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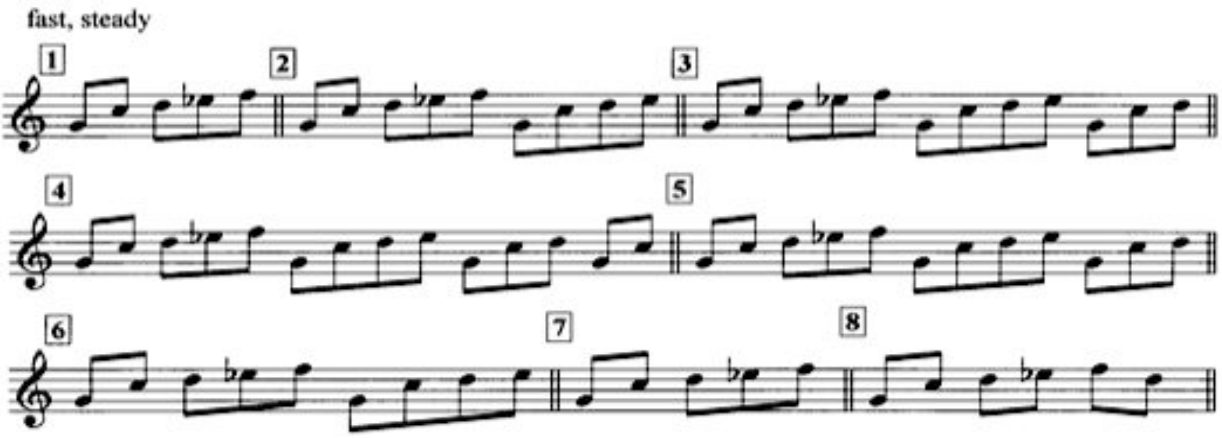


Ex. 1: Philip Glass, *Two Pages*, Rehearsal Nos. 1-8

Another Look at Philip Glass: Aspects of Harmony and Formal Design in Early Works and *Einstein on the Beach*

Rob Haskins

> There was a time when there wasn't this tremendous distance between the popular audience and concert music, and I think we're approaching that stage again. For a long while we had this very small band of practitioners of modern music who described themselves as mathematicians, doing theoretical work that would someday be understood. I don't think that anyone takes that very seriously anymore. There was a time, too, when Pagannini, Liszt, Berlioz made their living playing. I would like to think that we're entering a period again when concert musicians, people who are concerned in a progressive way with musical ideas, are involved with that.[1]

1.

THIS very typical Philip Glass quotation from the late 1970s suggests meanings today that differ from those when it was first uttered. Differences appear by considering new understandings of the four musical communities Glass mentions: the popular audience; the 'small band of [mathematical] practitioners of modern music'; composer-performers of the nineteenth century, including Pagannini, Liszt, and Berlioz; and finally concert musicians 'who are concerned in a pro-

gressive way with musical ideas'. Other differences come about as the result of changing understandings of Glass's relationship to those communities.

Formerly, one imagined that Glass's progressive concert musicians were bringing about a reunion of 'classical music' with a popular audience, an audience who felt largely left behind by the grand experiment of Western music composition in America immediately after 1945. That experiment's greatest successes, perhaps, appeared in two different and, to the laity, unfathomable kinds of music: the extreme control and 'nonredundant' musical structures of such composers as Milton Babbitt and the chaotic, unalloyed complexity of John Cage — a complexity that could never be totally apprehended.

But that narrative oversimplifies matters too much. For one thing, a wide public in the 1960s and '70s also felt strongly connected to Cage, fuelled by the publication of his first book *Silence* (1961) and the widely-attended premiere of *HPSCHD* (1969) — and that music was anything but populist.[2] Babbitt's work has continued to play its part not only in the polished sanctuary of academe, but in other sectors of society as well. Both he and Charles Wuorinen, for instance, have received prestigious grants from the MacArthur Foundation and both (among many others) continue to produce new works that have found their own appreciative audiences. Indeed, this music is being taken as seriously now as ever.

Nevertheless, the situation that Glass described in the late 1970s for his own music differs somewhat from that of his older contemporaries. It resembles the cult of the nineteenth-century composer-performer and the culture of the nineteenth century generally, which conferred a high degree of prestige on classical music. But the situation remains merely analogous because Glass's colleagues of musical minimalism favoured reduced pitch structures, a steady pulse, and loud volumes reminiscent of jazz, fusion, and art rock of the period — these repertories claim more of a lineage to musical vernaculars of the present and recent past than to high art idioms. The popular audience, already steeped in these vernaculars, could draw upon their past experiences as they heard this progressive music. In Glass's case, the use of electric organs (and later synthesizers) and amplified voice and woodwinds further reinforced these connections.

An affinity with the nineteenth-century virtuoso tradition was also tentative since, in most cases, the venues and performance style of the early minimalists rarely borrowed the imagery of the old concert hall and the genius-composer-performer. In fact, only one clear tie remained: Glass's reliance, by and large, on notated instrumental music without texted vocal parts — an updated legacy of 'absolute music' refashioned in the forge of the turbulent 1960s.

Iconographical details of the time contextualize Glass's position further. Like Cage, Glass had the personal charisma and good looks which enabled him to craft his image in accordance with the tenor of the times. Glass's website shows a photograph of him from 1983 (left); he eschews the formal dress of a symphony musician or a coat and tie, modes of attire consonant with images of high culture, classical music, and upper-class socioeconomic status. Instead, Glass dons an open-collared shirt; his long hair is unruly. He inclines his head upward in ecstatic concentration as he gives a musical cue to the members of his ensemble. But he plays a Prophet 5 synthesizer, an instrument that we would more likely see in photographs of such 1970s art-rock icons as Rick Wakeman or Keith Emerson.

The resemblance is not passing coincidence, but rather the carefully orchestrated work of a composer who shrewdly created his image in full knowledge of the powerful mass media of his time:

> One thing that distinguishes me from other people of my generation is simply, I have more profile and that's because I'm interested in bringing this work to the public in a very big way. I love the fact that thousands of people come to a concert.... I happen to be better known than other people because I played that game and I enjoy it. I enjoy the game of being in the *Daily News*; it's fun and I'm not afraid of it. [3]

Glass's understanding of modern media aggravates more staid members of musical academia or classical music journalism who have found themselves ever more obliged to address his work critically. Remarks about this aspect of his persona have not been frequent, it is true, but it cannot be denied that the composer whose image has hawked Cutty Sark whiskey, and whose music has been licensed to advertise Pepsi-Cola, cuts a very odd figure indeed in the domain of so-called serious music.

There is another possibility: that the composer has elected to explore every creative avenue that contemporary professional musicians have at their disposal: from licensing his music for television commercials, to granting mechanical rights to rock musicians using his work, to scoring mainstream Hollywood pictures like *Candyman* (1992) and *Secret Window* (2004). This sort of activity comes very naturally to Glass, who has said,

> Basically, I always have been a popular composer. I never thought of myself as an avant-garde composer. My difficulty was that it took so long for me to find the audience.... I'm looking in terms of music that exists in terms of the world I'm in. That is the only world that I know. [4]

Few composers have been so thoroughly influenced by the business and technology of music production. For example, Jeremy Grimshaw's recent study of recording techniques in the 'Low' Symphony demonstrates that Glass's awareness of recording techniques used in rock music has affected his own approach to recordings in ways that have had an important critical impact on the reception of classical recordings in general.[5]

HOWEVER, it seems to me that this powerful image of Phil Glass deserves still more nuanced treatment. For instance, writers frequently cite one of his critical statements that helps tell the story of minimalism and of his own maturation as a composer. It was first spoken during the course of a videotaped interview with Robert Ashley in his 'opera for television', *Music with Roots in the Aether* (1976), and forms part of a narrative the composer relates about the years of his study and composition in Paris:

> I was living in a wasteland dominated by these *maniacs*, these complete *creeps*, you know — who were trying to make everyone write this crazy, creepy music. [6]

This famous quotation has appeared in a number of places, perhaps most visibly in John Rockwell's collection of essays on American composers and musicians.[7] There, Rockwell uses it to develop the image of Glass as an angry maverick who sets out to destroy utterly the Domaine Musical of Pierre Boulez and every piece of integral serialism ever written. Yet, listening to the quotation in its original source, Glass seems to express not a tone of iconoclastic anger but one more akin to incredulity — something akin to Lyotard's incredulity toward metanarratives.[8] Less than a minute later, Glass says, 'My music is an affront to anyone who takes that kind of music seriously', referring, once again, to the bulk of avant-garde music in Paris of the time.[9] Once more, however, the tone of his voice is crucial: he sounds amused, surprised and astonished that such a reaction could occur at all.

As expressed to Ashley, then, Glass's attitude toward the avant-garde of his time actually suggests amused frustration more than it does righteous indignation. Still, one questions the nature of his frustration: what, exactly, bothered him about the creepy, crazy music? Certainly, it was not dissonance alone. He always held the music of America's experimental wing in high regard — Earle Brown and Morton Feldman were explicitly mentioned as two composers whose works Glass enjoyed when they appeared on Domaine Musicale concerts, and he has expressed his positive feelings for Cage more than once.[10] The sound of such music is almost as far removed from Glass's stripped-down music as one can imagine.

It could be, perhaps, that Glass was dismayed by the compositional attitudes in some quarters of the accepted avant-garde music at that time. Pierre Boulez had great confidence in a musical progressivism emanating from a single origin, serialism. In his eyes, almost everything else failed to contribute meaningfully to that progress: the idea, in short, of progress as a self-sustaining *raison d'etre*, clearly linked to the progress of the recent past. By contrast, the sense of openness fostered by *Silence* concerned music as much as it did a new attitude, a fresh perspective about the making of art and a general distrust of definitions that excluded.

This attitude offers a lens through which to consider Glass's remarks that he has always considered himself a popular composer. First, his activities outside of music, as he describes in his biography, included the enjoyment of François Truffaut's films. As is well known, Truffaut and other directors of the *nouvelle vague* approached their work as an alternative to the more doctrinaire French film of the postwar era; they correctly assumed that their films could connect with a wide audience. Second, Glass assisted Ravi Shankar in the latter's score for Conrad Rooks's film *Chappaqua*, a film which would have fit very well within the ultra-chic counterculture of the late 1960s — a counterculture that had

many, many members, as shown by the explosion of the French student uprising in 1968. Therefore, in his own way, Glass saw himself as part of a community of artists whose actions suggested a more fundamental, celebrative evocation of the time itself. After all, revolution in the 1960s entailed not only conflict, but an exploration of community. That community helped to persuade Glass that his music could, indeed *should*, have a large audience.

In recent years, Glass, nearing 70, continues to diversify his ties to the community of music. His is an ecumenical community, one that reaches across generations and backgrounds. Naturally he has settled into a new image that reflects his age and status. A 2001 photograph from Glass's website shows him bespectacled, older, wiser; he remains a sleek, stylish artist who has enjoyed a good life and confidently places that image before us. The image now offers a more curious blending of different aspects of the nineteenth and twentieth centuries; one can see Glass the composer, inspired and inspiring (some images show him with pencil in hand, always working, always thinking about his music). Yet the photographs also bespeak celebrity, America's royalty. Indeed, like Princess Diana, Glass in his newest photographs conveys openness and courtesy, the willingness to engage and be engaged. Like the nineteenth-century music lovers before us, we are too often wont to celebrate image. Glass is one of a handful of artists in this century that satisfies this need brilliantly.

Just as Glass has steadily widened his interest in the various domains of mass media musical production available to him, so too has he moved into genres that no one would imagine him pursuing in the 1970s. These genres include the time-honoured staples of classical music: symphonies, concertos, and non-programmatic string quartets. As usual, his attitude toward these works betrays a Janus-like sensibility, an unusual alchemy of motives. For example, he claims that the symphonic genre is a container that can accommodate any material he wishes to insert; yet at the same time he sees himself very clearly as part of a symphonic tradition that includes Sibelius, Mahler, Shostakovich, and others.[11]

To be sure, Glass's sense of tradition is not Schoenberg's, in which the composer sees himself as continuation — even culmination — of an artistic imperative. Rather, his tradition is one that observes and reflects freely on the materials of the recent or remote past. Glass had powerfully articulated this new attitude early on:

> The radical nature of this work is really the complete disregard of historical perspective. Up until now music has marched along from decade to decade, each composer adding or expanding a little bit. Now we have whole generations of people who are ahistorical, who are not at all interested in the historical perception of their work. Music for us does not advance down the road of Schoenberg and Wagner and so forth. The biggest cut to that tradition is to say: what tradition? You don't care. I can say — I'm going to use Berlioz; I'm going to use Mozart; I'm going to use myself; but, I'm going to fashion it in a way that the subject of the work is in fact the juxtaposition between the listener and the work itself and not anything stylistic in the work. This is a point of view which is much more radical than saying, now I'm going to serialize the rhythm or dynamics or whatever. To Americans of this generation that is so boring as to not be believable. We can't believe that anyone is thinking that way.[12]

In Glass's view, tradition exists, is a fact. But it is no longer necessary to see artistic work as proceeding from the historical past as either rejection or intensification. The kind of work he does is a playing with signs, a fluid engagement with a wide variety of musical materials which are brought together in myriad ways. It offers a mode of reception to the listener that is radically different. Glass's remark about the juxtaposition between the listener and the work itself suggests that responses to the wide stylistic content of his work might take on neither the cast of irony nor one of nostalgia, but rather one of vital celebration in the face of a musical text that is resolutely polysemous.

Glass's brand of postmodernism, which is more playful, lively, and often resolutely non-ironic, bewilders critics who are coming to grips with the development of minimalism. This bewilderment has appeared in the critical reception of the copious new pieces emerging from Glass's pen in the last few years, as for example, when John Rockwell writes:

> The trouble with Glass's recent formal and coloristic innovations is that they have not been accompanied by a coherent and still convincing expansion of his idiom.... In attempting to expand his harmonic idiom and to increase the responsiveness of his music to texts in familiar modern languages, he has approached neo-Romantic conventionality and demagoguery in a way that both exposes the weaknesses of his style to accomplish those ends and subverts the stark abstraction of that style. What once was meditatively stimulating has become truly primitive.[13]

Rockwell seems to want a neat, evolutionary development for Glass's music, one in which innovation is patently and consistently evident. But Glass cannot be pinned down to such totalizing, grand narratives. Neither, for that matter, could John Cage, with whom the younger composer has frequently allied himself. Cage's approach to composition helps to illustrate this point. Above all, Cage formulated his own artistic work as a simultaneous exploration of different approaches and techniques spanning his entire career; the approach has created difficulties for scholars like William Brooks, who argues that chance allowed Cage to reconfigure the 'meaning' of traditional musical materials in order to recuperate them within his avant-garde aesthetic.[14] Such formulations, while helpful in smoothing over the unusual

inconsistencies in Cage's practice, seem to me too tidy, and furthermore minimize the important role of the listener's response to these contradictions. Likewise, Glass has exhibited a contradictory, non-linear course in his own career. He has increasingly drawn from a wide variety of materials, including his own musical past, to new ends in his recent music.

2.

AS AN ILLUSTRATION of this claim, I would like to revisit some of Glass's early music and, in particular, point out aspects of its formal design and harmonic structure that illustrate some continuities with his later work. Of course, detailed analyses of minimalist music were rather slow in coming, in part because the music originated, in the main, outside of academia. Many early descriptions of minimalist music stressed its static qualities, reinforcing its connections to minimal painting and sculpture. In this understanding, analyses of minimal music suggest that it is best understood as lacking teleological goals. Leonard Meyer expressed this view as late as 1994:

> Because there is little sense of goal-directed motion, [minimalist] music does not seem to move from one place to another. Within any musical segment there may be some sense of direction, but frequently the segments fail to lead to or imply one another. They simply follow one another.[15]

The difficulty of this point of view is its apparent prescriptions for listeners — that they should not attempt to perceive any medium- or long-range relationships in this music at all; rather, they should adopt an approach that is passive and non-selective, focusing on any sounds for their pleasure alone.

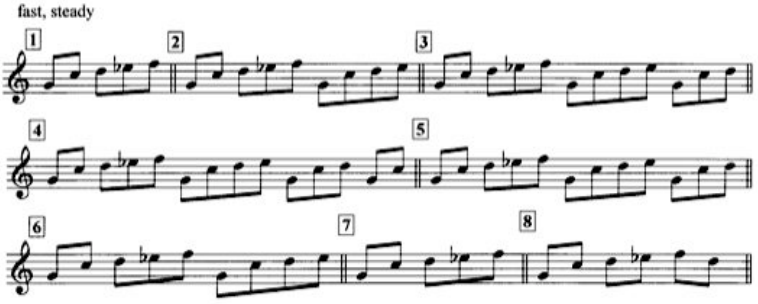
Although recent discussions of compositional strategies by Steve Reich and John Adams have gone a long way in dispelling viewpoints like Meyer's, published analyses of Glass's music are still all too rare.[16] The most extended essay on Glass's work readily available, Wes York's study of *Two Pages* (1968), suffers from errors unwittingly brought about by York's preparation of the score that he used for analysis.[17] In brief, York based the analysis on his own transcription of a commercial recording of the work, but the recording contained cuts in order to fit the piece on a single side of an LP. Furthermore, he transcribed the rhythmic patterns into crotchets, thus obscuring certain motivic relationships in the work (Glass's notation is in quavers). Finally, York's intricate proportional relationships among the sections in the work are dubious because his score was abridged.

Fortunately, we now have a reliable source of Glass's early music in a recent monograph by Keith Potter.[18] With better access to scores, careful and comprehensive study of secondary sources, and keen analytical skills, Potter has produced an excellent introduction to this music's cultural context and compositional techniques. The discussions of early works like *Two Pages* (1968) and *Music in Similar Motion* (1969) stand out, in particular, for the attention he pays not only to rhythmic structures, but also to aspects of the pitch and harmonic structures.[19]

One of Potter's goals is to differentiate between these early works and later ones by adopting the term 'postminimalist' — the principal distinction of which concerns the recuperation of 'melodic profile, timbral variety, and sheer sonic allure' thus making the music 'richer and deeper'.[20] While significant differences do exist between Glass's music composed before and after 1974, the too-facile representation of 'minimalism' to 'postminimalism' as a single-minded march is not the most effective way to describe these differences.

Both this distinction and Meyer's earlier words forestall the discovery of riches in the early music as well. For instance, one might assume that pitch choices in Glass's early music are somewhat arbitrary, and that other choices would make the additive rhythmic structure of the music as clear as the ones that he selects. A closer look at pitches in his earlier music shows novel compositional decisions that are analogous to later work. And in *Einstein on the Beach* (1975, premiered 1976), Glass writes in several different idioms, each with its own harmonic effects, in addition to the most famous ones that induce 'rehearings' of traditional harmonic progressions. This pluralistic harmonic approach has reappeared in much of his recent music. All this suggests that it is equally profitable to consider the *continuities* in Glass's work from 1968 to the present, since they will help clarify the stylistic similarities of his early and later work.

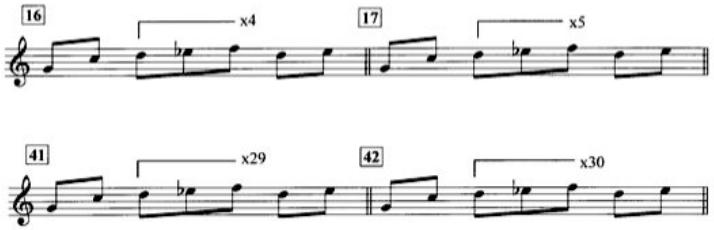
There is much in *Two Pages* that represents its composer as an iconoclastic anti-modernist, for in such works he developed the style characteristics peculiar to his own kind of minimal music in exhaustive and almost didactic detail. These characteristics can be briefly summarized by referring to Example 1, which shows the beginning of the work.



Ex. 1: Philip Glass, Two Pages, Rehearsal Nos. 1-8

Each rehearsal number is a module of music that is repeated a number of times before proceeding to the next module. The pitch content is limited to only five pitches; representatives of the pentachord (5-23) [02357] (abstractly included in the diatonic set (7-35) [013568A]). Glass's realization of this set as a diatonic melody clearly suggests the possible centricity of C.[21] The texture itself is monophonic, emphasizing a continual and somewhat unpredictable stream of duple and triple groupings. (In performance, the work could be performed in multiple octaves by many musicians.) Finally, each module is related to the other by an additive process, described by the composer as a technique 'in which a simple melodic figure is altered after a number of repetitions by the addition or subtraction of one or a group of related notes'.[22] Thus, in Example 1, Rehearsal Nos. 2-7 are what I would call additive variations of Rehearsal No. 1 — that is, they are variations of Rehearsal No. 1 created by additive process.

Glass's realization of the (5-23) pentachord parses into two segments, representatives of set classes (2-5) [05] and (3-2) [013]; each of these segments has a different interval-class vector with no ics in common ([2000010] and [3111000]).[23] The working out of his additive process soon results in a number of other segments, of course, but the segmentation of (2-5) and (3-2) sc representatives takes on increased significance when the composer generates additive variations that include multiple statements of the (3-2) realization. He does this twice, as for instance in a passage shown in Example 2.



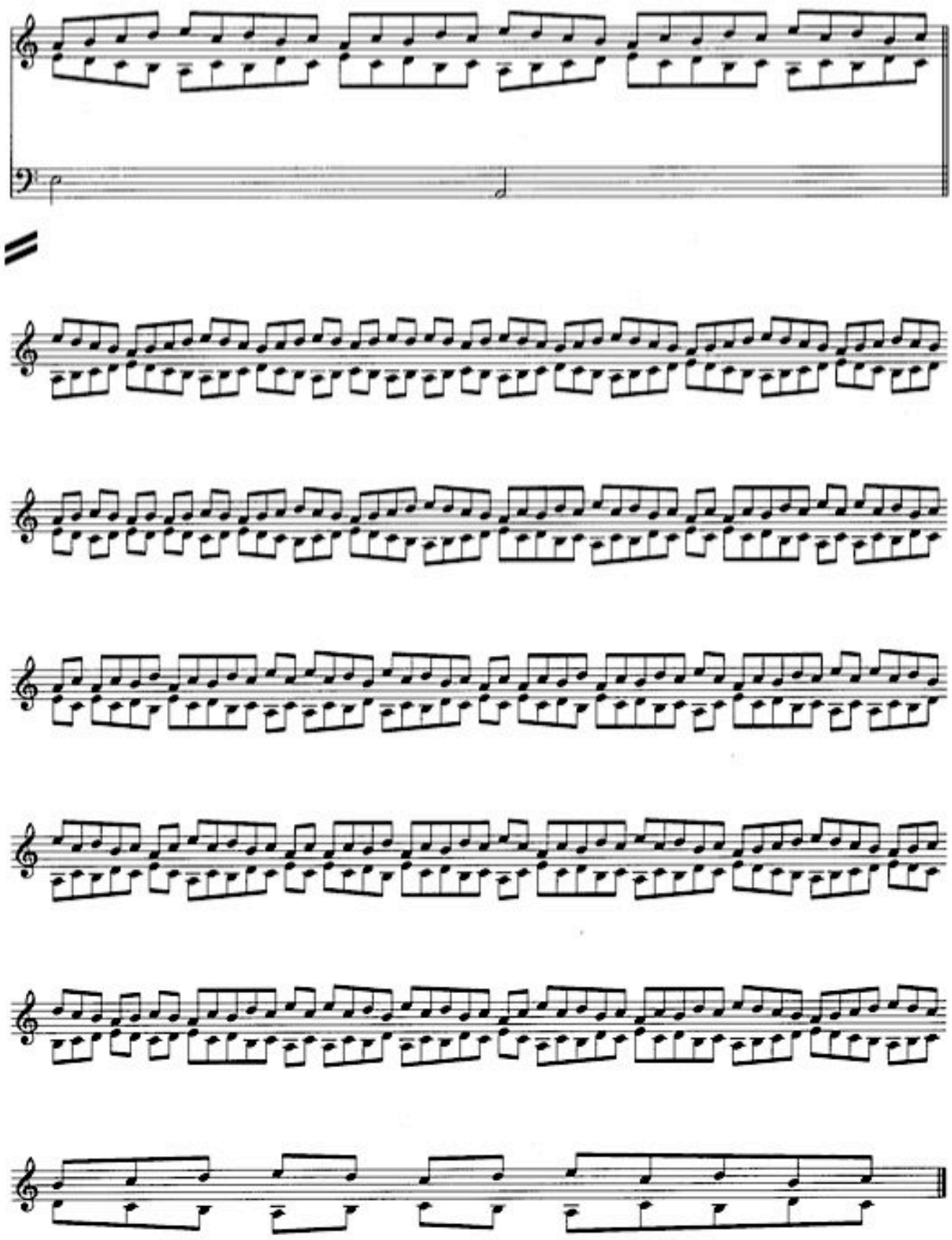
Ex. 2: Philip Glass, Two Pages, Rehearsal Nos. 16-17, 41-42

In this passage, the increasing number of repetitions of this segment focuses attention on the highest register. Therefore, the sudden return of the pitch-class G at the beginning of the next measure has a shattering effect enhanced not only by its separation in pitch-space from the other elements of the music (no matter what octave), but also because of the return of the contrasting ic 5 (pcs G and C) in set class (2-5).

Thus, both Glass's pitch choices and his realization of these choices has an aural impact even in this early, purely minimalist work. Indeed, the sudden reappearance of pitches after a long absence has such a stunning effect that one might call it dramatic; I would argue that such moments are at the core of what he means when he claims his music has a visceral effect on its listeners.[24] Similarly, Glass had previously noticed the possibility for his music effecting what he called an 'epiphany' or heightened feeling at a different time each night Beckett's Play was performed.[25] The moments I have described in *Two Pages*, then, seem another nascent example of the dramatic impact of his music, albeit one somewhat more dependent on particular musico-temporal circumstances.

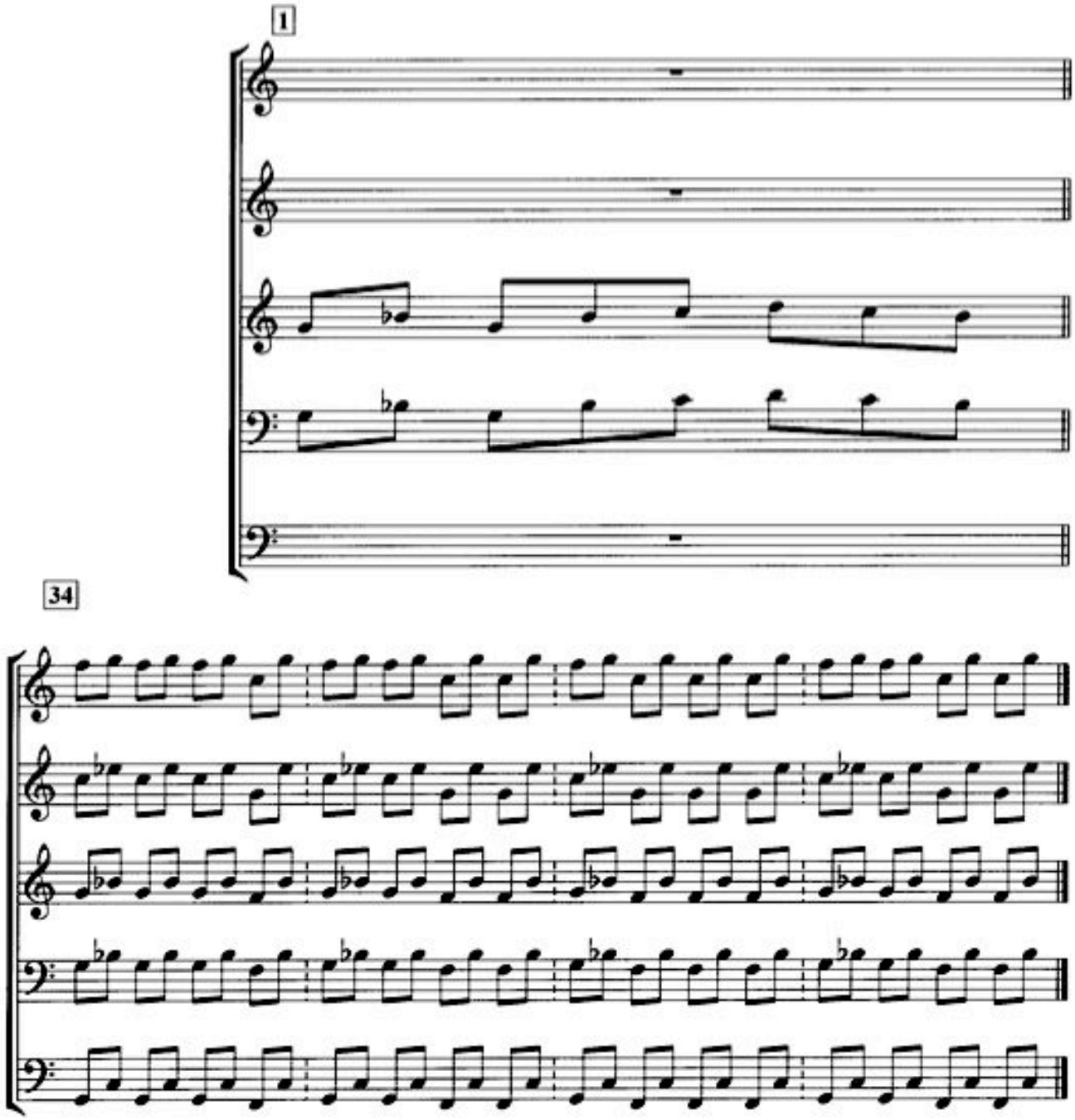
The formal designs of Glass's early music are perhaps its most novel aspect. In general, these designs tend to subvert traditional formal patterns of Western music in that they grow in intensity for a work's duration. In some in-

stances, this intensification process is accomplished simply by increasing the length and intricacy of the additive variations, as in the beginning and ending of *Music in Contrary Motion* (Example 3).



Ex. 3: Philip Glass, *Music in Contrary Motion*, beginning and ending

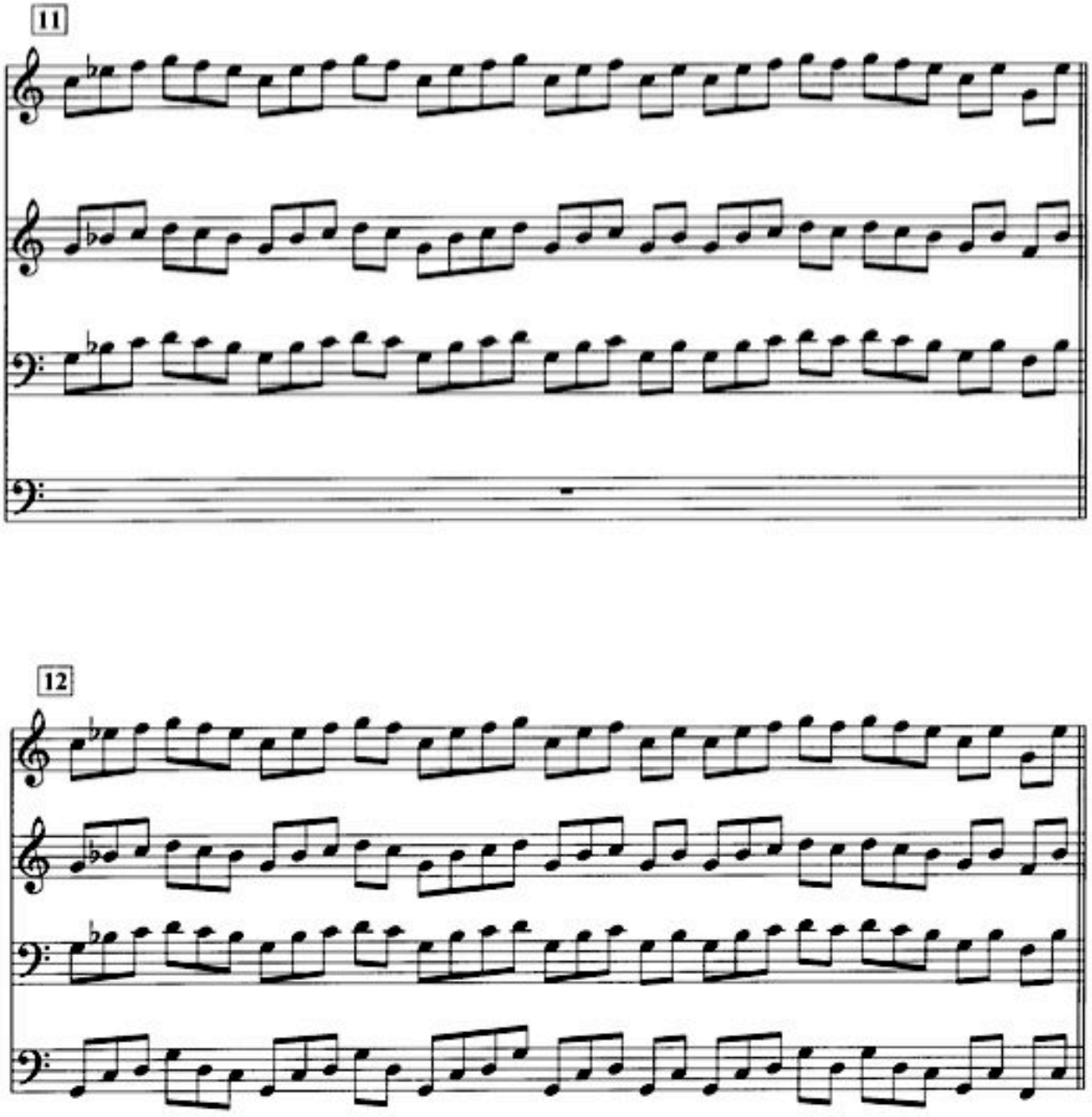
By contrast, the closing variation of *Music in Similar Motion* is only four times the length of the opening figure (Example 4).



Ex. 4: Philip Glass, *Music in Similar Motion*, beginning and ending

Its intensity derives from the textural density of additional contrapuntal lines and, more important, from an extreme compression of the original figure's melodic motion and pitch content.

The addition of contrapuntal lines not in strict parallel motion is crucial, for it underscores Glass's interest in harmonic structure as an expressive and structural device. In *Similar Motion*, the most important example of this technique occurs in the transition from Rehearsal 11 to 12, with the introduction of the work's lowest line (Example 5.)



Ex. 5: Philip Glass, *Music in Similar Motion*, Rehearsal Nos. 11-12

Once again, the appearance of this line makes a powerful impact, not only because of its low register, but also for its differing pc content. The segment is a realization of set class (3-9) [027] which, although it is abstractly included in the set classes for both of the previous lines — 5-35 [02479] and (4-22) [0247] — has a simpler intervallic profile than the others. Glass himself has remarked that Similar Motion marks the first time he thought of texture as a structural idea — he contrasts this concept specifically with the earlier works, which he says has no 'dramatic structure'.[26]

Similar Motion, then, marks the first time in Glass's oeuvre in which he specifically associates texture with dramatic structure; this fact invites an interesting comparison with his well-known note for *Music in Twelve Parts*, where he seemed to continue a resolutely avant-garde stance in his music:

> In undertaking [*Music in 12 Parts*] it was my intention to confront directly the problem of musical scale (or time). The music is placed outside the usual time scale, substituting a non-narrative and extended time sense in its place. It may happen that some listeners, missing the usual musical structures (or landmarks) by which they are used to orient themselves, may experience some initial difficulties in actually perceiving the music. However, when it becomes apparent that nothing 'happens' in the usual sense, but that, instead, the gradual accretion of musical material can and does serve as the basis of the listener's attention, then he can perhaps discover another mode of listening — one in which neither memory nor an-

> ticipation (the usual psychological devices of programmatic music, whether Baroque, Classical, Romantic or Modernistic) have a place in sustaining the texture, quality or reality of the musical experience. It is hoped that one would then be able to perceive the music as a 'presence', freed of dramatic structure, a pure medium of sound. [27]

It is true that the relatively stable pitch material and technique of additive variation fail to provide familiar aural markers of structure in this music. Nevertheless, even here certain passages with changing textures create a dramatic impact. The alternation of unison and non-unison writing in Part 7 is one example; so, too, is the changing harmonies that begin to appear in Parts 11 and 12, a moment signaling the composer's shifting attention to the role of harmony in his music.

In the years following this work, Glass's music would come to use harmony in even more familiar ways; moreover, he began to use various formal devices that were more traditional than the more radical ones he developed in his earlier music. This manner of working is most evident in *Einstein on the Beach*, an opera created in collaboration with the visionary director Robert Wilson. Composed in 1975 and premiered in 1976, *Einstein* is the crowning achievement of Glass's output from the preceding decade, offering a culmination of compositional techniques that appear in his music throughout that period. *Einstein* is now widely regarded as an artistic milestone in the cultural milieu of the late twentieth century.[28]

Prologue

Act I

	Knee Play 1		
(Scenes)		I, I Train	I, ii Trial
(Glass's titles)	**Knee 1**	**Train**	**Trial**

Act II

	Knee Play 2		
(Scenes)		II, i field with spaceship (in distance)	II, ii train (at night)/prison
(Glass's titles)	**Knee 2**	**Dance 1**	**Night Train**

Act III

	Knee Play 3		
(Scenes)		III, i Trial (Bed) (closer)	III, ii field with spaceship
(Glass's titles)	**Knee 3**	**Trial/Prison**	**Dance 2**

Act IV

	Knee Play 4				
(Scenes)		IV, i Building (same perspective as train)	IV, ii Bed	IV, iii Spaceship (interior)	Knee Play 5
	Knee 4	**Building**	**Bed**	**Spaceship**	**Knee 5**

Ex. 6: *Einstein*, dramaturgical structure

As a touchstone of non-narrative music theatre, *Einstein* was notable for its extraordinary length, fantastic imagery, painterly use of light, repetitive text replete with elusive meanings, and not least for the central role accorded to dance or otherwise formalized movement.[29] Wilson conceived the visual aspect of the work as a succession of large scenes, each of which presented a single image — a train, a trial with a bed in it, and a field with a spaceship visible in the sky. More intimate set pieces, which he called 'Knee Plays', punctuated these large scenes as a prologue, entr'actes, and epilogue. Finally, the cycle of large scenes appeared three times over the course of the four-act work; with each new appearance of the cycle, Wilson altered the visual images, making them progressively more abstract. Example 6 (previous page) shows Einstein's dramaturgical structure; very brief descriptions therein summarize the separate images and their modification in the course of the work.

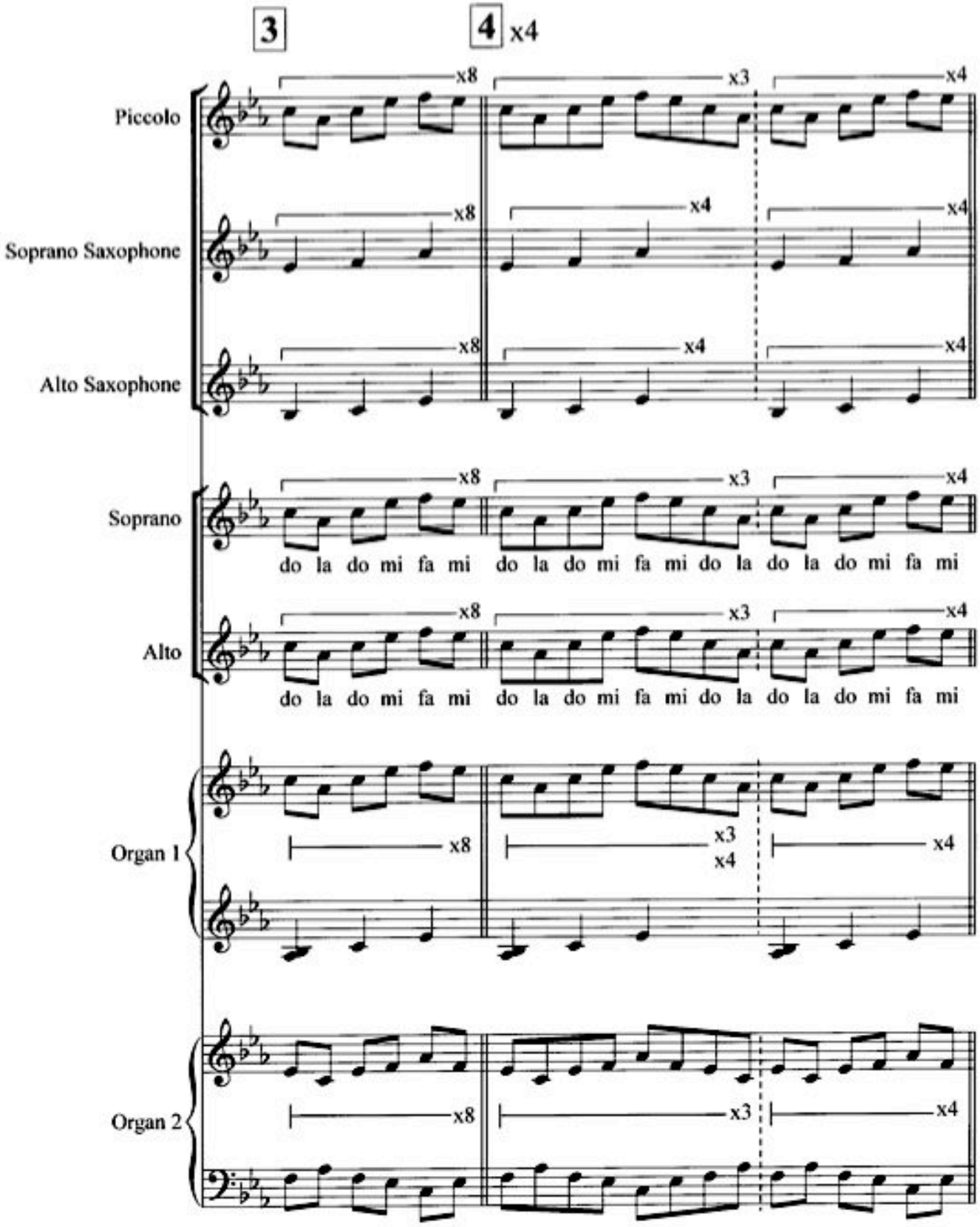
On the largest formal level, Glass's music for *Einstein* corresponds to the opera's dramaturgical structure. Both large scenes and the connecting Knee Plays have specific and usually distinct tonalities and musical motives associated with them. The formal shapes for the individual numbers, which are summarized in Example 7, encompass several possibilities.

Knee Play/Scene	Remarks
Knee Play 1	A–A′: Based on Harmonic Cycle vi-V-I in C major (hereafter, Harmonic Cycle 1); unchanging rhythmic structure varied with the (almost) systematic addition/subtraction of rests; second half of piece nearly identical to first.
Train	Three groups of additive variations, respectively, on 1) SC 5-35 [02479] realized as the collection $A^{\flat}$–$B^{\flat}$–C–$E^{\flat}$–F; 2) a different realization using the same pcs (lowest pitch = $E^{\flat}$); 3) harmonic cycle that is an alteration of the progression i–VI–iv–V–i in F Minor (IV, V, and the final i) are lowered to produce a cadence in E major; hereafter, Harmonic Cycle 2). Certain additive variations recur across groups of variations, acting as a ritornello; variations become more elaborate.
Trial	Large set of additive variations on a melodic pattern in A minor; concluding coda is a set of additive variations on an harmonic cycle based on the progression i-VII–VI–V in F Minor (hereafter, Harmonic Cycle 3)
Knee Play 2	A–B–A: (A) Additive variations on Harmonic Cycle 2; (B) Additive variations based on the Trial music; (A) inexact retrograde of first (A)
Dance 1 (Field/Spaceship)	Expanding form in an A–A′ arrangement: Pairs of sonorities differentiated by pitch content and rhythmic figuration (all contain (3-9) [027], realized A–D–E); the number of chords is increased, reaches a climax at the end of the first A section; A' is a non-literal repeat of this process
Night Train	Additive variations on first realization of SC 5-25 (see Train, above); concluding coda is additive variations on second realization of SC 5-35 (all of the variations appear in Train, above);
Knee Play 3	A–B–A: (A) additive variations on Harmonic Cycle 2 (related to Knee Play 2, above); (B) variations (but not additive variations) of Harmonic Cycle 1; (A) inexact retrograde of first (A)
Trial/Prison	Large set of additive variations on the music of Trial (above), now harmonized to a pair of chords (A minor and G minor^{7}, first inv.); concluding coda is a set of additive variations on Harmonic Cycle 3 (very similar to Trial, above)
Dance 2 (Field/Spaceship)	Variation of Dance 1
Knee Play 4	A–B–A: Variation of Knee Play 3
Building	Additive variations on the sonority using second realization of SC 5-35 from Train (above), using some but not all of the original variations); concluding coda is a literal statement of Harmonic Cycle 2 in its first appearance (Train, above)
Bed	Cadenza based on Trial music; Additive variations on Harmonic Cycle 3
Spaceship	A–B–A structure nearly identical to Knee Play 2, above
Knee Play 5	A–A′: (A) Variation of Knee Play 1; (A′) Variation of (B) in Knee Play 4

Ex. 7: Summary of formal designs in *Einstein*, with remarks on musical correlations

Most of the music depends on additive process; large scenes associated with a single image (for example, the Train) are thus sets of additive variations working toward a climax of intensity — either in harmonic content, complexity of rhythmic/melodic surface, or combinations of the two. The two Dances begin with short chordal alternations that progressively expand. But in Knee Plays 2-4 and the Spaceship, simpler A-B-A designs are imposed on the sequence of additive variations; indeed, the order of variations from the first A is reversed (for example, in the second A section of Knee 2).

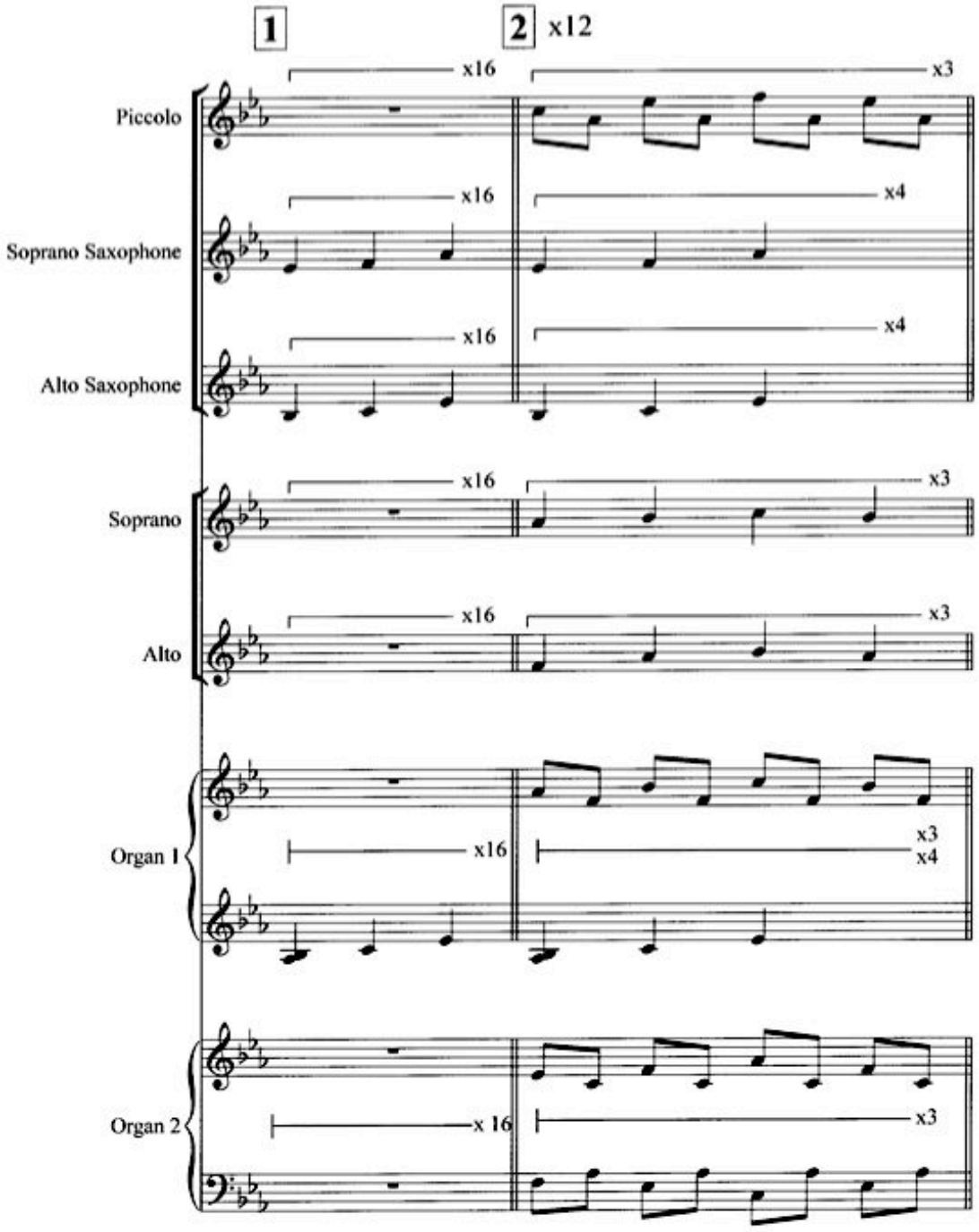
In addition, within scenes, a number of additive variations or groups of additive variations recur, functioning somewhat in the manner of a ritornello. One of these ritornellos appears in Rehearsal Nos. 3-4 in Example 8.



Ex. 8: Philip Glass, *Einstein*, Train, Rehearsal Nos. 3-4

Glass regards all of these recurring figures, as 'starting points', elemental compositional units that mark the origination of a long sequence of more complex additive variations.[30] These reiterations produce a greater coherency of structure on the local level than had heretofore occurred in his music. Additionally, as shown in Example 7, identical additive variations or sequences of additive variations recur across scenes. For example, the Spaceship shares almost identical material with Knee 2; Night Train repeats the important ritornellos or 'starting points' from Train 1, and the Building music reiterates sequences of additive variations and selected starting points from their initial appearance within Train 1.

As a result, much of the music in *Einstein* has an unambiguous formal design that cannot fail to be apprehended with repeated hearings; this quality nicely complements Wilson's particular brand of theatre, with its own development of visual motives and ecstatic, ritualized movement. Furthermore, it helps to orient audiences to Glass's growing concept of theatre, one whose devices could be shaped, in part, by more conventional methods. After all, the composer himself resolved to include a 'razzle-dazzle' finale that would leave his audience standing, and that decision points to an aspect of the work that connects it with a wide dramatic repertory.[31]



Ex. 9: Philip Glass, *Einstein*, Train, Rehearsal Nos. 1-2

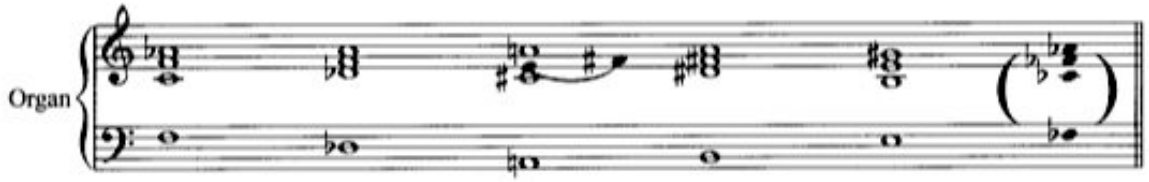
Harmonically, some of the music for *Einstein* resembles earlier sections of *Music in 12 Parts*, with entire scenes constructed around a single pitch collection. Example 9 (previous page) shows an excerpt of this type, whose material again centres around a realization of (5-35) [02479] as an A-flat major triad with an added major second and major sixth.

Even here, however, he creates considerable variety, especially through texture. For example, Rehearsal No. 2 contains two different patterns, one three beats and the other four; these patterns repeat until their downbeats coincide, forming a hypermetric cycle. This rhythmic cycle is then itself repeated four times, as indicated by the 'x4' indication to the right of the rehearsal number indication.

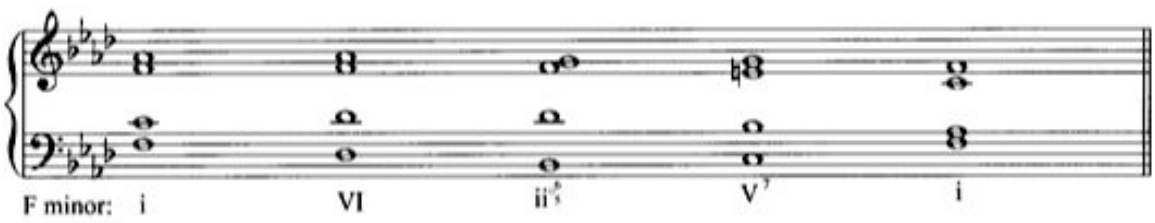
Of course, Glass originally conceived the technique as primarily rhythmic, and indeed the temporary suspension of straightforward metric pulse in such passages is very striking. However, the rhythmic technique also produces harmonic effects; the overlapping parts create changing intervallic combinations in contrast to the more straightforward Rehearsal Nos. 1 and 3 in which no overlap occurs. Heard in sequence, the passage creates a sense of movement not unlike harmonic progression; overlapping figures give an impression of greater density than their non-overlapping counterparts, thus effecting an impression of tension and release.

As is well known, a much greater portion of the *Einstein* music develops the approaches to harmonic structure that Glass explored in the final two sections of *Music in 12 Parts* and in the work *Another Look at Harmony*, which premiered 6 May 1975 while Glass was also working on the opera. Indeed, he based portions of *Einstein* on the first two parts of *Another Look*. In both compositions, he used cadential progressions familiar in Western tonal music as the basis for chaconne-like structures with additive variations. The kaleidoscopic rhythmic groupings of the additive variations and repetition of the harmonic material give these progressions, or harmonic cycles, a new expressive or structural context. Through the use of these harmonic cycles, Glass acknowledged the overt historical references in his work but, at the same time, sought to maintain an essentially progressive stance; in his own words, he claimed to use this harmonic material 'unconscious of its historical weight'.[32]

The second of three such harmonic cycles in *Einstein* is most relevant to our discussion here because it reproduces the most familiar harmonic progression. This cycle, shown in Example 10a, is the alteration of what Glass identifies as the familiar i-VI-ii 6/5-V7-i in F minor (Example 10b); in its alteration, the third chord is one half-step lower than its original: A major (literally, B double-flat major). This chord acts as a pivot to complete the cadence in E major, and the common tone of G#/A-flat makes for a smooth return to the initial F-minor sonority. This common tone is particularly striking, since it functions as the third in two triads of different modality. The effect is heightened by Glass's economical voice-leading, in which the upper voices of the harmonic progression almost always move in stepwise motion. Such smooth voice leading has always remained a distinctive element of his style. More important, however, is the listener's perception of these common tones, which becomes more intense as the statements of the cycle accumulate (Example 10c).[33]

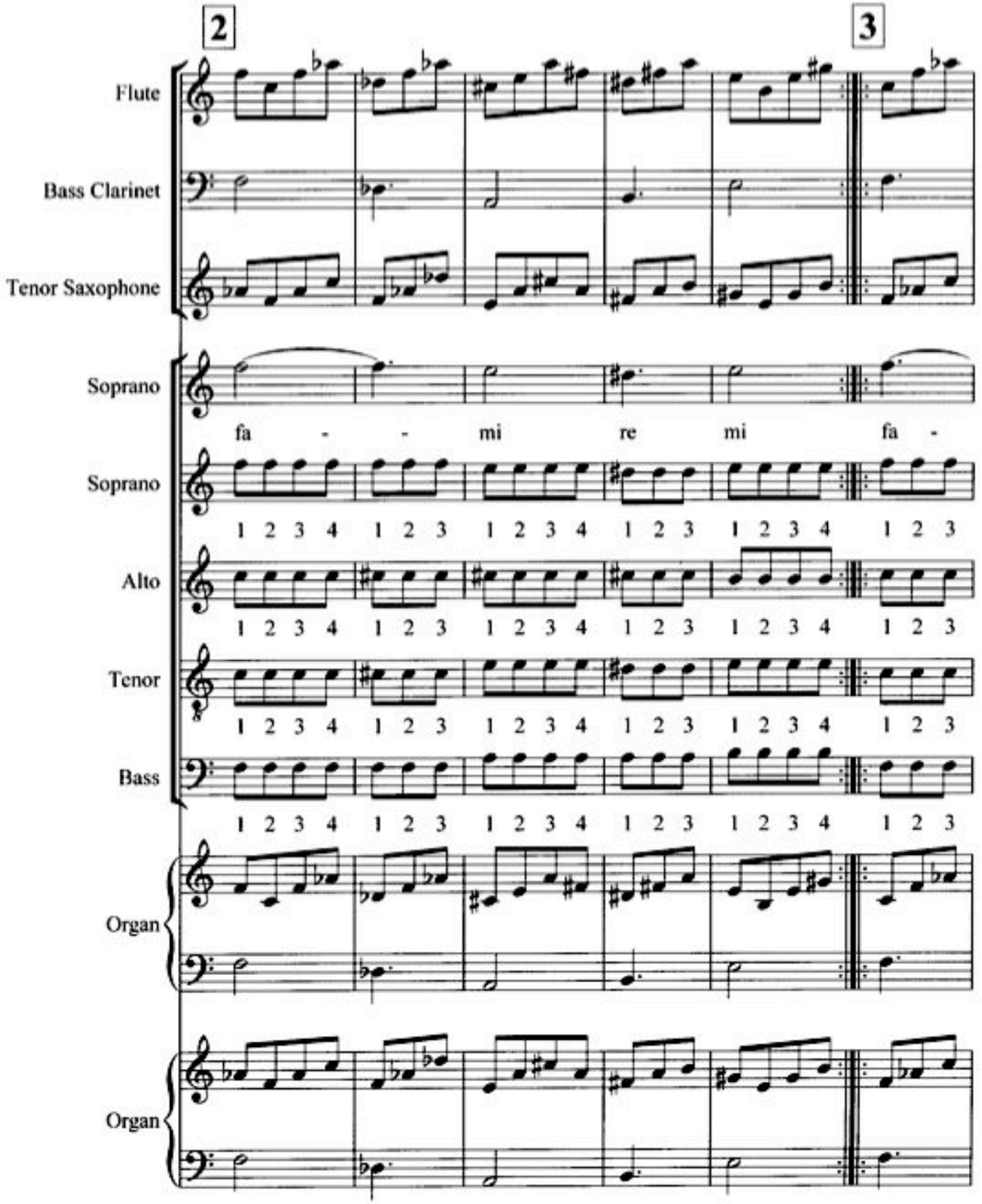


Ex. 10a: *Einstein*, Harmonic Cycle 2

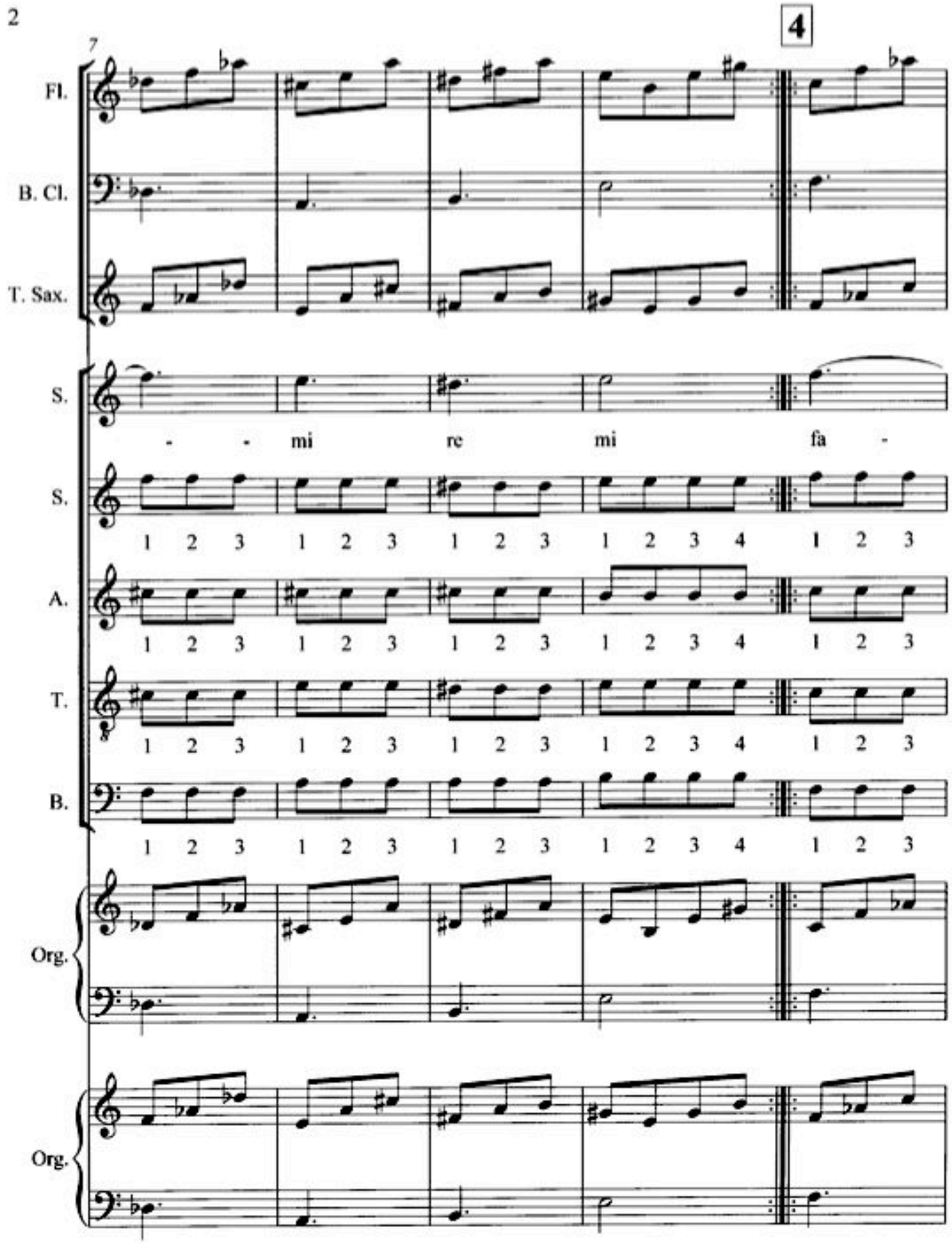


Ex. 10b: Prototype for Harmonic Cycle 2

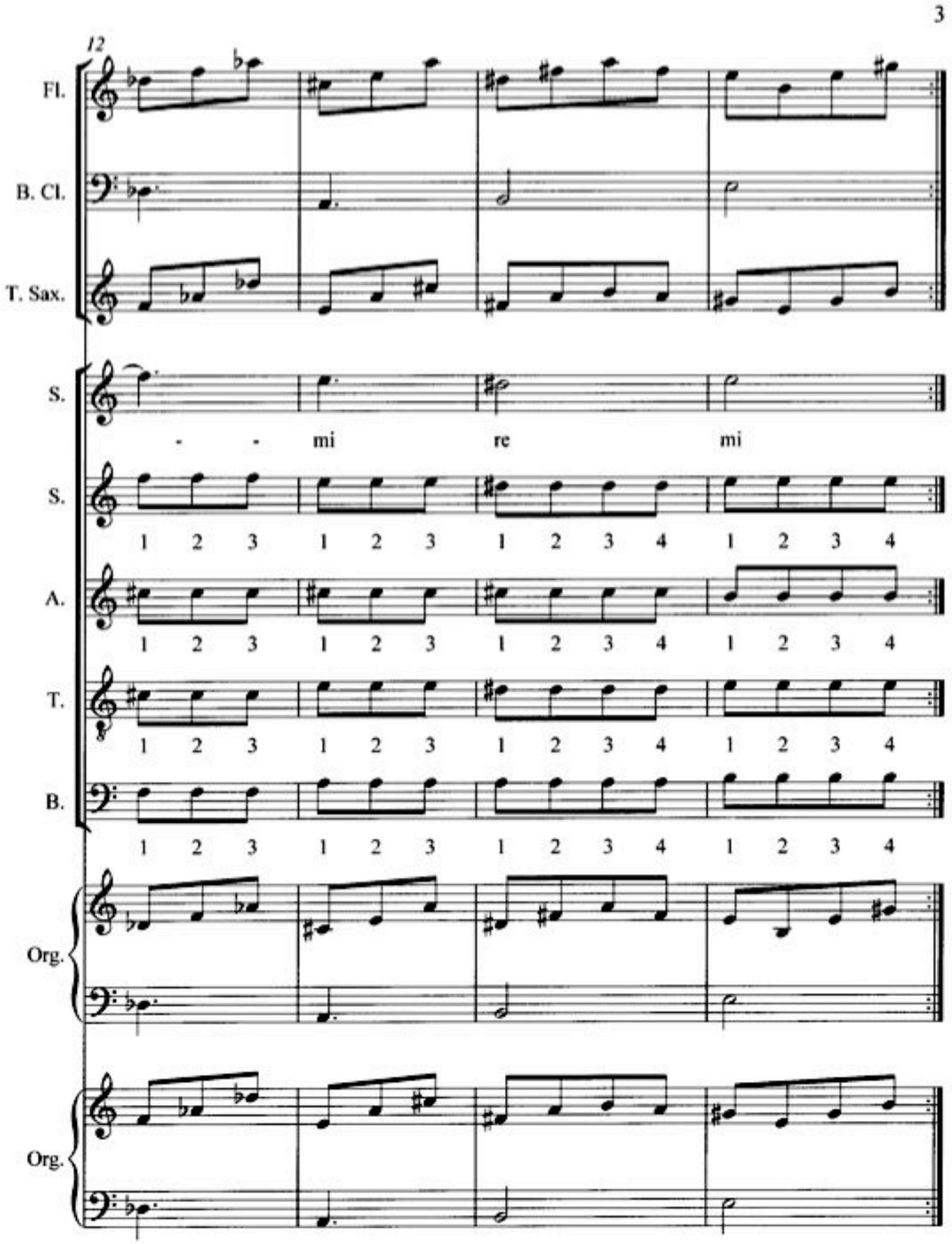
Ex. 10c: Philip Glass, *Einstein*, Spaceship, Rehearsal Nos. 2-4



Ex. 10c (cont.)


2
7
4
Fl.
B. Cl.
T. Sax.
S.
- - mi re mi fa -
S.
1 2 3 1 2 3 1 2 3 1 2 3 4 1 2 3
A.
1 2 3 1 2 3 1 2 3 1 2 3 4 1 2 3
T.
1 2 3 1 2 3 1 2 3 1 2 3 4 1 2 3
B.
1 2 3 1 2 3 1 2 3 1 2 3 4 1 2 3
Org.
Org.

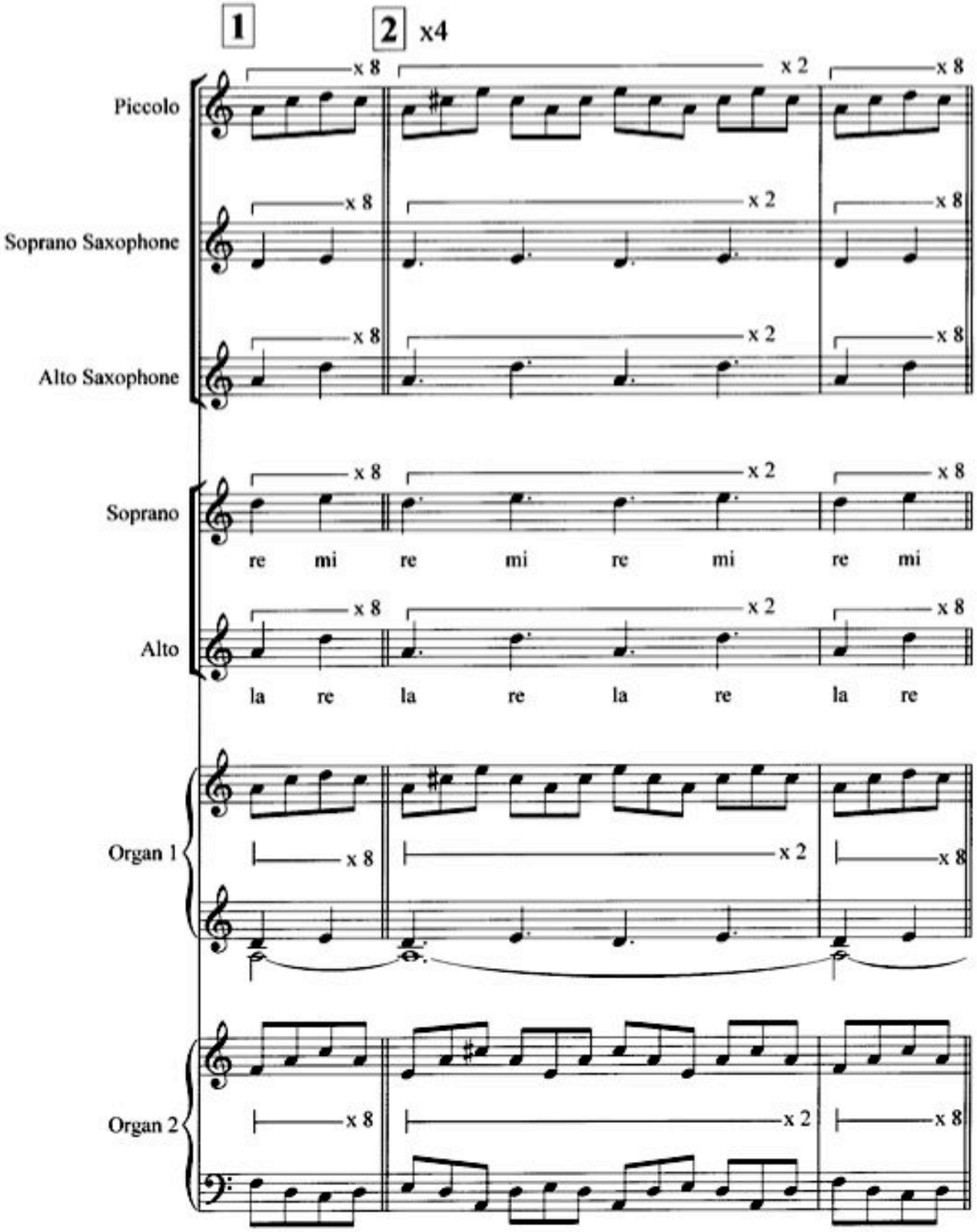
Ex. 10c (cont.)



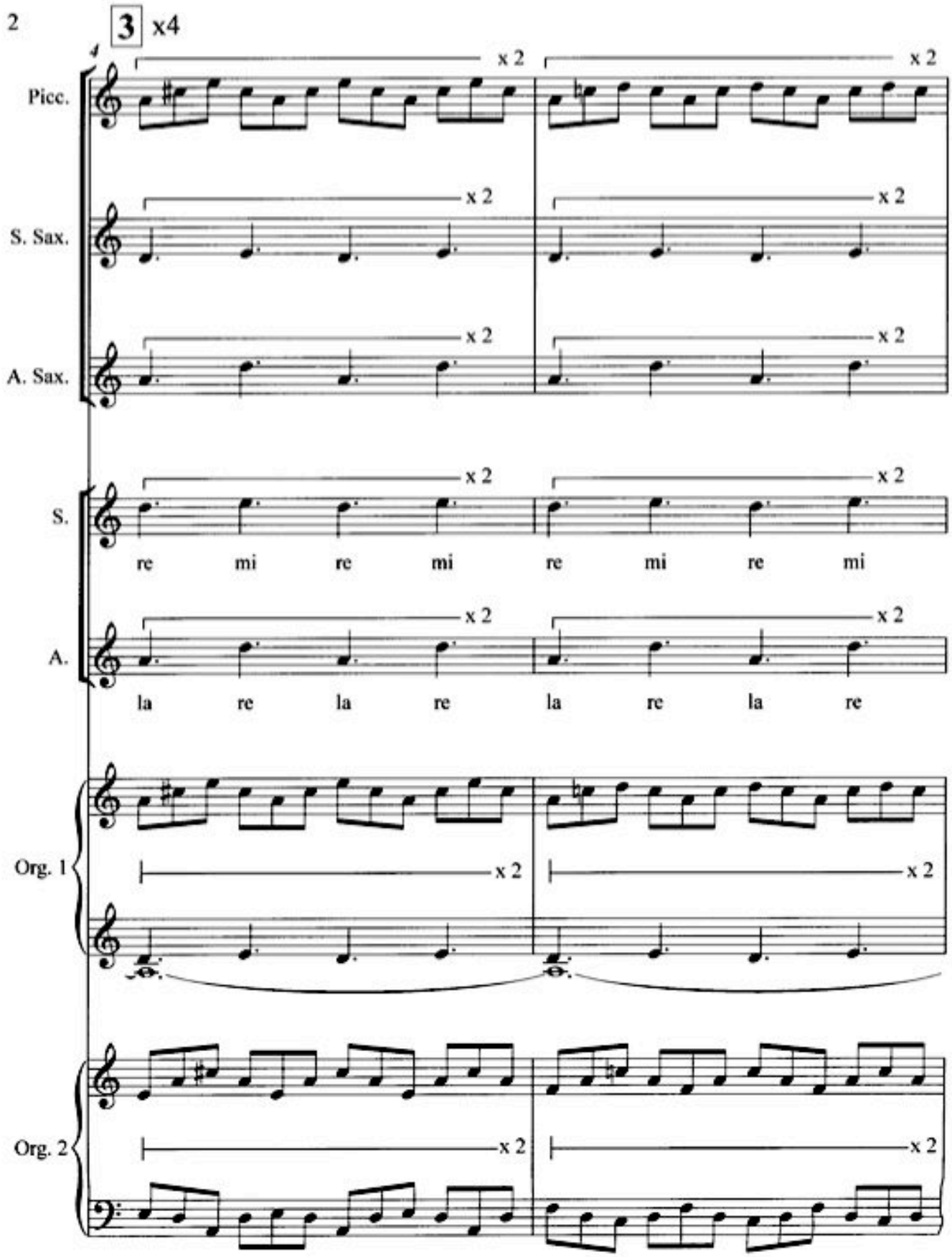
By contrast with these imaginative 'rehearings' of traditional harmony, Dance 1 shows a more interesting technique that the composer ceased to use prominently in his works of the later 1970s and 1980s. Here, the music first

articulates a number of different sonorities, all of which have in common the trichord (3-9) [027], realized as A-D-E. Glass initially associates each sonority with different rhythmic figurations. Additionally, however, the sonorities realize different set classes that vary in cardinality, interval-class content, and spacing; all of these elements impart a novel sense of harmonic motion without reference to the hierarchic triadic relationships in tonal music. Example 11a shows the opening five sections of the music, which alternate three different sonorities; Example 11b identifies the set class and ic vector associated with each sonority.

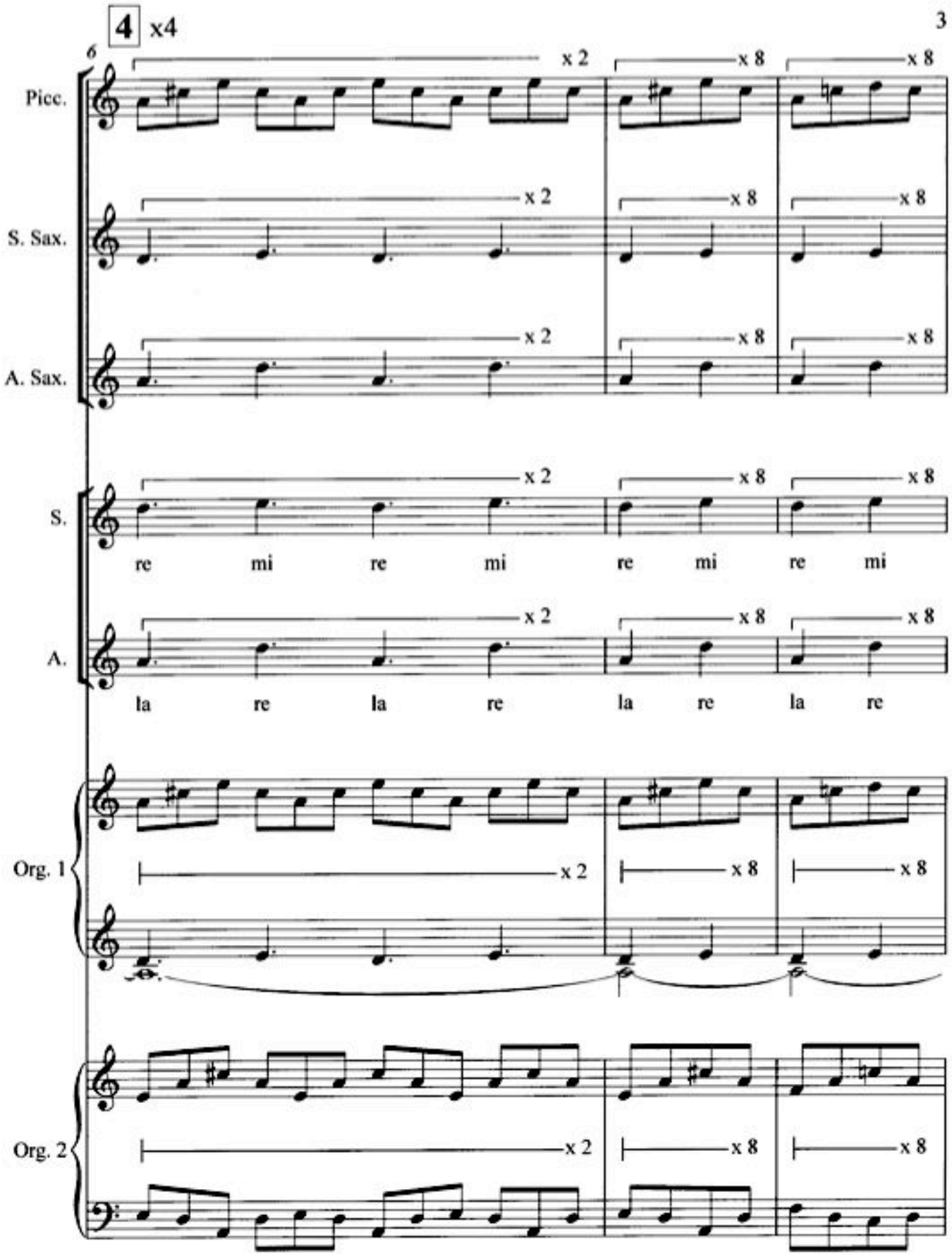
Ex. 11a: Philip Glass, *Einstein*, Dance 1, beginning



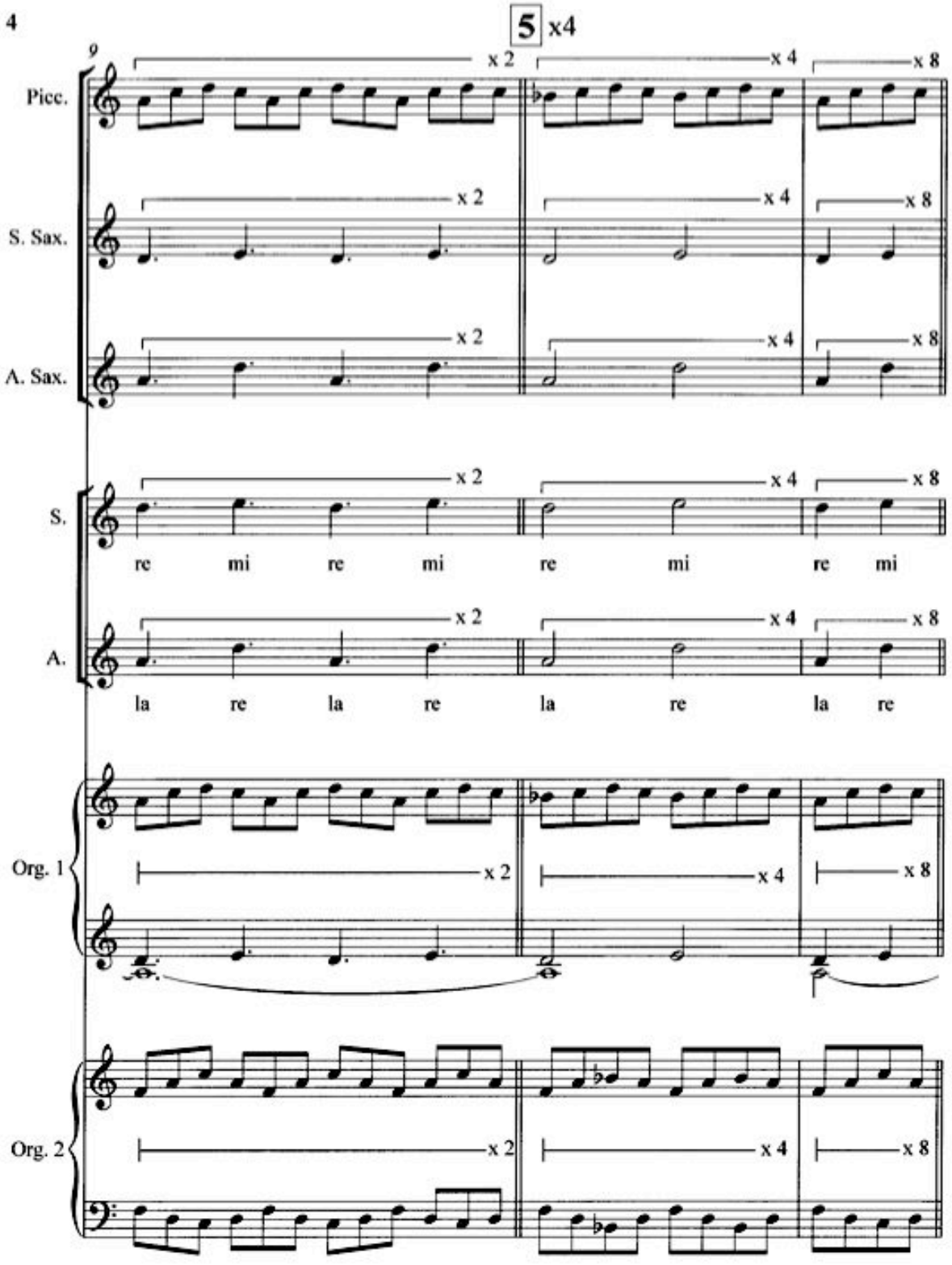
Ex. 11a (cont.)



Ex 11a (cont.)


4 x4
3
6
Picc.
S. Sax.
A. Sax.
S.
re mi re mi re mi re mi
A.
la re la re la re la re
Org. 1
Org. 2
x 2
x 8

Ex. 11a (cont.)

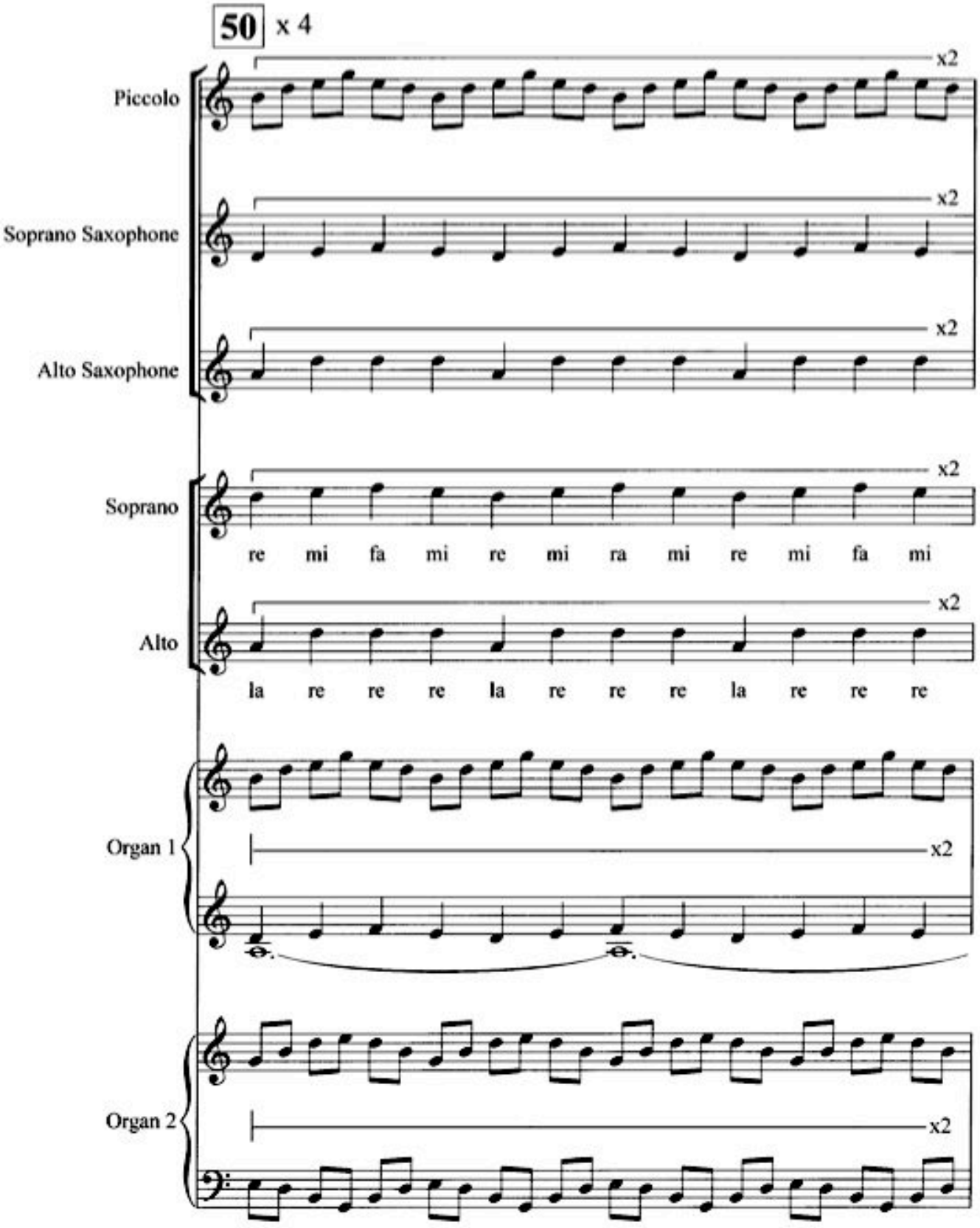


First appearance	SC	ICV
Reh. 1	(5-27) [01358]	[5122230]
Reh. 2	(4-14) [0237]	[4111120]
Reh. 5	(6-26) [013578]	[6232341]

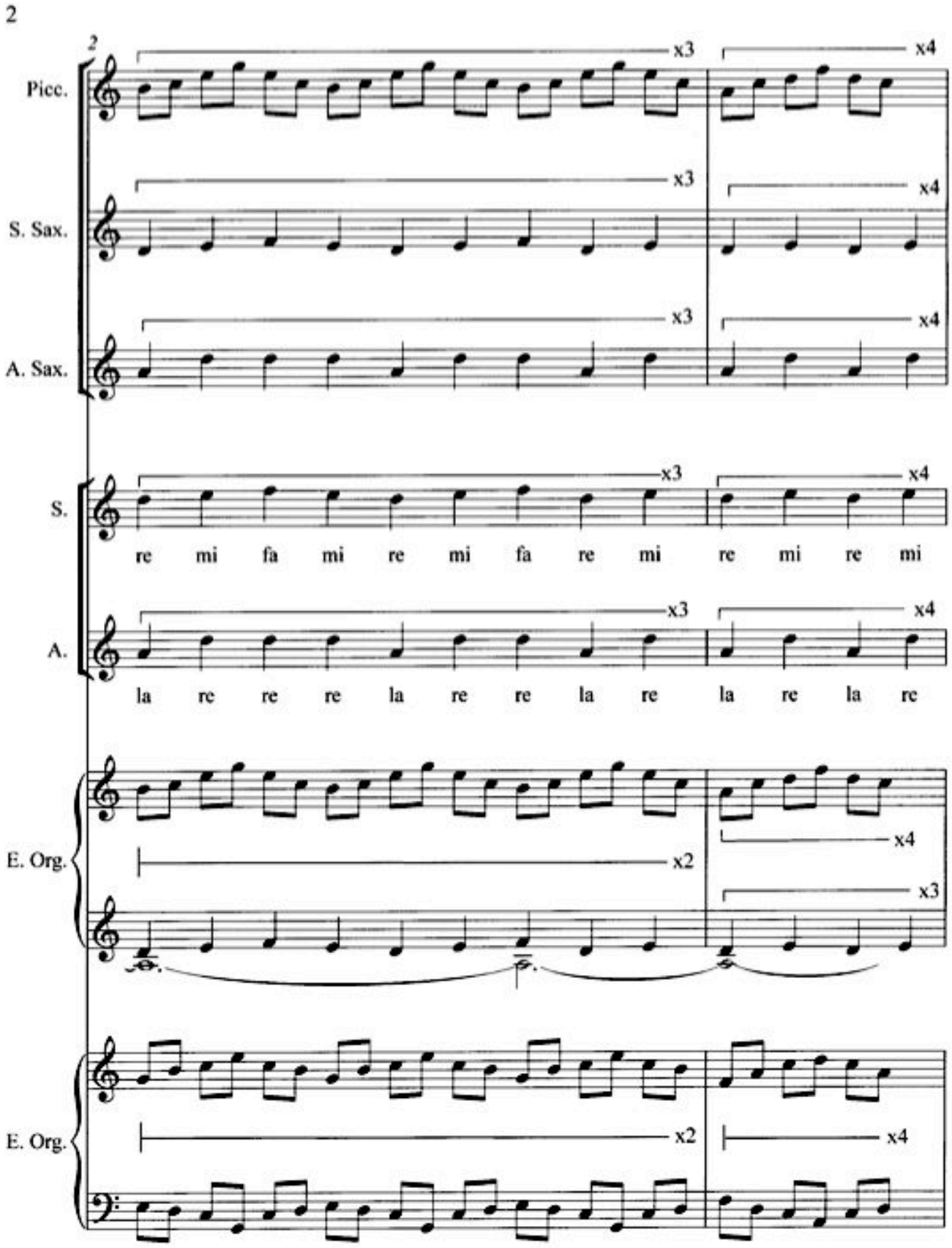
Ex. 11b: Set-Class and IC Vector for three sonorities in Dance 1, Rehearsal Nos. 1-5

Unlike the chaconne-like design in Example 10c, Glass gradually introduces new sonorities that also contain this trichord; eventually, he links four of them in a chain to create yet another example of the expanding formal design subverting traditional modes of closure. And it is in such passages that all the individual components of Glass's minimalist style function in a synchrony of great expressive power (Example 12).

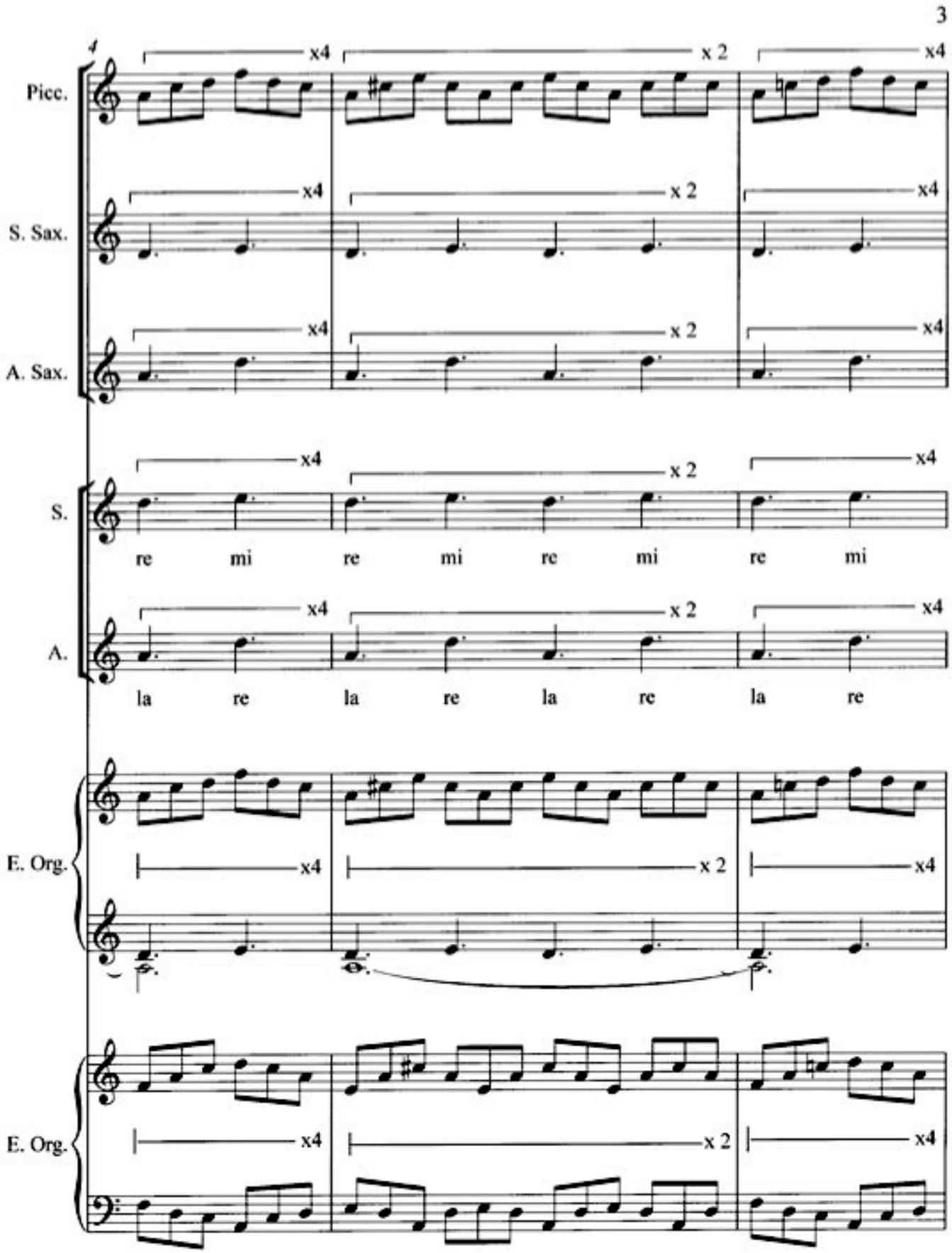
Ex. 12: Philip Glass, *Einstein*, Dance 1, ending



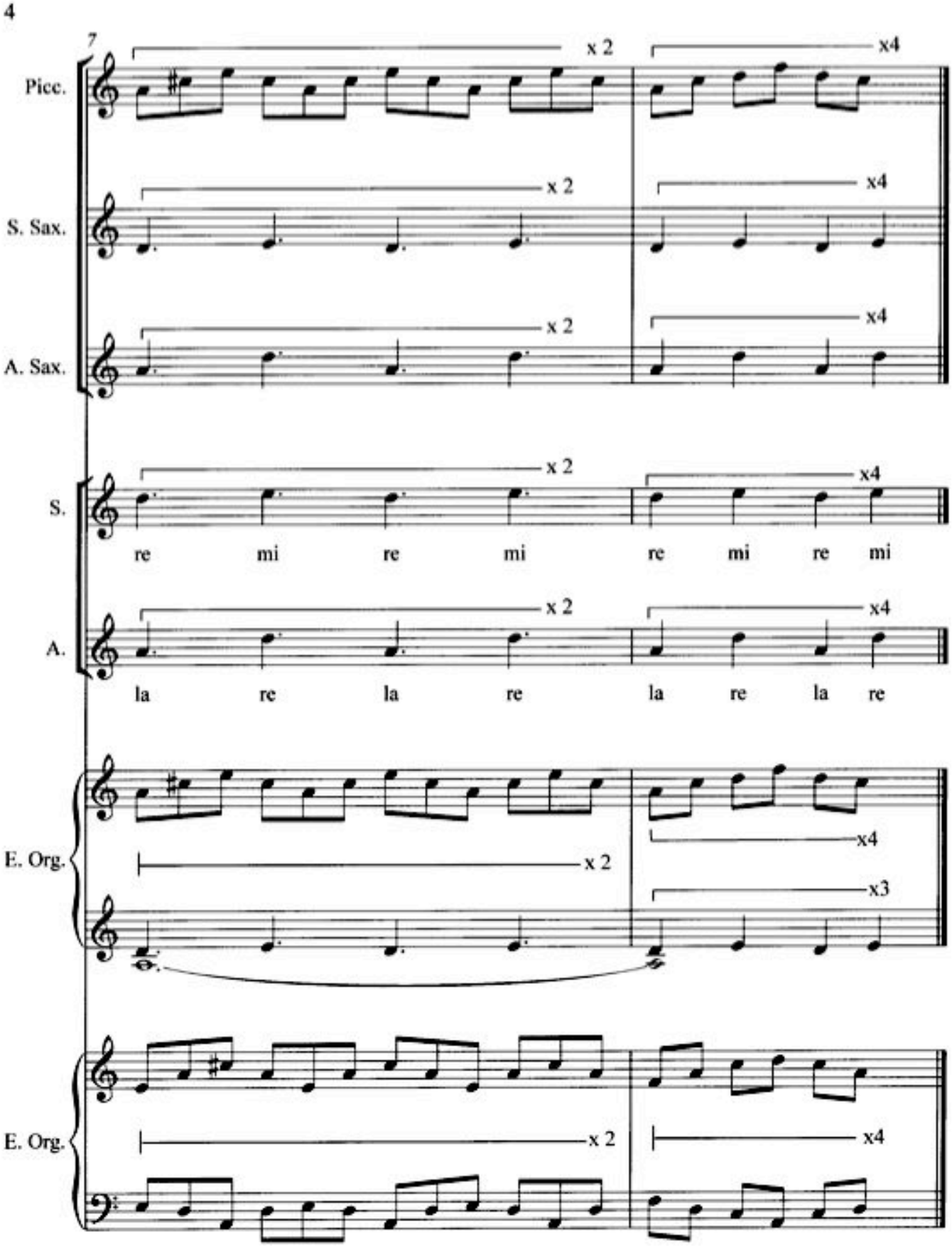
Ex. 12 (cont.)


2
Picc.
S. Sax.
A. Sax.
S.
re mi fa mi re mi fa re mi re mi re mi
A.
la re re re la re re la re la re la re
E. Org.
E. Org.
x3
x4
x2

Ex. 12 (cont.)



Ex. 12 (cont.)



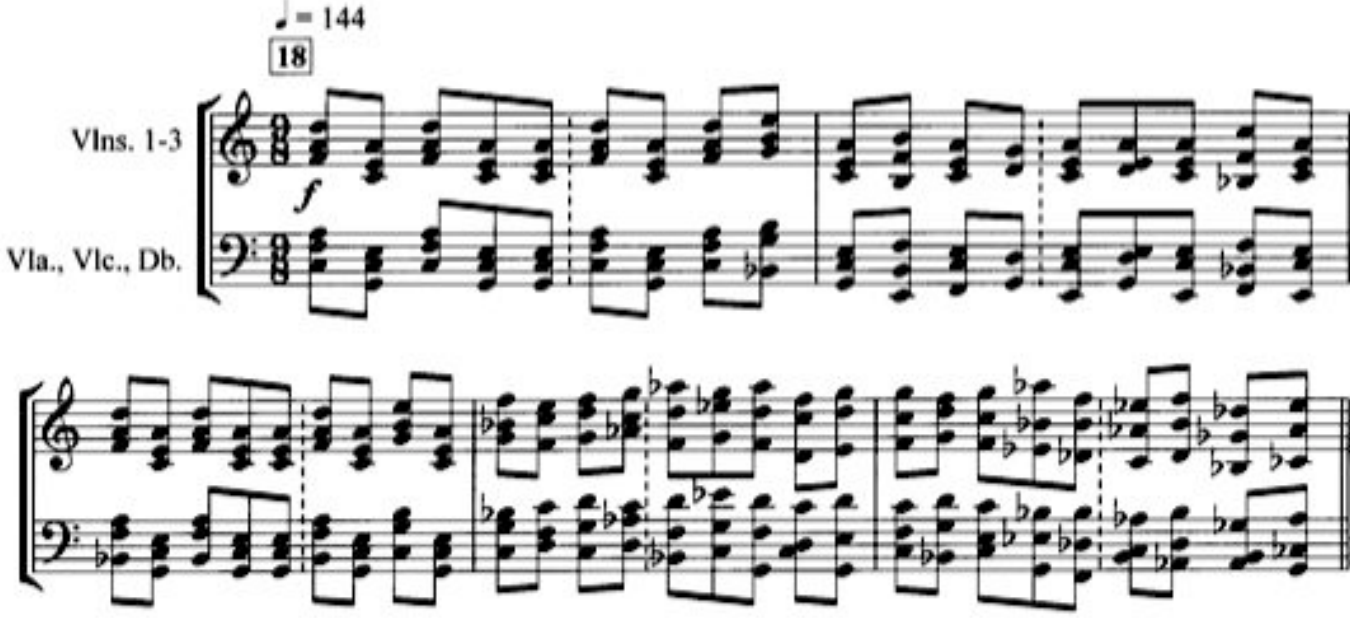
Note, for instance, the urgency of the additive variation in the vocal parts as they trace patterns of four, three, and two beats in the second measure of the example; the stubborn persistence of the [027] trichord (now decorated with motion to the upper neighbour F); chordal shifts accomplished by economical voice-leading in the keyboard parts and winds; and the metric ambiguities produced by superimposing patterns of uneven lengths (mm. 2 and 5-7).

3.

IN MUCH of his work to follow, Glass focused much of his attention on the harmonic technique that he had employed with Einstein's second harmonic cycle, in which familiar progressions — filtered through the lens of his imagination — reappeared as inventive glosses on their prototypes. Although he may have used them in a manner 'unconscious of their historical weight', the historical resonance that the progressions retained helped to contribute to the new expressive potential of his music. Because the composer turned his attention decisively to opera, dance, and film over the next fifteen or so years, it is understandable that he would explicitly capitalize on this enhanced expressivity.[34] In *Satyagraha*, Act II, sc. 3, for example, Glass varies the descending tetrachord progression in minor (traditionally associated with lament) by stating each of the triads in major. Such appropriations allowed him to approach an eerily nineteenth-century luminescence in such works as the fifth act (Rome section) from the *CIVIL warS* (1984).

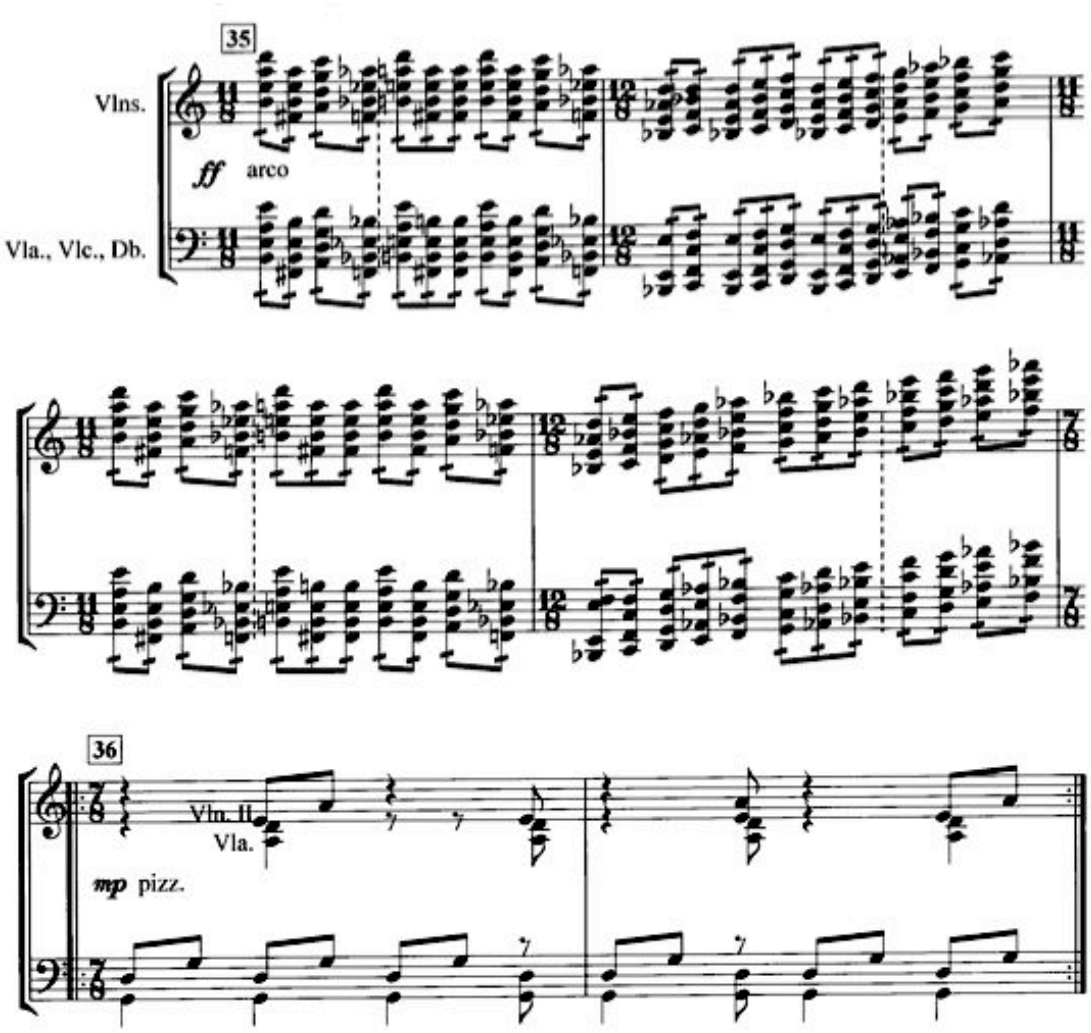
It is this resonance, perhaps, which has contributed to Glass's equivocal reputation in some quarters since *Einstein*. But so too has the simplification of his rhythmic language, manifested, in particular, by his adoption of symmetrical phrasing; such distillations follow readily from his preoccupations with traditional and quasi-traditional tonality. These developments have certainly brought his music to a larger audience than might have been the case previously, and it has led to the continual critique of his aims in light of classic criteria of musical innovation similar to those noted by John Rockwell, above.

Nevertheless, Glass in his most recent music draws upon the techniques he had employed in considerably earlier compositions. In this connection, the second movement of his Symphony No. 3 (1995) warrants attention. In this movement, Glass returns to asymmetrical rhythms, sustained passages of unison writing, and in particular musical strands in parallel, similar, and contrary motion — in short, he makes an exciting allusion to his earlier manner, but one that employs more complex harmonic content (Example 13).



Ex. 13: Philip Glass, Symphony No. 3, Movement II, Rehearsal No. 18

Beneath this surface layer, however, he shows more attention to traditional modes of formal design that he cultivated in his music after *Einstein*. For example, Reh. 35-36 shows a climactic tremolo passage preceding another with considerably less tension (Example 14).



Ex. 14: Philip Glass, Symphony No. 3, Movement II, Rehearsal Nos. 35-36

That this movement is followed by one much more typical of his post-*Einstein* music points not so much to an eclectic mishmash of idioms by a composer who receives too many commissions, but rather a rich, multilayered approach to musical style. In fact, it shows the wonderful way in which he follows one of the most important examples of John Cage, through the exploration in his work of a number of different modes of composition from both his remote and distant past. This nonlinear development, so typical of postmodern aesthetics, fits Glass's music perhaps better than it does any of his colleagues in minimalism's first generation. More important, though, it suggests a way to approach his music that is not limited by a single teleological trajectory. For although Keith Potter and others are quite right to see a difference between the Glass of *Music in 12 Parts* and that of, say, the 'Tirol' Concerto for piano and orchestra (2000), continuities between his minimalist and postminimalist periods are just as easily found. These continuities not only extend from older music to later, as I suggested in my remarks on *Two Pages* and *Music in Similar Motion*, but also appear to reflect backward from works like the second movement of the third symphony and many other newer works. Pace Glass's own claim that he is a popular composer, they bear witness to his continuing importance in the traditions of experimental music.

An earlier version of this essay was first presented at the 1994 national meeting of the American Musicological Society in Minneapolis, Minnesota. I thank Susan Q. Chodorow, Michaela Harkins, Steven G. Laitz, Ralph P. Locke, and Alfred Mann for their comments on that presentation and/or other drafts, Cat Celebrezze of Dunvagen Music for her assistance in obtaining permissions for the musical examples, and Philip Glass for his willingness to share source materials for Einstein *when I first began this project.*

Notes

1. Philip Glass, quoted in Robert Palmer's liner notes for Philip Glass and Robert Wilson, *Einstein on the Beach* (Sony 38875, 1990), 3-4.
2. I discuss the reception of *Silence* in the first chapter of '"An Anarchic Society of Sounds": The Number Pieces of John Cage' (Ph.D. dissertation, University of Rochester, Eastman School of Music, 2004), 19-22; for more on *HPSCHD*, see Stephen Husarik, 'John Cage and Lejaren Hiller: *HPSCHD*, 1969', *American Music* 1, no. 2 (Summer 1983): 1-21.
3. Sylvère Lotringer and Bill Hellermann, 'Phil Glass: Interview', *Semiotexte* 3, no. 2 (1978): 187.
4. See Nancia D'Alimonte, 'Philip Interview No. 3 (Sinfonia Glassica)', *21st Century Music* 10, no. 11 (November 2003), 2-3.
5. Jeremy N. Grimshaw, 'High, "Low", and Plastic Arts: Philip Glass and the Symphony in the Age of Postproduction', *Musical Quarterly* 86 (2002): 472-507. I thank him for making an advance copy of this essay available to me.
6. Robert Ashley, 'Landscape with Philip Glass', from *Music with Roots in the Aether: Opera for Television*, vol. 2 (New York: Lovely Music, 1976). The quotation begins at 35:43.
7. John Rockwell, *All American Music: Composition in the Late Twentieth Century* (New York: Vintage Books, 1984), 111.
8. Jean François Lytoard, *The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi, with a foreword by Fredric Jameson (Minneapolis: University of Minnesota Press, 1984), xxiv.
9. Robert Ashley, 'Landscape with Philip Glass'; the quotation appears at 36:30.
10. See, for example, Philip Glass, 'Music by Philip Glass', ed. and with supplementary material by Robert T. Jones (New York: Harper and Row, 1987; reprint, New York: Da Capo Press, 1995), 13-14 and Lotringer and Hellermann, 'Phil Glass: Interview', 189-91.
11. D'Alimonte, 'Philip Interview No. 3', 1-2.
12. Lotringer and Hellermann, 'Phil Glass: Interview', 182. See also Rockwell, *All American Music*, 111 and Cole Gagne and Tracy Caras, *Soundpieces: Interviews with American Composers*, with introductory essays by Nicolas Slonimsky and Gilbert Chase and photographs by Gene Bagnato (Metuchen, NJ and London: Scarecrow Press, 1982), 213-14.
13. John Rockwell, 'The Ups and Downs of Minimalism: Broken Glass', *The New Republic* 222, no. 15 (10 April 2000), 31.
14. See William Brooks, 'Choice and Change in John Cage's Recent Music', in *A John Cage Reader: In Celebration of His 70th Birthday*, ed. and comp. Peter Gena and Jonathan Brent, supplementary editing by Don Gillespie (New York: C. F. Peters Corporation, 1982), 94-98. I discuss an alternative approach to this problem in 'Toward a Critical Description of John Cage's Compositions', paper presented at the American Musicological Society St. Lawrence Chapter Meeting, Geneseo, New York, April 2002. An abstract is available at http://robhaskins.net/writings/AMS2002abs.htm. See also 'Between Process and Object: John Cage's Evolving Attitude Toward the Musical Work' (forthcoming).
15. Leonard B. Meyer, *Music, the Arts, and Ideas: Patterns and Predictions in Twentieth-Century Culture*, with a new postlude (Chicago: University of Chicago Press, 1994), 326. For more discussion on this point, see Rob Haskins, 'Philip Glass and Michael Riesman: Two Interviews', *Musical Quarterly* 86 (2002): 510-12.
16. For Reich, see Richard Cohn, 'Transpositional Combination of Beat-Class Sets in Steve Reich's Phase-shifting Music', *Perspectives of New Music* 31, no. 2 (Spring 1993), 146-77 and John Roeder, 'Beat-class Modulations in Steve Reich's Music', *Music Theory Spectrum* 25 (2003): 275-304. Cohn has applied analytical techniques associated with atonal theory to metric structure in Steve Reich's early phase music, concluding that certain prime forms of 'beat-class sets' shape this music at local and larger structural levels (see pp. 165-71); Roeder extends this model to include such terms as 'beat-class tonic'. For Adams, see Timothy A. Johnson, 'Harmonic Vocabulary in the Music of John Adams: A Hierarchical Approach', *Journal of Music Theory* 38 (1994): 117-56 and Catherine Pellegrino, 'Aspects of Closure in the Music of John Adams', *Perspectives of New Music* 40, no. 1 (Winter 2002): 147-75. Johnson distinguishes three hierarchic levels in John Adams's music — chord, sonority, and field; he develops a taxonomy to deal with the components found in each, together with rules explaining their interrelationships (see pp. 122-43). Pellegrino uses analysis to show how Adams problematizes concepts of closure in *Phrygian Gates* (1977) and *The Chairman Dances* (1985).

17. Wes York, 'Form and Process', in *Writings on Glass: Essays, Interviews, Criticism*, ed. and introduced by Richard Kostelanetz, assistant editor Robert Flemming (New York: Schirmer Books, 1997), 60-79.
18. Keith Potter, *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass* (Cambridge: Cambridge University Press, 2000).
19. Potter, *Four Musical Minimalists*, 288-92 and 295-300. My dating for *Two Pages* differs from many other sources. According to Glass, the work was composed in 1968 but copyrighted in 1969, which accounts for the discrepancy. See Haskins, 'Glass and Riesman Interviews', 516.
20. Potter, *Four Musical Minimalists*, 15-16; see also Edward Strickland, *Minimalism: Origins* (Bloomington: Indiana University Press, 1993), 239-40.
21. C also functions as an axis of symmetry between the pcs G and F. The symmetrical properties of the set allow for several possible candidates for pitch centricity.
22. Philip Glass, liner notes for *Music in 12 Parts*: *Parts 1 and 2* (Virgin Records CA2010, 1977), n.p.
23. I list the ic vectors following the seven-place convention in Robert D. Morris, *Composition with Pitch Classes* (New Haven: Yale University Press, 1987), 315-19, where the zeroth entry of the vector shows the cardinality of the set.
24. See Gagne and Caras, *Soundpieces*, 226.
25. Lotringer and Hellermann, 'Phil Glass: Interview', 178-91, especially pp. 182-83. The composer relates alternate versions of the Play story in Music by Philip Glass, 34-37 and the film *Einstein on the Beach — The Changing Image of Opera* (Los Angeles: Direct Cinema, 1987).
26. Haskins, 'Philip Glass and Michael Riesman: Two Interviews', 515.
27. Glass, liner notes for *Music in 12 Parts*, n.p.
28. John Rockwell, 'Robert Wilson's Stage Works: Originality and Influence', in *Robert Wilson: The Theater of Images*, 2d ed. (New York: Harper and Row, 1984), 22-23.
29. For more on the dramaturgy of *Einstein*, see Rockwell, 'Robert Wilson's Stage Works', 10-31; Robert Stearns, 'Robert Wilson: from a Theater of Images', in *Robert Wilson: The Theater of Images*, 32-53; and Lawrence Shyer, *Robert Wilson and His Collaborators* (New York: Theatre Communications Group, 1989), 213-32.
30. Haskins, 'Philip Glass and Michael Riesman: Two Interviews', 519.
31. Gagne and Caras, *Soundpieces*, 216.
32. Keith Potter and Dave Smith, 'Interview with Philip Glass', *Contact* 13 (spring 1976): 30.
33. One can also understand this progression in Neo-Riemannian terms for its parsimonious voice leading and traversal of three of the four hexatonic systems. Like the late Romantic music to which Neo-Riemannian theory was initially applied, Glass's harmonic cycle operates in a manner similar to functional harmony but cannot wholly be explained by traditional principles of functional harmony. For more, see Richard Cohn, 'As Wonderful as Star Clusters: Instruments for Gazing at Tonality in Schubert', *19th-Century Music* 22 (1998-99): 213-32 and its citations of previous literature.
34. As he himself acknowledges in *Music by Philip Glass*, passim.