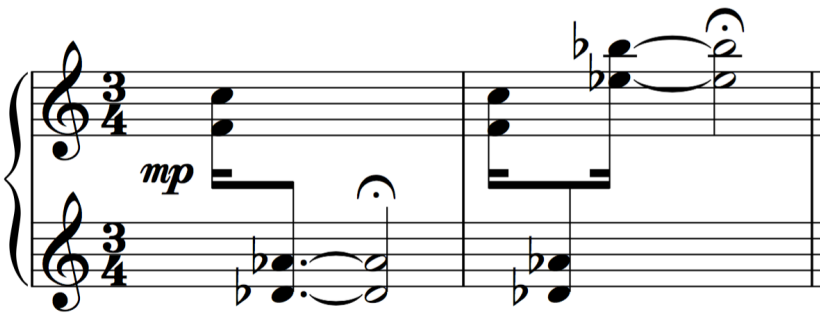
Origins

Adams' compositions from the 1980s grew their harmonic material from scale fragments, or tonal arpeggios thickened with oscillated tones. In either case, diatonic cluster chords were the end result. His works in the 1990s made use of harmony built from open fifths and quintal chords, and unlike the other, more gradual changes that occur in his music over time, this change can be traced to a single point: his encounter with Toru Takemitsu's *riverrun*, and his subsequent composition of *The Wound Dresser*, but more importantly *Eros Piano* (1989), which was composed as a direct response to *riverrun*.

Riverrun is a hybrid of a tone poem and a concerto, composed for piano and orchestra. Its concluding gesture, played by the piano, is this combination of fifths.



Eros Piano, also for piano and orchestra, takes an almost identical idea as its starting point:

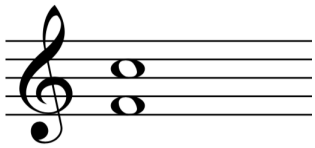


Riverrun does dwell particularly on fifths. In his program notes to the piece, Takemitsu writes,

> The music flows in the form of a musical tributary derived from a certain main current, wending its way through the scenery of night towards the sea of tonality. The motif, and the intervals of a major seventh and a minor third, almost like simple symbols, gradually disperse and always give birth to a variety of melodic sub-species. While they sometimes do confront one another, they do not necessarily represent a dialectic development, but continually keep occurring, disappearing and recurring.[12]

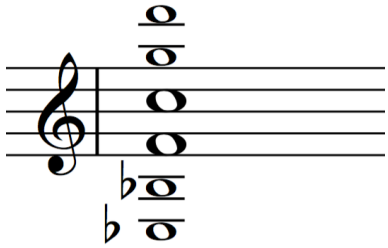
Or, to put it another way, the music in *riverrun* behaves like flowing water. The "sea of tonality" may be represented by those primal, consonant fifths. But Adams is a very different sort of composer, a descendant of minimalists, and his style of gradual mutation leads to the fifths playing a much more constant role in *Eros Piano.*

In this analysis, certain unconventional use of terminology will be necessary to describe Adams' use of quintal harmony. In accordance with convention, a *fifth* simply refers to any dyad of notes a fifth apart.

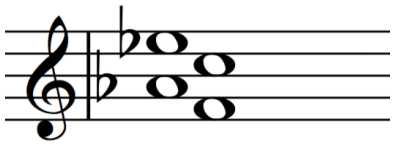


[12] Toru Takemitsu, quoted in liner notes to the Boston Symphony Orchestra's 2012 recording

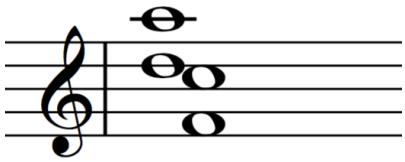
Each such dyad functions as the nucleus of a chord, which can be expanded indefinitely in either direction by adding more notes from the series. Such chords are described here as *stacked fifths*, a description commonly used in the study of jazz harmony.



A second fifth overlapping the first is an *interlocking fifth*, also common in jazz parlance.



If one fifth sits atop the other but the two do not overlap, this will be referred to as an *offset fifth*.



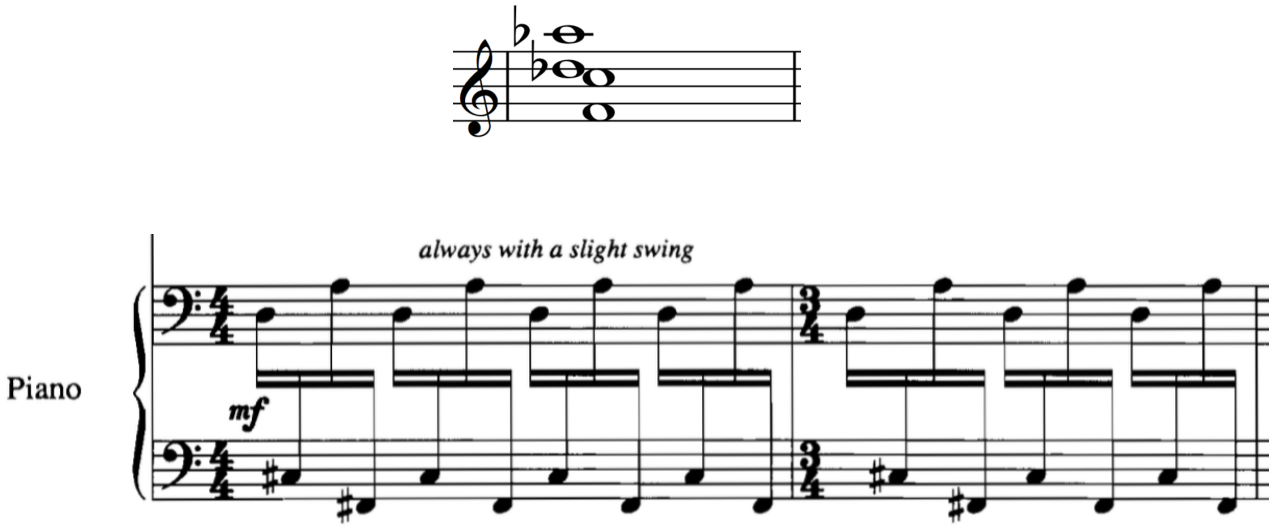
These chords given could be accurately described as F5, Ebmaj9(#11), Fm7, and F6. But tonal classifications take no notice of similarities or differences of chord construction, and furthermore would impute to the chords a tonal function which they do not possess in this music. Conventional harmonic analysis here describes a result, whereas the present analysis attempts to describe the process.

The reader may also object to this terminology on the following theoretical grounds: there is only one series of fifths, which cycles through all twelve pitch classes. Therefore every combination of fifths is really a form of "stacked fifth", albeit with octave transpositions and gaps in the series. And secondly, if any fifth can be expanded in either direction, an "offset" chord could be made to become "interlocking" at any moment, so there is no categorical difference between them. While these statements are true in theory, the present analysis attempts to describe compositional processes *as they are*, not as they could be, and Adams, with rare exceptions, treats them as if they were different categories of chords. When he stacks an offset fifth, he tends to stack outward at opposite ends.

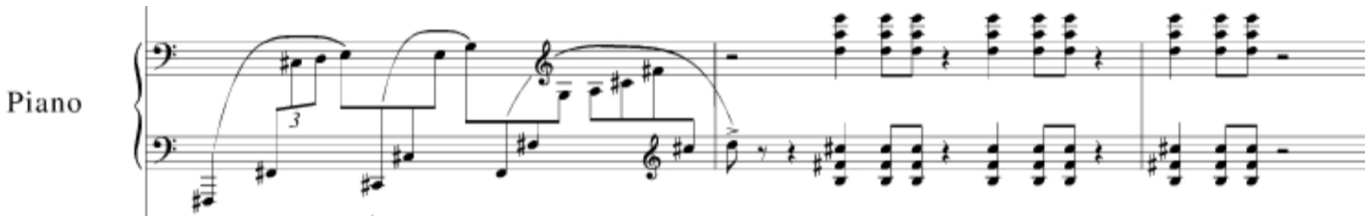
Of these three families of quintal chords, one in particular appears often enough to deserve mention as a signature motif in its own right.

The semitone offset fifth

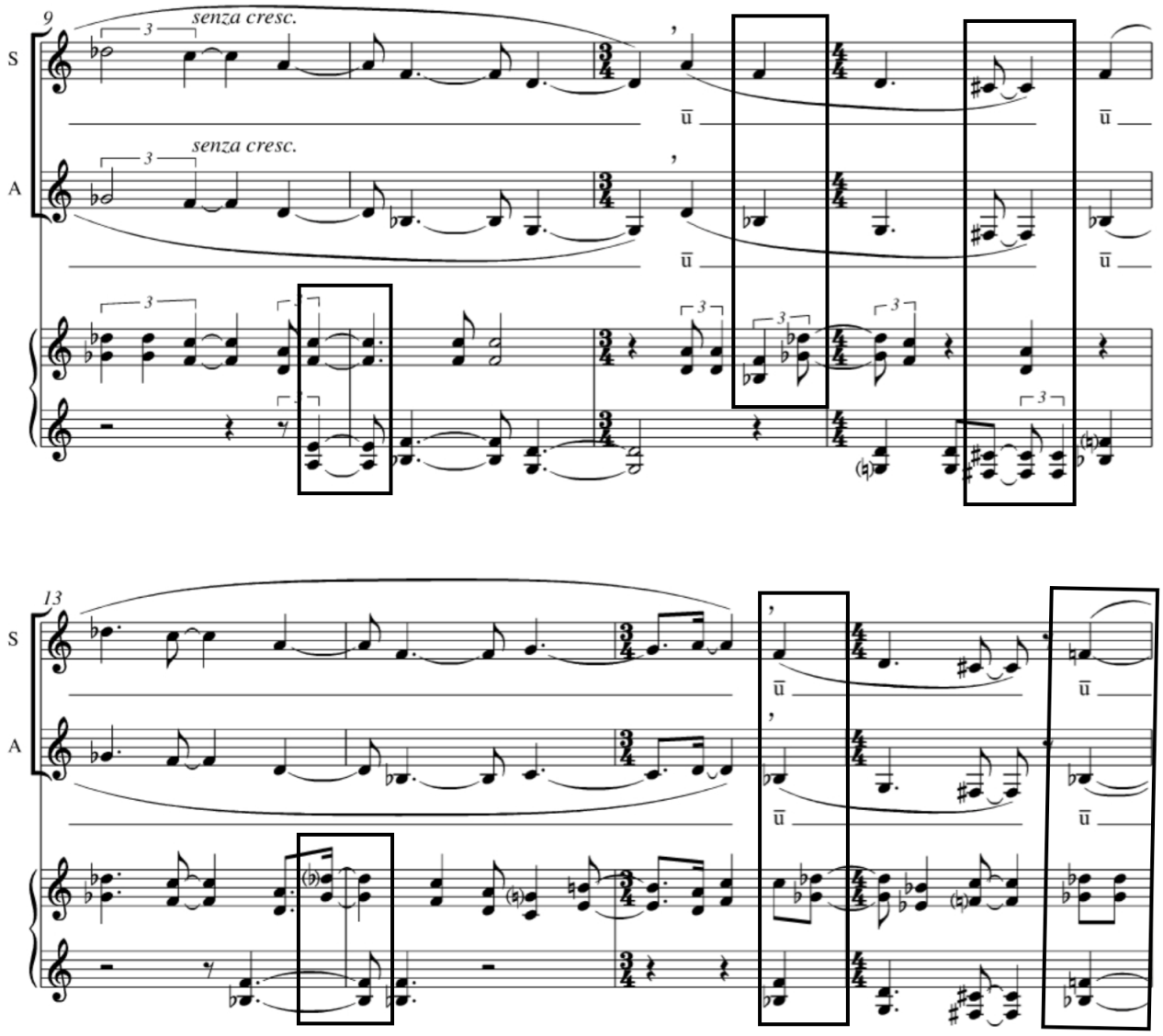
Two fifths, offset by a semitone, appears throughout Adams' works.



Road Movies, 1st movement, b.1 - 2, the most basic form of the offset fifth.

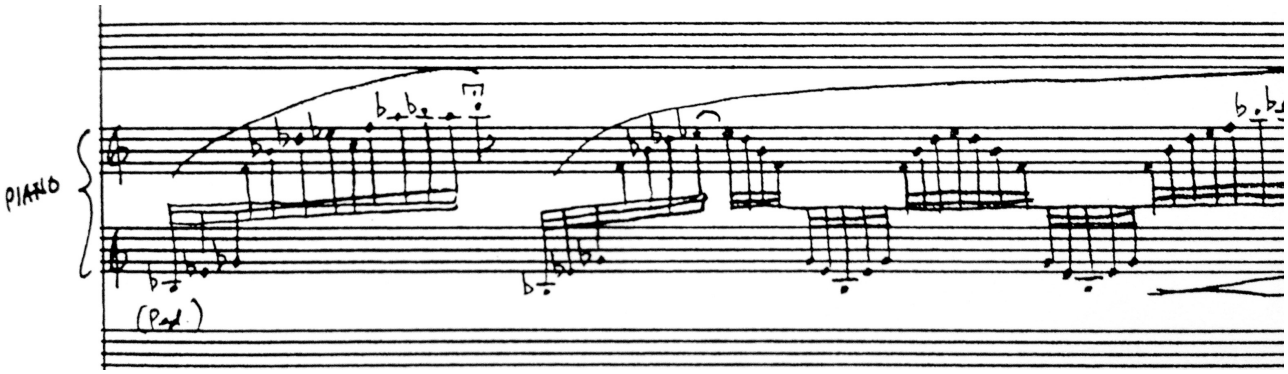


Century Rolls, 1st movement, b.66 - 68, offset fifth with additional fifths stacked at either end.



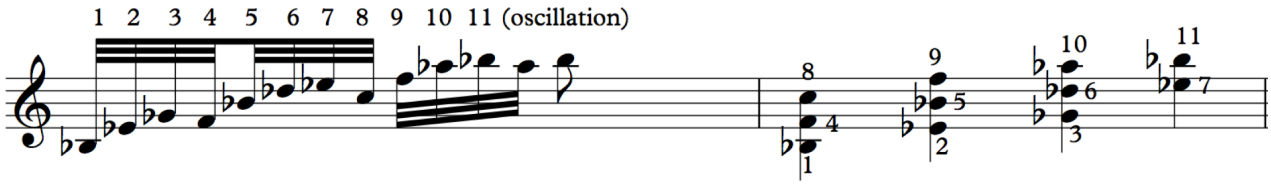
On The Transmigration Of Souls (2002), b.9 - 16, offset fifths marked in boxes.

However, these examples have been chosen because of their transparency. Fifths are easily hidden when stacked and interlocked, or when used in combination with other ur-motifs, or when presented in mutated form, especially given his readiness to abandon motivic rigour whenever it conflicts with the effect he seeks (as in *Phrygian Gates*). To take an example from *Eros Piano*, this brief cadenza could be read simply as a flourish, similar to many such gestures from the Romantic piano repertoire:



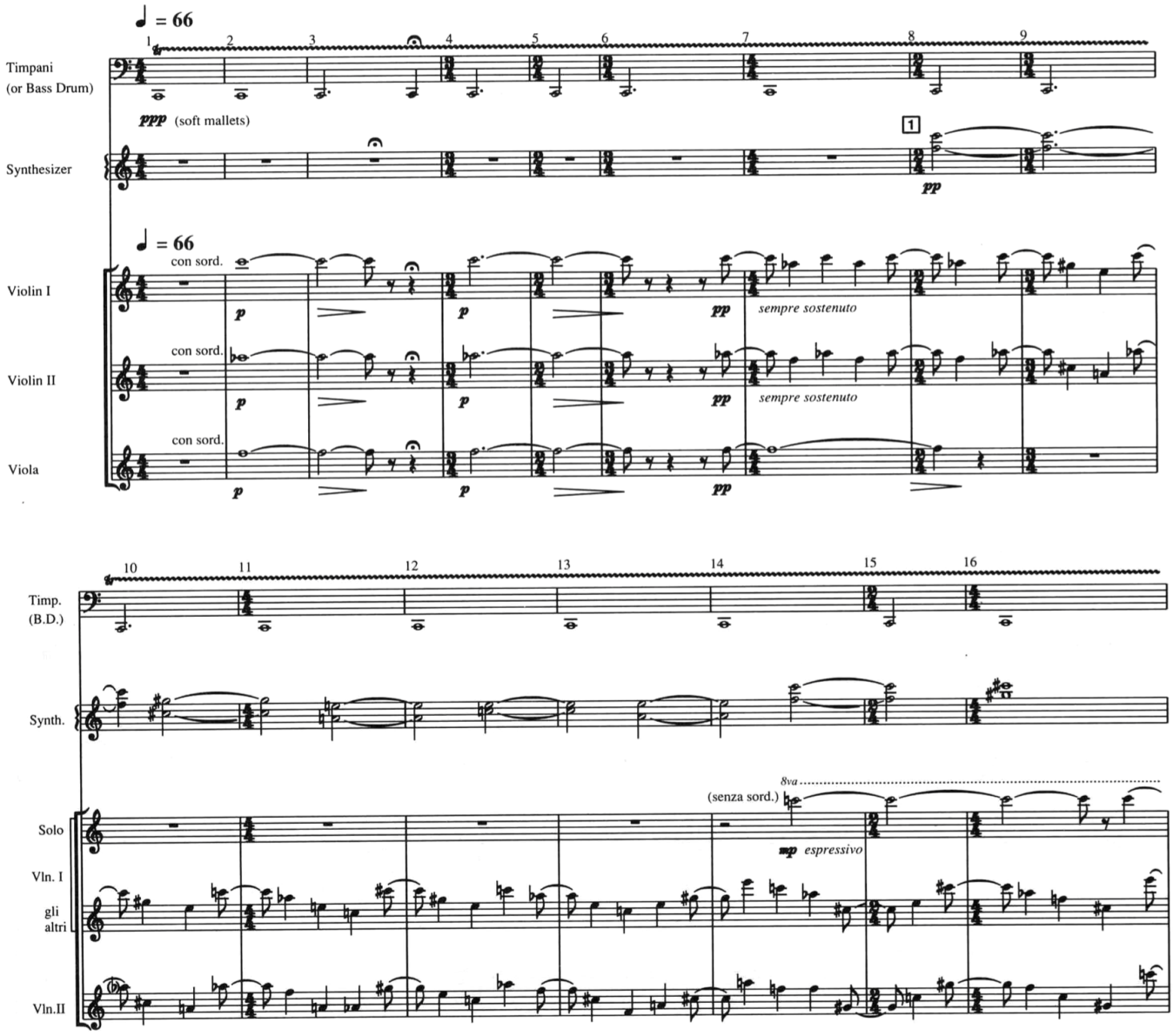
Eros Piano, b. 132

Within the context of the piece, that is indeed its function. And at a glance, it appears to have been constructed from ordinary triads. But under the surface it, too, is constructed from interlocking and stacked fifths:



This flourish is also a diatonic cluster, containing every note of the E-flat melodic minor scale. Quintal harmony is sufficiently adaptable that Adams can continue to create the same harmonic structures that were found in his music prior to his encounter with Takemitsu.

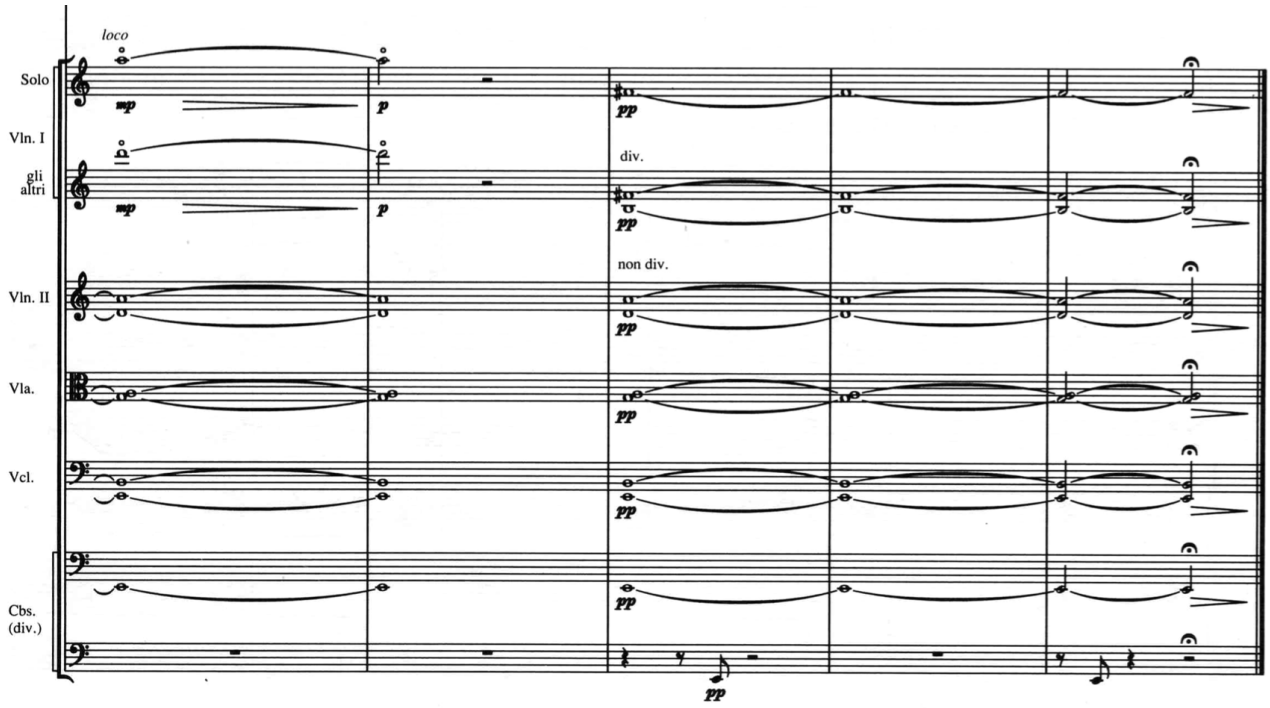
Adams' first use of quintal harmony is found in *The Wound Dresser* (1988). It begins with F minor tonality, into which intrude C sharp minor and A major in pairs of fifths.



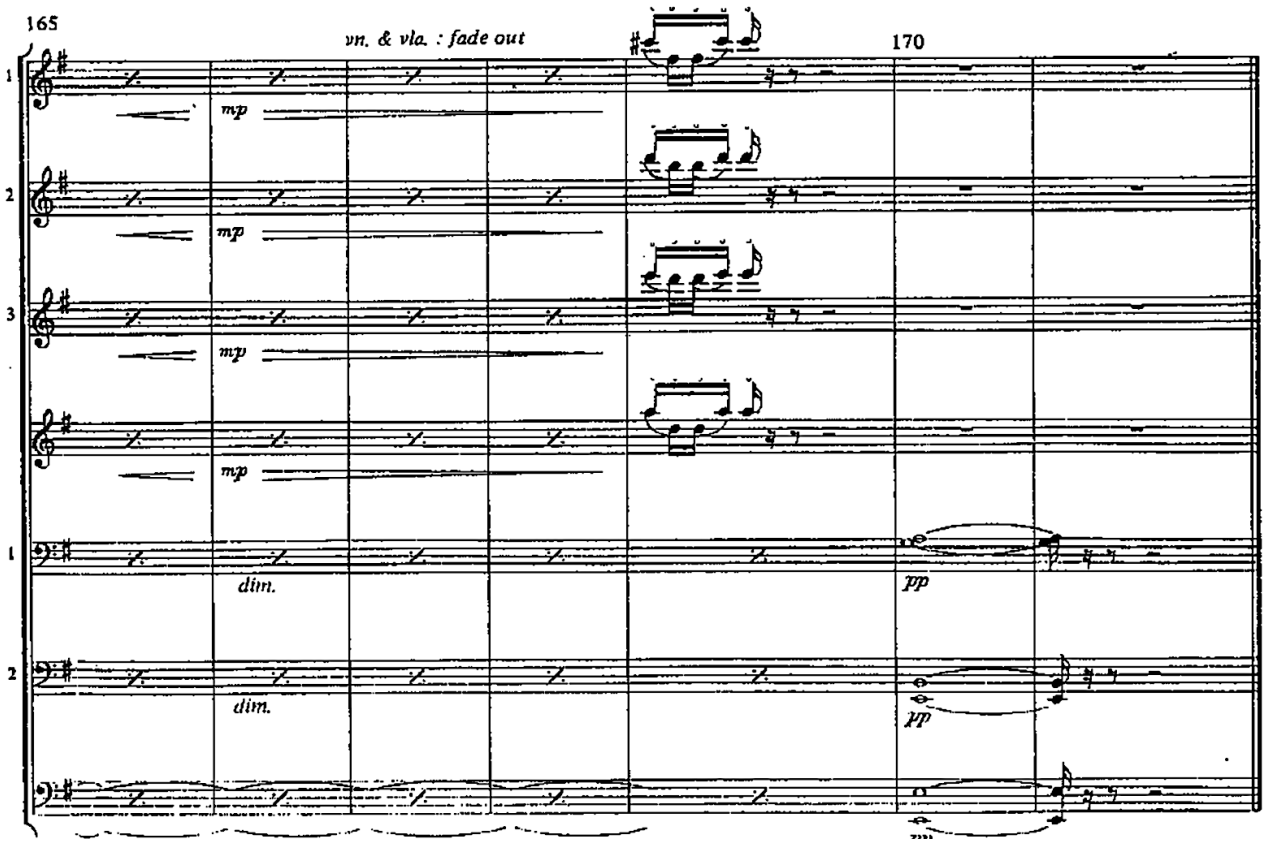
The Wound Dresser, b.1 - 16

However, his use of these fifths is not yet consistent with the patterns that would later emerge in his writing. His chords are still unambiguously triadic, as they were in *Nixon*, now merely arrived at by unconventional means, and his choice of progression - F minor, C# minor, A major, is a classically minimalist progression by thirds.

At the opposite end of *The Wound Dresser* is another example of how fifths were becoming incorporated into the harmony. The voicing of the final chord is clearly influenced by quintal procedures, but the harmony is almost identical to the final chord of *Shaker Loops*. It is a transitional form, old wine in a new bottle.



The Wound Dresser, b.335 - 339



Shaker Loops, 4th movement, "A Final Shaking", b.165 - 171.

The offset fifth is reminiscent of jazz chord structure, where strongly dissonant intervals are wrapped in layers of consonant intervals. It could be described (in conventional terms) as either a major 7th chord in first inversion, or a minor chord in root position with flattened sixth. The former interpretation implies a jazz heritage, where the major 7th is considered a integral part of the tonic chord. The latter interpretation implies a minimalist heritage, where minor chords are frequently followed by a move to the submediant major, and the minor triad with added sixth is a combination of both (see also: *minor six*). It may contribute to the American "sound" of Adams' music, and its association with landscapes, through the open fifth's association with "wide open spaces" and the music of Aaron Copland.

7. Progression by Thirds

Harmonic movement by thirds is a second motif for which Adams himself provides a description. Referring to the second movement of *Grand Pianola Music* (1982), he writes in his program notes,

> The shorter second part, "On the Dominant Divide" was an experiment in apply my minimalist techniques to the barest of all possible chord progressions, I-V-I. I had noticed that most "classical" minimalist pieces always progressed by motion of thirds in the bass and in all cases strictly avoided tonic-dominant relations, which are too fraught with a pressing need for resolution.[13]

Adams' methods of modulation by thirds are covered later, in the descriptions of the *Paradigm Shift* and *Minor Six* motifs, so I will not repeat them here. Suffice it to say that thirds relationships are indeed a common feature in his harmonic writing. The clearest examples of this occur in *Nixon in China*, which uses notably more harmonic movement than most of his other works. The next diagram is a harmonic outline of Nixon's *News* aria, which begins at bar 374 of Act 1, Scene 1. Progressions by thirds, indicated here by underscores, comprise the majority of chord changes:

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[13] *Grand Pianola Music*, preface to the published score. New York: Associated Music Publishers, 1982

Bar	374	386	390	392	395	399	404	409	411	412	415	417
Key	A ♭	Fm	A ♭	Fm	A ♭	Cm	A ♭	C	A ♭	C	E	Fm

	419	421	422	424	425	431	435	442	449	451	453	455
	D ♭	Fm	D ♭	Fm	D ♭	Fm	Am	A ♭	C	A ♭	C	A ♭

	457	460	462	464	469	476	481	483	488	491	494	496
	C	A ♭	C	A ♭	C	Em	C	Em	C	Cm	A ♭	C

	502	509	514	517	521	524	527	529	532	534	537	542
	A ♭	Am	F	Fm	B ♭ 9	Fm	B ♭ 9	Fm	B ♭ 9	Fm	B ♭ 9	D ♭

	545	548	551	553	560	563	581	592	594	595	602	605
	Fm	D ♭	G ♭	F#m	Fm	C#m	A ♭	C	A ♭	C	E	Em

	616	620	624	628	634	639	642	654	664	669	678	681
	Eø	Asus	A6	E ♭ ø	D	F#m	Dm	F#m	D ♭	Em	G#ø	Cm

8. Gating

China Gates and *Phrygian Gates* derive their titles from the *logic gates* used in electronic circuits. Logic gates receive two input signals, and can output either one according to conditions set out by the programmer. Gating, as used in *China Gates* and *Phrygian Gates*, is a series of unprepared modulations between two keys or modes. Adams began using it as a structural device in those pieces, but soon recognised its greater potential as a dramatic device.

> With harmonic rhythm (i.e. the rate of changes between harmonies) radically slowed down, modulation took on a new and exciting meaning and I found that, when properly handled, it could accomplish the effect of a kind of celestial gear shifting. A successful performance of any one of these pieces should give the feeling of traveling - sometimes soaring, sometimes barely crawling, but nonetheless always moving forward over vast stretches of imaginary terrain. [14]

He goes on to describe his two methods of modulation. In one type, a new key is introduced stealthily, over a period of tonal ambiguity - "You'd find yourself in a new landscape but you don't know how you got there". This process is what I define as a *paradigm shift modulation,* which will be explained later. His second sort of modulation, by contrast, is intended to be as startling and dramatic as possible, and these he calls *gates*. However, from my analysis, this distinction between the two is incomplete.

The original use of gating, in *China Gates*, was a series of modulations between four modes. *China Gates* is written in three sections: the first section alternates between the keys of A-flat mixolydian and G-sharp aeolian minor; the third section alternates between F lydian and F locrian; the shorter

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[14] *Harmonium*, preface to the published score. New York: Associated Music Publishers (1981)

central section cycles between all four keys. In *Phrygian Gates*, the modulation patterns are more complex, revolving through half of the circle of fifths, but always alternating between lydian and phrygian modes. The most distinctive feature of gating is not necessarily that the key change is startling - the modulations are always unprepared, but not always between distantly related keys - rather, the most crucial element of *gating* is its back-and-forth movement.

After *China Gates* and *Phrygian Gates,* Adams abandoned such structural rigour, but continued make use of gating effects, usually reserving them for climactic moments. In *Grand Pianola Music*, at the end of the second movement, *On The Dominant Divide,* after the "big tune" has played for its final time, a series of gates between E-flat major and E minor (with one aberration) bring the work to its conclusion:

Bar	235	241	246	262	268	274	279	284	268
Key	Em	Gm	Eb	Em	Eb	Em	Eb	Em	Eb

Similarly, *Harmonielehre*, at the end of its first movement, gates between the same keys, over a longer span of time but using fewer gates:

Bar	483	488	499	534
Key	Em	Eb	Em	Eb

Also in *Harmonielehre*, during the third movement, is a series of gates between E minor and C major (an example of a *minor six* progression, which will be described in a later section):

Bar	190	202	209	214	218	226	234
Key	Em	C	Em	C	Em	C	Em

Gating is not confined to the 1980s works. It is found in *El Nino* (2000), where "The Christmas Star", the conclusion of Act One, gates between D major and G minor, although in this instance the change of harmony is implied solely by the change of the bass note; upper instruments and singers play on all the notes D, E, F#, G, A, Bb and C throughout. It is the gating process applied to a paradigm shift modulation.

Bar	143	173	181	189	198	205	213	225	233
Key	D	Gm	D	Gm	D	Gm	D	Gm	D

Gating processes, on smaller timescales and changing more frequently, are found throughout *Nixon in China.* Let us look once more at the harmonic outline to Nixon's *News* aria. Gating patterns are hyphenated and printed in bold type.

Bar	374	386	390	392	395	399	404	409	411	412	415	417
Key	**A ♭**	**—Fm**	**—A ♭**	**—Fm**	**— A ♭**	Cm	**A ♭**	**—C**	**— A ♭**	**—C**	E	**Fm —**

	419	421	422	424	425	431	435	442	449	451	453	455
	D ♭	**—Fm**	**—D ♭**	**—Fm**	**—D ♭**	**—Fm**	Am	**A ♭**	**—C**	**— A ♭**	**—C**	**— A ♭ —**

	457	460	462	464	469	476	481	483	488	491	494	496
	C —	**A ♭**	**—C —**	**A ♭**	**—C**	**Em —**	**C —**	**Em —**	**C**	Cm	**A ♭**	**—C —**

	502	509	514	517	521	524	527	529	532	534	537	542
	A ♭	Am	F	**Fm**	**—B ♭ 9 -**	**Fm**	**—B ♭ 9 -**	**Fm —**	**B ♭ 9 -**	**Fm —**	**B ♭ 9**	**D ♭ —**

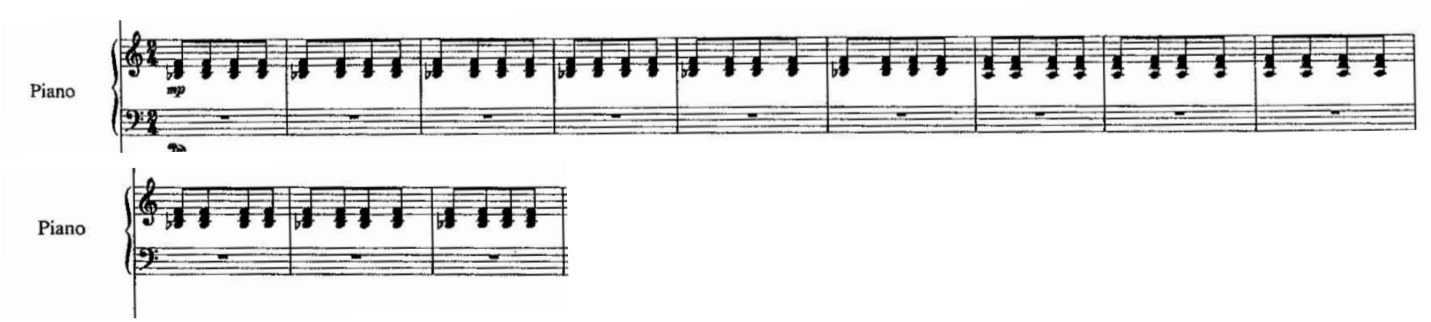
	545	548	551	553	560	563	581	592	594	595	602	605
	Fm	**—D ♭**	G ♭	F#m	Fm	C#mΔ	**A ♭**	**—C**	**— A ♭**	**—C**	E	Em

	616	620	624	628	634	639	642	654	664	669	678	681
	Eø	Asus	A6	E ♭ ø	D	F#m	Dm	F#m	D ♭	Em	G#ø	Cm

Notably here, the gating patterns disappear as the aria progresses. As the libretto describes, "…the President begins to sing, and as he sings the joy of anticipated triumph becomes the terrible expectation of failure". For Adams, who uses this technique mostly at climactic passages or the buildups to them, gating is the sound of gathering momentum, the sound of confidence. As Nixon's confidence falters and his thoughts grow paranoid, the gating harmonies vanish. They briefly return at bars 581 - 595, when Nixon remembers the cameras pointing at him - "News! News! It's prime time in the USA!" - but then his thoughts wander once more. Dissonance and harmonic complexity also increase in tandem with Nixon's pessimism; the chords are exclusively triadic until bars 517 - 548, when Nixon reflects "We live in an unsettled time. Who are our enemies? Who are our friends?"

As with other motifs, over time Adams' use of gating has fractured into smaller pieces, and it becomes a matter of conjecture whether an individual example of back-and-forth movement

qualifies as an example of gating. For example, this excerpt from the piano accompaniment to *Gnarly Buttons.*



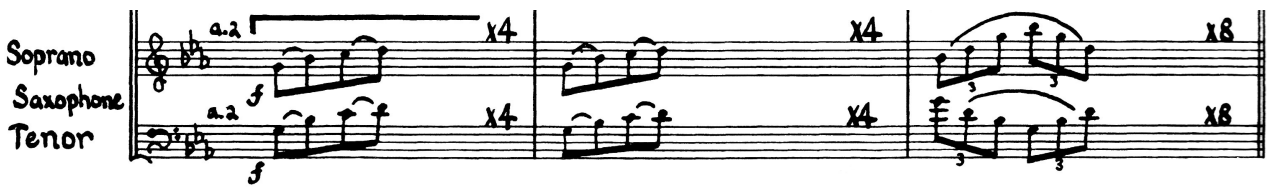
Gnarly Buttons, 3rd movement, b.1 - 12

The move from B-flat major to D minor and back again could be interpreted as an example of gating, or it could be interpreted as a slow oscillation on Bb / A (and perhaps the whole concept of gating could be described as a much longer type of macro-oscillation between two keys).

Gates can be harmonic or rhythmic. The latter case qualifies as a distinct subcategory of motif.

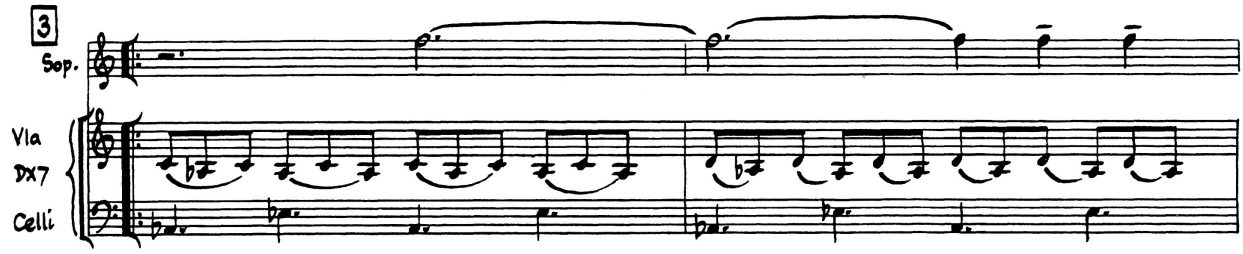
Metric Gating

The post-minimalist composers use two forms of metric modulation. A *Sub-metric* modulation occurs *below* the level of the pulse or tactus: there is a change in the subdivision of the beats, but the tempo of those beats remains constant.



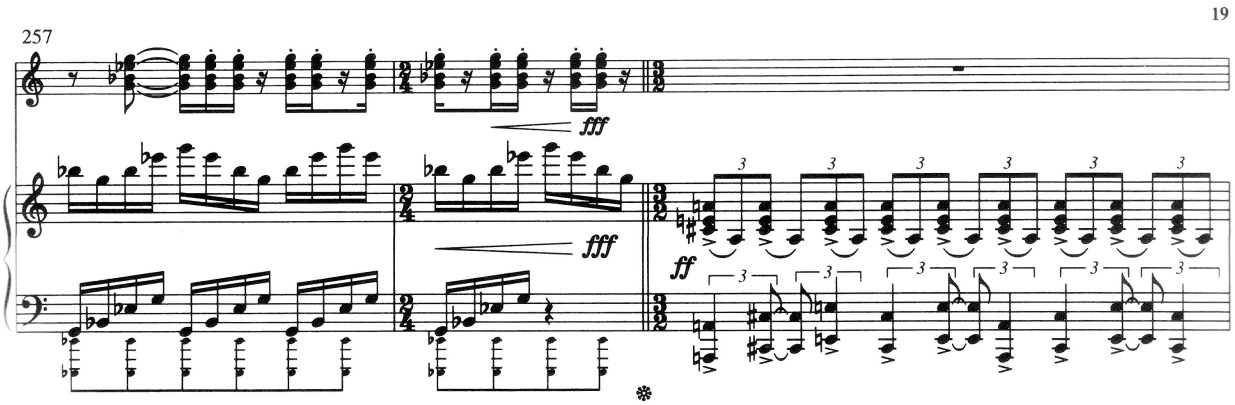
Glass: “Rubric” from *Glassworks*

Super-metric modulation, in contrast, occurs above the level of the beat. The sub-units of the pulse maintains a steady tempo, but become regrouped into beats of a different length, as seen in the viola part here:

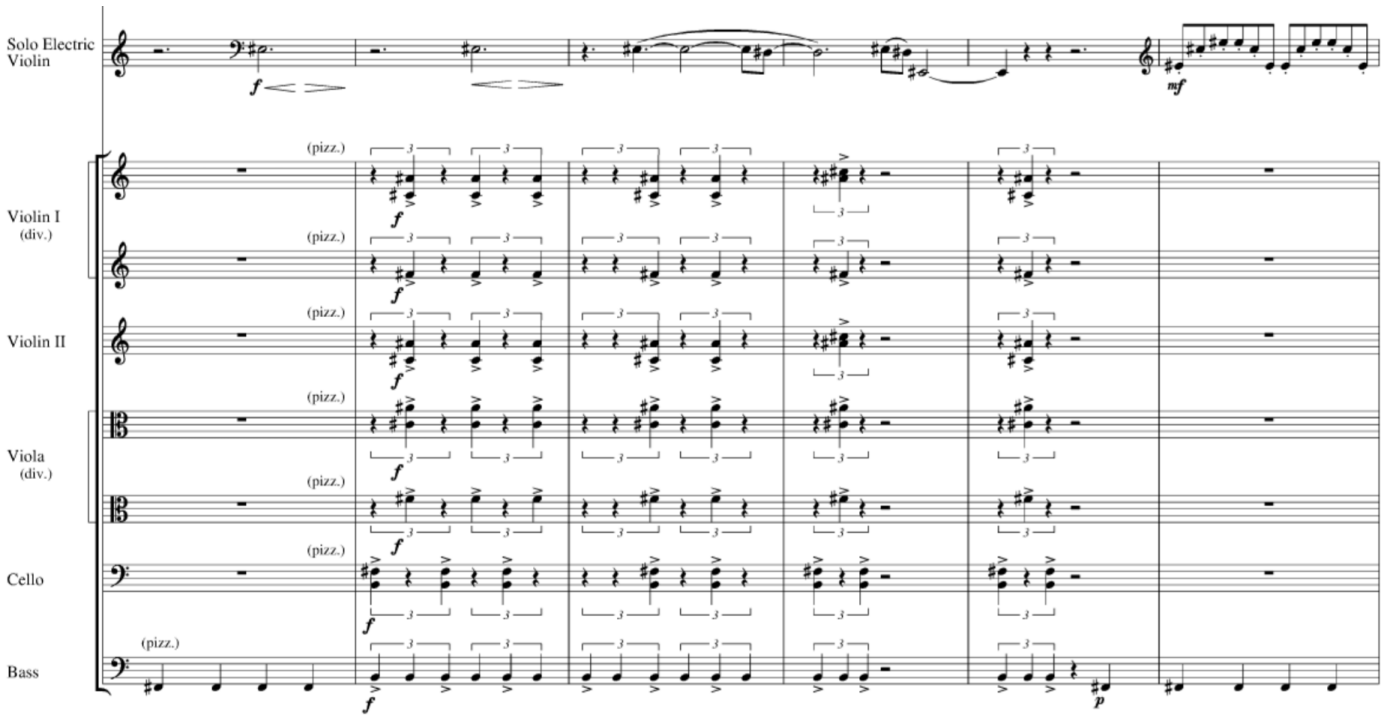


Glass: "Facades", from *Glassworks*

Metric gating is a method unique to Adams, which combines sub-metric and super-metric modulation into a single step. In metric gating, the subdivision of the pulse changes (typically from quavers or crotchets to triplet versions of the same), and those triplets are grouped into twos instead of threes. The effect is a sudden increase in the tempo by one-third. As this is metric *gating*, the two versions of the pulse then switch back and forth.



Nixon in China, Act 1 Scene 1, b.257 - 259



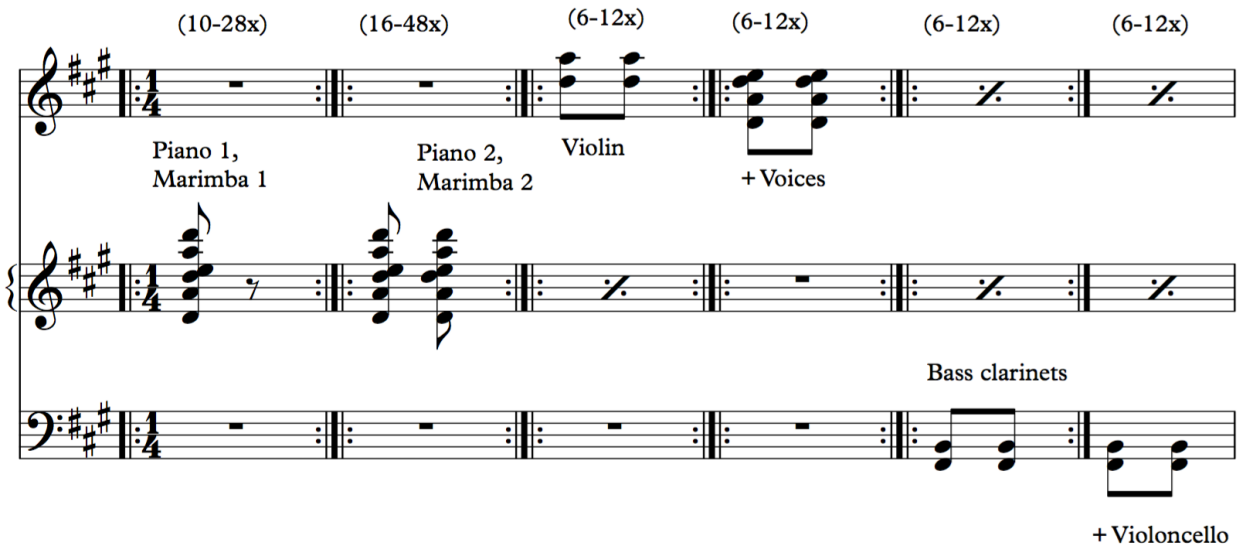
The Dharma at Big Sur, b.329 - 334

9. Paradigm Shift Modulation

The term ‘paradigm shift’ was coined by American physicist Thomas Kuhn in his 1962 book *The Structure of Scientific Revolutions*. A paradigm is a framework of current understanding, and a paradigm shift occurs when the discovery of new information forces a re-evaluation of previously held beliefs. In music, a paradigm shift is a form of modulation in which the introduction of a new note alters our perception of the tonal centre. A paradigm shift modulation rearranges the perceived hierarchical order of notes, but unlike conventional modulation it does so without changing any existing notes through flattening or sharpening.

This process is more common at the start of a piece, before the harmony has become fully defined, and most often takes the form of new notes being added in the bass, undermining the root of the previous chord. In this respect it is a specialised application of the **delayed bass** motif.

It is not unique to Adams - similar modulations occur in the music of Steve Reich, such as in the opening of *Music for 18 Musicians*:



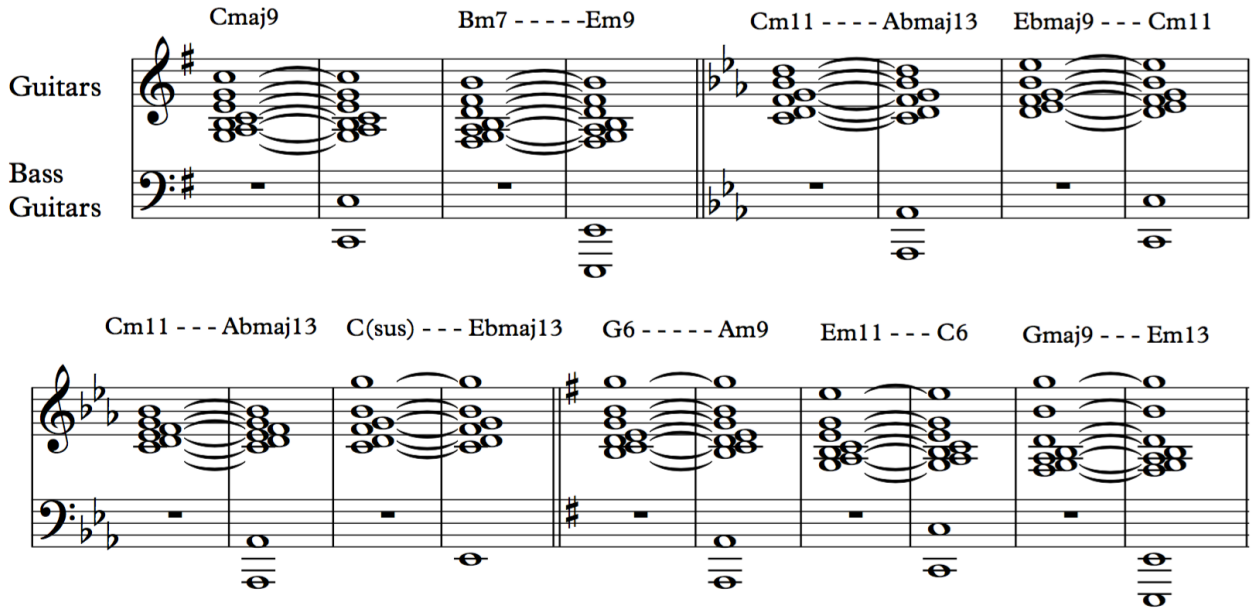
Reich: *Music for 18 Musicians*, b.1-6

Pianos and marimbas, joined by violin and voices, play a tonally ambiguous chord. Although undefined as either major or minor, it is nonetheless heard as being rooted in D, until the arrival of the bass clarinets and cellos which undercut the harmony with a low B, and recast the harmony in B minor.

Reich uses this technique in many pieces. *Electric Counterpoint*, for example, begins with a series of them:

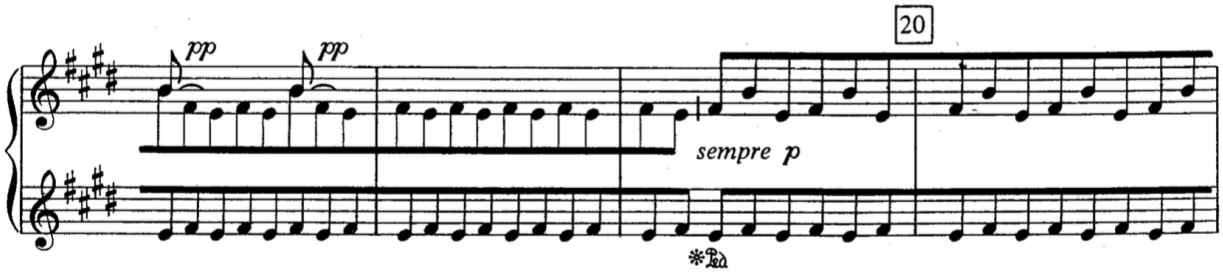
Reich: *Electric Counterpoint*, b.1 - 6

The guitars begin with a pulsing chord implying C major harmony (with added 7th and 9th), which the bass guitars perceptually change to A minor (now with added 7th, 9th and 11th). The introduction cycles through eleven chords in the opening pulsation, ten of which contain paradigm shifts when the bass guitars enter.



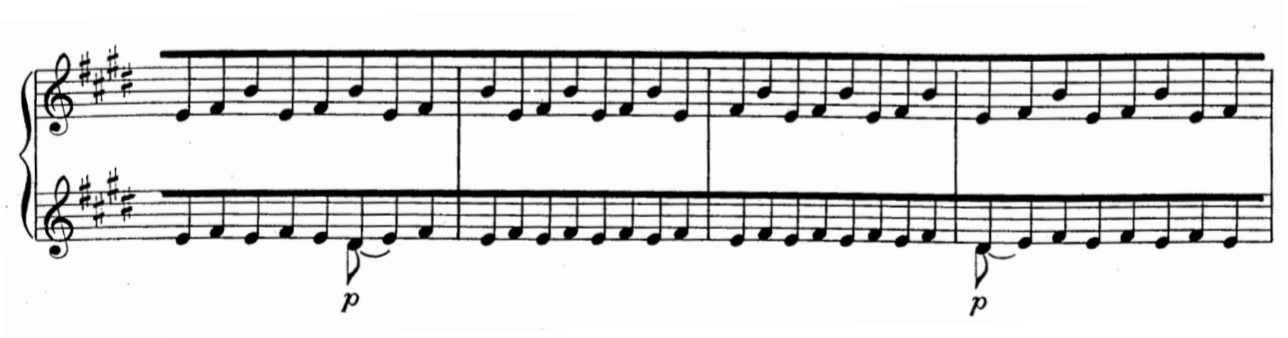
Reich: *Electric Counterpoint*, opening chords, b.12 - 109 (compressed)

Phrygian Gates begins with 113-bars of music in the A lydian mode, but the note A does not appear until bar 57, and even then is arguably not perceived as the root until at least bar 73. Phrygian Gates begins with a repeated E, which in the absence of any other information is heard as the tonic. Even the score seems to suggest E major as the tonic, because A Lydian shares the same key signature. Three higher "pings" on a B reinforce our belief E as the tonal centre with an implied tonic / dominant relationship, and the next note introduced, F#, does not contradict that belief.

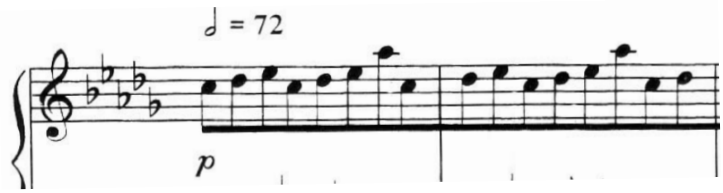


The harmony at this point, consisting of (what appears to be) the root, fifth and second, is the same as the chord which began Reich's *Music for 18 Musicians.*

At bar 21, however, D# is added to the texture, causing a paradigm shift; we now hear a complete B major triad, in first inversion with an added 4th. *China Gates* had opened with exactly this voicing of an A-flat mixolydian chord in the right hand.

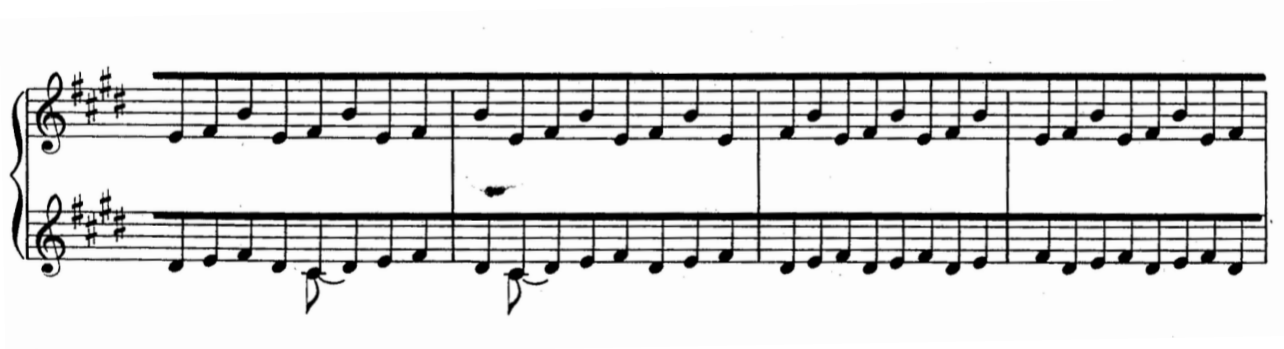


Phrygian Gates, b.21 - 24

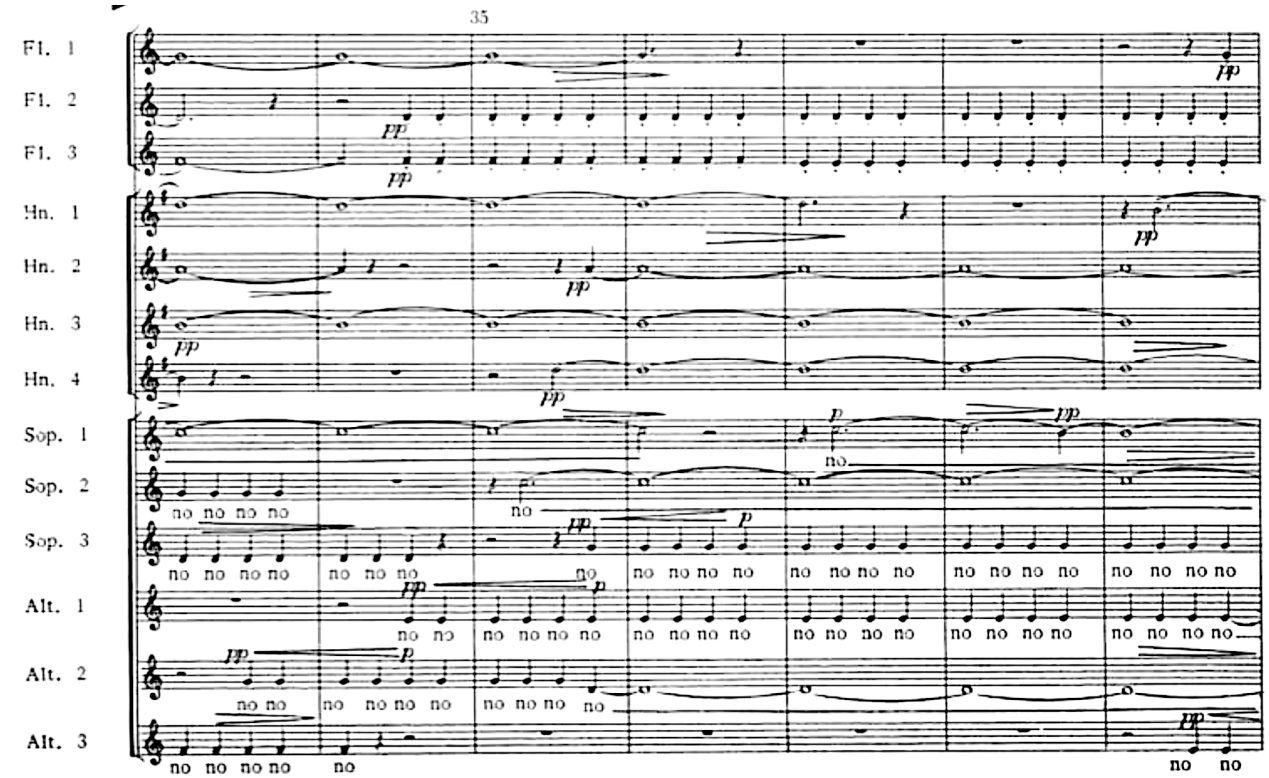


China Gates, b.1 - 2

At bar 31, a C# is added to the texture, creating another paradigm shift and moving the apparent tonal centre to C-sharp minor.

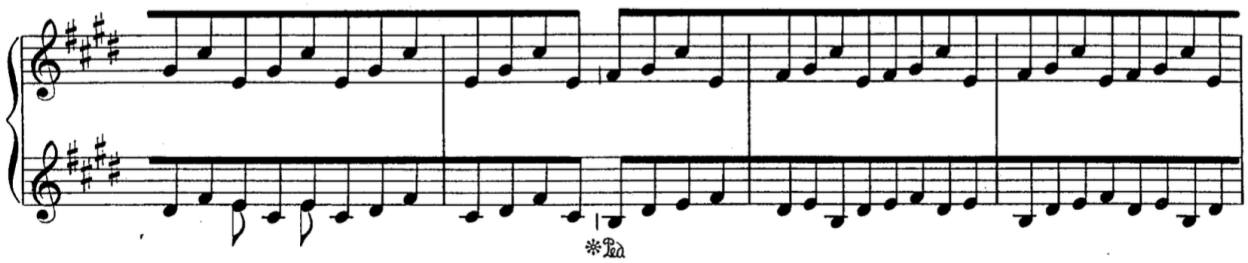


The harmony and voicing are now identical, albeit one semitone lower, to the D minor harmony heard by bar 33 of *Harmonium.*

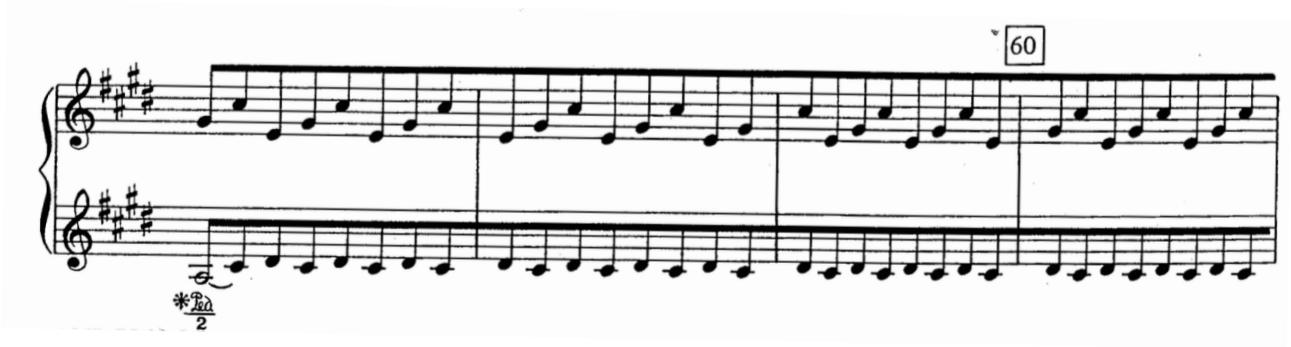


Harmonium, b.33 - 39

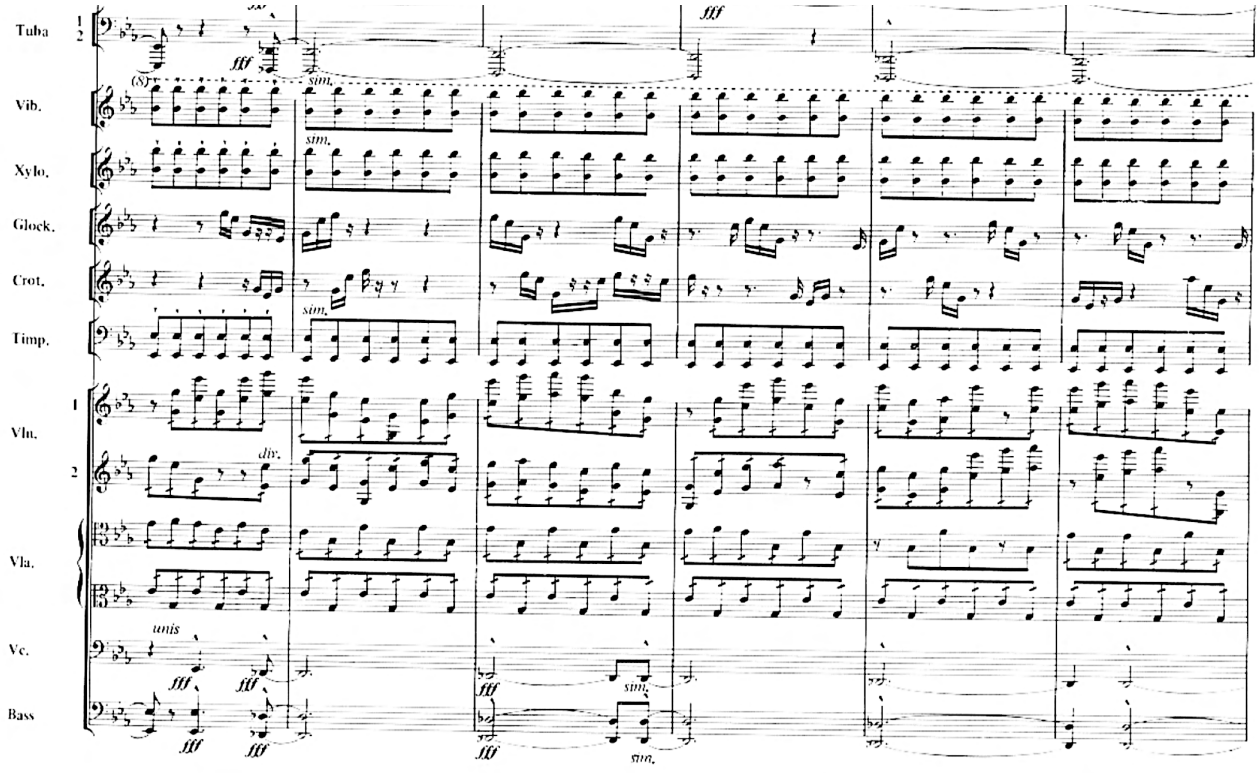
The next note added, a G# at bar 38, reinforces the perception of C-sharp minor tonality. In bar 46, a B undercuts the C#, which has the effect of softening the minor tonality but without firmly establishing an alternative. The diatonic cluster now contains every note of the scale except for the true tonic, A.



The A eventually arrives at bar 57, but the harmony remains open to multiple interpretations. It could be heard as B major with a dominant 7th in the bass, which would not be an unusual harmonic decision for Adams; the finale of *Harmonielehre* uses just such a version of E-flat major.

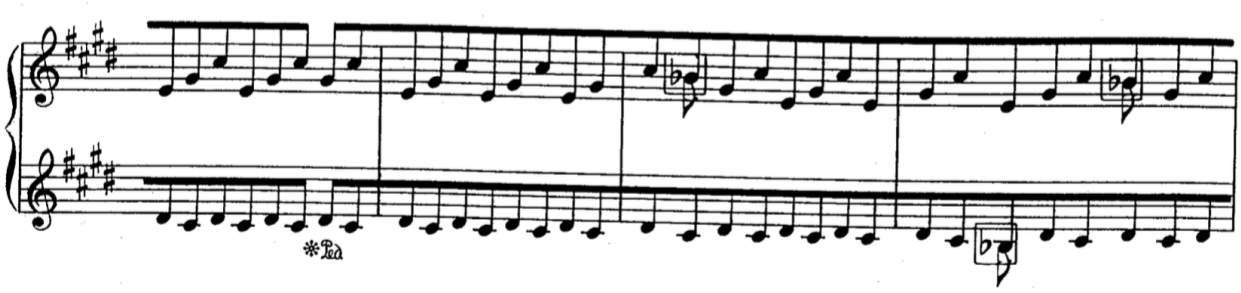


Phrygian Gates, b.57 - 60

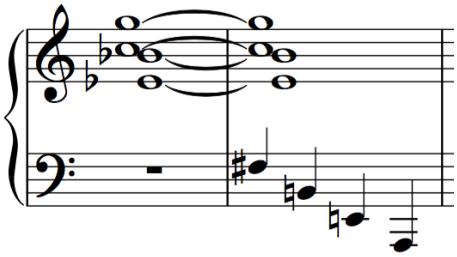


Harmonielehre, 3rd movement, b.352 - 357

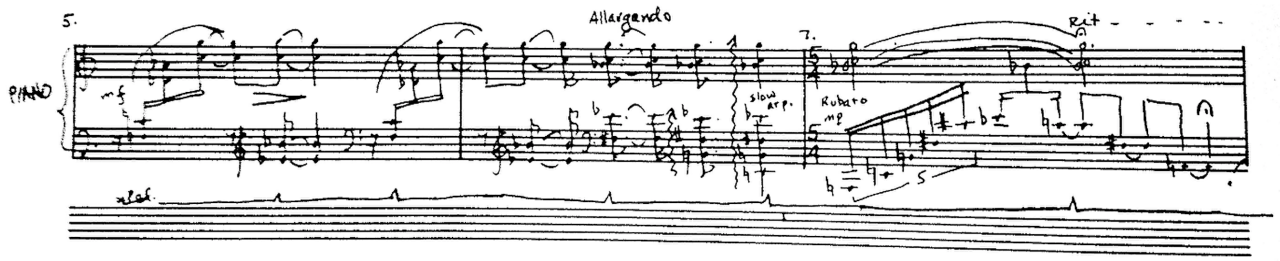
To resolve this ambiguity, Adams breaks his own rules - a rare occurrence in this piece - and introduces a foreign B-flat to the scale. The note is played eight times in two octaves, each time printed in boxes in the score, as if to contain the contamination. The B-flat achieves two purposes; it strongly undermines any sense of B natural as the root, and its resolution back down underlines the importance of A, bringing about the final paradigm shift of this section.



In quintal harmony, any chord can be undercut by adding an extra fifth to the bottom of the stack.



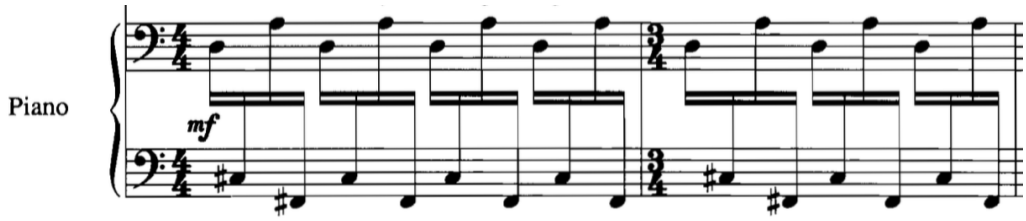
The above example is the harmonic outline of a series of paradigm shifts from bars 6 - 7 of *Eros Piano*:



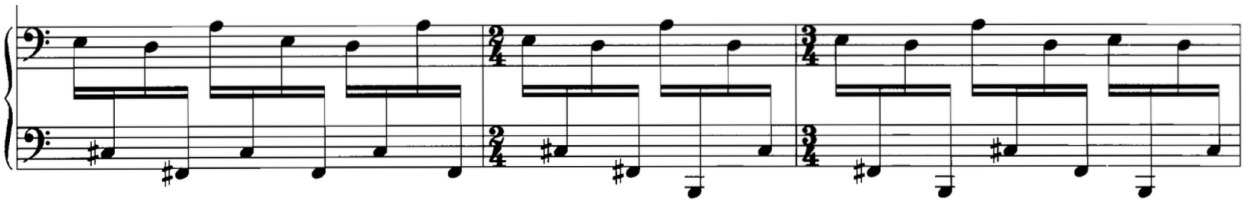
Eros Piano, b.5 - 7

However, this is a less effective version of the paradigm shift, because the quintal harmony presents a less strongly-defined tonal centre to begin with. Paradigm shifts are more successful when dealing with harmonic movement in thirds, for example transforming an apparently major chord into its relative minor, or changing a minor chord to major via the *minor six* progression.

Adams achieves a more convincing use of the paradigm shift within his quintal harmonies when he follows this pattern. *Road Movies* begins with an offset fifth, which can be interpreted either as being rooted on either D or F#, although the violin line strongly implies a D tonic.



When Adams later adds a lower fifth to the stack played by the left hand, a paradigm shift brings the harmony to B minor.

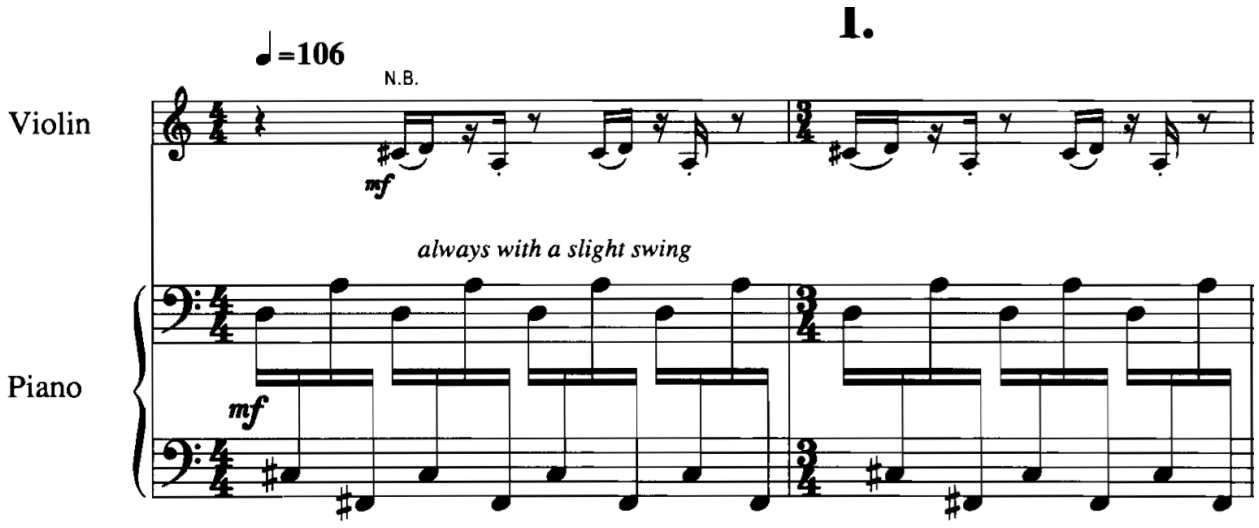


Structural Ur-Motifs

10. Mutation

Mutation is how Adams develops his material. It is a means of adding variety and unpredictability to repetitive textures. By analogy with genetics, and the errors that can occur in DNA replication, mutation is the process whereby successive repetitions of a musical cell gradually diverge from their original form. Mutation can happen by changing a single note (*substitution*), repeating a note/s (*duplication*), or by removing them (*deletion*).

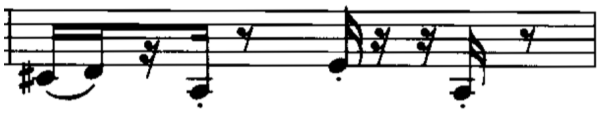
For an example of this process on a single line instrument, consider the solo violin part from *Road Movies* (1995), as it is easier to keep track of the mutations within a single line of music than in a piano score. The violin begins with this motif, comprising two elements: a rising slurred couplet and a downward leap to a single staccato A.



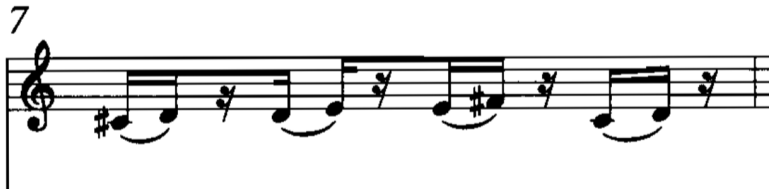
In terms of how this relates to the other ur-motifs, the violin's opening gesture is a **loop** of three quavers duration, with a **three-within-four** rhythmic pattern, consisting of an **oscillation** followed a

falling terminal (and the piano's two-quaver **loop**, meanwhile, is an **alternating hands** accompaniment of a **semitone offset fifth**).

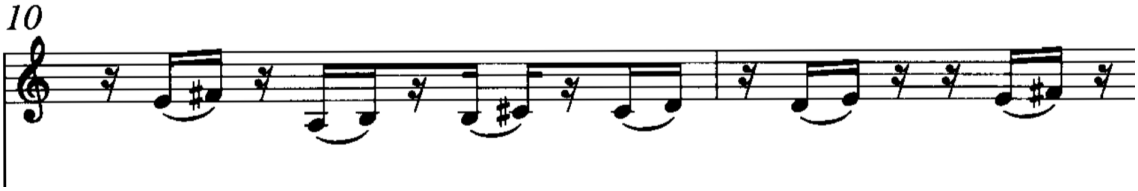
The first mutation occurs in the third bar, extending the second part of the motif to include a rising and falling fifth.



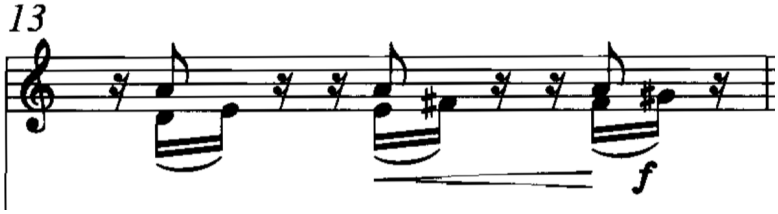
Next, the staccato single notes are deleted, and the rising couplet is duplicated, becoming the focus for further development.



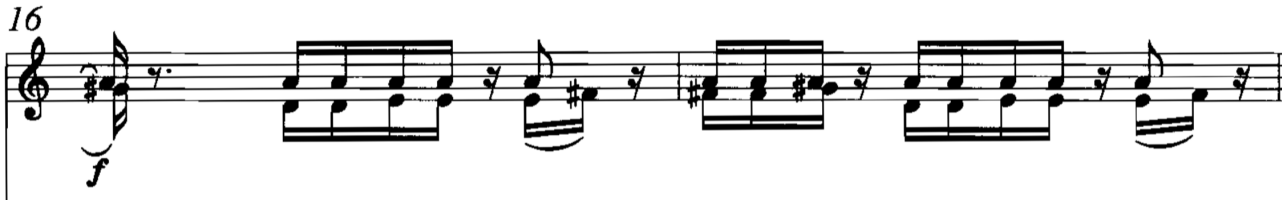
The rising couplet expands its range upward, then downward, until it is a sequence of five ascending couplets.



At bar 13, the single A returns, transposed up by an octave and now played simultaneously with the rising couplet figure.

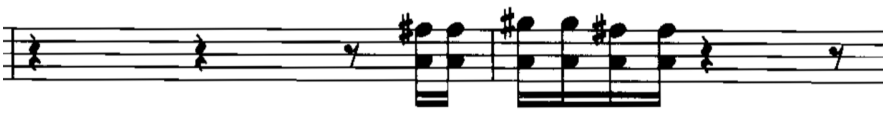


The quavers in this cell are then duplicated to become semiquavers.

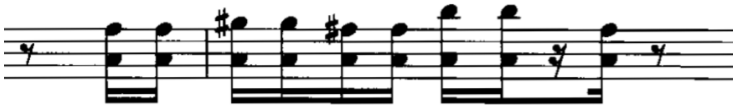


This figure contracts through deletion, reducing from three rising couplets to one, which now functions as an oscillation.

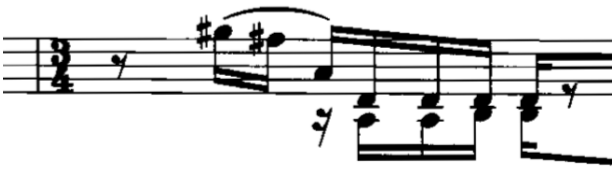
At bar 28, the oscillation inverts to the upper octave.



This new version of the motif expands. Where the original version of the motif had a two-note oscillation followed by a downward leap, this mutation of it has a three-note oscillation followed by an upward leap.



New mutations pile up in bars 34-35, almost too quickly to keep track of:

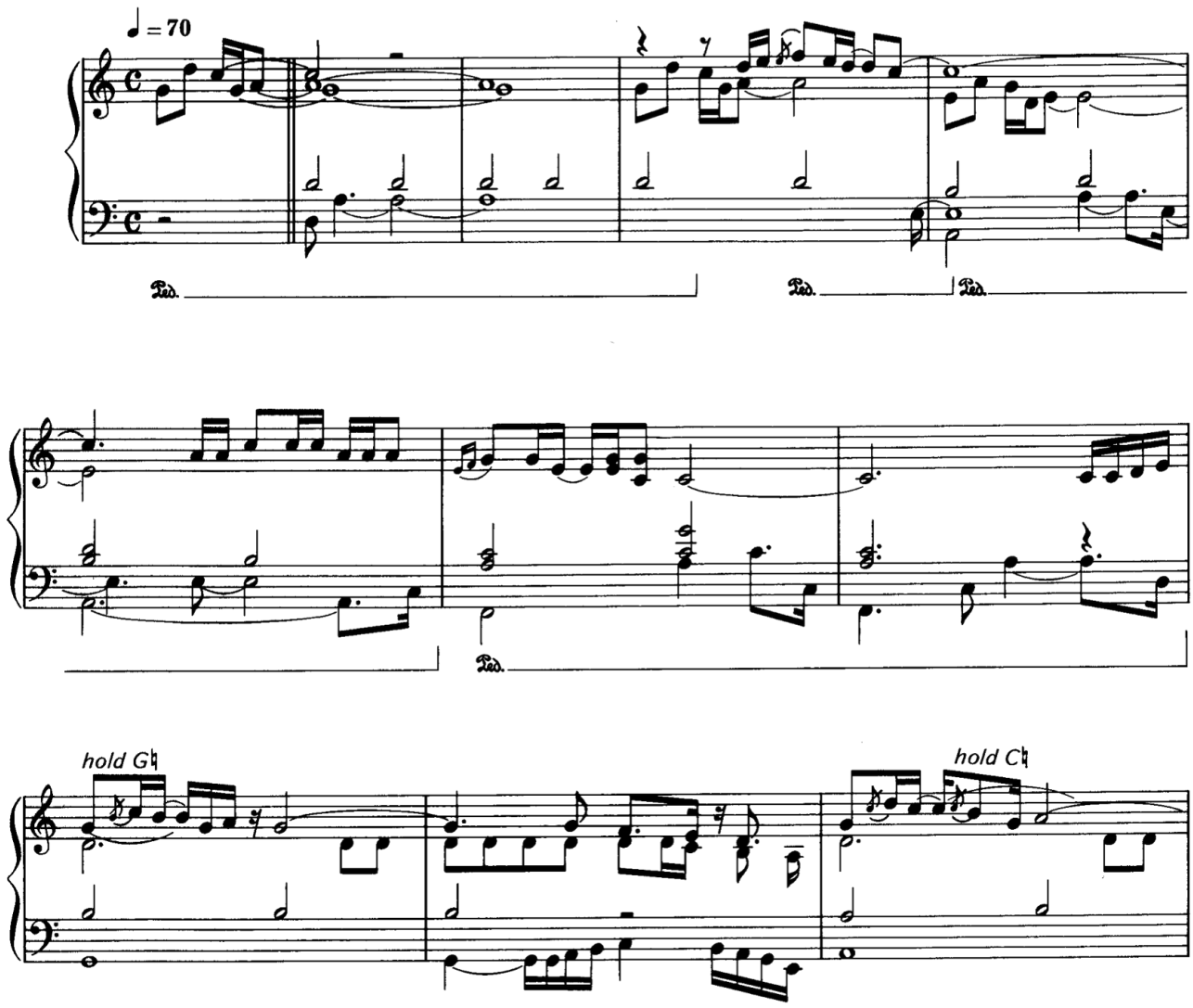


This is a new variation of the initial motif, combined with a lower transposition of the previous one. The rising couplet is now a falling couplet, still followed by a downward leap to an A. This is followed by a version of the previous bar's material, though this has now inverted once more and transposed down a fifth.

By now, this could be heard as the third or fourth "theme" of the first movement, but such a description would be inaccurate. The development is a continuous process, a musical "descent with modification". Adams has said of his music, specifically with regard to *Common Tones in Simple Time*, but applicable in general:

> …underneath the fast surface movement lies a very slow harmonic movement. The resulting effect, at least in my mind, gives the feeling of moving over "terrain" or "landscapes", as if one were viewing the surface of a continent from the window of a jet plane.

The fast surface textures and slow harmonic movement may account for this feeling, but his use of mutation may also be a factor. The music, like a landscape seen from a moving vehicle, changes gradually until it no longer resembles its starting point. The resulting music also strongly resembles the practices of improvising musicians.



Keith Jarrett, *The Köln Concert*, transcribed, b.1 - 11

Jarrett begins with a simple five-mote motif, quoting the Köln concert hall's bell chime that warns patrons to take their seats. He then begins changing the motif, first by transposition (bar 4), then by subtle mutation (bars 8 and 10). The rhythmic properties of the motif, quavers and semiquavers, find their way into his countermelodies (bar 3, upper voice), while the intervalic properties of the motif, leaping fourths and fifths, become the basis for the left hand's accompaniment figures. In its own way, and at a higher speed, this is development in accordance with Reich's conception of music "as a gradual process", where everything unfolds in full view of the listener.

11. Delayed Bass

The Delayed Bass is a structural / dramatic feature whereby a piece begins in the middle and/or upper register, so that the eventual arrival of deeper tones comes as a surprise or a relief. The most extreme example of this technique is in *Common Tones in Simple Time* (1980), a twenty-minute work for orchestra in which the low notes of the pianos, cellos and basses are not heard until bar 701, almost fourteen minutes into the piece.

Phrygian Gates stays exclusively within the piano's middle and upper register for five and a half minutes, until bar 237 when, at a change of gate, the texture plunges suddenly, fortissimo, to the bottom of the keyboard.

Harmonium is less extreme; the double basses enter at bar 163, after two minutes and 45 seconds of exclusively mid and upper register. *Shaker Loops* ; the double bass enters at bar 112, also two minutes and 45 seconds into the piece.

Adams appeared to have exhausted his appetite for this motif by the mid 1980s, but its influence remains - albeit in altered or diluted form - in some later works. When he composed *The Dharma at Big Sur* in 2003*,* for electric violin and orchestra, he wrote for a unique six-stringed instrument (the four strings of a standard violin, plus two lower) which could play deep into the violoncello register. However, Adams does not reveal this capability until bar 55, three minutes and 45 seconds into the piece.

Century Rolls uses a tempered version of the motif: the orchestral introduction begins with flutes, piccolos, violins and harp, playing in their middle to upper registers. As the introduction progresses,

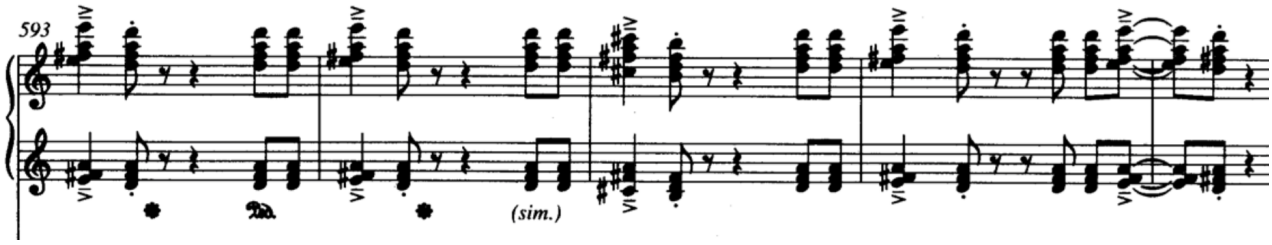
Adams adds oboe, viola, horns, bassoons and cellos, also in middle to upper range. Double basses enter on an F# at bar 20, but softly. Dynamic markings throughout are *p* to *mp*; strings play pizzicato; winds and horns play staccato; the only other performance marking given is “delicately”. The solo piano entry at bar 34, a little over a minute into the piece, is marked *f*, “animated”, and begins on an F# one octave lower than anything heard up that point.

A related motif, occurring on a shorter timescale, is the paradigm shift modulation, whereby the bass is delayed by only a few bars. The arrival of the bass note then has the effect of changing our perception of the harmony.

Pianistic Ur-Motif:

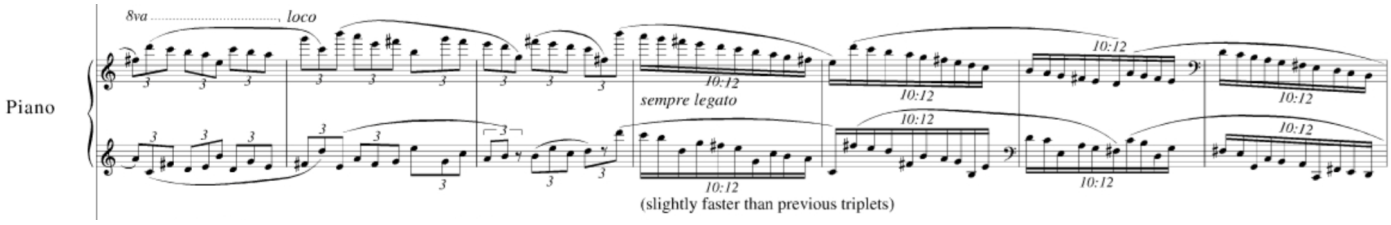
12. Alternating Hands

Alternating Hands is a style of piano playing in which, as the name implies, only uses one hand at a time. It is a rhythmically charged style of playing, reminiscent of drumming paradiddles. Adams' earliest piano works, China Gates and Phrygian Gates, treat the hands independently, as two autonomous generators of wavelike musical material, but in all his subsequent works the hands rarely function independently of one another. They are either doubling each other at the octave, as if filling out an orchestral texture:



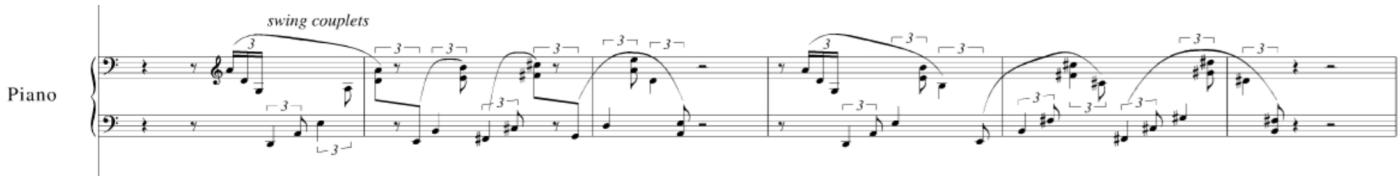
Hallelujah Junction, b.593-596

playing harmonising lines in lockstep;



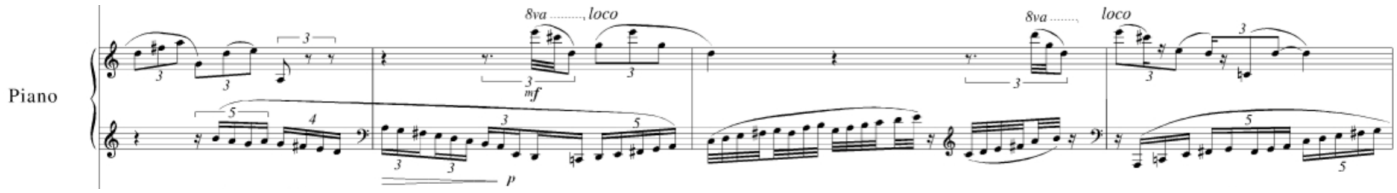
Century Rolls, second movement, b.38-44

or playing alternately:



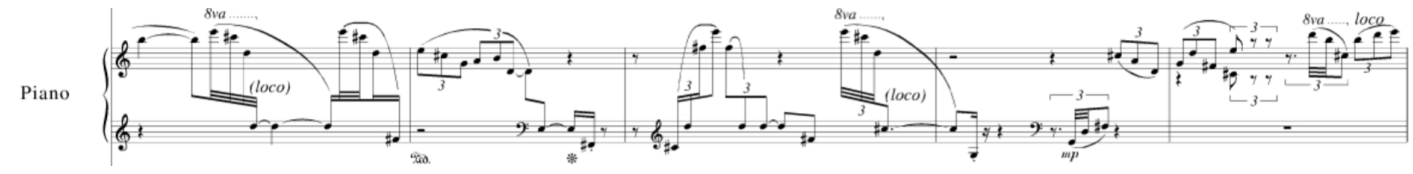
Century Rolls, third movement, b.181-186

Contrapuntal writing, or even melody plus accompaniment, is notably absent. It is found only in very rare cases, such as this moment in *Century Rolls*:



Century Rolls, second movement, b.51-54

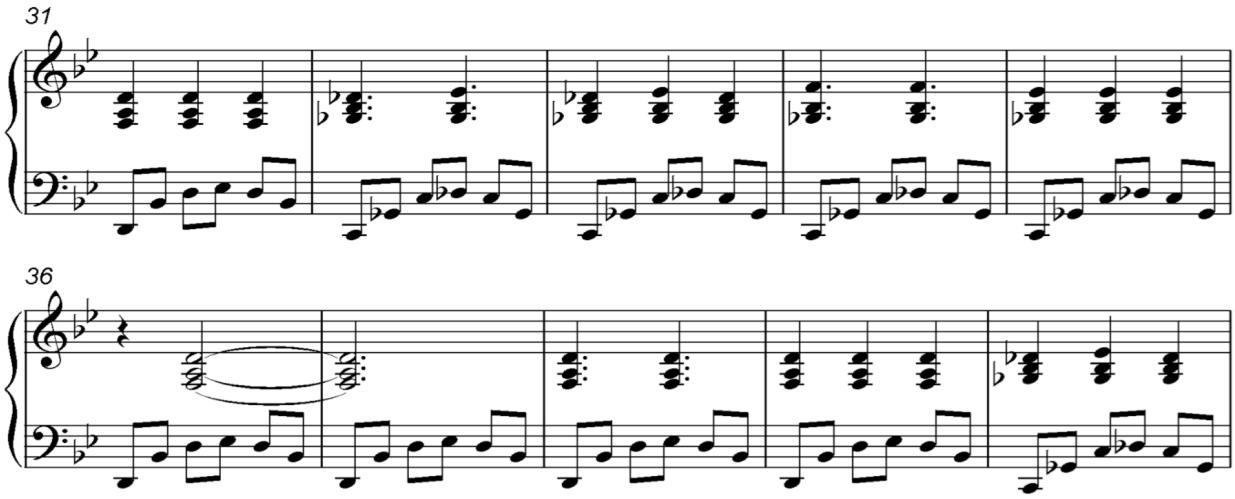
But even here, this is a combination of two ideas which were first presented individually. The left hand's scalic material is a continuation of what had just been played with both hands together, while the right hand's figurations are taken from the first movement, where they were presented in an alternating-hands configuration.



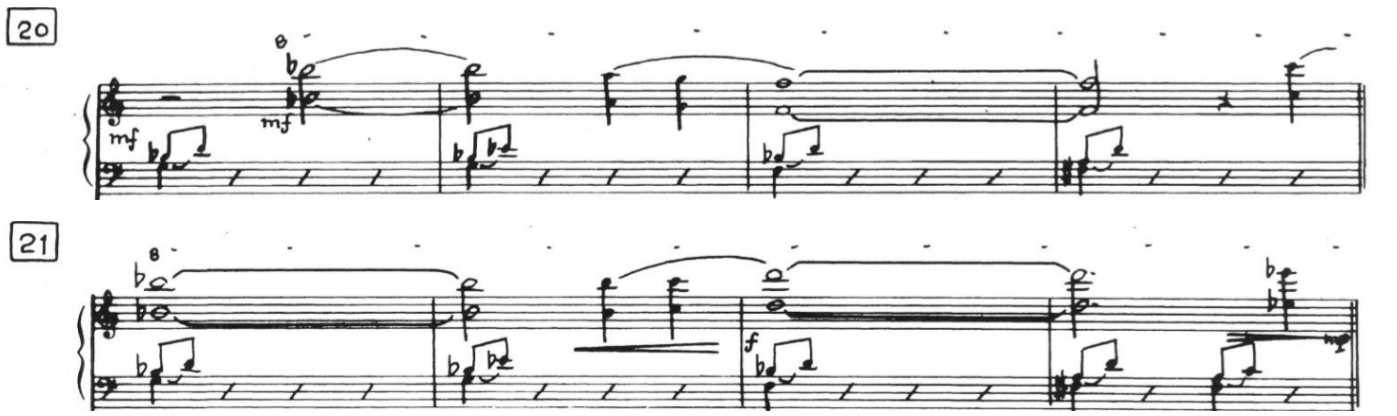
Century Rolls, first movement, b.421-425

The motifs, in other words, appear to have been written as individual elements and later combined together, rather than having been conceived as a polyphonic piano texture.

For pianists and other keyboard players trained in the classical style, the mental subdivision required to play multiple parts simultaneously becomes second-nature. Adams, however, trained as an orchestral clarinettist. Steve Reich, who was first a percussionist, writes for piano in a similar vein. This style of piano writing is not, however, a feature of minimalism *per se*; Philip Glass, who is a competent pianist, consistently writes in a "melody plus accompaniment" style:



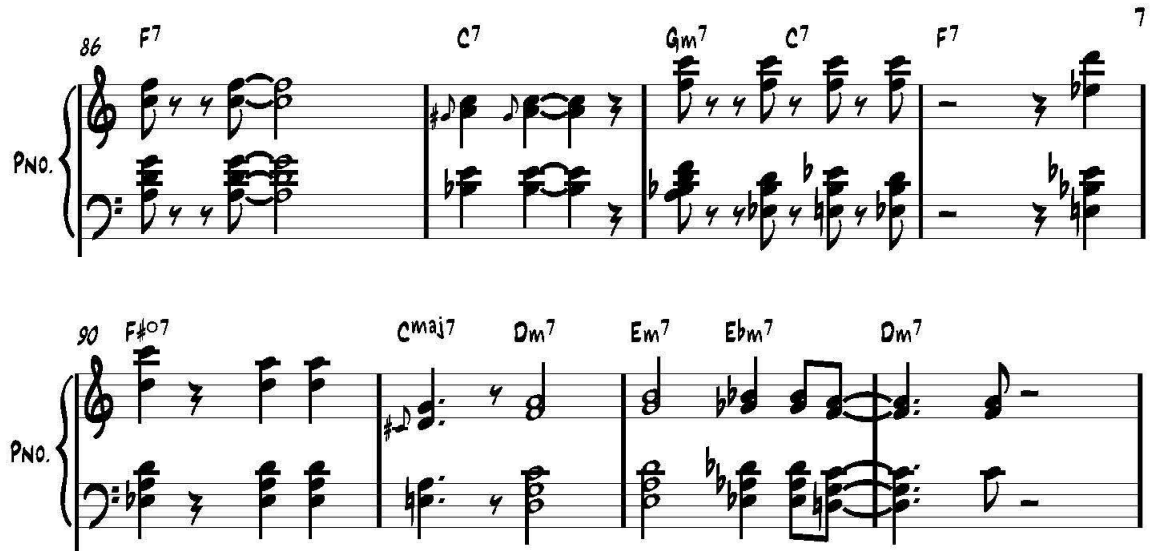
Glass: Etude no.4 for piano, b.31 - 40



Glass: *Tirol Concerto*, 2nd movement

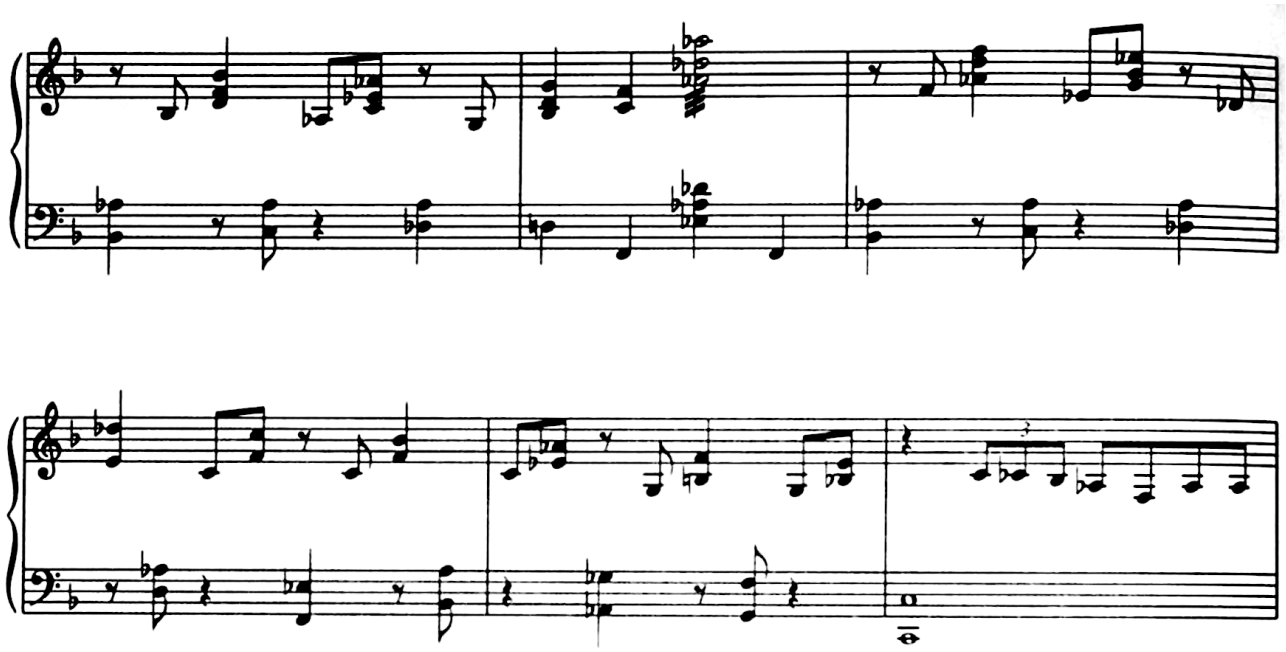
While contrapuntal piano writing is the norm in classical styles, it is less common in popular and jazz styles, which for Adams are part of the "vernacular" styles he refers to in his oft-quoted remark "whenever serious art loses track of its roots in the vernacular, then it begins to atrophy", the word *vernacular* refers to the music of the people. In his case, this includes folk songs, jazz, rock, pop, gospel, bluegrass, and the other indigenous musical styles of North America.

Jazz comping treats the hands as a single unit, playing sustained chords or isolated rhythmic stabs:



Jamey Aebersold: *C Blues*

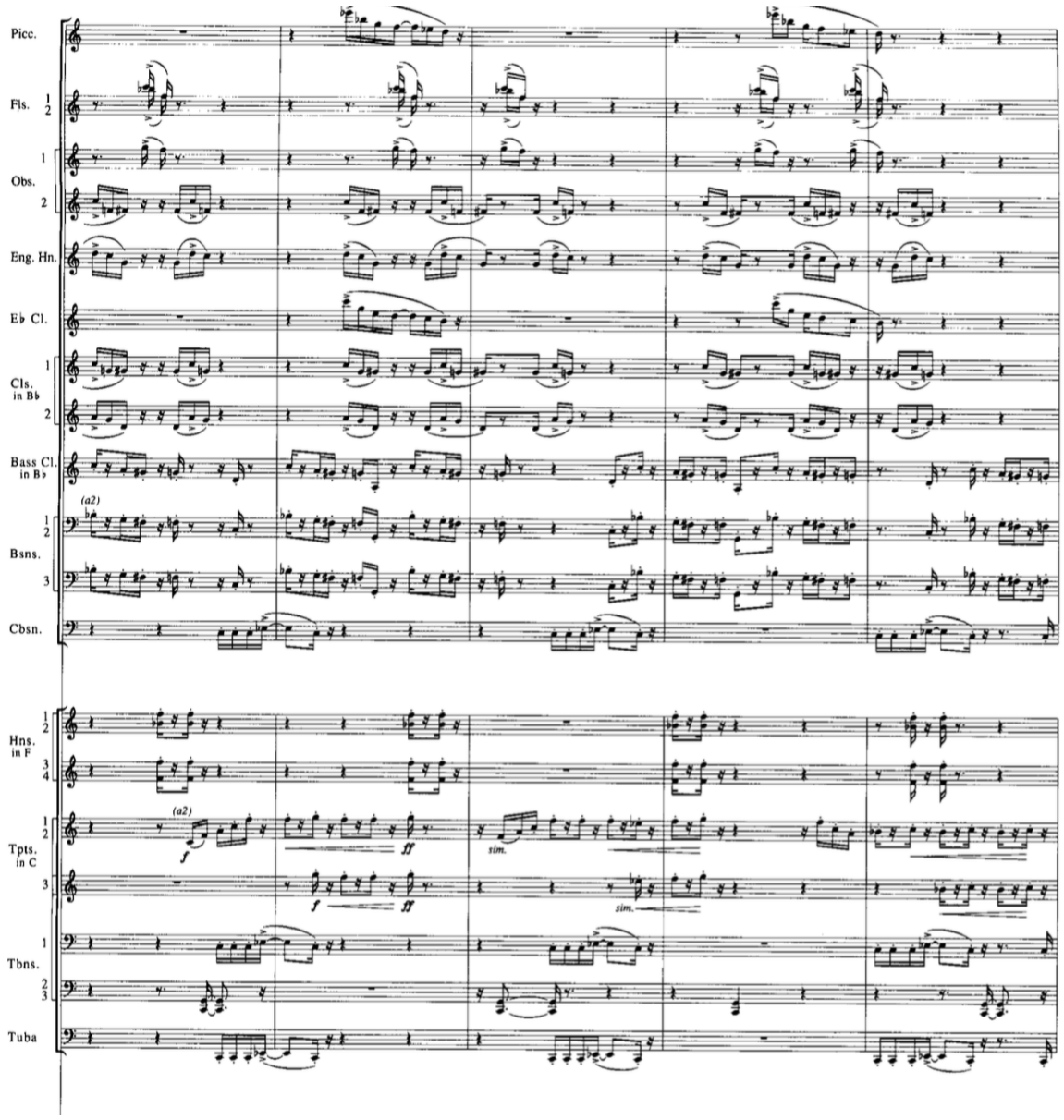
Funk music aims for rhythmic complexity by means of intricately interlocking patterns. Funk piano playing begins to approximate Adams' style; rhythmic alternating hands patterns contrasted with more emphatic block chords.



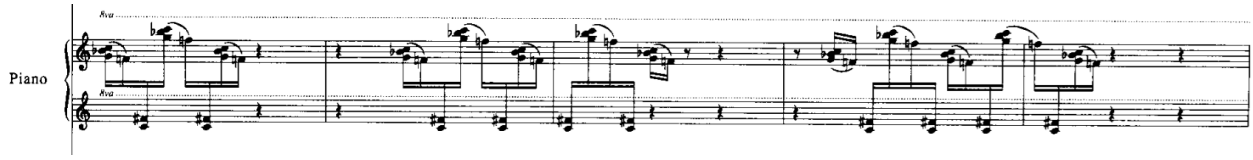
Dave Grusin: *Memphis Stomp*, an example of funk-influenced piano.

The Alternating Hands ur-motif evokes several possible influences. It is reminiscent of certain American popular styles, especially funk and jazz. It is a rhythmically charged way of playing, suited to replicating the webs of rhythmic interplay found in minimalist pieces for ensembles. And, more pragmatically for Adams, it is a less virtuosic way of writing for the instrument.

This pianistic influence carries through into his writing for orchestra, as Adams often orchestrates a keyboard part.



Lollapalooza, b.35-39



In this excerpt, the flutes, oboes, English horn, and clarinets are an orchestration of the piano part, an alternating-hands, three-within-four motif:

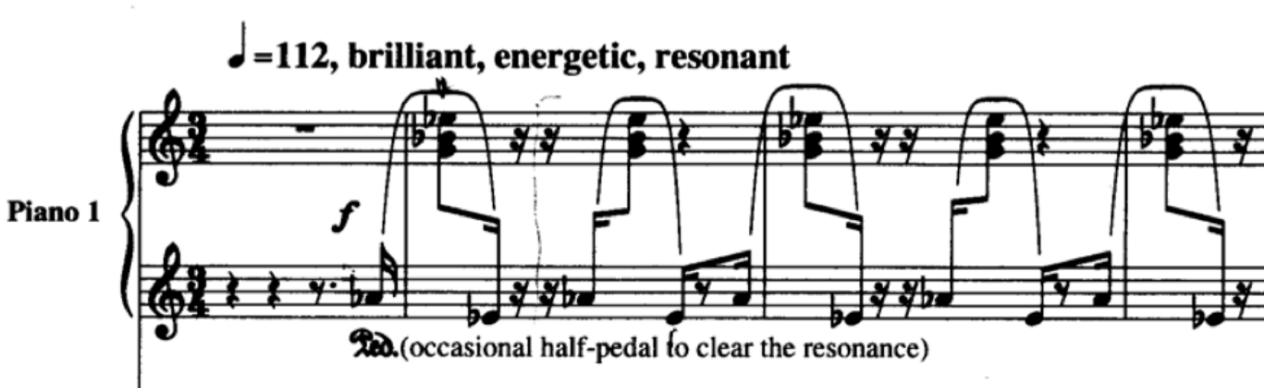
PART TWO:

Hallelujah Junction - Motivic Analysis

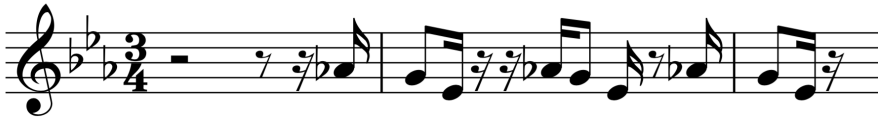
Hallelujah Junction (1998), for two pianos, is written in one continuous movement, although a section beginning at bar 275 functions as a slow second movement, and the composer-approved recording on the Nonesuch label divides the tracks so that everything from bar 358 to the end is treated as a third movement. Almost everything in its 648 bars can be derived from the opening motif, and the music follows a continuous process of gradual mutation. It is possible to divide the music into contrasting sections, but not always possible to say precisely where each section begins or ends.

Introduction and first section, statement of themes

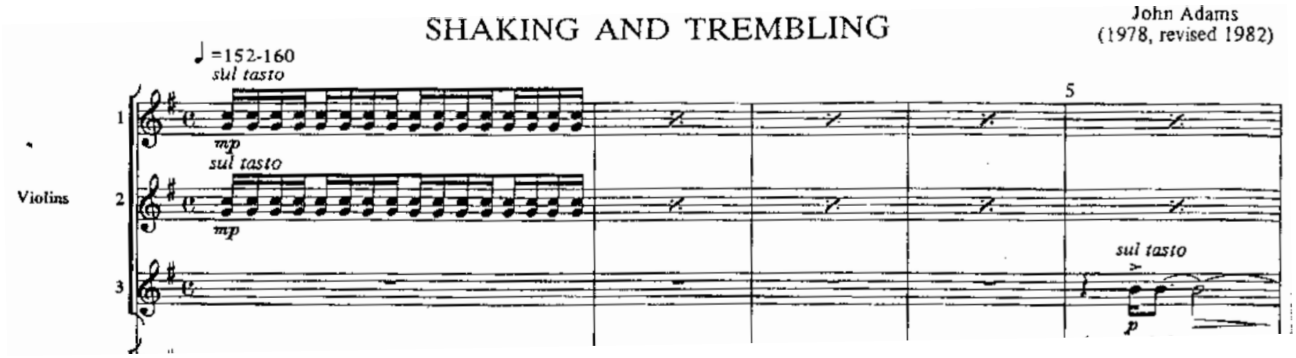
Hallelujah Junction opens with a repeating **cell** in the Piano 1 part, based on a **speech imitation** - the word "Hal-le-*lu*-jah", shorn of its first syllable.



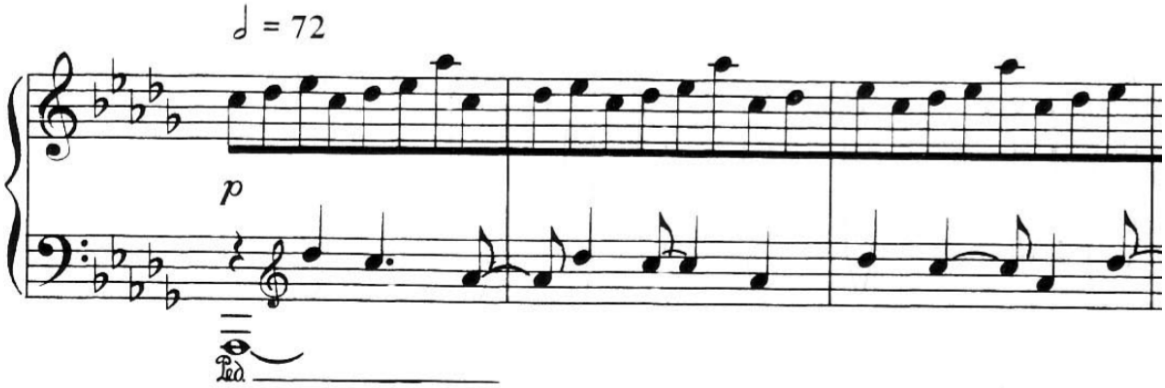
The motif is presented in an **alternating hands** pattern, with an **oscillation** at its centre between the left hand's Ab and the right hand's G. Since the left hand's Eb is perceived by the ear as being part of the melodic line, the motif is an **oscillation** followed by a **falling terminal:**



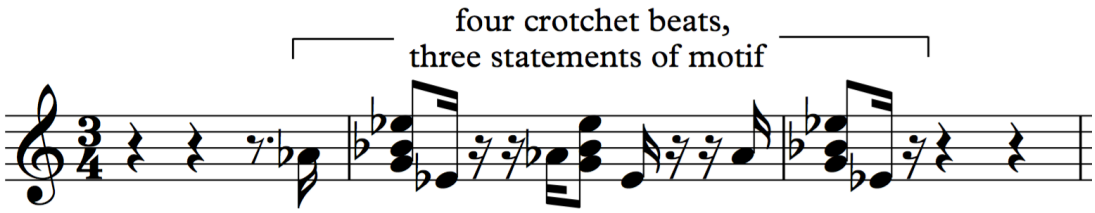
The overall harmony, because the sustain pedal is held down throughout, is a major chord with added 4th, the same harmony heard from bar 5 onwards in the opening of *Shaker Loops*:



The arrangement of notes in root position, spanning an octave, and containing five notes in close voicing, is exactly the same arrangement of notes heard at the opening of *China Gates* (excluding the low bass Ab):

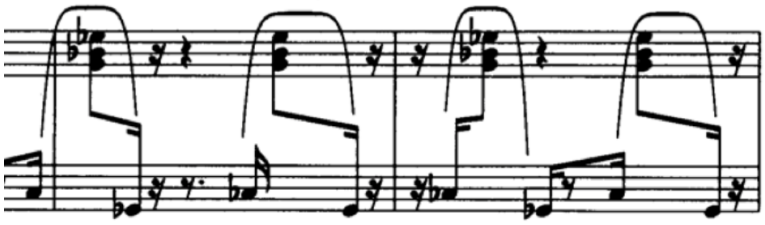


The rhythm, notated in 3/4 but initially sounding like 3/8 or 6/8, is an inverted **three-within-four** pattern:

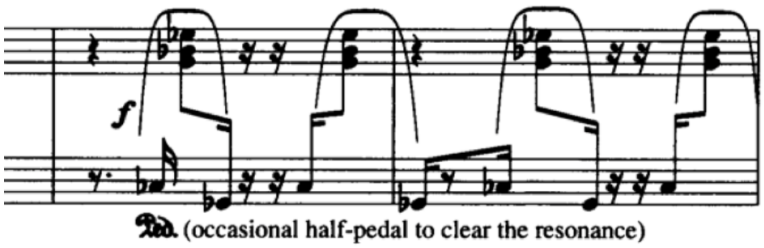


At bar 4, the first instance of **mutation** introduces a duplication, bringing Piano 2 into the texture with the same repeating cell, offset by one crotchet beat so that the upper chord bounces back and forth between the pianos. For a few bars, until the mutations take over, the texture resembles one of Steve Reich's unison canons.

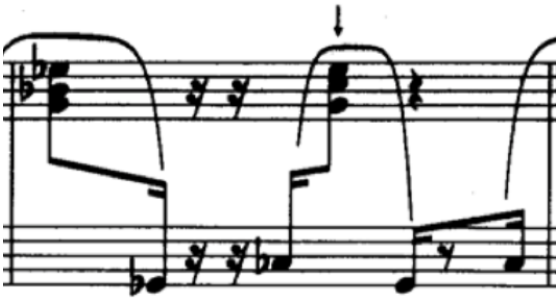
Piano 1:



Piano 2 :

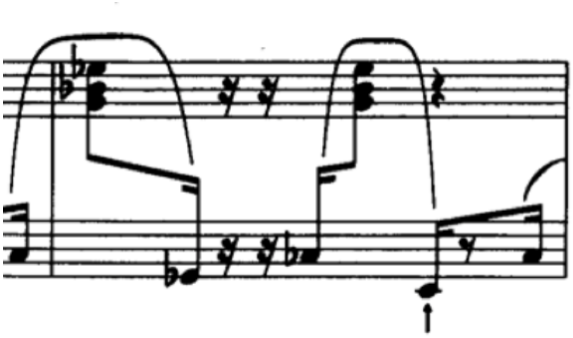


In bar 8, a mutation in Piano 1 creates an **oscillation** on the Bb, bringing a C into the chord and adding a shade of minor tonality.



The arrow is present in the source; for the first 22 bars, all deviations from the starting pattern are flagged. From bar 22 on, mutations accumulate too quickly for this to be worthwhile.

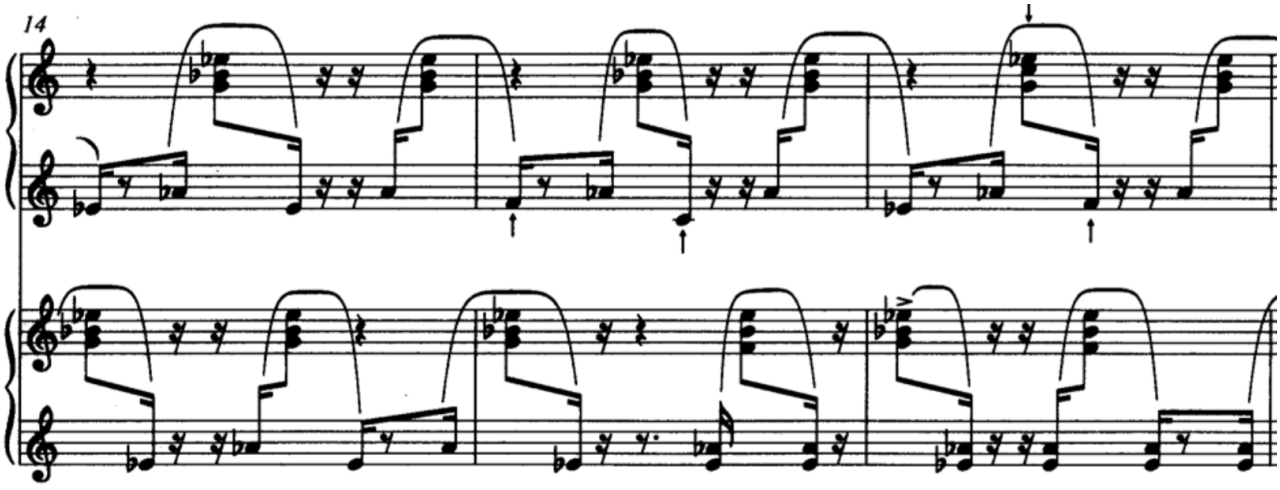
In bar 9, Piano 1's left hand Eb mutates down to middle C.



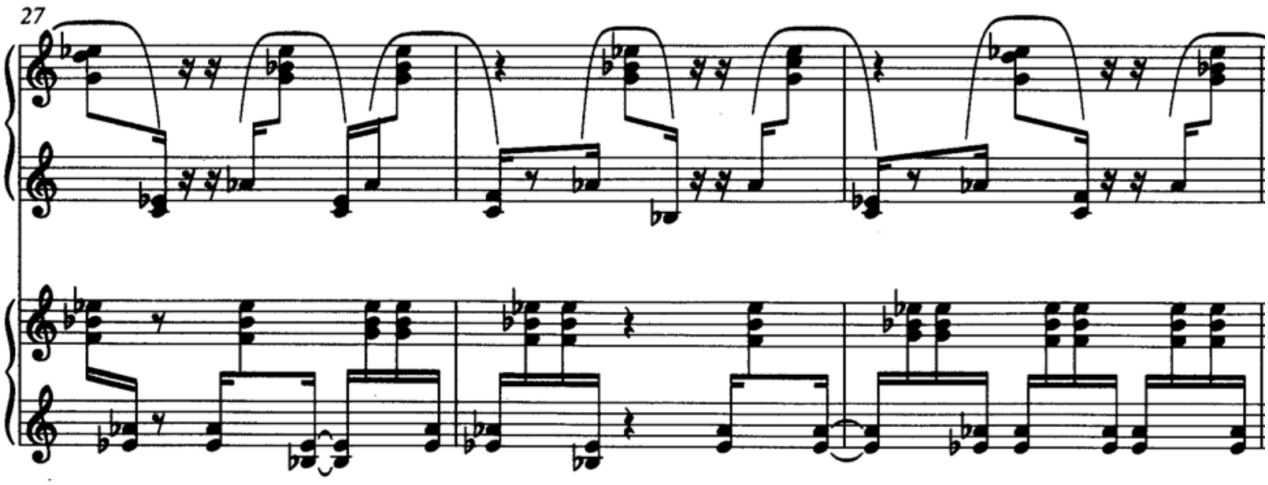
This is the lowest tone heard thus far (Adams is using the **delayed bass** technique), and therefore causes the E-flat chord to be reinterpreted by the ear as a C minor 7, an example of a **paradigm shift** modulation.

Hallelujah Junction is not written in sonata form. But, just as sonata form is built on the tension between tonic and dominant, this move to the relative minor sparks a recurring conflict between key centres **separated by thirds**.

Another **oscillation** on the left hand Eb introduces F to the harmony in bar 15.

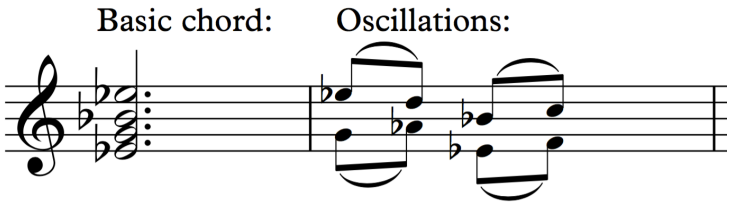


The introduction of a D at bar 27 completes the scale. In bar 29, thanks to the sustain pedal, every note of the E-flat major **diatonic cluster** is audible at the same time.

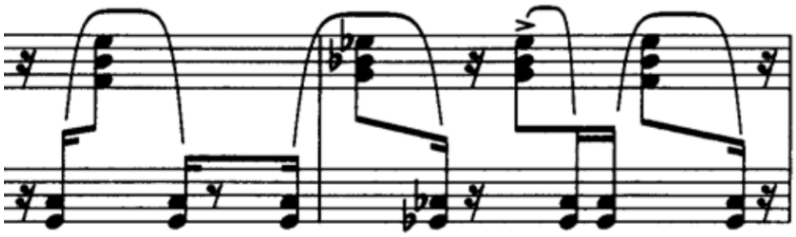


During these opening 30 bars, the pianos have been drifting apart on independent lines. Piano 1 mutates harmonically; Piano 2 mutates rhythmically.

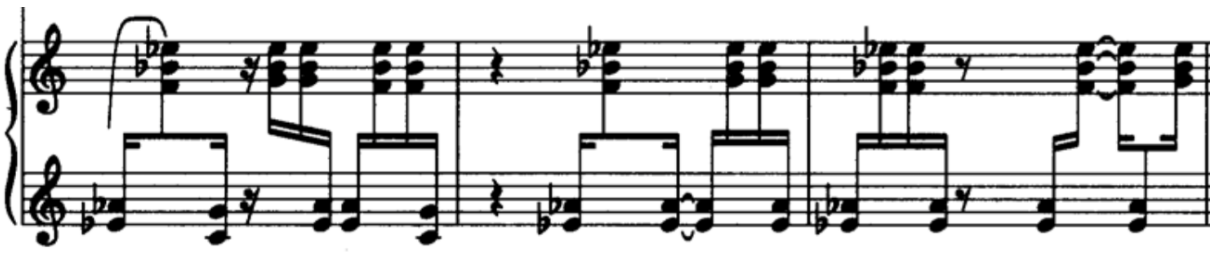
Piano 1 adds melodic figures through the use of oscillations on the inner voices - Eb / F and C / Bb at the bottom of the texture, Bb / C and Eb / D at the top, Ab / G in the middle, while keeping the "le-*lu*-jah" shape intact.



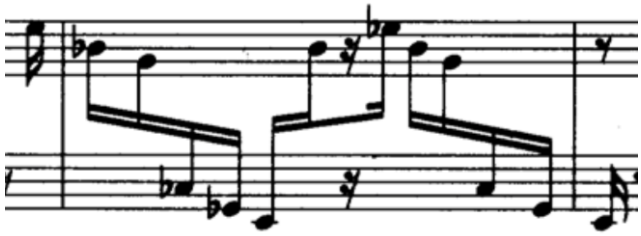
Piano 2, meanwhile, disrupts the "le-lu-jah" rhythm, removing another syllable at bar 16, so that it becomes "*lu*-jah, le-*lu*-jah…".



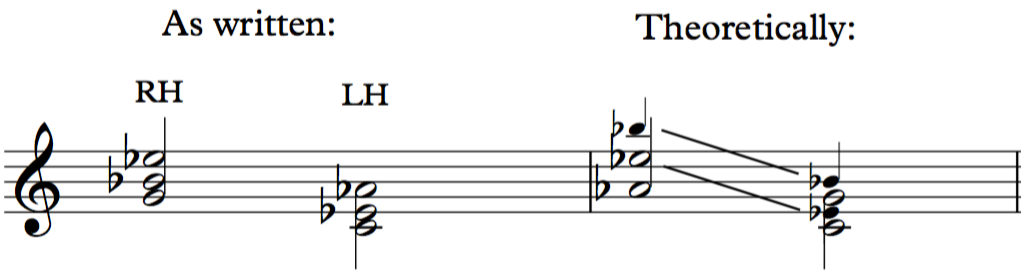
At bar 21, the chord representing the "lu" syllable becomes duplicated. From this point on, Piano 2's cell bears less and less resemblance to its syllabic origin.



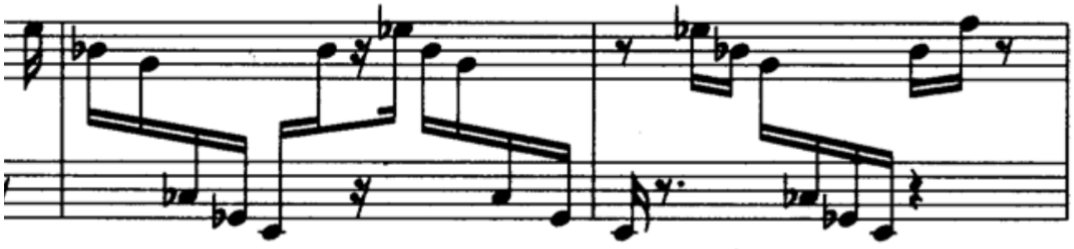
At bar 31, Piano 1 mutates from playing block chords to playing broken chords, moving further in the direction of melodic writing.

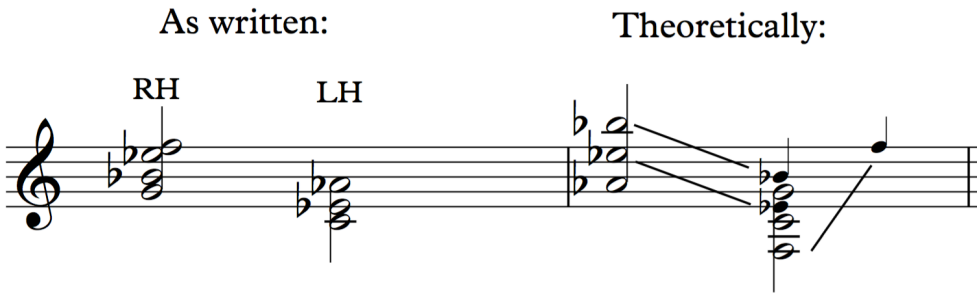


Piano 1 has settled on the C minor version of the harmony, the version which most closely resembles a **semitone offset fifth**. While it is not voiced exactly as such, the pitch material is reducible to a semitone offset between C-G and Ab-Eb, with one octave doubling and one octave transposition.

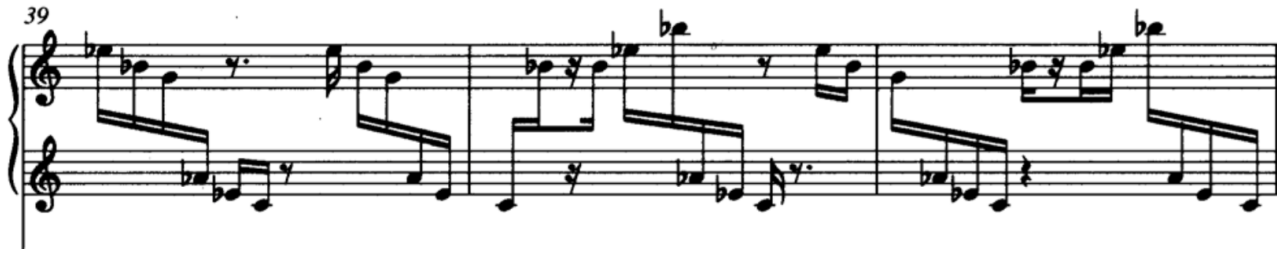


An F, the next lowest fifth in the lower series, is added in bar 38, but transposed to the upper octave, and played as an oscillation on the right hand's upper E flat.

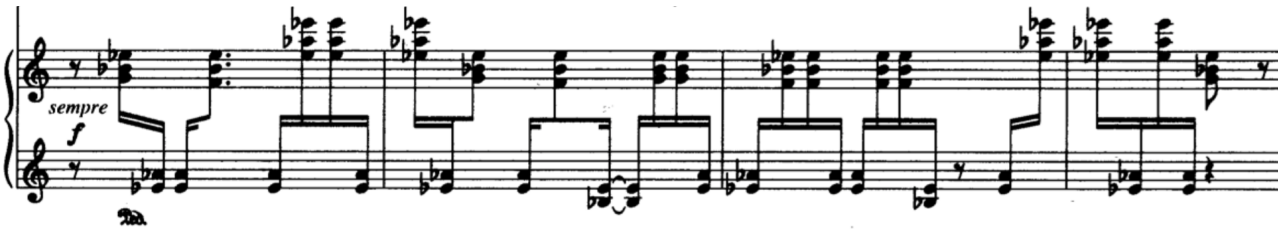




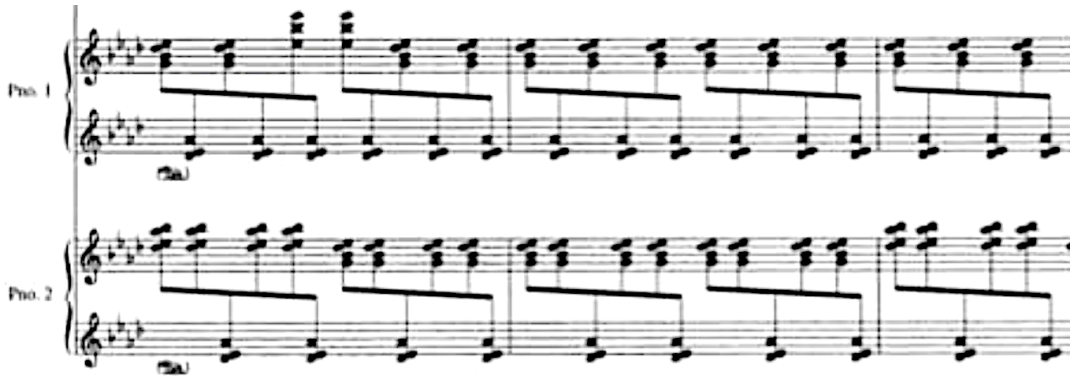
A mutation in bar 40 transposes the Bb an octave higher, moving it closer to an orthodox voicing of stacked and offset fifths. The dense, clustered texture opens out to a more spacious voicing of the same harmony.



While this is happening, Piano 2 adds a new mutation; some of its right hand chords become displaced by a higher **fifth** (with the upper note doubled at the lower octave).

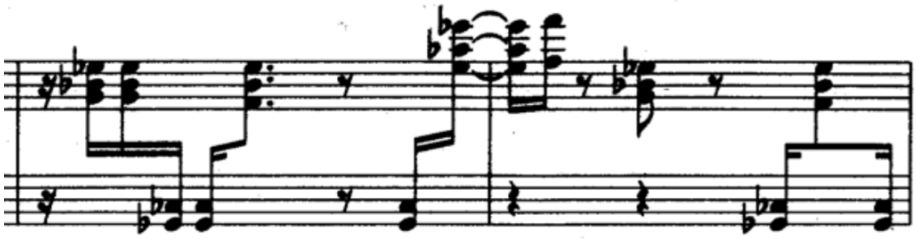


This is a close relative of the **ping** motif, higher notes puncturing a lower texture. The example above is most strongly reminiscent of a similar texture from *Grand Pianola Music*:

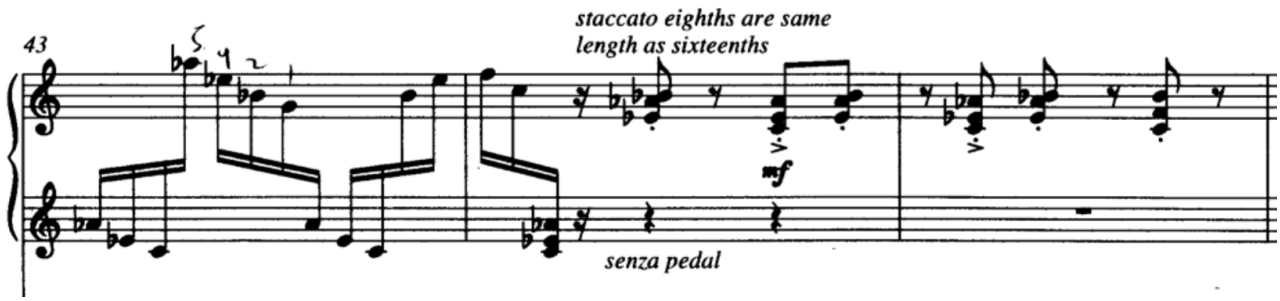


Grand Pianola Music, second movement, b.54-56.

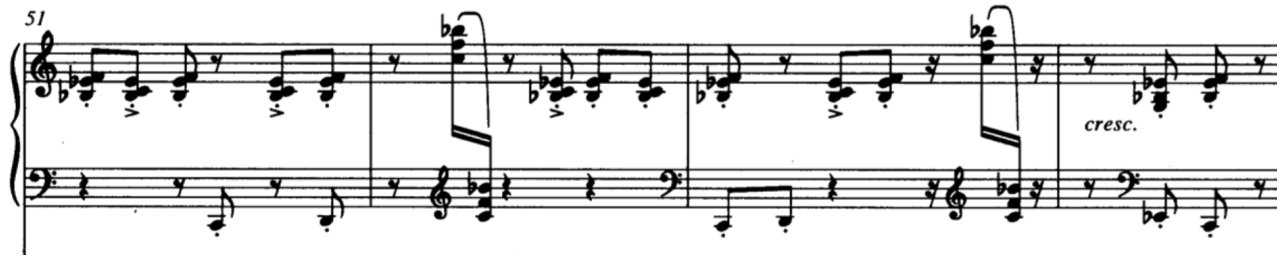
This texture continues, and the chordal pings mutate into a new melodic figure, another **oscillation**.



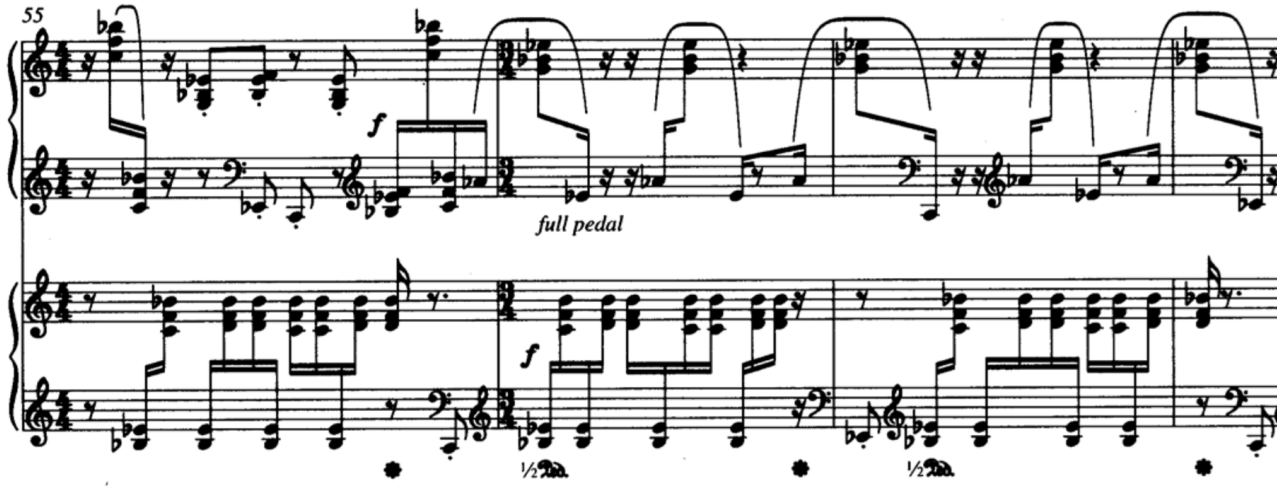
At bar 44, Piano 1 mutates its broken chords, compressing them back into blocks, and becomes a rhythmic driving force once more. Oscillation continues within the inner voices from one chord to the next.



The somewhat **delayed bass** makes its appearance at bar 46, with a low Eb anchoring the tonality in the major key, but then immediately mutates down to C, shifting the paradigm to C minor tonality once again.

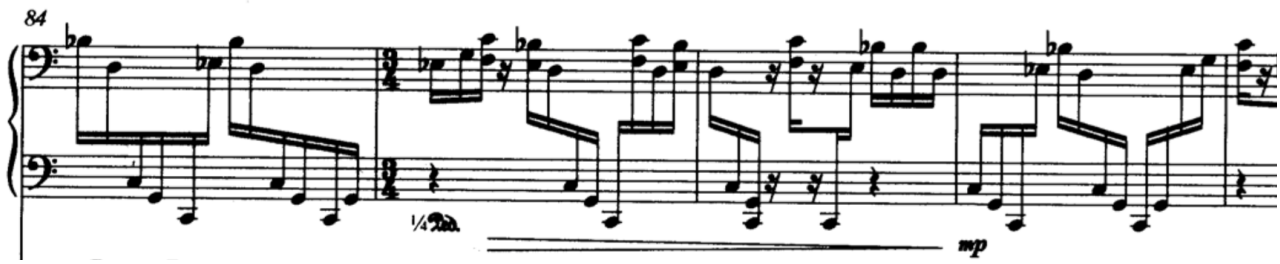


From bar 56, Piano 1 returns to the original motif, while Piano 2's irregular rhythms stabilise into a **three-within-four** pattern. Deep in the bass, C and E-flat compete to underpin the harmony, even sounding simultaneously in bar 58.

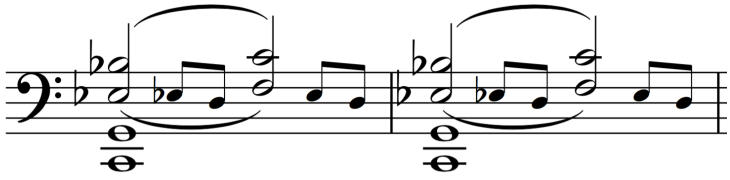


Second Section

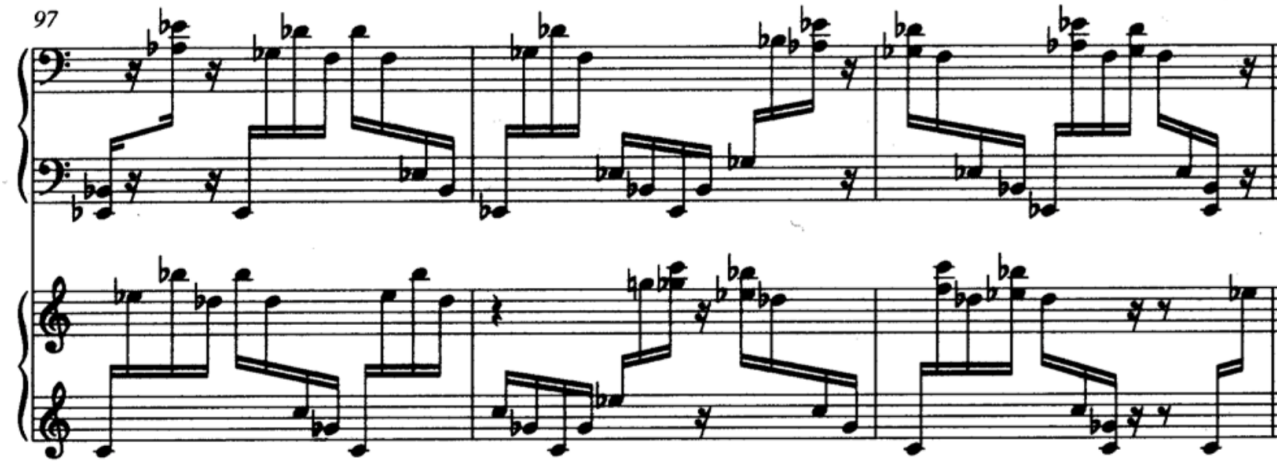
Hallelujah Junction, to reiterate, is not composed in sonata form. But if it was, bar 85 would mark the beginning of the second subject. This new theme, taken up by Piano 2 at bar 88, two octaves higher, is built around two **pairs of fifths**, C-G and Eb-Bb.



Theoretically:



The Eb-Bb fifths **oscillate** as a unit to produce another fifth on F-C, and the lower Eb has an independent oscillation with D. At bar 96, echoing the E-flat / C minor gating of the opening, the harmony gates to E-flat minor, another thirds relationship.

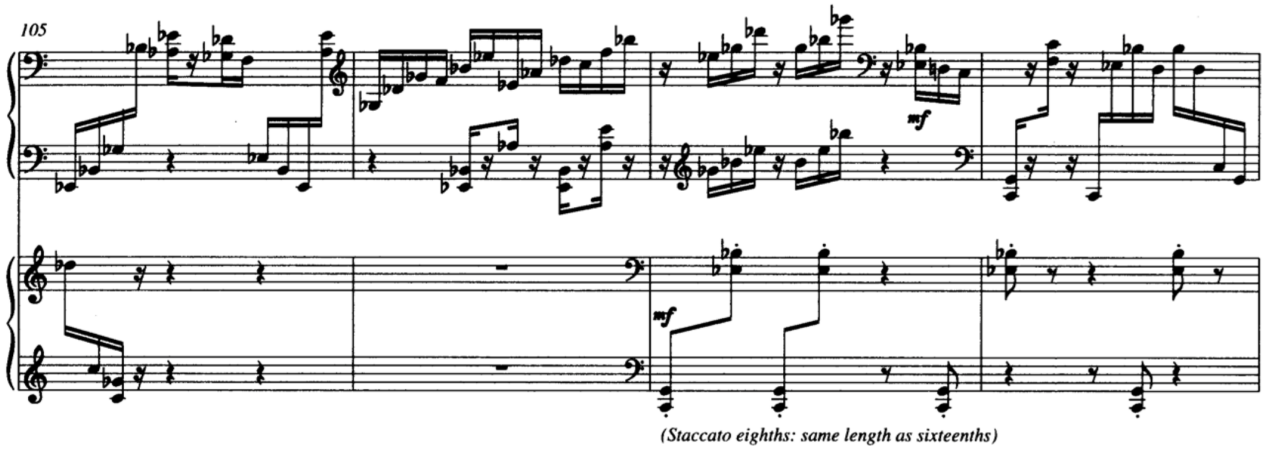


The conflict between key centres has now become much more pronounced. The opening key centres were set apart by a minor third, but shared the same scale and could move between the two by means of paradigm shift modulations. Here, the opposing key centres, C minor and E-flat minor, though still minor thirds apart, have mutually incompatible scales. The two key centres gate back and forth, as follows:

Bar	85	96	107	114	125	128	133
Key	Cm	Ebm	Cm	Ebm	CLoc*	Ebm	Bbm (solo interruption)

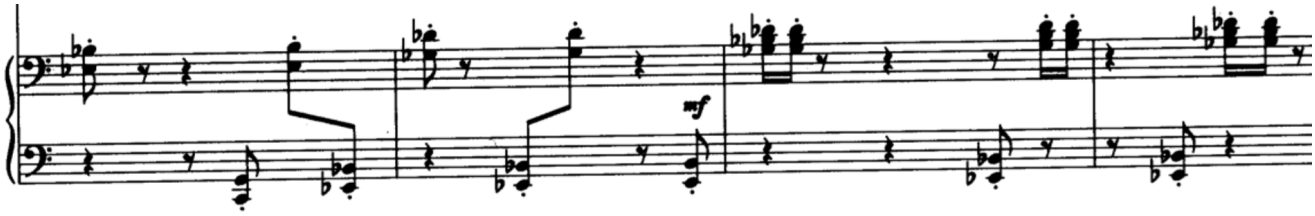
* C Locrian; E-flat minor with C bass, an unsuccessful gate or attempted paradigm shift

From bar 106, Piano 1 begins to elaborate on the harmonic and melodic potential of this second theme, while Piano 2, as before, mutates along rhythmic lines.

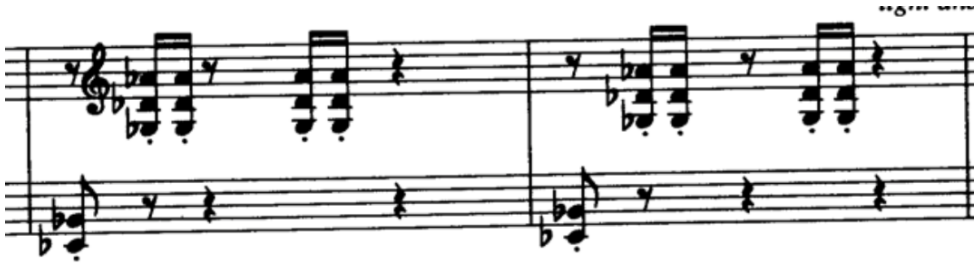


Piano 2 pares the motif down to its skeletal form, bare fifths without any oscillations, and plays them as rhythmic stabs. As before, the harmony gates between C minor and E-flat minor harmony.

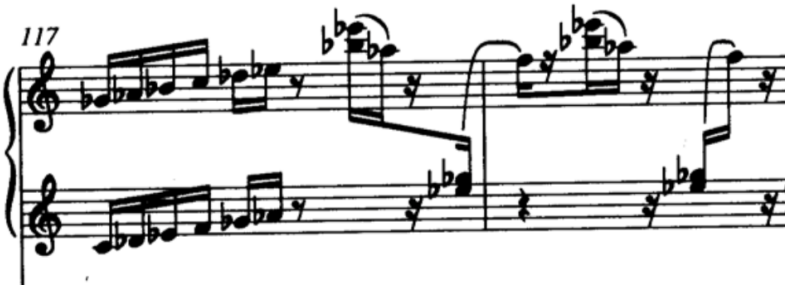
In bar 115, a mutation in Piano 2 adds a duplication, two semiquaver triads in place of one staccato quaver dyad.



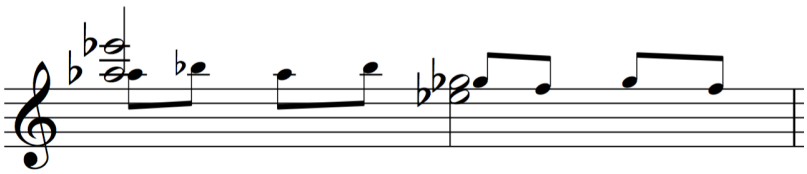
At bar 118, this triad mutates to become a **stacked fifth**.



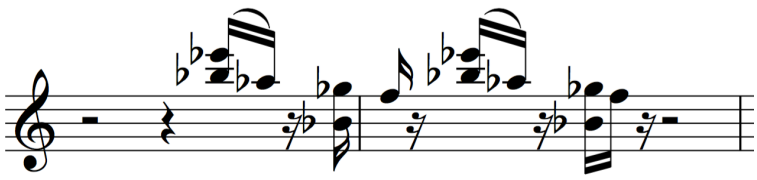
Meanwhile, Piano 1 introduces a new idea, derived from the “le-LU” part of the opening motif. It is yet another **alternating hands** gesture, an upper **fifth** in the right hand between Ab-Eb, incorporating an oscillation between Ab and Bb, and a lower third in the left hand, interacting with the right hand to make a further oscillation between Gb and F.



Theoretically:

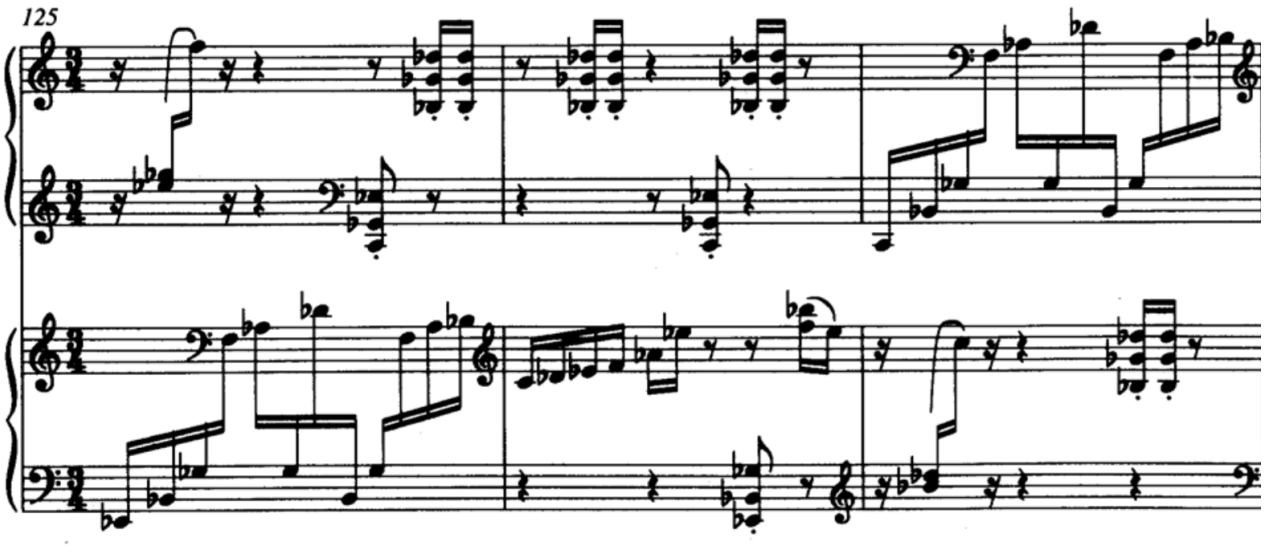


Interestingly, this motif is not as consistent as it could be with the underlying ur-motif. To be fully consistent, this gesture would have been written with a Bb instead of an Eb in the left hand, thus:



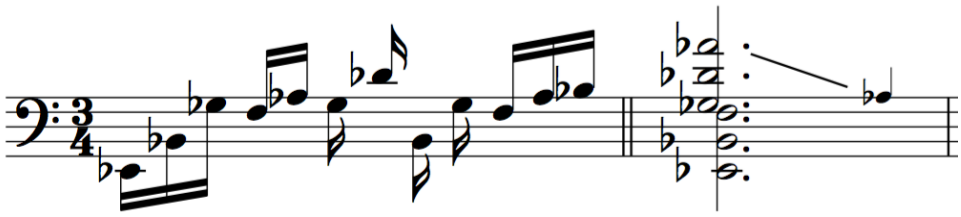
Alternatively, the gesture could be consistent with the "rules" if it was a mutation of an earlier form, but no "pure" form of it occurs anywhere else in the score. This is to be expected, however, since Adams is not composing according to predetermined rules, but is following his intuition and instinct.

At bar 125, the rhythmic / harmonic distinction between the pianos breaks down. Piano 2 suddenly takes a more melodic broken-chord gesture, and Piano 1 takes a mutated form of Piano 2's chord from bar 124. The two pianos then trade identical material back and forth.



The arpeggiated melodic figure played by Piano 2 in bar 125 here is an almost perfect **semitone offset stacked fifth**, with one octave transposition.

As written: Theoretically:

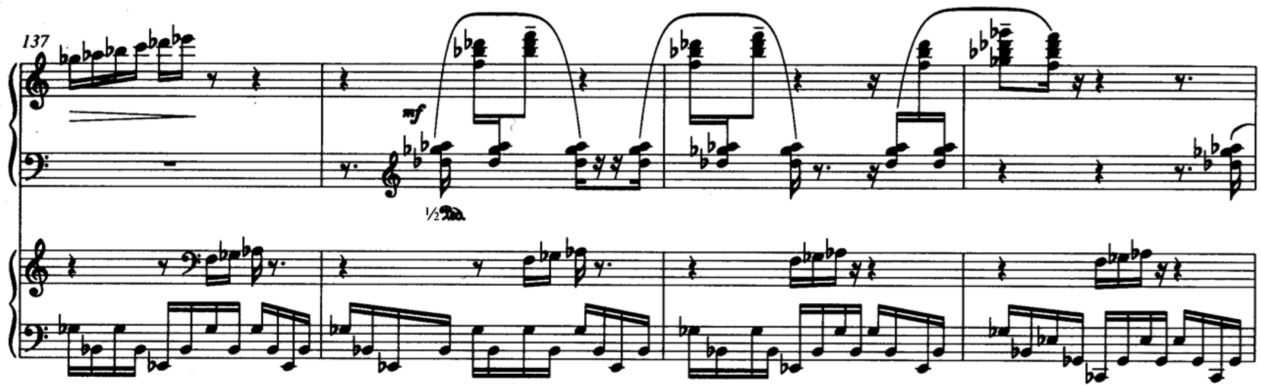


The alternative key centres continue to gate back and forth, and E-flat minor slowly begins to predominate. Piano 1 attempts a mutation to paradigm shift the music back to C minor at bar 125, but succeeds only in creating C Locrian. Meanwhile, Piano 2 takes Piano 1's gesture from bar 118, now transposed down by the appropriate minor third.

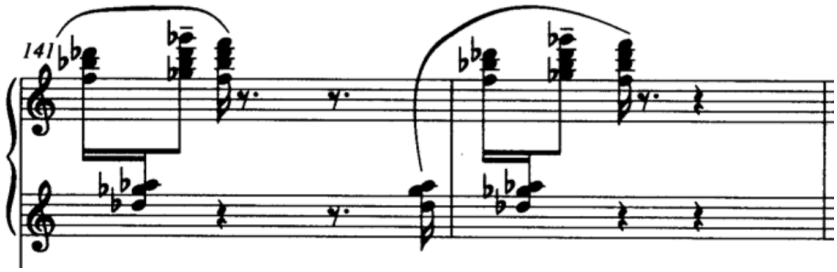
Having failed to steer the music back to C minor in bar 125, Piano 2 interrupts with a stuttering B-flat minor scale, like a brief cadenza. This leads through a double bar line at b.137, which, if this were a sonata form movement, would begin the development section.

Third Section

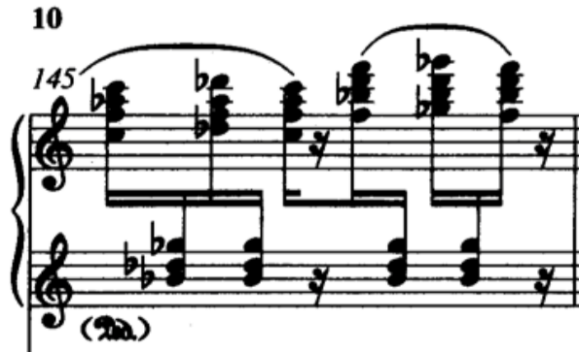
Piano 1 plays a gesture derived from the "first subject", two "le-lu, le-lu-jah"s followed by an oscillation, while Piano 2 accompanies with material based on the "second subject".



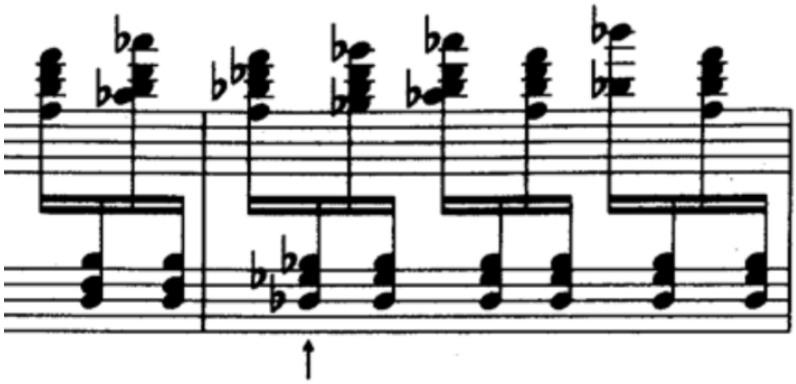
"Development section", however, would be a misnomer, as the whole piece is in a continuous process of development. The motifs continue to mutate. Piano 1 combines the "le-lu-jah" motif into the oscillation:



This then expands to a **double oscillation** between F/Gb and C/Db, reminiscent of the foxtrot melody from *The Chairman Dances*:



These chords become punctuated by a higher Ab, which then in turn begins a longer-scale oscillation with Bb:



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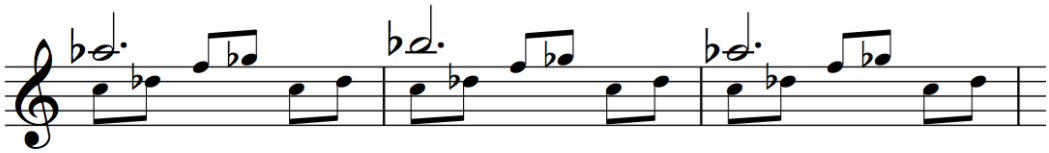
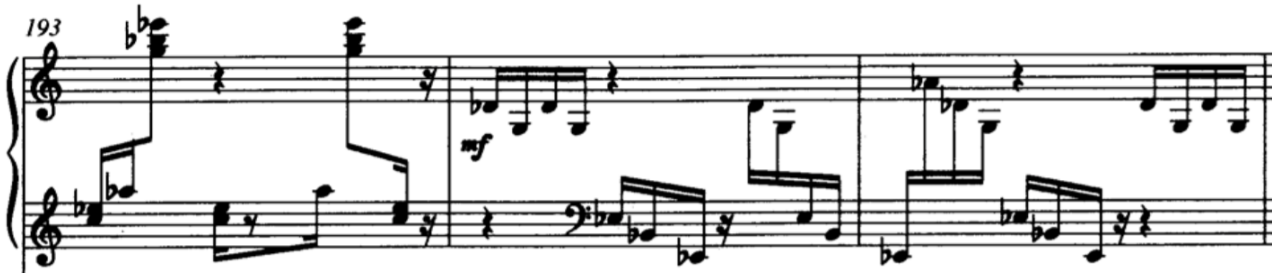


Piano 2 begins this third section in E-flat minor, but then undermines that harmony with a paradigm shift to move into C-flat major at bar 140, another **minor six** progression. After gating between those key centres for twelve bars, Piano 2 mutates to gating between C minor and E-flat minor,

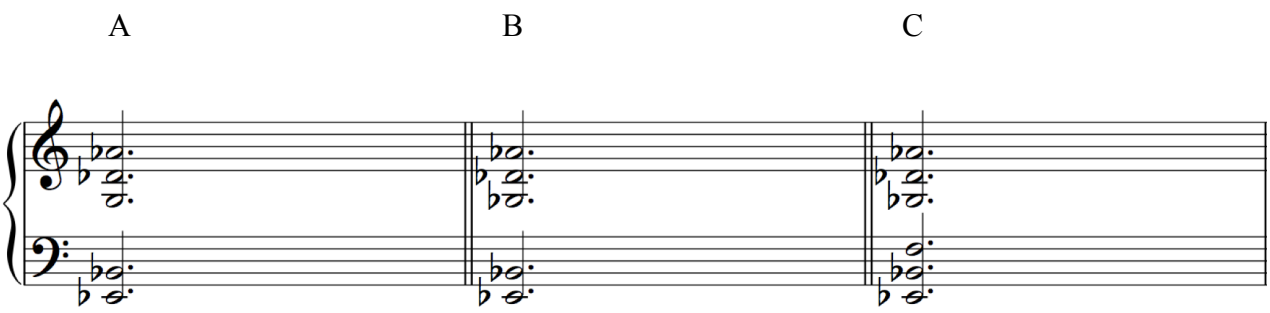
restating the work's harmonic theme of thirds relationships becoming mutually incompatible. Piano 2's harmonic pattern is as follows for this section, which ends at bar 170:

Bar	137	140	143	147	149	152	157	159	164	166
Key	Ebm —	Cb —	Ebm —	Cb —	Ebm	Cm —	Ebm —	Cm —	Ebm —	Cm

Piano 1's figurations from bar 194 are in E-flat dominant harmony with added 4th, almost the same as the opening motif, but with the chord now expanded into a more open voicing. The quintal influence can be seen at a glance. This new variation on the motif shows an ongoing integration of the first and second "subjects"; this is the harmonic identify of the opening, but presented in the texture and character of the secondary theme. It is also itself very nearly a stacked semitone offset fifth.

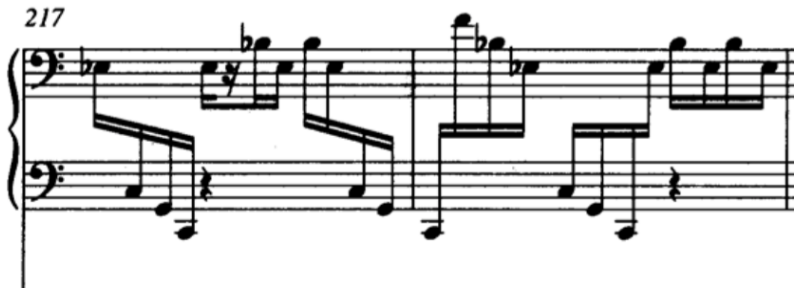


Theoretically:



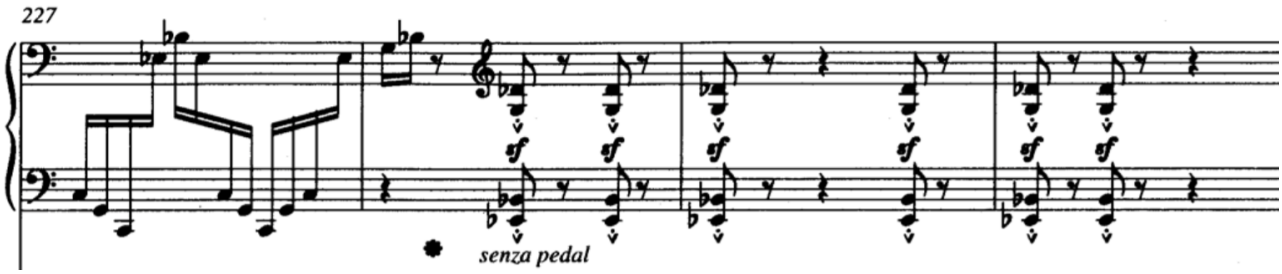
The harmony, as written, is chord A: a perfect fifth in the left hand, and a variation on a stacked fifth in the right hand; one perfect and one diminished. If both right hand fifths had been perfect fifths, the harmony would have been as shown in chord B: a stacked fifth in the right hand and a single fifth in the left. If the left hand was made into a stacked fifth to match the right hand, it would produce chord C, a perfect specimen of a stacked, semitone offset fifth.

As before, the pattern now gates down a third into C minor, and nudges slightly closer to the purest expression of the semitone offset fifth.

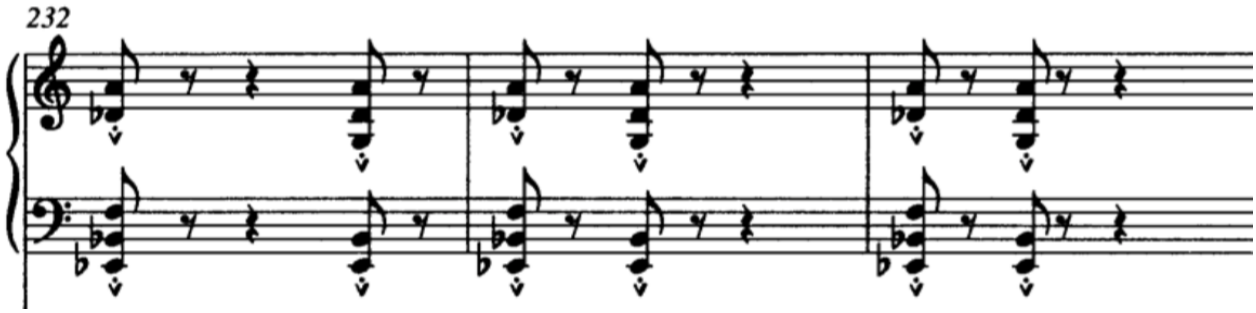


Only one note separates this harmony from being a perfect semitone offset in both pitch content and form; the left hand is playing an octave with a fifth in the middle, rather than a stacked fifth.

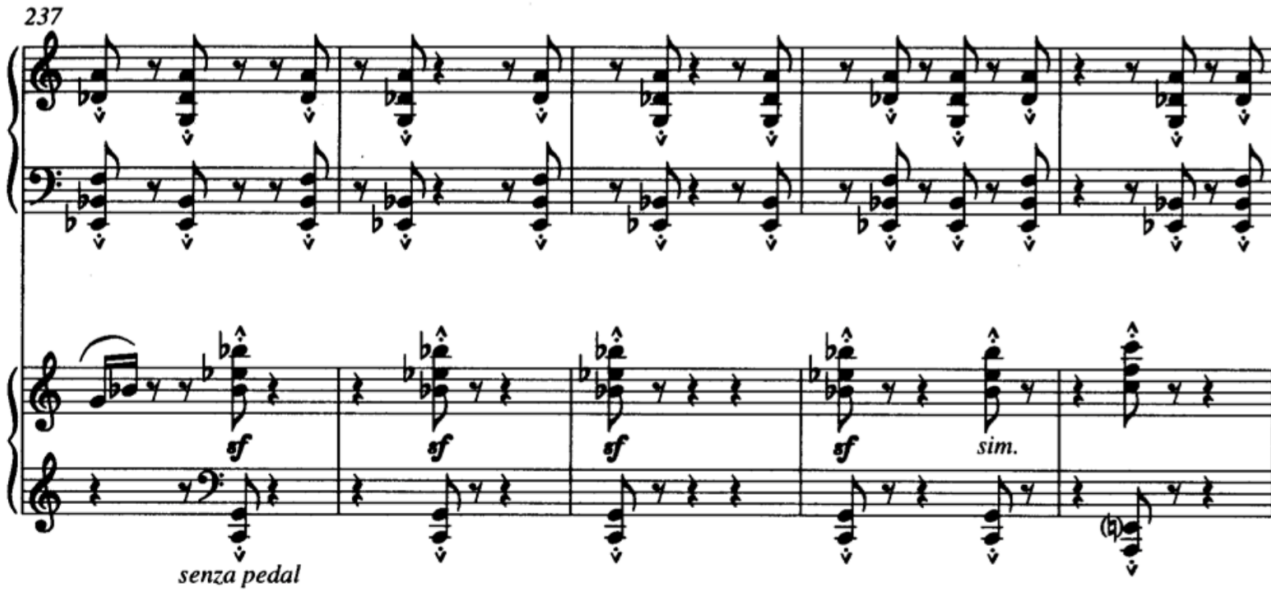
Piano 1 arrives on a percussive figure in bar 227, playing E-flat dominant harmony in accented staccato chords. The chords are built from two fifths, one perfect and one diminished.



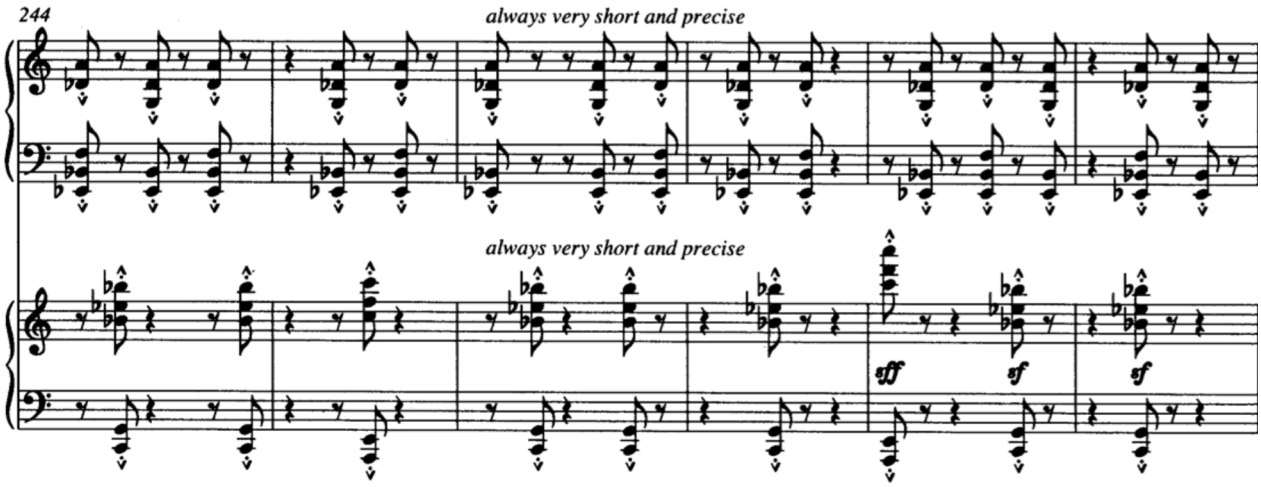
A mutation on this motif begins at bar 232, with each hand alternating between playing a fifth as a dyad, and playing a stacked fifth. The resulting alternation creates an oscillation at the centre of the chord between F and G:



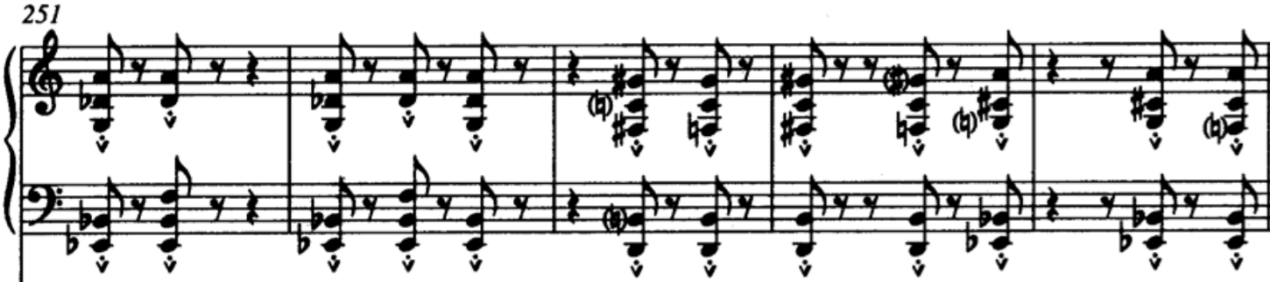
Piano 2 joins this motif at bar 237. Piano 1 continues to play in E-flat dominant harmony, while Piano 2 plays in C minor:



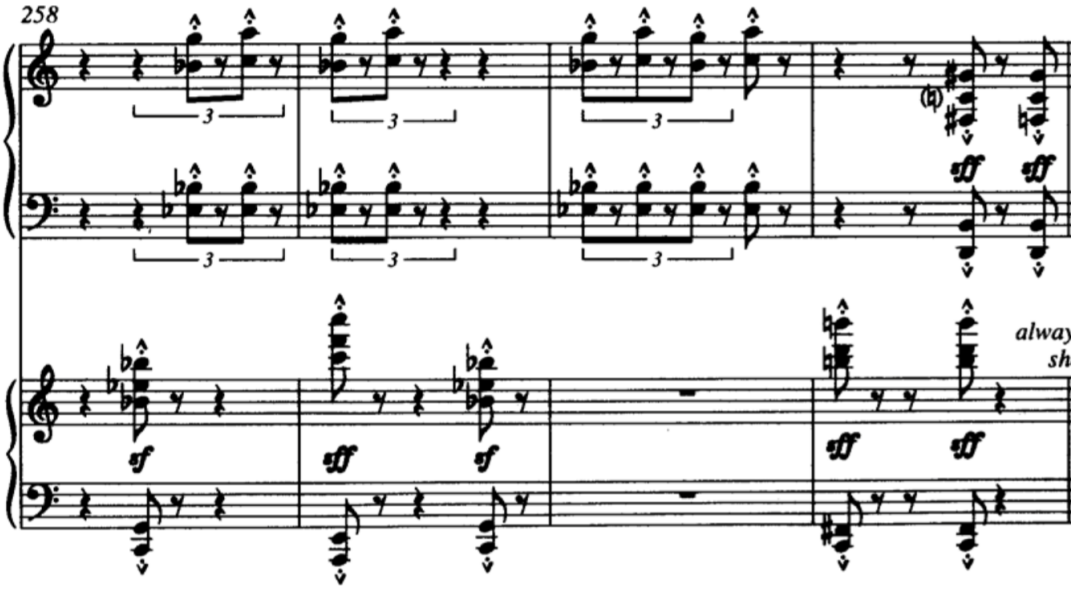
Within Piano 2's line is a further conflict between keys placed apart by thirds; some of its chords mutate down to a lower fifth on A - E.



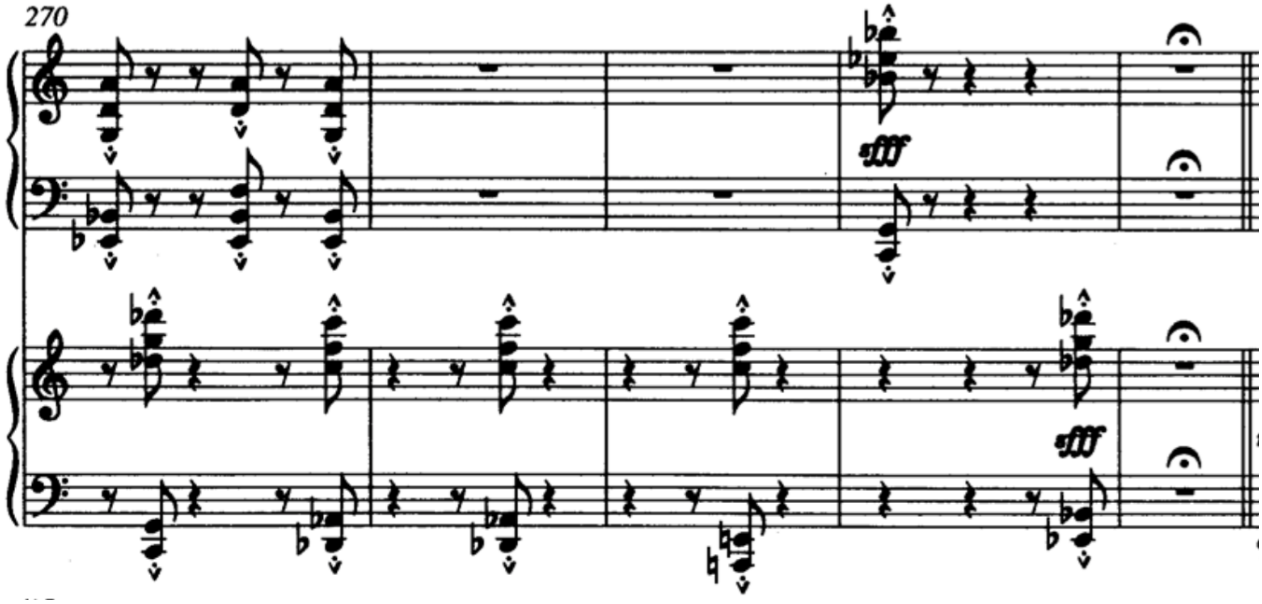
Piano 1's E-flat chords accumulate mutations. First, they begin to oscillate as a unit with D.



Next, they jump up by an octave, while simultaneously **metric gating**, and introduce a **double oscillation** to the right hand:

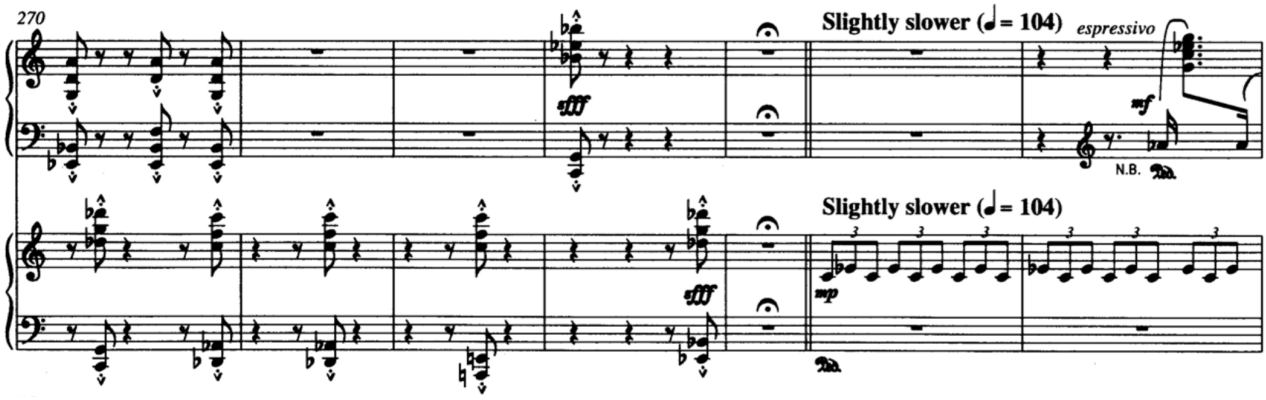


The first movement concludes with three potential tonal centres simultaneously undermining each other; A minor, C minor and E-flat dominant. E-flat has the last word, but there has been no sense of arrival or victory for the tonic, as there would have been in a tonal piece. The movement finishes with its harmonic tensions unresolved.

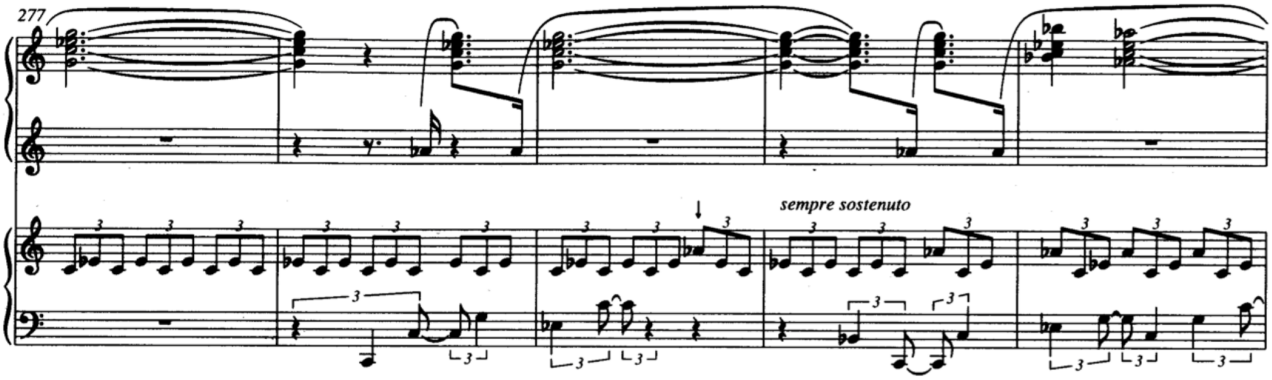


Second Movement

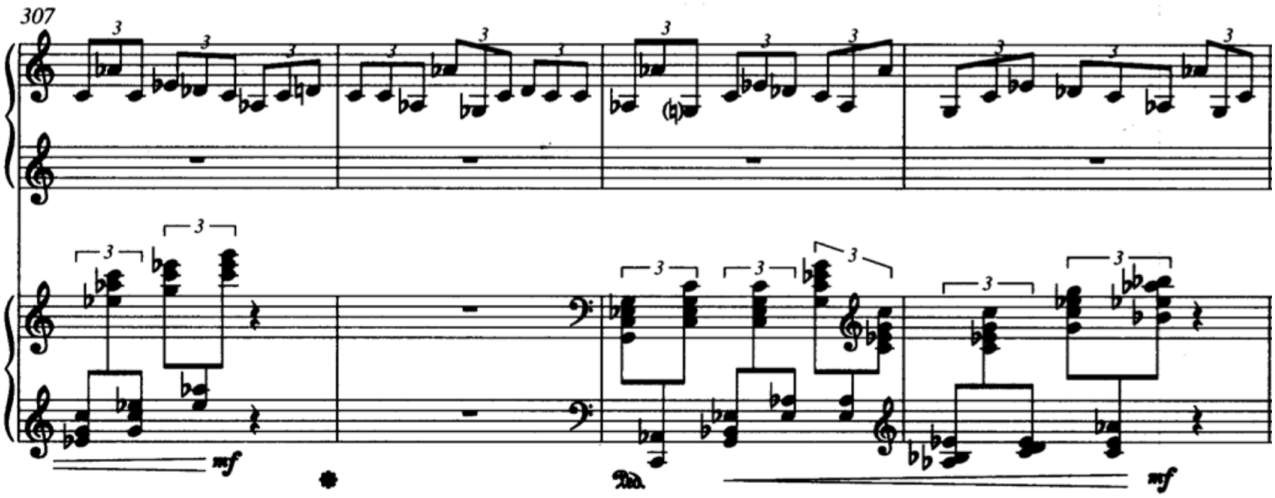
The second movement begins gently, with a repeating C-Eb accompanying figure in Piano 2 reminiscent of Philip Glass. Piano 1 enters with a motif based on the "le-lu" part of the work's first motif. This time, because of Piano 2's C minor accompaniment, Piano 1's figure is heard as C minor with **minor six** emphasis.



In a continuation of **minor six** patterns, A-flats are introduced to Piano 2's right hand arpeggios, in the same manner as the introduction of new notes in *Phrygian Gates*; first as an isolated new note, then incorporated into the texture. Piano 2's left hand provides a C minor arpeggio, which promptly mutates on subsequent playings to thicken the harmony. One such mutation of the left hand arpeggios from bars 284 - 287 creates, with the help of the sustain pedal, a **diatonic cluster** including every note of the scale except F.

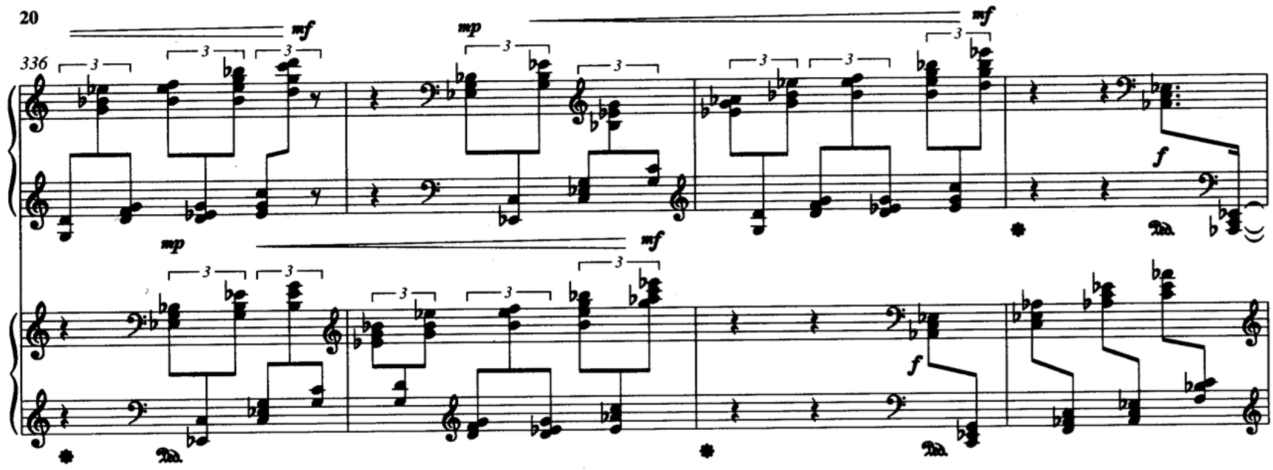


The rhythmic character of this accompaniment, using triplets grouped into twos, is the same as that used in instances of **metric gating**, although in this case there is no back-and-forth movement. Piano 2 concludes this accompanying material at bar 304 when the bass line reaches a low A-flat, completing a paradigm shift from C minor to A-flat lydian, which then changes almost immediately to A-flat major. Piano 1 takes up the accompaniment figure, while Piano 2 begins a new motif of rising chords, still in an alternating hands configuration, and still emphasising diatonic clusters and minor six movement.



At bar 312, the roles of the two pianos become inverted and fragmented. Piano 1 takes over the rising triplet chord motif, while Piano 2 plays, in quick succession, the “le-lu” motif, an accompanying triplet scale, and then returns to the rising chords motif. During these ten bars, the harmony undergoes a quick change from A-flat / C minor six, down by thirds to A minor, injecting a measure of anxiety to what has until now been a peaceful movement.

The rising chord figures appear in both piano parts, overlapping each other like waves cresting onto a beach.

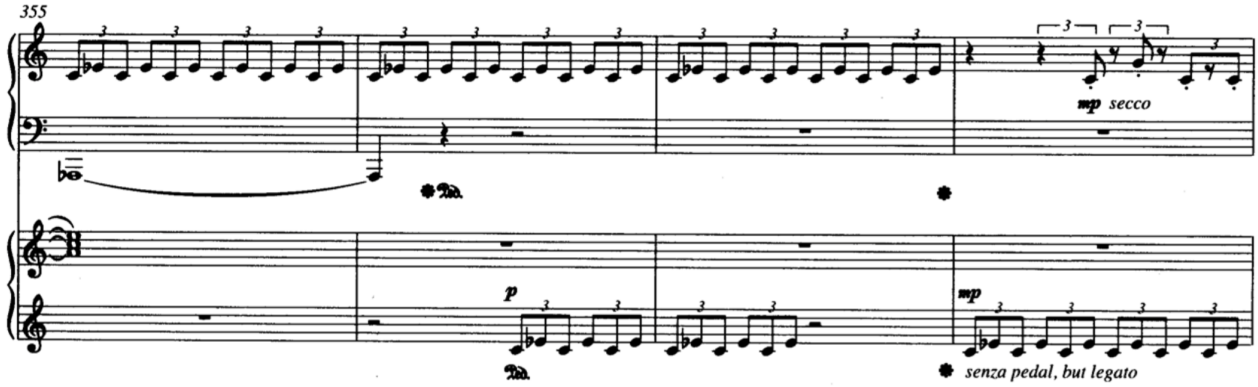


The harmony is a diatonic cluster, containing every note of the scale, rapidly shifting but between closely related keys. For example, Piano 1 in bar 336 begins with G minor with flattened sixth, which becomes E-flat major, which becomes C minor. If the chords were moving down instead of up, it would be two consecutive paradigm shifts downward by thirds. With the sustain pedal held down, and with each piano modulating independently of the other, the effect is a wash of sound.

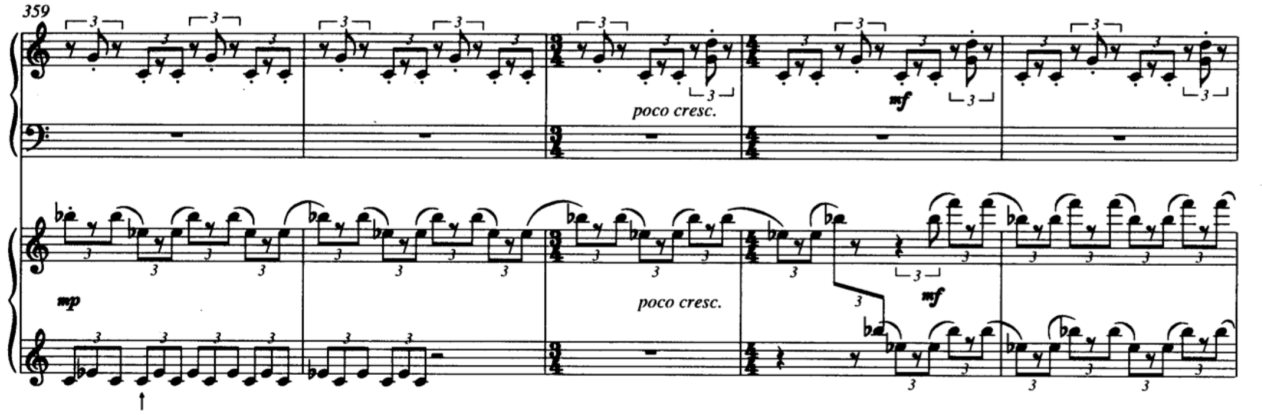
At bar 334, the C minor material from the beginning of the movement returns, with the pianos now taking opposite roles. Piano 1 accompanies; Piano 2 explores the “le-lu” motif. When Piano 1 reaches the bottom A-flat, the music transitions directly into what functions as the third movement.

Third Movement, First Section

There are three bars of overlap between the ending of the second movement and the beginning of the third. The third movement's material begins at bar 358 with a new motif played by Piano 1, a rising and falling staccato fifth, but the second movement's accompanying triplet pattern continues until bar 360.

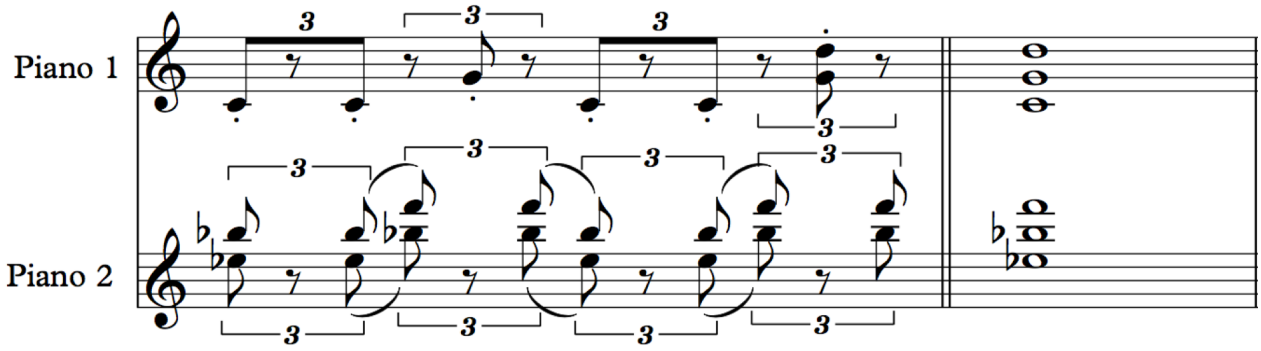


The new motif is joined by a higher rising and falling fifth, played by Piano 2. Piano 1 adds its first mutation in bar 361, stacking another fifth on top. Piano 2 adds its first mutation in bar 362, doubling its motif entirely in fifths.

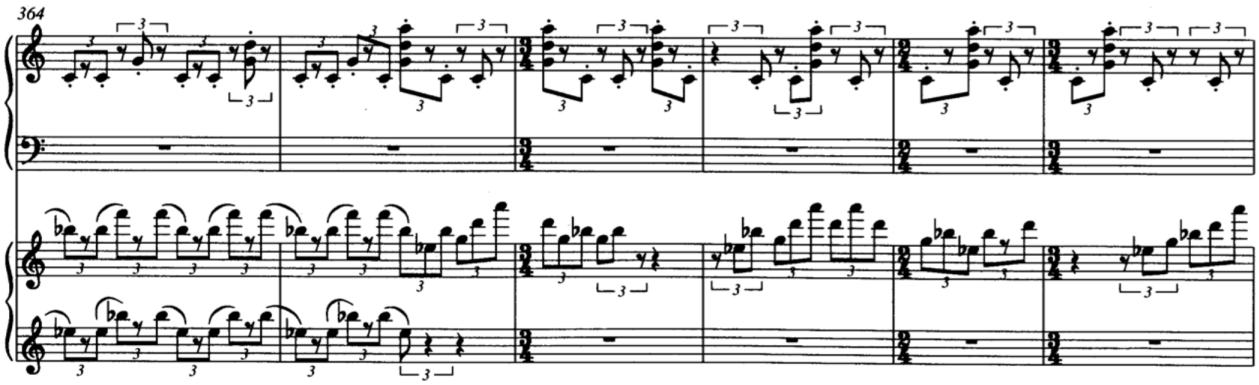


Their combined harmony is a perfect example of a semitone offset fifth:

As written: Theoretically:

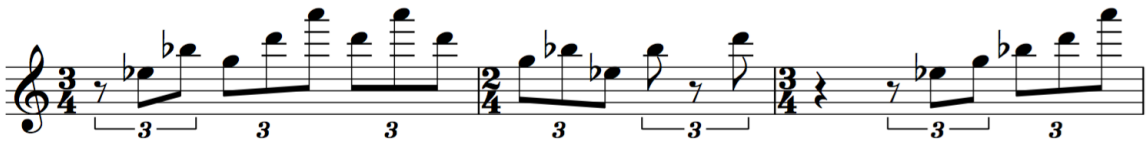


The cells mutate further and become more rhythmically complex. Piano 1 adds yet another fifth to its stack, while Piano 2 adds a second fifth, interlocking with the first.

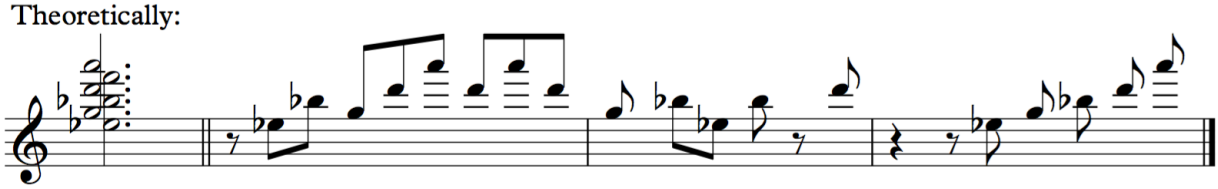


What first appears to be free arpeggio figurations in Piano 2 are in fact the interactions of the two interlocking stacked fifths, shown theoretically by stem direction:

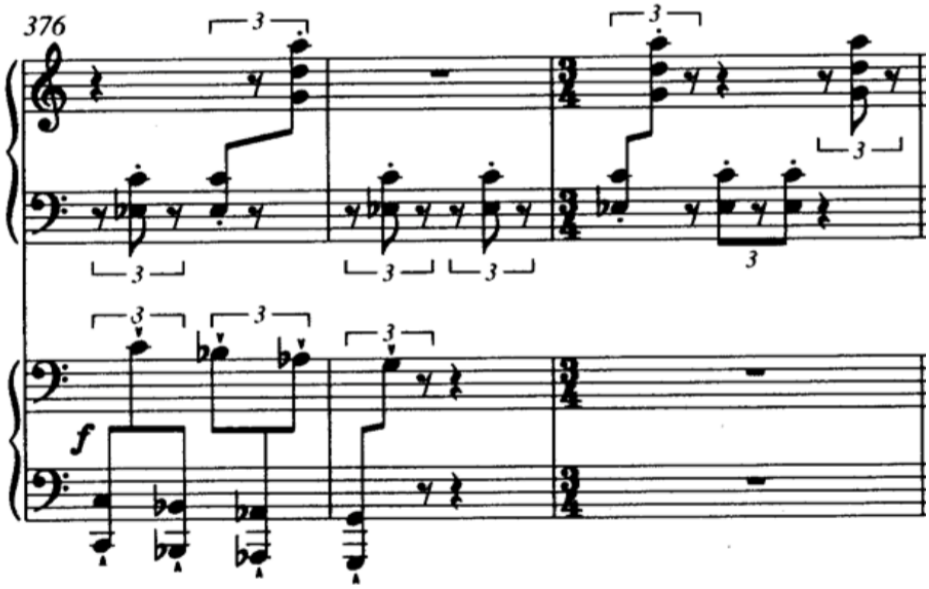
As written:



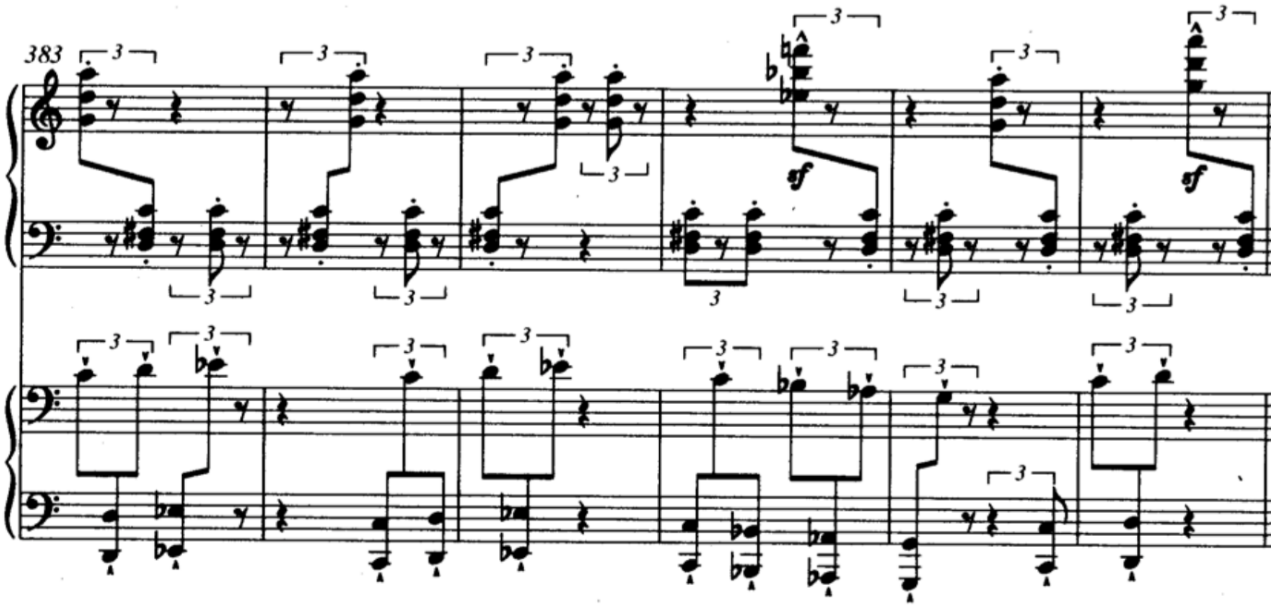
Theoretically:



At bar 372, Piano 1 adds a lower sixth to its stacked fifth, softening the edges of the quintal harmony and moving the music more towards C minor. Piano 2 responds with accented *forte* descending scale fragments from C to G using the notes of the C melodic minor scale.

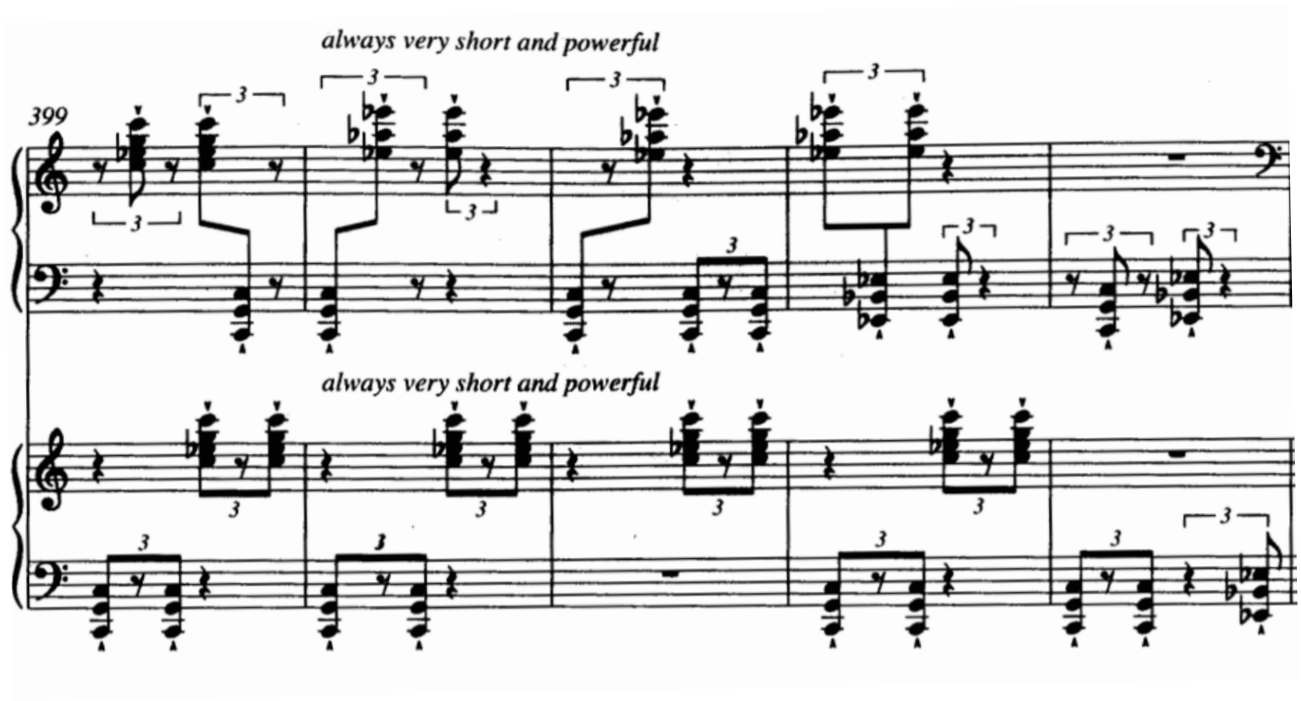


Beginning at bar 379, Piano 1 mutates its C-minor left hand chord to D7, arguably via an oscillation. Piano 2 mutates its descending four-note figure into retrograde and becomes a rising figure. Piano 1, at bar 386, adds a high ping in the form of a stacked fifth.



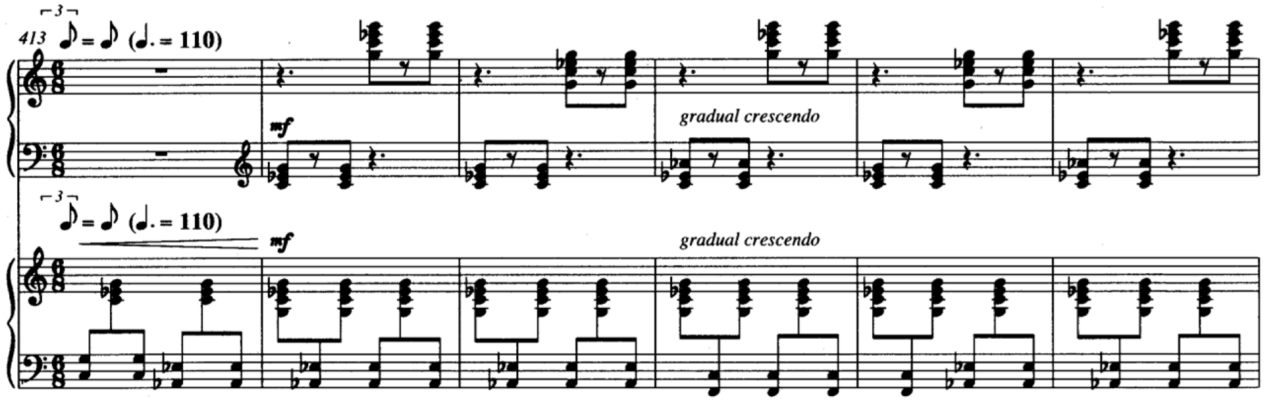
Transition to Second Section

The first section of the third movement has been based on quintal harmony, played with staccato triplet rhythms. The second section will begin at bar 413, with a smoother harmonic texture based in triadic harmony and paradigm shifts. In bars 396 - 412, both textures overlap. The stacked fifths mutate to octaves with a fourth or fifth in between them. The left hands play octaves with fifths, decisively underlining C as the tonic. Piano 1's right hand chords mutate to emphasise the **minor six** of C minor.

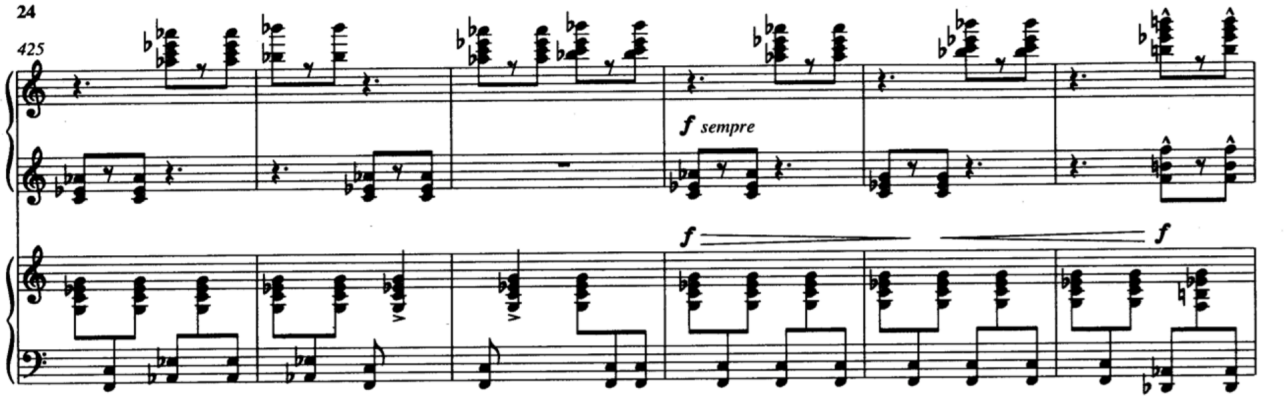


Second Section

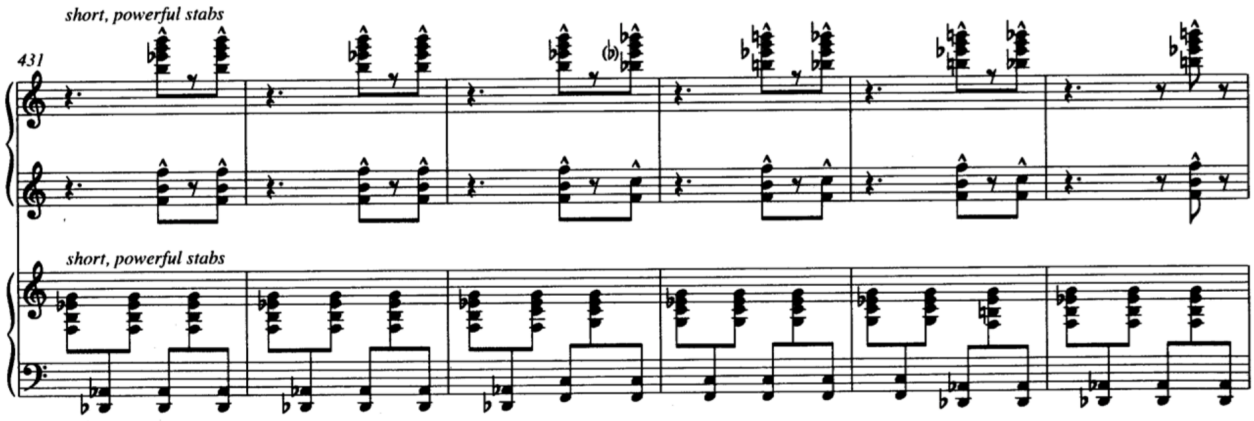
The second section begins, *subito* ***p,*** with a paradigm shift from C minor to A-flat major in Piano 2. This is then undermined with a further paradigm shift to F minor. Piano 1's right hand plays C minor chords in alternating octaves, a *ping* effect, while the left hand plays a C minor triad in which the G oscillates with A-flat.



Piano 1's *ping* chords become oscillations at bar 425 while Piano 2 continues to shift between F minor and A-flat major. Then at bar 430, Piano 2 paradigm shifts downward by yet another third, implying D-flat major with added tones (9th, dominant 7th, flattened 13th).

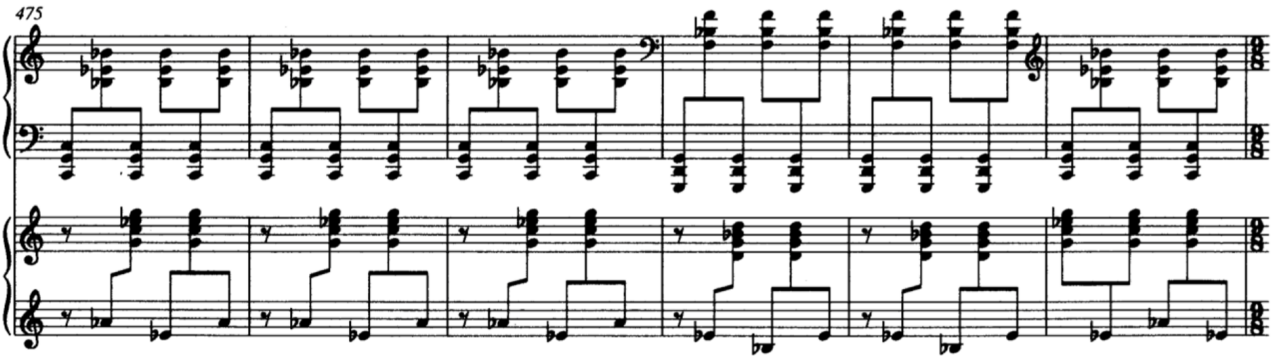


Piano 1 plays high block chord stabs on the notes most distant from the underlying harmony - the 7th, 9th and 13th[15] - a technique common in bebop jazz. These stabs then become double oscillations; B / B flat in the right hand, B / C in the left. Piano 2 steps back and forth between D-flat and F minor tonalities.



Piano 1 then expands and elaborates on this new motif, while Piano 2 continues to paradigm shift between D-flat, F minor, and A-flat. The harmonic instability causes the introduction of new chords, strongly dissonant with each other and not easily explained with reference to any previous motifs.

C minor tonality returns in bar 474, with Piano 1 playing a voicing of Cm7 influenced by quintal procedures, while Piano 2 plays a variation on the opening “le-lu-jah” motif. These motifs proceed to **gate** between C minor and G minor, though this is gating on a much smaller scale than usual:



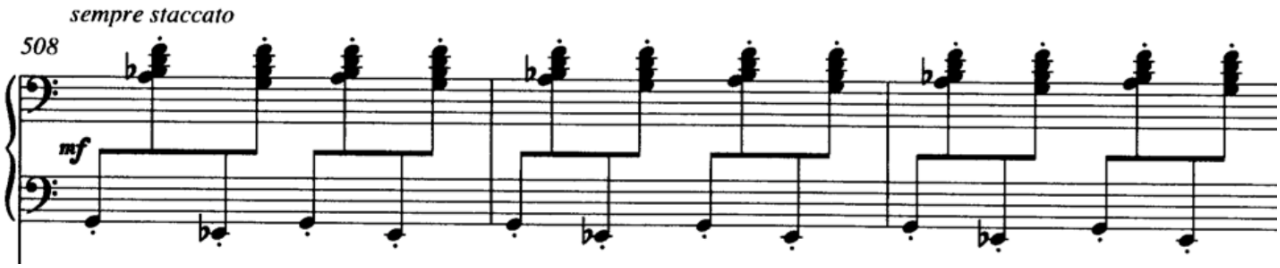
[15] Albeit enharmonically misspelled, perhaps for ease of reading, as the correct spelling would include C-flats and A-double flats.

Bar	474	478	480	482	492	494
Key	Cm	Gm	Cm	Gm	Cm	Gm

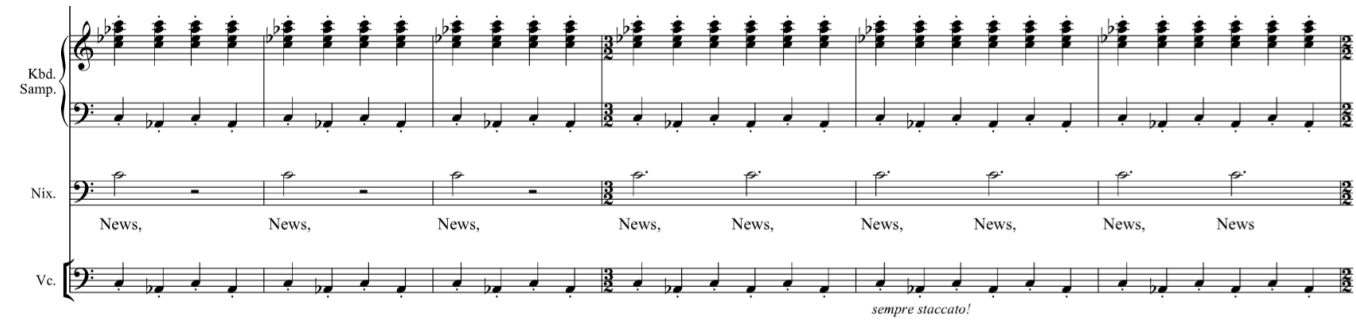
After spending 4 bars in the first C minor section, the music gates every two bars between the keys, with two exceptions. The longer sections in G minor, at bars 482-491 and 494-504, change their accompaniment texture to foreshadow the music of Section Three.

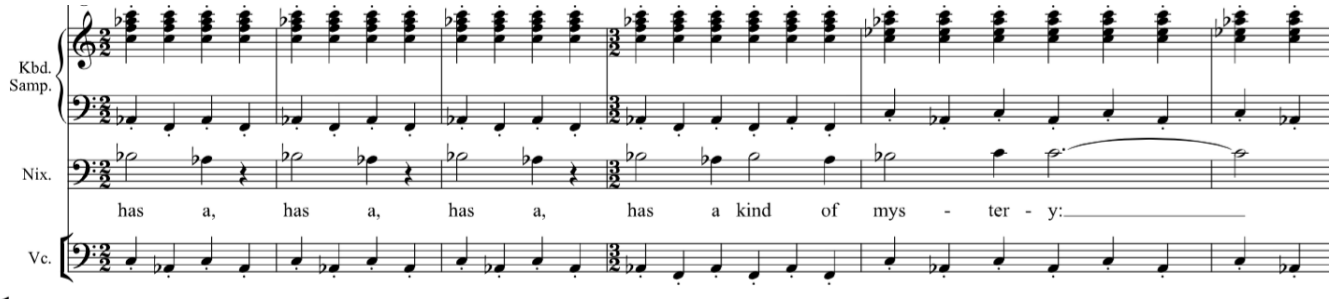
Section Three

From bar 500 - 507, Piano 1 transitions to an *oom-pah* style of accompaniment reminiscent of marching bands or ragtime piano. The harmony is G minor, with **minor six** influences emphasising E-flat. The *oom-pah* figure begins in completed form at bar 508.



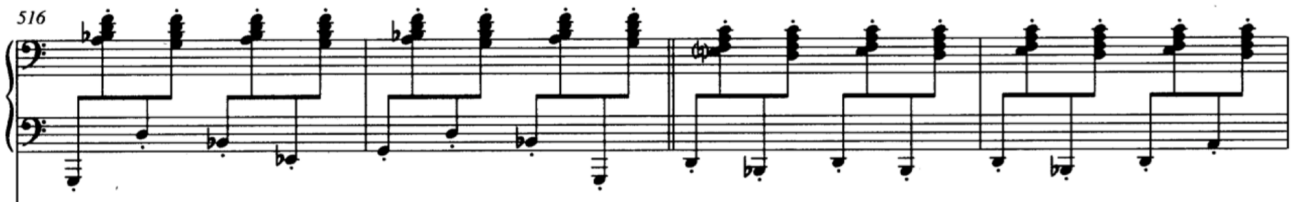
This style of piano playing would traditionally feature a bass line constantly leaping in fourths to outline the tonic and dominant, but this version has the bass moving in thirds, as it often did in *Nixon in China:*





The thirds relationship in the bass line weakens the perception of G as the root, but does not destroy it entirely, as the paradigm-shifting E flats are only heard on weak beats. In addition, an oscillation on A / G within the right hand chords draws the ear to the resolving tone G, just as the first section of *Phrygian Gates* used foreign B-flats to establish A as the tonic.

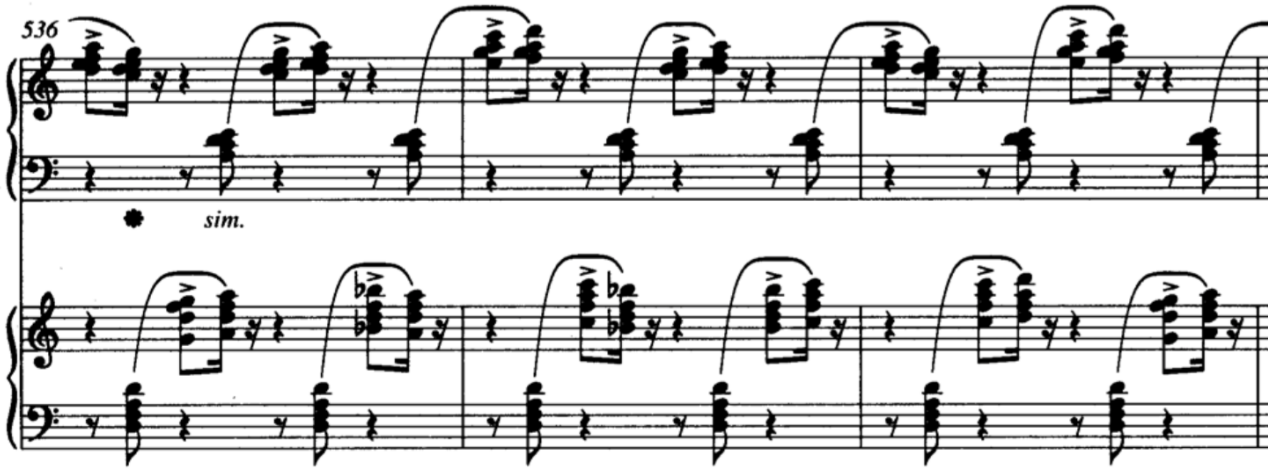
The tension between key centres is then mirrored on a macro level, as this entire pattern transposes



down, and proceeds to **gate** between G minor and D minor.

Bar	508	518	524	529	541	546	550	554	565
Key	Gm	Dm	Gm	Dm	Gm	Dm	Gm	Dm	Bb

Between bars 535 - 540, and 559 - 564, are sections of a different texture, brief respites from the *oom-pah* figure. In these interludes, Piano 1 plays an oscillating diatonic cluster in response to Piano 2's oscillating triads. The harmony remains rooted in D minor with emphasis on B flat.

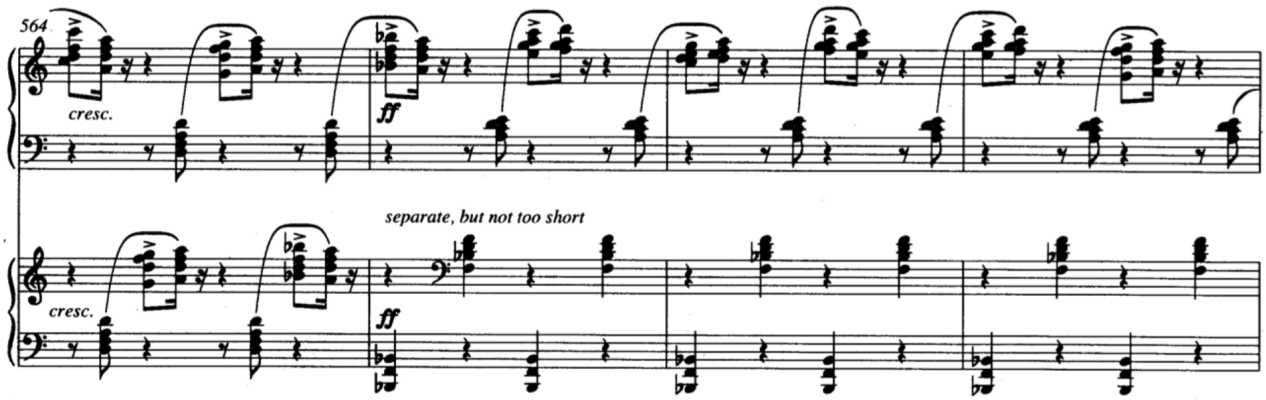


Excluding these sections, the oom-pah passages begin with irregular numbers of bars, and then converge on regular four-bar units.

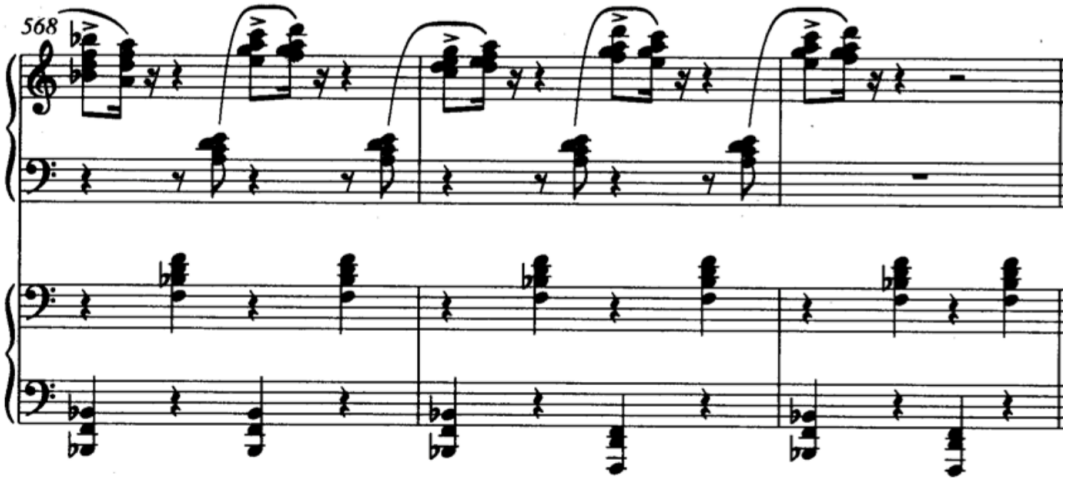
Key	Gm	Dm	Gm	Dm	Gm	Dm	Gm	Dm
No of bars	10	6	5	7 *	5	4	4	4 *

* *excluding interludes*

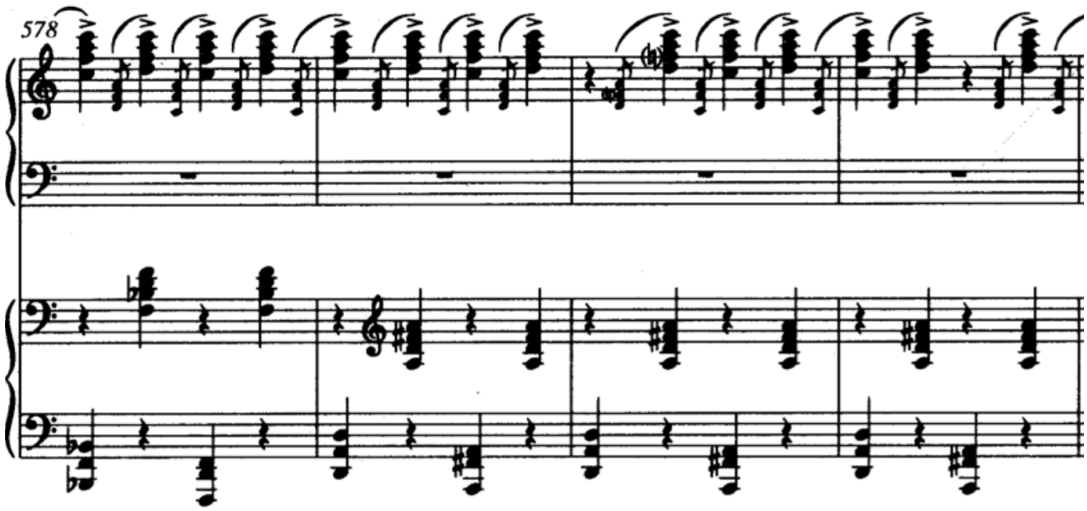
After the second such interlude, a **paradigm shift** in Piano 2 moves the D minor harmony, via a **minor six** progression, firmly to B-flat major.



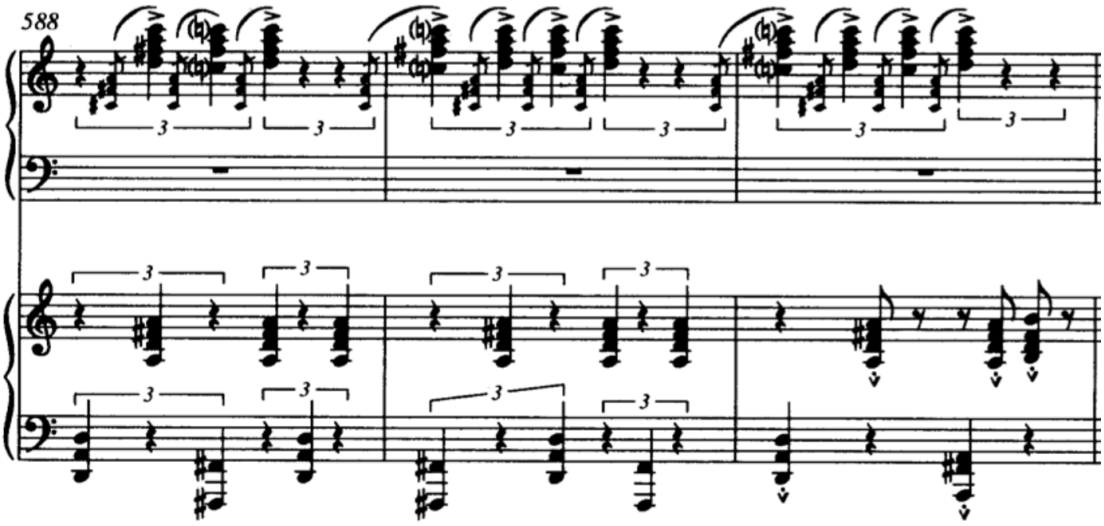
In bar 569, Piano 2 resumes an oom-pah accompaniment, this time in an orthodox version with the bass outlining I - V - I.



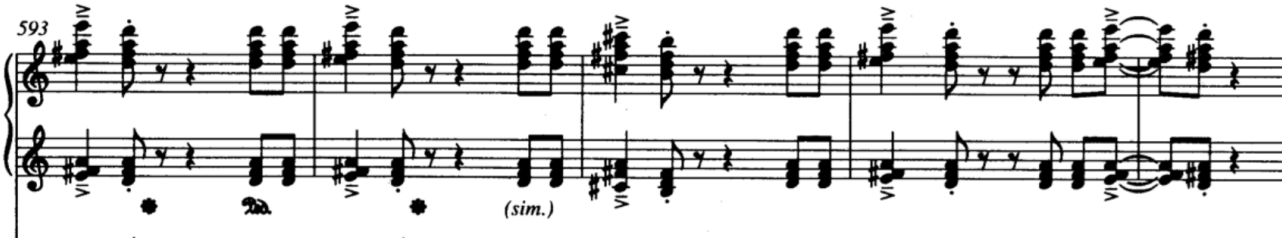
At bar 579, Piano 2 moves the harmony along a **thirds relation** from B-flat to D major.



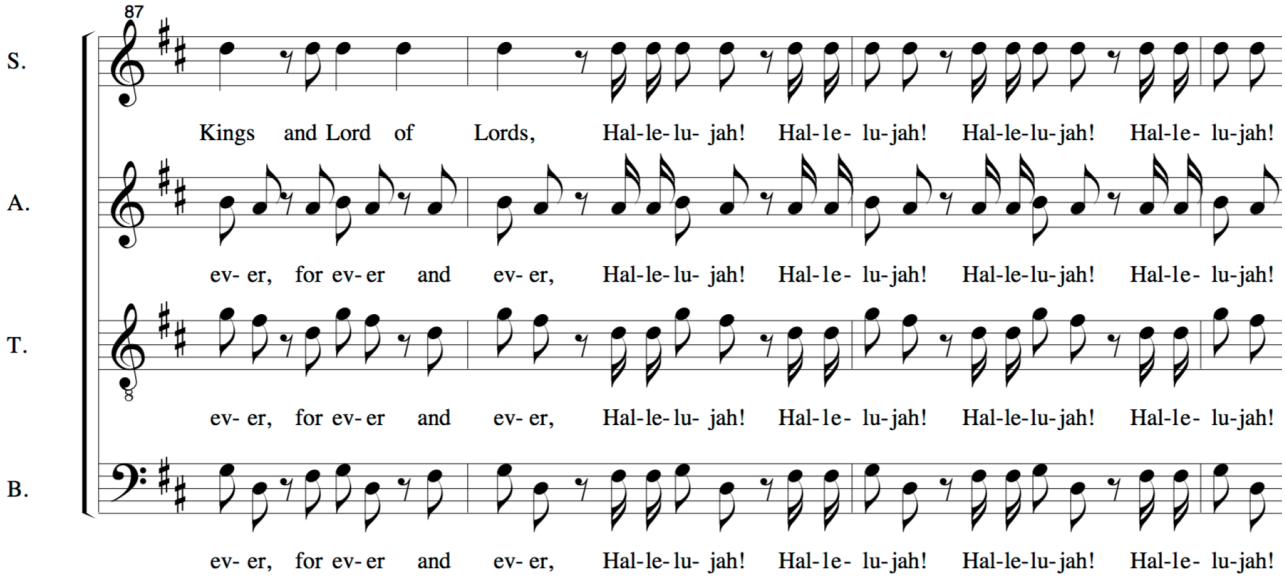
The arrival at the new key is greeted with two instances of **metric gating**, in bars 583 - 584, and 588 - 589.



At bar 591, *Hallelujah Junction* reaches its melodic goal, a rendering of the word “Hallelujah” with all its syllables intact.

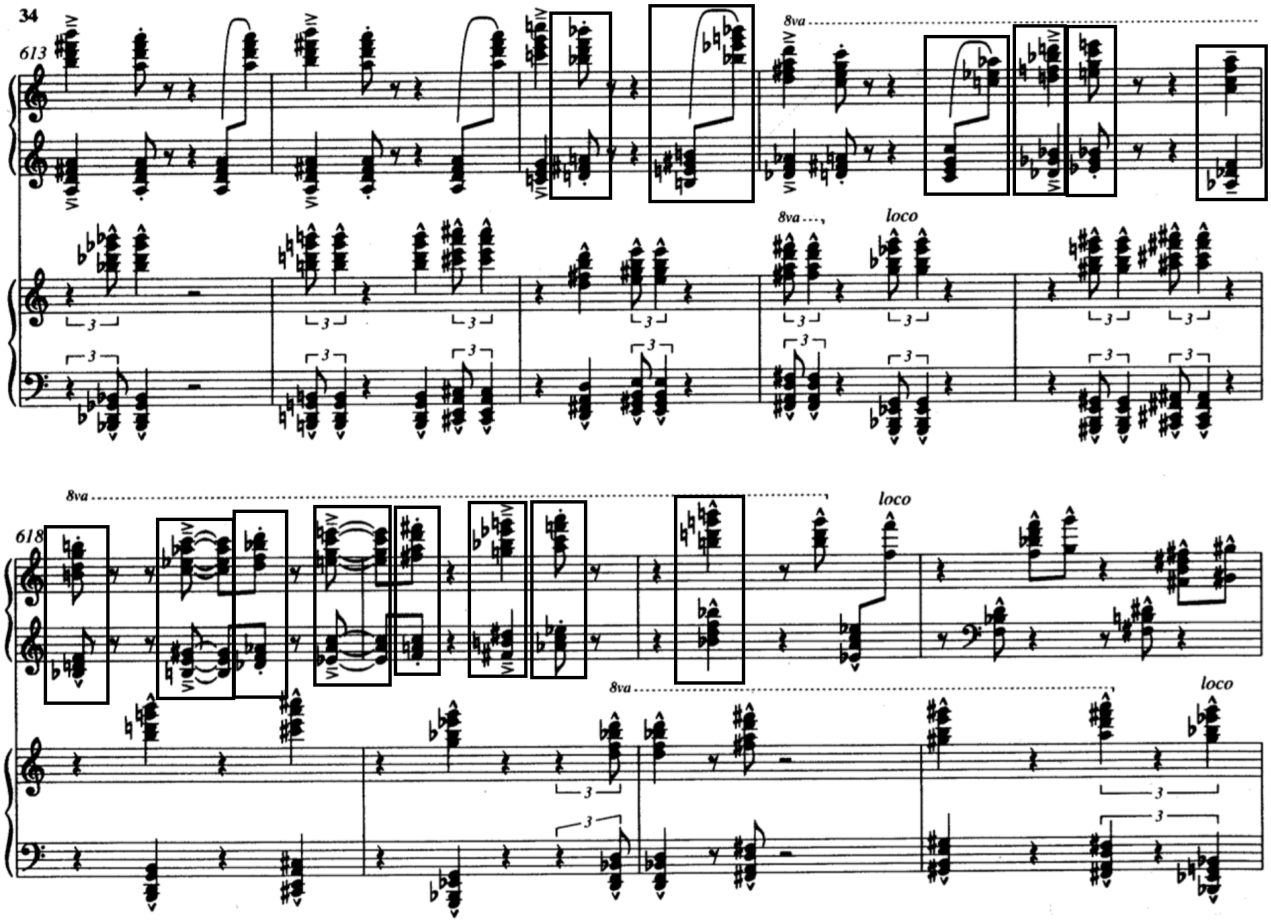


It resembles, but does not quote, Handel’s *Hallelujah Chorus*. Adams has reached the same key as Handel’s original, but Adams’ *Hallelujah Chorus* oscillates D / E, while Handel’s makes an equivalent gesture in the alto voice, on A / B.

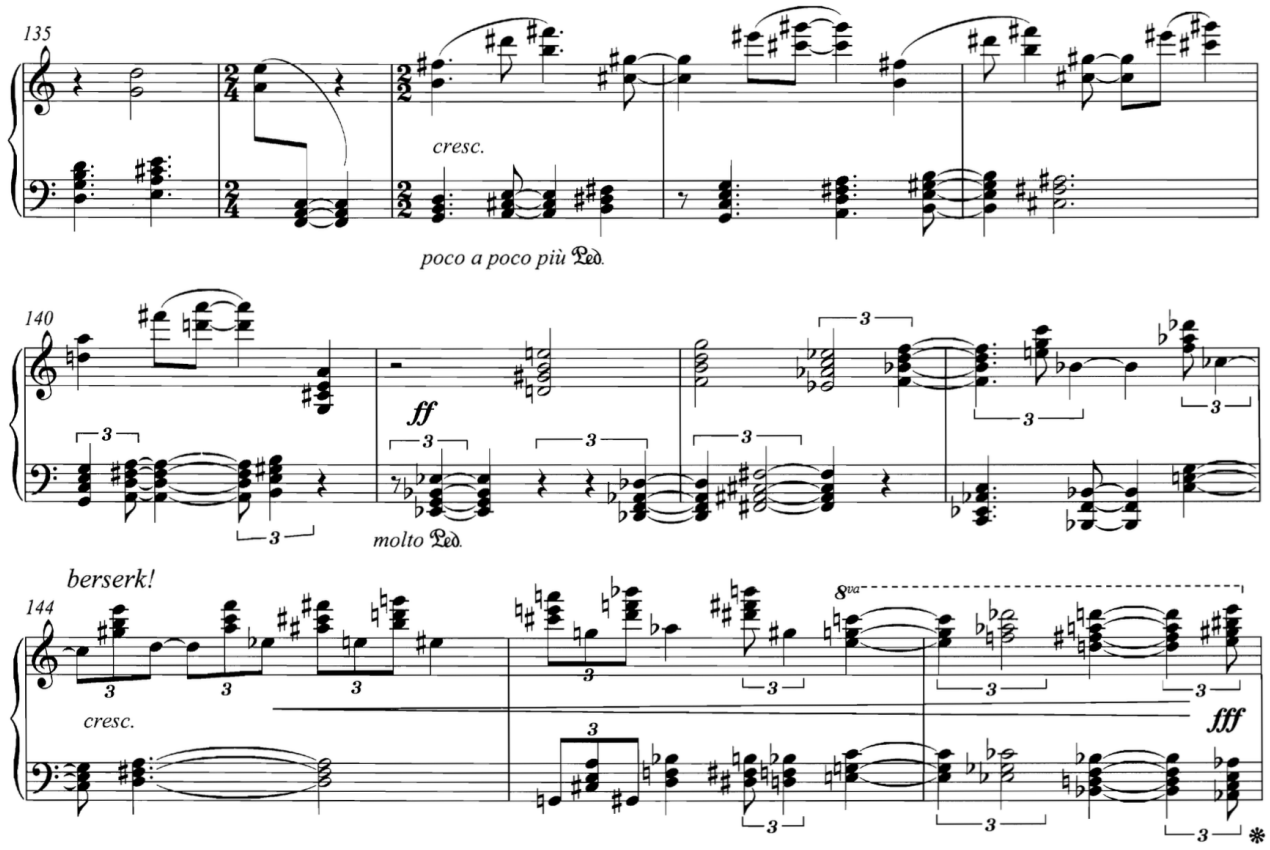


To summarise the harmonic journey thus far, *Hallelujah Junction* began in E-flat / C minor, progressed through E-flat minor / C-flat major, and temporarily resolved its E-flat / C minor tension in the neutral ground of A-flat major. Conflict then resumed between E-flat / C minor, added in a further conflict between G minor / E-flat and D minor / B-flat, and the triumphant conclusion arrived in the relatively distant key of D major. The harmonic differences have now become

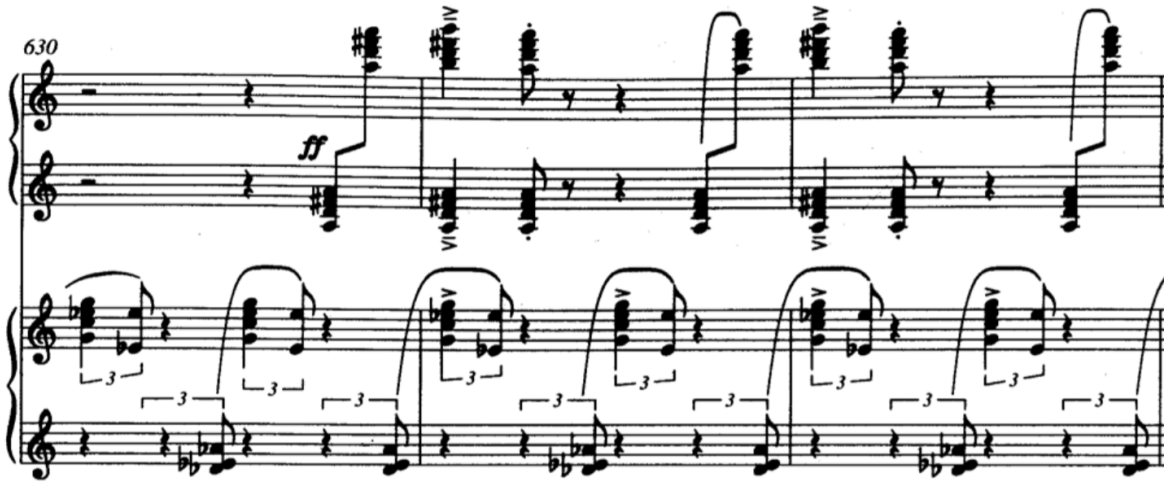
irreconcilable, and the music collapses into atonality. Piano 2 plays major tonal chords built on fragments of rising scales, while Piano 1 continues the theme of conflicting harmonies spaced apart by thirds, playing them now as polychords.



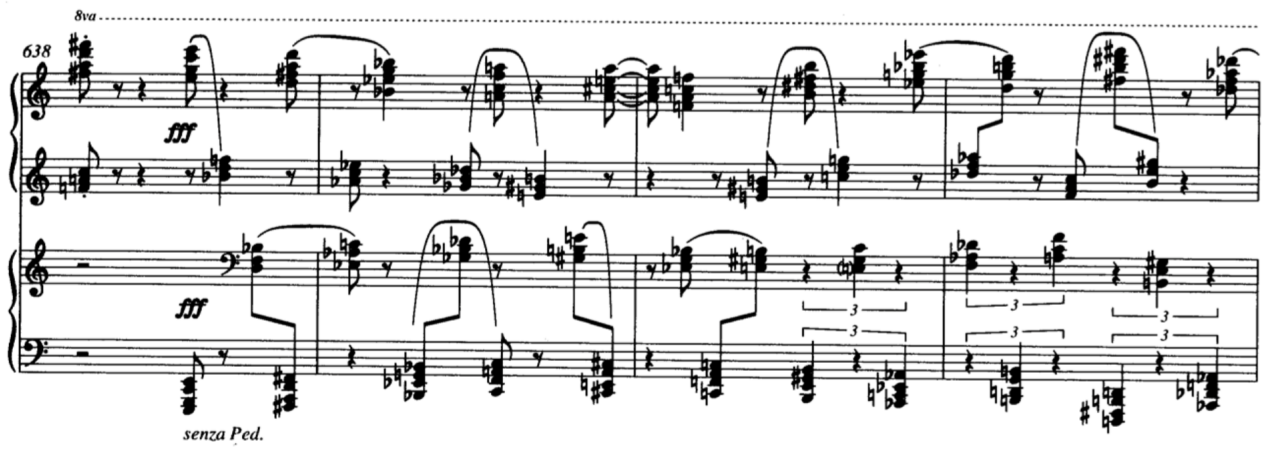
Adams would later revisit this technique in *American Berserk* (2001):



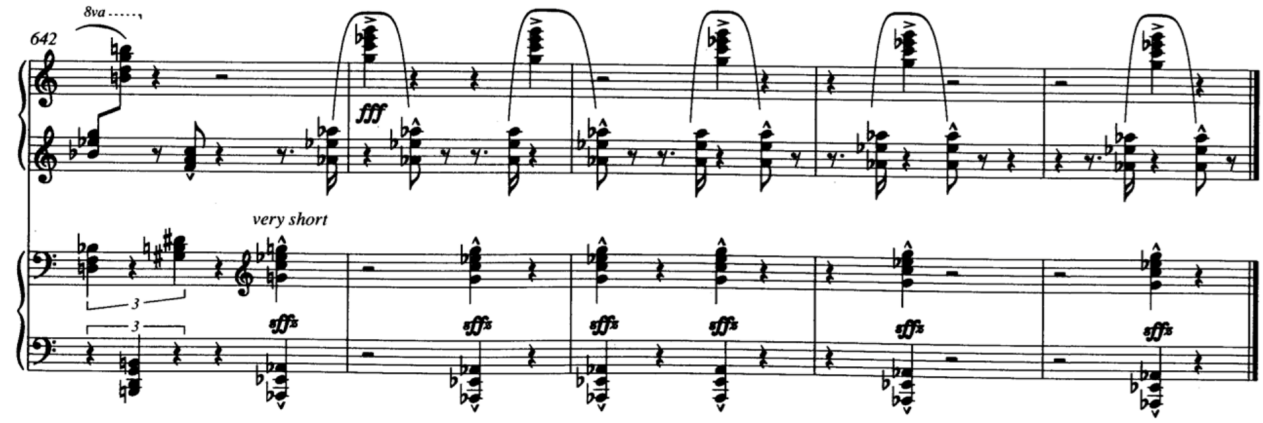
The music crashes to a halt at bar 629. Piano 2, from the upbeat bar 630, makes a second attempt to resolve the music with a motif related to the opening, now altered to dominant harmony, pointing the way towards the conclusion. Piano 1, however, will not yet be moved from its D major "Hallelujah Chorus".



The harmony collapses a second time, with Piano 2 playing chords in thirds relationships, while Piano 1's harmony falls completely into anarchy and lacks any unifying structure.



Piano 2, being more stable, gains the authority to push the music back into key at bar 642, with a sudden *sffz* chord of A-flat major. Piano 1 snaps obediently into line with a variant of the opening motif, and the music concludes in A-flat major. Most of *Hallelujah Junction* has involved a tension between E-flat and C minor, as its opening gesture could be interpreted in either key. Returning to E-flat for a major-key finish would have felt inconclusive, as it had been undermined so many times throughout and easily could be again. Formal closure is found instead in the *lower* key of A-flat, which absorbs both E-flat and C minor within it.



Conclusions

There are three conclusions to draw from this study. First, the construction of *Hallelujah Junction* should serve as an example of how much variety can be created from so few motifs, when those motifs are thoroughly integrated together. Every note of a scale is accessible through oscillation; interlocking stacked fifths will very quickly find their way through all twelve chromatic pitches; and harmonic movement in thirds, even if one was confined exclusively to work within that restriction, allows composers a surprisingly wide latitude. From any starting position, a chord can be followed by one of eight thirds-related chords (major or minor thirds, above or below the starting chord, and arriving at major or minor versions of the target chord). This could be compared favourably to the restrictions of functional harmony, where a chord can be followed by only six possible progressions, three of which are considered "weak". Student composers could learn from his example, or challenge themselves to write a piece in which a minimum amount of ideas are subjected to a maximal amount of manipulation. Working within tight confines can be a spur to creativity, and the resulting piece will have an inevitable unity of style.

Secondly, this analysis serves as a pilot example for how our intuitions about composers can be reducible to specific features. A similar approach could resolve the conundrum of how a composer's music can be both fearsomely complicated and yet instantly recognisable. It could perhaps also, in a more refined form, be used to shed some light on music with disputed authorship.

Third and finally, this analysis has implications for future study of Adams' works. To my knowledge, this is the first analysis to take a holistic view of all his published works, whereas every other dissertation I have encountered has been an in-depth examination of just one work. It is essential, when analysing a work, to be able to tell the difference between general, stylistic surface

features, and locally important structural features. The musical attributes which make *Harmonielehre* unique, or *Nixon in China*, or any other work, are the ones which *are not* shared between them, and which are not explicable by this sort of analysis. It would not be possible, for example, to feed this information into a computer program, and use it to generate endless Adamsian parodies. The ur-motifs are mere building blocks. They have strong explanatory power, but the true craft is in how they are used. It is my hope that this work could prove useful to future analysts; that it may identify the trees, allowing them to find a clearer picture of the woods.

APPENDIX

Hallelujah Junction - score

for Ernest Fleischmann

HALLELUJAH JUNCTION

for two pianos

JOHN ADAMS
(1998)

♩=112, brilliant, energetic, resonant

Piano 1

f

Ped. (occasional half-pedal to clear the resonance)

♩=112, brilliant energetic, resonant

Piano 2

f

Ped. (occasional half-pedal to clear the resonance)

6

10

↓ = changes in pattern

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M-051-27764-3

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14

18

22

27

sempre ***f***

31

½ Ped.

sempre
f

Ped.

35

39

slowly clear pedal

43

staccato eighths are same length as sixteenths

mf

senza pedal

mp

½ Ped.

47

51

cresc.

cresc.

55

f

full pedal

f

59

sim.

63

ff

67

71

75

79

dim.

84

mp

p

mp

senza

89

93

97

101

105

mf

mf

(Staccato eighths: same length as sixteenths)

109

113

legato

mf

117

light and precise

121

(legato)

125

129

133

mf

137

mf

141

mf

R.H. slightly softer than L.H.

145

sim.

(Ped.)

149

152

sim.

155

p 8va

159

8va

162

8va

166

sim.

8va

170

174

articulation is different here than in the opening

178

short, but not too loud

mp secco

183

cresc.

più f

cresc.

più f

188

193

mf

ff

197

201

very subtle accents

mp

205

209

mp

213

217

p

p

222

gradual cresc.

gradual cresc.

227

sf sf sf sf sf sf sf sf sim.

senza pedal

232

f

237

Gradually more forceful

Gradually more forceful

sf sf sf sf sim.

senza pedal

244

always very short and precise

always very short and precise

sff sf sf sf sf

251

258

always very short

sempre

always very short

sempre

264

270

Slightly slower (♩= 104)

espressivo

N.B.

Slightly slower (♩= 104)

N.B. These sixteenth notes should always be played a little faster than normal sixteenths, in fact: exactly halfway between normal sixteenths and sextuplet sixteenths.

277

sempre sostenuto

282

287

292

297

(clear pedal when necessary)

302

sostenuto

(clear pedal when necessary)

una corda

(slight crescendo)

307

mf

mf

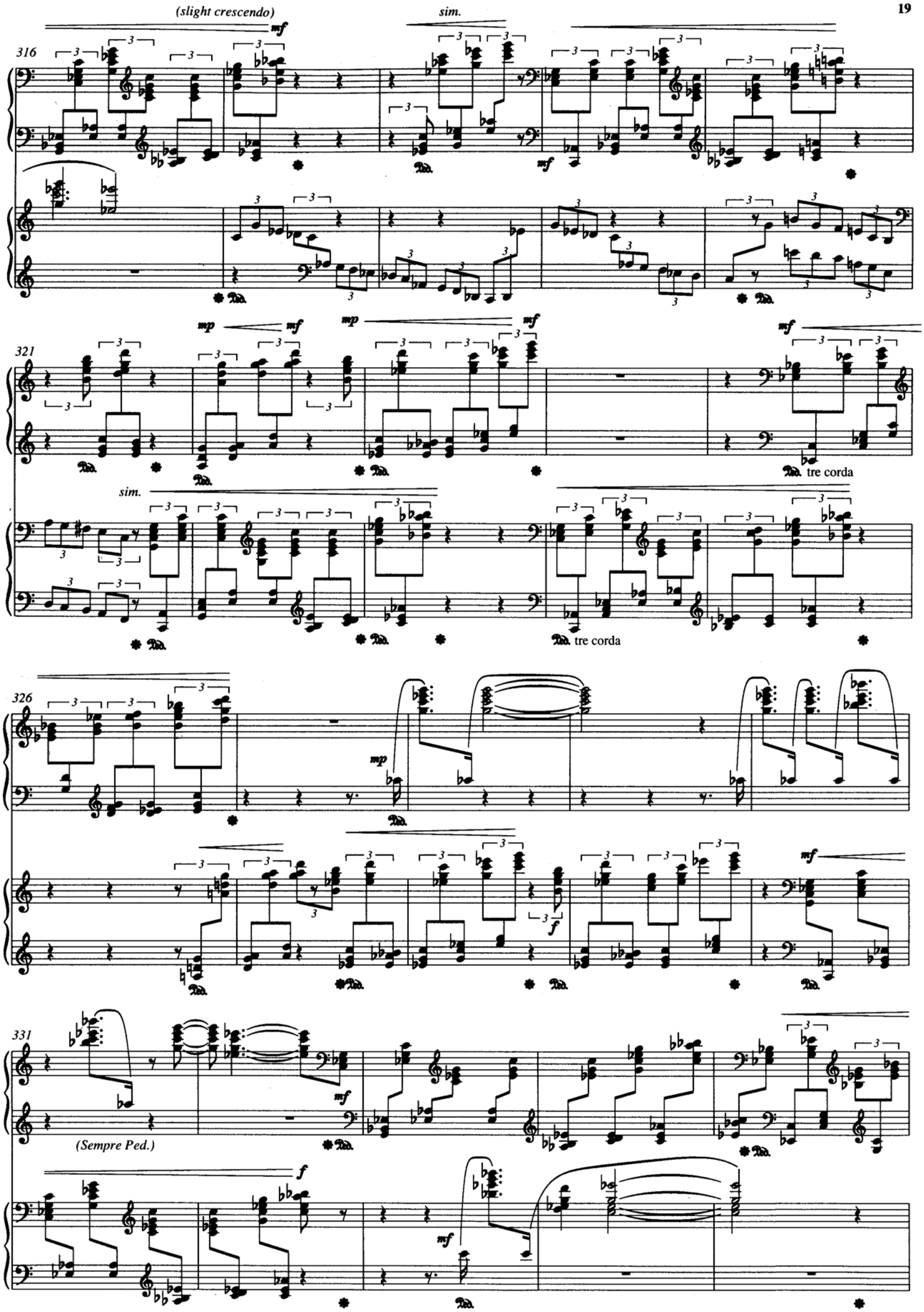
312

mf

una corda

N.B.

N.B. See note in measure 276


(slight crescendo)
sim.
316
321
sim.
tre corda
tre corda
326
331
(Sempre Ped.)

336

mf *mp* *mf*

mp *mf* *f*

340

mf

p

p

344

p

sempre Ped.

mp

348

352

355

mp secco

p

mp

senza pedal, but legato

359

poco cresc.

mf

mp

poco cresc.

mf

364

370

8va

8va

376

f

383

sf

sf

sf

391

sf

sf

ff secco!

ff secco!

399

always very short and powerful

always very short and powerful

406

p subito

413 ♪ = ♪ (♩. = 110)

mf

gradual crescendo

♪ = ♪ (♩. = 110)

mf

gradual crescendo

419

f

f

425

f sempre

f

f

short, powerful stabs

431

short, powerful stabs

437

8va

8va

443

secco

449

454

459

465

p sub.

sf

p sub.

470

molto crescendo

(senza Ped.)

(senza Ped.)

475

481

8va

8va

487

8va

493 *always very short*

always very short

8va

fff

500 *p subito!*

sempre mf

♪ = ♪

♪ = ♪ (♩ = 165)

poco crescendo

505 *p*

♪ = ♪ (♩ = 165)

sempre staccato

508 *mf*

f

Ped. * Ped. * Ped. *

sim.

512

516

520

524

528

532

f

536

sim.

540

f

f

544

548

552

556

f

Ped. * Ped.

560

sim.

564

cresc.

ff

cresc.

separate, but not too short

ff

568

Grace notes should be the length of a sixteenth note.

ff

sim.

sim.

573

578

sostenuto

584

secco

588

593

(sim.)

598

601

fff

fff

605

609

8va

loco

8va

loco

613

8va

8va

loco

618

8va

loco

8va

loco

622

8va

all notes equally short

626

8va

ff

630

ff

634

8va

fff

638

8va

fff

senza Ped.

642

8va

fff

very short