1

"Departing to Other Spheres"

Psychedelic Science Fiction, Perspectival Embodiment, and the Hermeneutics of Steve Reich's *Four Organs*

Sumanth Gopinath

> A quartet of four tiny electric organs, backed by the unvaried pulse of four maracas players, is the scoring. Reich has, for this ensemble, taken a chord, played by the four organs, and kept it going for some 20 minutes[.] Presumably the idea is for the listener to saturate himself in the pure sound, concentrating, departing to other spheres on a cloud of musical Zen.[. . .]
>
> What Reich has done is confuse an acoustic phenomenon with music. As such, "Four Organs" is non-music, just as so many minor baroque compositions, written in tonic-dominant formulae without a trace of personality, are non-music. Or as so much modern art is non-art—three white triangles against a white background, or something like that. But it fools a lot of people because all of this comes under the general heading of "art." Really it is "art" for people who are afraid of "art." Or do not understand what art really is. Or who are too emotionally inhibited to want to share the emotional and intellectual processes of a real creator's mind. "Four Organs" is baby stuff, written by an innocent for innocents.

So pronounced the eminent *New York Times* music critic Harold Schonberg only a couple of weeks after attending, and then reviewing, one of the most infamous concerts in the history of musical minimalism.* Having received the

* Versions of this essay were given as talks. Thanks to faculty and graduate students at the Ohio State University; scholars at a one-day Reich study session at Kings Place, London; Ron Rodman and his students at Carleton College; faculty and graduate students at Harvard University; Matthew McDonald and his students at Northeastern University; Rob Haskins; and faculty, graduate students, and other attendees at the University of Pittsburgh, the University of Michigan, the University of California, Berkeley, the University of Chicago, the University of Minnesota, and Yale University. Thanks to Bridget Carr at the Boston Symphony Orchestra archives and Rob Hudson at the Carnegie Hall Archives. Thanks to Benjamin Givan for a

Pulitzer Prize in the previous year for his music criticism, Schonberg was surely emboldened when writing snide dismissals of late modernist and experimentalist US-American composers like Elliott Carter, John Cage, and Steve Reich; in the same article, he advocates for the future of art music as represented by British composer Peter Maxwell Davies's polystylistic and multimediatic work *Vesalii Icones* (1969).[1] The performance at which Schonberg had heard *Four Organs* (1970) was part of a series of "Spectrum" concerts with a casually attired Boston Symphony Orchestra (BSO). The music on the program spanned the centuries and was conducted by rising star Michael Tilson Thomas. It was a milestone for the series, which would make this concert its first in Carnegie Hall, in New York, on Thursday, January 18, 1973. The theme was "a concert of musical multiples," and the program included *Hexaméron* (1837), a virtuoso collaborative work of six variations on Bellini's "March of the Puritans" from *I puritani* (1835) that was composed by Liszt and by five of the other greatest pianists of the early to mid-nineteenth century. Each composer-pianist contributed a variation (including Thalberg, Czerny, and Chopin), and Liszt subsequently also wrote an introduction and finale, as well as connecting interludes. Although the work was originally written as a solo piano composition, on this occasion six pianists performed Liszt's arrangement for piano and orchestra—at times separately, at others together, and all while accompanied by the BSO—and perhaps sought to embody the meeting of piano heroes that never took place in the composition's contemporaneous moment.[2]

As Reich ruefully later noted, "[For] the kind of listener who's going to get off on that, and who's coming to the BSO subscription series[,] the last thing in the world that person is going to want to hear is my *Four Organs* . . . but there it was."[3] Almost predictably, the audience—at least, its experienced rather than "innocent" members[4]—began to sound their displeasure about five minutes into the performance, and the noise grew over the remaining three quarters of this slow rendition (the piece is usually about fifteen to sixteen minutes long), with a variety of audience members' responses entering unconfirmed into the mythology surrounding the concert. Some audience members were seen "brandishing" their "umbrellas,"[5] and some yelled for the music to stop. Some booed while others cheered. Infamously, an elderly woman supposedly banged

tip on searching the Boston Symphony Orchestra players, and to BSO percussionist Frank Epstein for his generous responses to my inquiries. Many thanks to Russell Hartenberger for his insights on and support for my work, and thanks to Will Robin, Phil Kline, Arthur Press, Joan La Barbara, Greg Dubinsky, and Judy Sherman for further help. Thanks to the Oral History of American Music at Yale University for continuing to support my studies of Reich. Whenever possible, in this chapter I've also included thanks to commentators on specific points; I apologize for any omissions, which are unintentional.

her shoe on the stage in protest, and another person (possibly the same woman) screamed, "All right—I'll confess!"[6] Tilson Thomas, who performed the work along with Reich and other BSO members, had to wrest order from the growing chaos; as he recently commented: "I was playing away, and at the top of my voice I was yelling '19, 20, 21, 22'. . . Seriously, that's in no way an exaggeration."[7] Reich was crestfallen after the experience and wondered if the ensemble had been able to stay together, but Tilson Thomas told him: "Forget about that. This has been a historical event."[8] In his article, Schonberg was clearly on the side of the detractors. Still, in his earlier concert review he admitted that Reich's composition had touched a nerve, which led Schonberg to muse, "At least there was some excitement in the hall, which is more than can be said when most avant-garde music is being played."[9] The event has been likened to the riot in Paris at the premiere of Stravinsky's *The Rite of Spring* almost sixty years earlier (on May 29, 1913), with Nijinsky's attempts to keep the dancers together in the face of the noise by shouting out numbers being uncannily recalled by Tilson Thomas's efforts; one might also think of the protests at the Newport Folk Festival against Bob Dylan's electrified blues band on July 25, 1965, only seven and a half years beforehand.[10] Although no audio apparently exists of the Carnegie concert, the combination of cheering and boos captured on the recording of the "trial run" for it in Boston, on October 9, 1971, clearly demonstrates that, as the speaker puts it, there was "a difference of opinion in the audience."[11]

Schonberg and his audience have, in retrospect, been swept aside by the inexorable march of historical "progress" as musical minimalism, and particularly Reich's brand of it, have entered the increasingly capacious and seemingly irrelevant canon of Western musical history, especially that of an implicitly nationalist history written with an American accent.[12] *Four Organs* is pivotal in this development. As Tilson Thomas predicted, the extremity of reaction to the piece at the Carnegie concert led to it being far and away the most commented-upon composition by the composer to that date, and the controversy thus virtually guaranteed him a foothold in the art-musical canon, which would be confirmed by a series of important compositions produced during the same decade: the lengthy and ambitious *Drumming* (1971); *Clapping Music* (1972) for its eminently performable and anthologizable one-page simplicity; and his most-praised composition, *Music for 18 Musicians* (1976). Reich subsequently began composing for known soloists and ensembles besides his own, soon received commissions, and by the late 1980s was an established and much-lauded US art-music composer. Despite all of this, *Four Organs* has yet to receive an extended scholarly interpretation. The work's presumed radicalism appears to have encouraged formalist descriptions and readings, and scholars have largely followed Reich's lead in discussing the work's most obvious technical details: that is, an extended dominant chord, rhythmically augmented and transformed into a sequence of single notes. Indeed, as Virginia Anderson argues, the work was taken up as an exemplar by British systems composers in the 1970s precisely

"because they understood it as a structural game."[13] And yet, taking a cue from Robert Fink's eliciting of interpretive meanings from hostile journalistic reactions to minimalism,[14] we might note that Schonberg's criticism was not entirely inapt. He emphasized that the ensemble was a self-described "rock organ quartet" (a descriptor that has figured less prominently in recent discussions of the work), he interpreted it as being detached from an individual creator's mind, and he characterized its effect in distinctly aerial terms.

In the remainder of this chapter, I will examine a series of signifiers in the composition, including some specific, if hypothetical, intertextual linkages that might help to generate a plausible, historically informed reading of the piece, representing a line of inquiry that resonates with Schonberg's observations. One may attempt a speculative recovery in part by listening to the 1960s US/UK pop/rock music indexed by the ensemble's composition; to contemporaneous post-bop jazz with which Reich was certainly familiar; and, in one case, to a television soundtrack whose score would ultimately transform into a chestnut of popular culture. In attending to the composition's peculiar instrumentation, its rhythmic-metrical patterns, and its overall trajectory, we might emerge from the endeavor with a narrative of interest and, ideally, adequate to the strong reactions the work evoked more than forty years ago. I will proceed by breaking the score down into constituent moments, contextualizing and provisionally interpreting them one at a time, before synthesizing these observations at the end.

Moment 1: Measure 0, 0:00–0:02

The piece begins with eleven eighth-note beats on the maracas (usually a single player), at ♪ = 200.[15] Russell Hartenberger and Jim Cotter both argue that the constant maracas pulse may have been influenced by its presence in the music of the blind experimental composer and musician Moondog (Louis Hardin), who knew and made recordings with Reich and Philip Glass in the late 1960s.[16] But in the context of popular music, the maracas signify the sound of much 1960s pop/rock, which had absorbed it from Latin musical influences (often to imitate or reference them), particularly the Cuban and Puerto Rican rumba, and from Mexican mariachi bands (the latter also a topos in country music). Few top 20 hits of the 1950s included it, although Bo Diddley's "Say Man" was a notable exception.[17] Intriguingly, the Rolling Stones picked up on Diddley's maraca use in their cover of Buddy Holly's "Not Fade Away," which uses the Bo Diddley beat; from there on, a number of their 1960s hits, including "Jumpin' Jack Flash" (1968) and "Sympathy for the Devil" (1968), featured the maracas—perhaps leading other bands to get in on the act, like The Who in "Magic Bus" (1968).[18] Although Western art composers certainly incorporated the maracas in the twentieth century, again often for exotic effect, classical percussionists typically hold the instrument horizontally, with

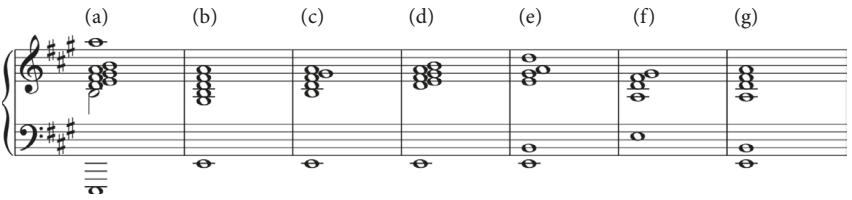
their hands on top, maximizing control for differentiated attacks.[19] In contrast, both in *Four Organs* and in rock, the maracas are held vertically, with relatively quickly repeated eighth notes that are articulated consistently, so that the quieter half-divisions of these beats are heard as well. (By way of contrast, it's worth attending to the way that the BSO percussionists played *Four Organs* in 1971, at a slower ♪ = 193 and the resulting mushiness in articulation, caused by tempo, part doubling, and technique.)[20] With this use of maracas being most characteristic of auxiliary percussion in rock, the music that opens *Four Organs* seems to be a synecdoche of rock, a part standing for the whole, and the maracas function mainly as a signifier *of* rock, much more than as an ethnic or exotic signifier *within* rock. But even though the rock reference seems to be the primary one, when we keep in mind the prevalence of constantly pulsing shaker parts in many sub-Saharan African musics, distinct points of reference for this kind of maracas playing may be subsumed into a broadly African/African-diasporic rhythmic practice that has had a wide-ranging impact on music across the globe.[21] That said, Michael Veal has also argued that the maracas pulses may be interpreted as reminiscent of Native American rattles in initiation rites like vision quests—suggesting a different ethno-racial lineage for this musical element.[22]

Moment 2: Measure 1, 0:02–0:05

The four organs enter in the first proper measure of the composition. Three dimensions of this measure stand out in some respect. The first, and following Schonberg's emphasis on sound, is the organ timbre—a loud (forte) and especially reedy, trebly sound emanating from four amplified Farfisa Mini Compact combo organs that Reich had bought used in New York.[23] Farfisa, an Italian company, produced its electronic organs initially as electronic accordions, before changing their housing in 1964 to compete with other electronic combo organ manufacturers (including Vox organs). The Vox Continental was a better-known organ used by most of the major rock bands at the time, but the Farfisa models were cheaper and therefore favored by garage bands.[24] In its transistor accordion version it was used as early as Del Shannon's "Ginny in the Mirror" (1962), and in this case as well as later songs that use the instrument, we hear it primarily in an upper line embellishing or doubling the melody, although chordal passages are present as well.[25] (For example, "Mirage" [1967] by Tommy James and the Shondells presents only such an upper line, whereas Sam the Sham and the Pharoahs' "Wooly Bully" [1965] includes only chords.) The low quality of the keyboards Reich initially used in performance is evident in the 1970 Shandar recording of *Four Organs*, in which one can hear tuning inconsistencies and extraneous keyboard sounds (such as volume swells after the first few attacks, as at 0:05 and 0:08).[26]

The second aspect of the music is the pitch material that the organs collectively play, which can be labeled as an E dominant-eleventh chord, since it includes the pitch classes of all A major diatonic thirds above the bass E up to the tonic (E–G♯–B–D–F♯–A), with every pitch except B3 doubled once or twice; this is Reich's preferred labeling (which I generally use later). Because that labeling implies a voicing featuring stacked thirds and the actual chord is voiced as a cluster chord, it may perhaps be better described as an E9sus4 with an added third (see Ex. 1.1a–c).[27] The voicing highlights the clash between G♯4 and A4, with the notes sometimes sounding simultaneously and at other times oscillating, the A4 resolving down to G♯4 and then returning to the A4 dissonance. One could also simply describe it as a diatonic cluster chord—say, as [24689E], hexachordal set-class 6-33 (023579), or even a three-sharp diatonic (or Mixolydian) cluster—with an E or [4] in the bass (Ex. 1.1d). As the progression expands in duration, the music takes on the character of an extended cadential resolution, making the piece amount to what Reich jokingly has called "the longest V–I cadence in the history of Western music."[28] A variant of this chord was found in the middle section of Reich's now suppressed film soundtrack to Robert Nelson's film *Oh Dem Watermelons* (1965), in which appears a dominant-seventh chord (this one in D major) that includes the third and fourth above the bass, closely spaced so as to produce a harsh minor-second dissonance (see Ex. 1.1e, transposed to A major for comparison). Reich claims that this chord was used frequently by Thelonious Monk and interprets it as based on a conflict between tonic and dominant harmonies of a key (the eleventh or suspended fourth being the tonic of the key), and in this capacity, the third, as a leading tone, adds a certain amount of dominant-ness.[29] Indeed, as Ian Quinn notes, Reich used the word "watermelon" to refer to exactly this type of harmony in his sketchbooks prior to the composition of *Four Organs*.[30] One canonical example of such a chord in post-bop jazz can be found in the opening of Wynton Kelly's piano accompaniment in Miles Davis's recording of "Someday

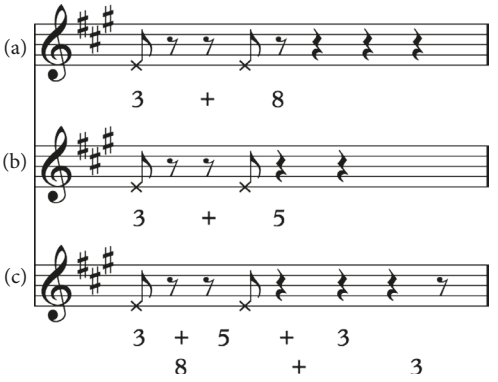
Example 1.1 *Four Organs* (1970), m. 1 chord comparisons: (a) as written, B3 the only undoubled pitch; (b) as E dom11; (c) as E dom9-sus4-add3; (d) as [24689E] with [4] in bass, set-class 6-33 (023579), or 3♯-diatonic/E without C♯; (e) *Oh Dem Watermelons* (1965), watermelon-canon chord, transposed to A major; (f) Wynton Kelly's chordal opening in "Someday My Prince Will Come" (1961), transposed to start on E3; (g) E dom9-sus4, "Maiden Voyage" chord, transposed from D.



My Prince Will Come" (1961), in Example 1.1f, although here the tonic scale degree is not on the top, and the voicing avoids the minor second clash between the leading tone and tonic degrees.[31] A related type of harmony, a minor ninth or dominant-ninth chord with a suspended fourth, has a similar effect and is also common in post-bop jazz of the 1960s; one influential example is Herbie Hancock's "Maiden Voyage" (1965), which is made up almost entirely of these chords (see Ex. 1.1g, transposed to an E bass, for comparison).[32] Although such chords appear on occasion in 1960s rock and popular music, for the most part they are foreign to that music's chordal vocabulary, and so we might think of this harmony as essentially ensconced in postwar jazz.[33]

The third, and perhaps most important, aspect of this moment is the duration of the measure, which is an unusual eleven beats—in contrast to the predominance of twelve-beat and eight-beat measures in Reich's pieces during the 1960s and 1970s. Richard Taruskin's *Oxford History of Western Music*, which devotes a lot of space to Reich's music, claims, "For minimalist purposes [eleven] is a magic number, because it is a prime number. Divisible neither by two nor by three, it remains always subtactile; it cannot be grouped mentally into a regular *tactus* or felt beat."[34] Taruskin's emphasis on subtactile pulses, or steady, foundational rhythmic units shorter than the perceived beat, is not unreasonable in this piece: the music clearly has a kind of hiccup and feels unsteady due to the 11/8 (3/8 + 8/8) meter heard in the first fifteen measures (which are repeated a relatively free number of times as determined in an individual performance), and the maracas do indeed present a rock-solid stability at a lower level within that broader metrical instability (see Ex. 1.2a). Nevertheless, one does settle into a kind of additive-metrical groove (an experience not unfamiliar to musicians within traditions that regularly use such meters), and the music stays mostly consistent for about two minutes of the original recording, allowing one to

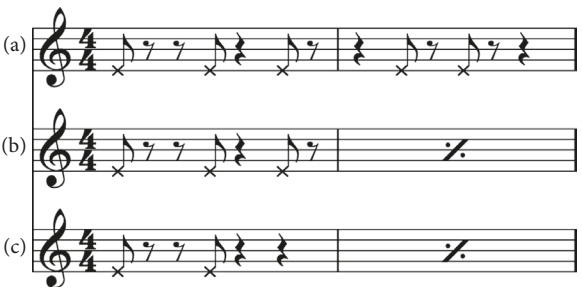
Example 1.2 Rhythmic groupings in *Four Organs*, m. 1: (a) as written; (b) recalls simpler 3 + 5 groove in 4/4; (c) rewritten m. 1 as 3 + 5 + three-beat pickup (or 8 + 3).



acclimate to the odd meter. More importantly, however, Reich has constructed this music cleverly, so as to evoke the feeling of a simpler groove, namely, a 3 + 5 division of a 4/4 meter—and one could imagine a simpler version of the music that feels more "natural" and certainly more like rock music, if less interesting (Ex. 1.2b).[35] Reich's composition, then, might be heard as appending a three-beat pickup to a 4/4 measure. This makes for a 3 + 5 + 3 division of 11/8 or, more simply, an 8 + 3 division of 11—that is, the opposite of the way in which Reich notated it (Ex. 1.2c).[36]

As will be shown shortly, the extra three beats pose a metrical "problem" that Reich then "solves" over the course of the composition. But they also allow him to obscure the music's apparent origins in an unevenly divided 4/4 groove that was common in rock music of the 1960s (and beyond) and which found its origins in African-diasporic clave patterns in Cuba and elsewhere. The first half of the "3-2" clave (Ex. 1.3a), found in Cuban son, mambo, salsa, and many other musics, originally made its way in various shapes to North America in the form of the *tresillo* rhythmic figure or 3 + 3 + 2 pattern (Ex. 1.3b); it could also be found in specific derivations from the habanera and *danzón* dance forms.[37] Richard Cohn notes that the *tresillo* was "self-consciously imported into notated American music by the middle of the nineteenth century, where it serves as an ostinato in Caribbean-themed compositions of Louis Moreau Gottschalk."[38] Postwar R&B in New Orleans made extensive use of this pattern, especially in the music of Professor Longhair, who was influenced by Pérez Prado's mambo records, and others who produced songs featuring "mambo" in the lyrics (as in the Hawketts' "Mardi Gras Mambo" [1955]),[39] as well as songs like the Dixie Cups' "Iko Iko" (1965), a popular version of James "Sugar Boy" Crawford's song "Jock-A-Mo" (1953).[40] Through the influence of New Orleans R&B on early rock music, soul, and funk, as well as the alternate route of the 3-2 clave rhythm via Bo Diddley's own appropriation or coincidental recreation of Cuban musical rhythms (via black diasporic rhythmic continuities), this rhythmic pattern became a foundational structure in much 1960s rock.[41]

Example 1.3 3-2 clave and *tresillo* patterns in *Four Organs*: (a) 3-2 clave; (b) *tresillo*, same as "3" in 3-2 clave; (c) 3 + 5, simplified *tresillo*, common in rock.

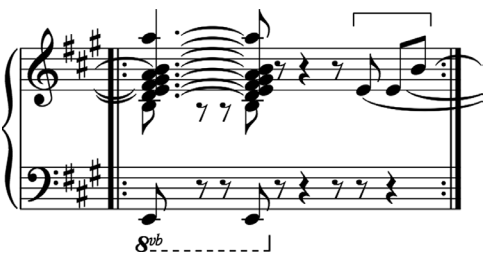


A clear example of a simplified 3 + 5 rock *tresillo* (Ex. 1.3c) is the guitar solo section (starting at 3:00 in) of Led Zeppelin's "Whole Lotta Love" (1969), which features the lead guitar responding to the calls of the 3 + 5 groove, with punched-out chords recalling Reich's, and the hi-hat, which serves a similar subtactile function as Reich's maracas.[42] This song, of course, is much faster than Reich's composition, and the main pulses of drummer John Bonham's hi-hat are quarter notes (although one can hear the offbeat eighths as well—in a way similar to the maracas' offbeat sixteenths in Reich's work). Songs featuring a slower 3 + 5 figure might include the horn hits at the opening of James Brown's "Super Bad" (1970),[43] or the Rolling Stones' "Jumpin' Jack Flash" (1968), the middle, instrumental section (at about 1:30) of which features eighth-note maracas and the 3 + 5 and *tresillo* rhythm prominently in the bass (played here by guitarist Keith Richards).[44] A final example is suggested by a lightly drawn melodic figure written by Reich in his sketchbooks during the gestation of *Four Organs*; it recalls the main riff from The Kinks' highly influential "You Really Got Me" (1964).[45]

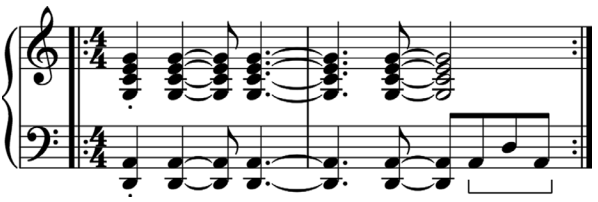
Moment 3: Measure 11, 1:34

At this point in the piece, the two chords have begun their process of gradually merging into a single chord, while a pickup figure has grown from a single eighth note in measure 4 into a three eighth-note figure by measure 11 built on the root and fifth of the E extended dominant chord (specifically, E4 and B4; see Ex. 1.4). The figure has now filled in the three-beat pickup, as if to confirm our suspicions that the meter was in fact to be subdivided into 8 + 3. The three-note figure, however, also recalls a kind of three-note post-bop jazz pickup figure in famous compositions like "Maiden Voyage," which also uses the root and fifth in the piano and bass parts (see Ex. 1.5), or saxophonist/composer Wayne Shorter's "Speak No Evil" (1966), which puts the pickup in the melody line played by the horns. The three-note pickup persists

Example 1.4 Reduction of *Four Organs*, m. 11, with three-note pickup identified.



Example 1.5 Opening riff of Herbie Hancock, "Maiden Voyage" (1965).



for several measures: in fact, it does so as the chord elongates toward measure 18, where it now is a single chord occupying four whole beats, followed by a four-beat rest and the three-beat pickup figure. This bar, which Reich notates as being 4 + 4 + 3, is the endpoint of a process to eliminate the 3 + 5 *tresillo* figure into a squarer, simpler unit, which then kicks off a further process of expanding the pickup into four-beat pickup (at m. 22, 3:24), rearranging the eleven-beat measure into a 4 + 3 + 4 grouping (explicitly notated by Reich) and anticipating the bass note's arrival one eighth note beforehand (starting in m. 19) so as to blur the downbeat attack. The solidity of the groove gradually melts into air.

Moment 4: (a) Measure 23, 3:38 and (b) Measure 26, 4:11

Now the work undergoes its most significant transformation. From this measure on, Reich incrementally lengthens the duration of each measure, adding a few beats here and there until, by the end of the piece, the last full measure includes 265 beats in total. The composer treats this augmentation process first by adding time to the sustained E dom11 chord—two beats in measure 23, two more in measure 24, three more in measure 25, and so on. Beginning in measure 24, while adding these beats, he also notates the selective release of individual keys in the sustained chord, so that it gradually reduces to a few notes. By measure 26, the effect is quite noticeable, and this remains the case for the remainder of the work. *Four Organs*' method of transforming a chord into individual attacks via recomposition and augmentation is the most frequently treated aspect of the piece in scholarly and journalistic literature and is usually linked to a number of influences, including (1) the composer's failed technological experiments with what he called the Phase Shifting Pulse Gate, a device that would precisely control the timings of pitched pulses and thus allow for the gradual transformation between a chord and melody (as in his now withdrawn work *Pulse Music*);[46] (2) a concept piece called *Slow Motion Sound* (1967), in which a sound would maintain its pitch while slowing down (using computational methods that are nowadays commonplace);[47] and (3) Reich's frequently expressed interest in the

medieval organum composers of the Notre Dame Cathedral in Paris, Léonin and Pérotin.[48]

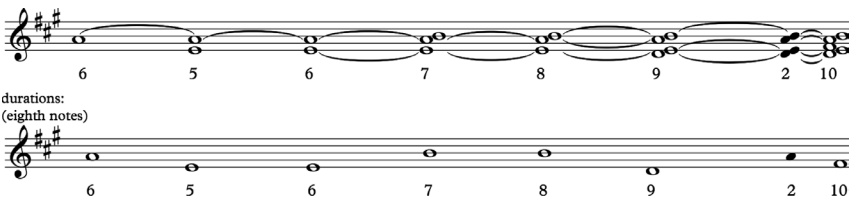
While all these reference points for Reichian augmentation are surely relevant, an obvious one linked especially with the second was the rise of tape manipulation in both experimental and popular musics; the former was part of Reich's training, his having studied at Mills College under Luciano Berio—who had composed some highly regarded tape works—and in his compositional practice, after having gained access to inexpensive tape recorders and then beginning the process of composing for tape between 1963 and 1966 (including *The Plastic Haircut, Livelihood, It's Gonna Rain, Come Out*, and *Melodica*), initially under the auspices of the San Francisco Tape Music Center. Tape slowdown effects are perhaps more common in experimental and avant-garde tape music than in popular songs, although the latter famously benefited from the influence of the former thanks to the Beatles, their producer George Martin and engineer Geoff Emerick, and many other groups, producers, and engineers, and helped to inaugurate various forms of art and psychedelic rock.[49] But the augmentation and reduction of the E dom11 chord produce another strange effect accentuated by the Farfisa organ key releases, one that sounds somewhat reminiscent of the rapid cutoffs of tape-reversed recordings, especially around 4:11, corresponding to measure 26.[50] Used extensively by the Beatles, Jimi Hendrix, and numerous other artists, tape reversal was perhaps the single most characteristically psychedelic studio effect used during the decade, so much so that its popularity quickly waned in the 1970s.[51] Signifying an otherworldly sound or an altered and/or drug-induced state of mind—such as the semiconscious state of mind in the Beatles' "I'm Only Sleeping" (about 1:30 in)—tape-reversal effects in Reich's recording lead *Four Organs* to accrue such associations at this point, with the releases often occurring with doubled pitches and at irregular timings so as to perhaps evoke the sometimes unusual rhythms caused by the technique.

One more aspect of the composition merits mention. As the E chord is elongated over the remainder of the composition, Reich includes numerical counts within each measure showing explicitly how and where the elongations take place, presumably with the goal of facilitating synchronization between the performers. At first, as mentioned previously, beats are added to the end of the chord, until it achieves a point of seven distinct subsections, each marked by one or more key releases (so, in m. 28 we have 4 + 3 + 2 + 2 + 3 + 2 + 3). But by measure 29, the durations of the subdivisions have begun to grow (thus, m. 29 begins 5 + 4 + 3 + 2 + 3 + 2 + 3), and both processes continue irregularly while revealing the same pattern: a gradual numerical countdown, then a less regular oscillation in the range of the lower numbers of that countdown. (By the penultimate and longest measure [m. 42], the chord countdown reaches 24 + 20 + 16 + 14 + 12 + 10 + 9 + 8 + 9 + 10 + 7 + 8 + 9, reflecting roughly the same contours on a longer and more varied scale.)[52]

Moment 5: Measure 37, 7:37

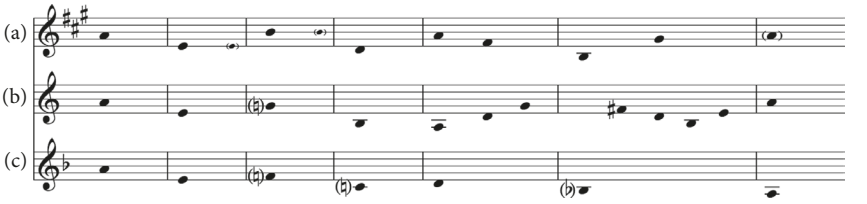
Toward the midpoint of the piece, another process that had begun in measure 29 becomes increasingly apparent: not only has the initial chord been elongated, but the four-note pickup (or three-note pickup + anticipation of the downbeat's full chord) undergoes a similar augmentation process. It is the exact opposite of the chordal augmentation in that it begins with a single held note and gradually accumulates pitches until it reaches an also-augmented downbeat-chord anticipation; as early as measure 19, that anticipation has been channeled to the right half of the stage, while the left half gets the remaining attacks for the downbeat, and with the slowdowns the spatialization effect becomes more evident. As the attacks slow down in frequency with the increasing durations of individual measures, a slow, spacious melodic motive emerges, beginning on E4—as the only key in the texture—and continuing to B4 and then D4. This figure grows more adorned as the piece continues. At measure 39 (8:38), an almost epiphanic arrival occurs: the opening E dom11 chord, which had been reducing down to two pitch classes (E and A, as E4, A4, and A5) before cutting out, now sustains that last remaining set of notes, which it will do all the way until the anticipatory pickup attack of the full chord at the end of the measure (see Ex. 1.6). The composite effect is that the sound of A (A4, mainly) emerges from a fuller texture and then serves at the beginning of the expanded pickup's melodic fragment to yield A(4)–E4–B4–D4 (with repeated attacks on the E and B), with other notes, A4 and F♯4, now being appended to these four. The slowness and spatial quality of the passage are highly reminiscent of another slow, quasi-Mahlerian four-note motive beginning with a descending A-E and built on accumulating sustained pitches that was part of an important cultural phenomenon during the 1960s: Alexander Courage's title cue music to the television show *Star Trek* (1966–69), which coincided with and both critically and uncritically commented upon the Cold War and the space program, the black liberation struggle, the Vietnam War, and other political themes of the period (see Ex. 1.7a–c). As Jessica Getman argues, the title cue's internal stylistic shifts reflect the social tensions found in the series;[53] crucially, it is only the first section of Courage's theme that is

Example 1.6 *Four Organs*, m. 39 (93 beats in), melodic theme, now tied to sustained A.



Example 1.7 Comparison of pitches in *Four Organs*; in (a) *Four Organs* melody; (b) *Star Trek* title cue music (1966), opening; and (c) Mahler, Symphony no. 1, mvt. 1 (1887–88), opening melodic figure, complete statement (mm. 18–21).

All notes are sustained in the Reich, only the first four are sustained in Star Trek, and a sustained A (in multiple registers) precedes the melody in Mahler. Bar lines do not correspond to original scores, and rhythmic distributions are approximate.



evoked, which in the television theme figures "space," in contrast to the exploration of a final frontier by the heroic captain and crew of the *Enterprise* (as figured by the theme's trumpet fanfare, corresponding to the last eight notes of Ex. 1.7b). As *Four Organs* progresses further, the melody adds two more notes within the A major diatonic scale, B3 and G♯4, all the while maintaining its celestial quality, which is itself intensified as the increasingly sustained chords produce slow, throbbing beating effects.[54]

Interpretation

Of all the signifiers just discussed, the gradually emerging melody in *Four Organs* may prove to be the decisive "hermeneutic window"[55] in any reading of the piece, but before jumping to conclusions we should list the different signifiers found thus far. They include the following:

- rock-music maracas playing even eighth notes, recalling African/African-diasporic maracas and shakers or Native American rattles;
- cheap, garage band Farfisa Mini Compact combo organs;[56]
- jazzy E dominant-eleventh chord or sus4 with added third (including alternations between apparent dissonances and resolutions);
- 3 + 5 rock *tresillo* pattern, with an extra three-beat pickup;
- filled-in pickup, possibly evocative of a post-bop jazz pickup trope;
- loud volume and spatial treatment of the organs via left/right channels (bass surrounding listener, chord oscillations after m. 19);
- metrical shifts smoothing out the *tresillo* allusion in favor of a 4 + 4 + 3 or 4 + 3 + 4 pattern;
- augmentation technique (expanding from 11 beats to 265 in a single measure—an order-of-magnitude shift), inspired by electronic technologies and medieval organum;

- key releases, somewhat reminiscent of tape reversal (when combined with beating-induced swells);
- nested countdown built into the E dom11 chord;
- the pickup's transformation into a melody, one that increasingly sounds akin to the space evocation portion of the *Star Trek* theme;
- throbbing beating effects of sustained chords, in part due to the Farfisas' tuning inconsistencies.

A series of potential readings might follow from this trajectory, the most self-evident of which arises from the penultimate point, as well as the prominent numerical countdowns,[57] the slowing-down effect of the augmentation, and our tip from Schonberg that the piece's sympathetic listeners depart "to other spheres." At the manifest level, the piece suggests a homology to space travel or at least a perspectival shift from one on the Earth to one viewing it from afar or viewing other worlds altogether.[58] In this sense, *Four Organs* might work in a similar way to the Charles and Ray Eames's documentary film *Powers of Ten* (1977; prototype versions were made in 1963 and 1968), and it is curious to consider that Reich's augmentation process does literally expand by more than an order of magnitude (or power of ten) during its course.[59] A perspectival shift caused by imaginary space travel resonates with the Apollo space program of the 1960s, the big successes of which included the Apollo 8 lunar orbit mission in 1968, which allowed humans to see the Earth from much greater distances than had hitherto been possible, and of course the famous Apollo 11 lunar landing mission of 1969, humanity's maiden voyage to the moon occurring in mid-July of the summer during which Reich first conceptualized *Four Organs* (in August).

Indeed, with this in mind, we might consider a strange, surrealistic doodle that Reich drew in his sketchbooks around the time that the work began gestating in his mind (see Fig. 1.1).[60] It is difficult to interpret, but it appears to be some kind of uniformed or robed figure (or perhaps an animal or a face) departing into space and releasing polygons underneath it, in a way reminiscent of the Apollo rocket and spacecraft's detaching modules.

Perhaps this figure is a kind of monk, ghost, or spacesuited individual escaping into orbit, and thus arguably a self-representation by Reich at this time in his career. One might add to this interpretation by reading the arrangement of *Four Organs*' performers, which has an almost cockpit-like appearance, with keyboards taking on the semblance of flight consoles;[61] the trope of the recording studio as flight system and/or spaceship resonates both with popular culture imagery and with discourse about it of the time—consider the work of George Clinton, Silver Apples, and King Tubby, among others—as well as Reich's participation in quasi-scientific artistic endeavors like his work in Bell Labs or with Yale's Pulsa group.[62]

Much more, of course, could be said about the imaginaries and imagery of space exploration and their attendant ideologies during the late 1960s, but one

Figure 1.1 An approximate transcription of Reich's sketchbook doodle, August 14, 1969. *Reich's doodle is more perfectly vertical, with the figure at the top bending slightly to the left.*

additional point helps to enrich our reading: specifically, the way in which the bumpy rock-based music is smoothed out during the first part of the piece, suggesting a process in which entrainment is gradually undone over the course of the work.[63] It is as if one were literally, if not entirely comfortably, "grounded"

by the work at first, only to become increasingly ungrounded as it unfolds.[64] One might think, then, not only of the physical dimensions of flight but also of an experience of floating—in zero gravity, or even in the sensory deprivation floatation tanks used to test training astronauts at the time.

Sensory deprivation tanks have also been known to generate hallucinations, including out-of-body experiences—as in the way that Richard Feynman described in his famous memoir, *"Surely You're Joking, Mr. Feynman!"* (1985).[65] As have, of course, psychedelic substances, which were bound up with the history of 1960s rock (even if many investigations of that relationship have been overly preoccupied with simple mappings between somatic experience and musical effects).[66] Nonetheless, the subtle suggestions of tape reversal in the piece point not only to other forms of imagined bodily projection but also to the generational animus with which Schonberg lambastes Reich's listeners, who float "on a cloud of musical Zen." The critic's comment, explicitly directed at the followers of John Cage, remains one step shy of explicitly criticizing the counterculture and younger artists like Reich who were involved in it; for skeptics, this was a social world involving a narcissistic conjunction of meditation and Eastern spiritual practices (one must not forget that Reich was a serious practitioner of hatha yoga and pranayama at the time), psychedelic drugs and their hallucinations, and an escape from the emotional and communicative realities of the present world and its human inhabitants (as well as its wearying world of labor and employment).[67] Schonberg, however, is not wrong to allude to the antihumanist aspects of this work—it does not seem to represent a subjectivity except in the barest sense, the subject as observer of a process, albeit one that appears to have an ecstatic or epiphanic endpoint. The experience of escape by floating out of one's body and above the Earth might well be figured as a psychedelic one, but in *Four Organs* it gives the listener a sense of omniscience, of *being*—rather than ear-witnessing—the sublime.

What, then, is the omnisciently observing narrative subject escaping while experiencing *Four Organs*? In part, we might propose, it is the signifiers of blackness, of African America coalesced into a snapshot groove encompassing a panorama of black and black-derived cultural practices—Latin dances, New Orleans grooves, jazz chords, rock music—and sublimates them into an experience intended to be "beautiful," to send "chills up and down [one's] spine,"[68] to paraphrase Reich's famous critique of improvisation (a critique implicitly laden with essentialized racial affiliations and positionings).[69] Reich, as compositional antisubject, achieves liftoff in *Four Organs*, escaping the political and racial tensions and traumas of the 1960s by hearing them at a distance, an order of magnitude away from their source—and thus perhaps the work should be heard in counterpoint to Gil Scott-Heron's "Whitey on the Moon" (1970), which offered a pointed critique of the racial dynamics and imaginaries of the space program.[70] Such, however, was not the case for the 1973 Carnegie Hall audience

members who took umbrage at the idea of a composer subjecting them to an unending chord and relatively loud volume coming from a pseudo–rock band onstage. They comprised a constituency that was, in all likelihood, not clued in to the technologies of the self peddled and consumed by Reich and other artists of his moment, and the composing subject's omniscience—in contrast to the performing composer's sheer terror—was surely an affront to the portion of the audience that was looking for relatively elite, humanist entertainment and not, as Tilson Thomas put it at the previous iteration of the program in Boston, "a piece . . . for virtuoso listeners."[71] Their moment, after all, was one of escape, too—in this case, from the calamities of American society that came knocking in January 1973, including the resignation of President Nixon and a stock market crash that presaged an OPEC oil embargo that would cripple the world economy, setting it on its decades-long downturn from which it has yet to recover.[72] Given that Reich ultimately benefited greatly from this audience's displeasure on that one occasion, perhaps it is worth attempting to ponder exactly what they lost in the transaction.

And yet, one may also argue that the logics of racial-political escape do not fully capture *Four Organs*' modes of making meaning, even while accepting the basic premises of this science-fictional interpretation. Two reasons come to mind. First, despite the considerable distance from the initial moments of the work that the auditor perceives by its end, there is an element from the outset that remains: the maracas. Continuing steadfastly until the very end, the persistence of a percussion stream indelibly tied to the logics of an African/African-diasporic or Native American musical practice might make us appreciate a certain resistance within the work itself to a depoliticizing narrative of transcending the social. Second, due to the increasing saturation of the sonic space with sustained organ tones, as well as the enlarging metrical contexts in which one hears the maracas, the aural experience of that percussive layer changes over the course of the piece, transforming from a crisp, rhythmic groove element (clearly perceptible due to the presence of considerable textural gaps) into what sounds much more like a machinic set of white-noise pulses, reminiscent of the end of Reich's dystopian tape piece, *Come Out* (1966).[73] In *Four Organs*, however, these pulses' affective resonance is more ambivalent, retaining something of their uncanny edge in the earlier tape piece and yet at the same time oddly contributing to the major-mode diatonic, quasi-cadential radiance of the later composition.[74] To propose one possible affirmative reading, are they hopeful (if unrealistically sonified) machinic, mechanical-engine-like chugs that transport us as listening subjects into the beyond?[75] The ambiguous meanings and valences of those maraca pulses offer us an object lesson in the dialectical transformation of quantity into quality discussed by Friedrich Engels and so often treated by Fredric Jameson: heard enough times and in a slightly different context, these pulses become something else entirely.[76] As elements subjected to a scalable process of expansion,

the pulses demonstrate the fundamental nonscalability of rhythm, transmuting a thing, through repetition, into something else.[77] Instead of being infinitely addable ticks in a digital counter, maraca pulses—like everything else in *Four Organs*—tell a story.[78]

Epilogue

Hermeneutic readings of musical compositions/performances are personal undertakings that, in the last instance, have relatively little to do with the recovery of *intention*—a notion that has been frequently critiqued, reaffirmed, and problematized within English-language musicology, especially since the 1980s.[79] Given my own preoccupations with racial politics in the United States during the long 1960s and its relevance to Reich's music, the interpretive turns outlined in this chapter should not be terribly surprising.[80] And while my approach maintains the goal of pursuing interpretive plausibility,[81] seeking, at some level, to engage in an imaginary interpretive conversation with the textual horizon of *Four Organs*, as defined within Gadamerian hermeneutics,[82] I remain sympathetic to the critique of the hermeneutic circle and the persistent advocacy of interpretive freedom by Lawrence Kramer.[83] (Indeed, such interpretive lines of flight could well be justified by Schonberg's aerial metaphor.)

But written interpretations can unintentionally congeal into quasi-truths; so, with this in mind, it might be worthwhile to propose an alternate reading of the piece that aligns more closely with the composer's priorities and published statements. That reading would begin by foregrounding the maracas connection to Moondog—one of Reich's musical associates and contemporaries during the time of the work's composition, his lunar moniker notwithstanding. It would then acknowledge the African American and African American–derived vernacular musical sources that Reich himself identifies (Monk, rock) while also noting that the opening harmony and rhythmic gesture is strikingly Stravinskian (see, for example, the punctuated G dom11 chords in the "Russian Dance," measure 47 and after, from *Petrushka*).[84] This reading could then interpret the work's ending melodic line as inspired neither by *Star Trek* (by interpreting its similarity to the television show's title cue music as an aural pseudomorphism) nor by the Apollo program (by appreciating the rift between the counterculture's and the establishment's understanding of the space program[85]) but rather by medieval chant and organum, in accordance with the composer's own description of his inspiration for the augmentation process.[86] Even the psychedelic effects of the Farfisa key cutoffs may evoke comparable key cutoffs in Baroque organs rather than tape reversals, or they may even recall a similar key-release technique in measure 74 of the finale of Schumann's "Abegg" Variations, op. 1.[87] In light of which, one could interpret the departure

not as one into space but as one *back in time*, in which the modernist and vernacular twentieth century gives way to the premodern (or early modern), largely leapfrogging the era of "middle-class favorites" of Reich's childhood that he subsequently abjured.[88] *Four Organs*, in this reading, narrates the development of Reich's own aesthetic preferences, as a strange kind of Bildungsroman. These two distinct readings can, however, be synthesized. One could consider, for example, the peculiar racial politics of *Petrushka*;[89] the fad for Baroque keyboard styles in 1960s rock organ playing (as in Matthew Fisher's organ part in Procol Harum's "A Whiter Shade of Pale" or Ray Manzarek's organ part in "Light My Fire" by the Doors);[90] and, more generally, the blending of the futuristic (modern drug technologies, tech-utopianism) and distantly past (such as medieval and early modern aesthetics, the study of ancient civilizations and religions, etc.) in the aesthetic tastes and intellectual lives of the counterculture, not to mention familiar artistic precedents for such admixture—as in the longstanding, overlapping literary and cinematic genres of space opera, planetary romance, and sword-and-planet.[91]

But a more pointed sublation of these readings can be characterized simply in terms of flight-as-escape: flight from a troubled present and toward a future anchored by durable traditions. A restless search for origins animated Reich's exploration of traditional musics from Africa and Indonesia and, eventually, his embrace and study of Judaism and Jewish cultural practices (including Hebrew biblical cantillation).[92] The political implications of that flight, which reverberate in the markedly different experiences of black, other nonwhite, and white lives in the United States during the five decades after *Four Organs* was conceptualized and composed, make urgent the imputation of plausible markers of the work's contemporaneity.[93] And yet, Reich remains elusive when discussing many of his vernacular influences. In contrast to his ethnographic source material, which he often identifies either in publications or to himself in sketchbooks, the composer has tended to discuss popular musical influences only in general terms, describing the transmission of ideas with the phrase "in the air." For example, he notes, "In rock and roll Junior Walker had a tune called 'Shotgun,' which had one repeating bass line through the whole tune. This kind of harmonic stasis was *in the air*."[94] In contrast, Reich clearly recognized early on during the conceptual phase of his work on *Four Organs* that gradual augmentation would produce long tones in the manner of La Monte Young's music, producing humorous comments to that effect in his sketchbook.[95] The striking difference in precision and specificity in these two examples demonstrates the tangible consequences of Reich's brand of *Zeitgeistgeschichte*: while certain instances of intertextuality in the composer's music are explicitly named and attributed, others exist only in a state of liminal potentiality, hovering on the edge of musical ineffability that threatens to engulf their being and, with them, the hermeneutic impulse altogether.[96] This interpretive maneuver, however, does an injustice to the communicative richness of *Four Organs*, a conversation about which I hope to initiate

with the foregoing study. Upon further collective reflection, perhaps it may be possible to reimagine and recenter the vernacular inheritances of this pivotal work, thereby pulling it out of the air where it floats and back onto the ground, at least for a moment.[97]

Notes

1. Schonberg 1973a.

2. *Hexaméron* exists in three versions: one for solo piano, one for piano and orchestra, and one for two pianos. For an informative discussion of it, see Rosenblatt 2002, 309–13. The concert also included J. C. Bach's Symphony for double orchestra in E-flat major, op. 18, no. 1 (published in 1781), and Bartók's *Music for Strings, Percussion, and Celesta* (1936).

3. Duckworth 1999, 303.

4. It is crucial to reiterate explicitly that there were likely internal contradictions within this audience, including the divide between new music fans and Boston Symphony Orchestra enthusiasts who attended the concert series. Age divisions were probable as well: Frank Epstein, BSO percussionist, thought that the concert "attracted our normal audience" but might also have included "more young people than normal," given that the concert seemed to be created for and pitched to "a younger crowd." Aside from Epstein's comments, however, I was unable to obtain more precise information about the series subscribers or concert attendees. Email exchanges with the author, January 31 through February 1, 2016. Thanks to Anna Zayaruznaya for asking me to further clarify the lack of homogeneity in the audience.

5. Potter 2000, 208.

6. See Strickland 1993, 221–22; Schwarz 1996, 70–71; Rich 2006; Weininger 2014.

7. Weininger 2014, G9.

8. Duckworth 1999, 304.

9. Schonberg 1973b.

10. See Schwarz 1996, 70; Cross 2015, 50; Wald 2015. Thanks to Steve Rings for mentioning that Dylan himself has recently likened his experience at Newport to the famous riot over *The Rite of Spring* in Paris. Tilson Thomas seems to be the primary narrator of the *Rite*-like version of this event, apparently informing Reich of much of what happened after the fact (since, unlike the conductor, the composer wasn't positioned to be able to pay close attention to the crowd and was instead concentrating on performing; see Strickland 1993, 222). Whether intentionally or not, however, Tilson Thomas may have misremembered some of the details or exaggerated for effect. Sedgwick Clark, who was at the concert, noted that the piece "provoked a mass walkout, with audience members shouting at each other and at the performers," and then stated, "Tilson Thomas recalled that 'One woman walked down the aisle and repeatedly banged her head on the front of the stage, wailing

"Stop, stop, I confess.' " Another quote had her banging a shoe. I wonder how he could have heard her: I was sitting about a third of the way back from the stage in the left parquet section with Joan La Barbara, who performed in two of these current Maverick concerts, and can attest that after 10 minutes it was impossible to hear the music over the uproar." Clark's comments appear on the *Musical America* blog at www.musicalamerica.com/mablogs/?p=4449, accessed July 13, 2017. La Barbara stated that Tilson Thomas's description of the concert may have been slightly "amplified" (personal communication, October 28, 2016) and later confirmed that Clark "gave an accurate commentary. MTT's comment most likely came after the fact as he was describing the event and the outrageous reactions. If a woman came down and banged her head or a shoe on the stage, I'm sure we would have noticed (even if she couldn't be heard). People marching up and down the aisles, enraged, with umbrellas was de rigueur for concert protests. I recall similar reactions to the Avery Fisher Hall premiere of John Cage's *Renga with Apartment House 1776* [in November 1976]" (personal communication, August 6, 2017). If minor untruths were involved here, however, one can only imagine they were well-intended, with the goal of promoting Reich's music at a crucial juncture in his emerging career. Thanks to Will Robin and Alex Ross for tracking down and sharing Clark's quote; many thanks to La Barbara for corresponding with me about this concert. For a contemporaneous article describing the Cage concert protest mentioned by La Barbara, see Hughes 1976.

11. This comment was also mentioned by Strickland 1993, 221. Barry Shank, Edmund Campion, and Richard Taruskin emphasized to me that the uproar was likely provoked by the out-of-place context of the work's performance on this occasion (it was usually performed in the gallery/downtown scene, with audience members often stoned or tripping, etc.).

12. For the most impressive examples of US-centric, minimalism-directed histories of late twentieth-century music, see Taruskin 2005, 351–410; Ross 2007, 515–91.

13. Anderson 2013, 106.

14. See Fink 2005b: "Rather than abuse these critics, I want to use them, to gather clues about minimalism as a powerful cultural practice from those who would prefer to see it as a pathological cultural symptom" (19).

15. Timings in this and later section headings in this chapter refer to the recording Reich 2009 (1970); measure numbers to Reich 1980a.

16. Hartenberger 2016, 13; Cotter 2002, 388. Indeed, Hartenberger includes an interview comment by Reich in which the composer agrees that this may be the influence on him and discusses Moondog's performances with his invented percussion instrument, the "trimba," and a single maraca, which he played simultaneously while accompanying his singing. In several recordings of Moondog's "madrigals" by the composer, Reich, Philip Glass, and Jon Gibson made in either 1967 (as per Reich and Hartenberger) or, more likely, in the summer of 1969, on June 4 (Scotto 2013, 171), we hear a constant maraca pulse throughout, as part of a syncopated groove in 5/4 ("Be a Hobo," "I Came Alone into This World," "Trees against the Sky," "Why Spend

the Dark Night with You," "All Is Loneliness") or 7/4 ("My Tiny Butterfly"). (Four of these recordings are reproduced on the musical album accompanying Scotto's book.) Interestingly, Reich also initially notes in his sketches for the piece that would become *Four Organs* on August 25, 1969, that a single maraca should be used—akin to Moondog's practice—and then suggests two maracas might be used in a hocketed way. (The final composition combines both approaches—two maracas doubling the same pulsed part.) Paul Sacher Stiftung (Basel, Switzerland), SSR, Sketchbook [1], August 25, 1969, entry, p. 78. Thanks to Pwyll ap Siôn for first alerting me to the reference in Hartenberger's book, and thanks to Robert Scotto and Hartenberger for corresponding with me on these matters.

17. Everett 2009, 20.

18. "Magic Bus" is also based on the Bo Diddley beat. The opening of *Four Organs* also recalls rock percussion introductions with quarter-note attacks more generally, a good example of which is Love's rendition of "My Little Red Book" (1966), which begins with a tambourine opening quite similar to the opening of *Four Organs*. Thanks to Anthony Kaczynski for this comment.

19. Thanks to Russell Hartenberger for this observation.

20. BSO percussionist Frank Epstein noted that Reich himself requested that four maracas players should perform the piece, that the percussionists did hold the maracas horizontally to eliminate the backbeats, in accordance with the score, and that the tempo was set by the conductor with input from the composer. All of which points to the likelihood that the results of the BSO performance were in accordance with Reich's wishes at the time; the composer may have been accommodating given the new circumstances (i.e., new performers and a different performing arrangement), and/or he may have used the opportunity to experiment with different approaches to the piece. Email exchanges with the author, January 31 through February 1, 2016.

21. Thanks to Jocelyne Guilbault for reminding me that the maracas could also be read as African/African-diasporic shaker instruments, rather than rock maracas.

22. Michael Veal, personal comment during a question-and-answer session, 1 December 2017. Providing contexts for some of Reich's encounters with Native American cultural practices, Kerry O'Brien has also noted that the composer visited the American West and Southwest during the 1960s, including a four-day trip to Colorado with Dean Fleming and John Baldwin in the summer of 1966 and visits for several weeks in subsequent summers to the New Buffalo commune in Taos, New Mexico, co-founded by his ex-wife Joyce Barkett and poet Max Finstein. (One important motivation for Reich was to spend time with his and Barkett's son, Michael). Indeed, his lengthy stay in New Mexico in 1968 provided the opportunity for his collaboration in *Over Evident Falls* with William Wiley and other artists in Boulder, CO, resulting in *Pendulum Music*. See Potter 2000, 174–75. In a personal communication (on October 25, 2018) O'Brien mentions correspondence from Dean Fleming that "describes spending four days in Colorado (with John Baldwin and Reich in the summer of 1966), dancing with members of Ute tribe, and handing out Park Place buttons." A letter from Dean Fleming to Paula Cooper, July 1966, is in the Park Place

Gallery Art Research records and the Paula Cooper Gallery records, 1965–1973, Archives of American Art, Washington, DC.

23. Grimes in Reich 1987a, 31.

24. Trynka 1996, 33. Indeed, one might fairly describe the ensemble as Reich's *garage rock organ quartet*. Reich (in Cott 1997) does mention that younger musicians describe this composition as his "punk piece" (34) and also points out that the piece "does have a wake-up quality. First of all, the piece is played on four screaming rock-and-roll organs, so the timbre is like talons on your ears. The high frequencies assault you" (33). That said, Steve Rings has pointed out to me that the use of the electronic organ, particularly by 1970, can't help but evoke the other, more explicitly psychedelic appearances of organs in instrumental freak-out jams of the late 1960s—one immediately thinks of the Doors and Ray Manzarek's Vox in tracks from 1967 like "Light My Fire" and "Break On Through (To the Other Side)"; Iron Butterfly's Doug Ingle's Vox in "In-A-Gadda-Da-Vida"; or even the Hammond organs played by Booker T. Jones in Booker T. and the M.G.'s, Jimmy Smith, Georgie Fame and The Blue Flames, and numerous others. Although some of these tracks and passages (especially those by the Doors) also feature modal two-chord progressions that are not so different from Reich's, the instrumental jams here are nonetheless quite different in effect when compared with *Four Organs*: specifically, the improvisational and ecstatic temporality of examples like the Doors', which use short riffs that vary as part of quickly intensifying passages lasting a minute or two, is quite different from the much slower, systematic, and almost machine-like transformations of Reich's music at this time.

25. It is worth considering that this work involves the first appearance of the bass register in the composer's music since *Oh Dem Watermelons*; the works of the middle to late 1960s were decidedly midregister music. Interestingly, the bass keys on the Farfisa (which can be octave-shifted down for a deeper bass range) are limited in range to just under an octave—although Reich's mobile bass lines even well after this composition were relatively restricted, often holding onto notes for a long time. Nonetheless, perhaps the organ's range restriction encouraged a very simple use of the bass register.

26. It may be that these artifacts were caused by slow warming up of the keyboard's transistors. Admittedly, the Farfisas may not be at fault: the effect could be a result of the interaction of the keyboards with the amplifiers and the acoustics of the performance space, or, most probably, the result of tape print-through. Thanks to Walter Everett, Neil Newton, David Novak, and Ed Sheehan for their comments on this point.

27. Jazz composer and arranger Dean Sorenson described the *Oh Dem Watermelons* chord as an "A7 sus add 3," and hence might describe the *Four Organs* chord as "E9 sus add 3." Email exchange with author, January 19, 2009.

28. Cott 1997, 33.

29. Ibid. Aaron Johnson has pointed out to me Monk's "second and lift" technique: of his playing a dyadic second, perhaps as the upper part of a larger chord (especially with the upper fingers of the right hand), and rotating the hand to the left to

sustain the lower note of the dyad—so, for example, sustaining the fourth finger while releasing the fifth. This suggests that Monk's influence may have been relevant not only to the construction of Reich's chord but also to the treatment of the G♯–A dyad and its quasi-resolution. Not knowing Monk's music especially well, I haven't encountered many versions of the chord in his recordings. It does appear in versions of "Lulu's Back in Town," including that on the album *It's Monk Time* (1964) at roughly 2:56, as a cadential chord before the resolution to the dominant flat-ninth at the end of the solo piano introduction. (Here, it is heard in a cluster version similar to Ex. 1d.)

30. Quinn 2014. The "talismanic" role he attributes to the word "watermelon" in Reich's sketchbooks might also be an elaborate (and racially problematic) in-joke, given its source: his music for *Oh Dem Watermelons*, a short, somewhat surrealist experimental film which treats the watermelon as a racially charged signifier and which was originally screened as part of the San Francisco Mime Troupe's *A Minstrel Show*, a politically and racially confrontational reworking of the nineteenth-century blackface minstrel show (see Gopinath 2011).

31. See the discussion in Levine 1995, 46. Levine notes, "In the 1960s, a growing acceptance of dissonance led pianists and guitarists to play sus voicings with both the 3rd and the 4th." But, as with Kelly's chord, Levine states that in these chords "the 3rd is always above the 4th," unlike Reich's chord. Many thanks to Benjamin Givan for this reference.

32. Although my prose description of the "Maiden Voyage" chord can be abbreviated as $Mm^{7/9}$sus4 or $m^{7/9}$sus4, it is typically given the simplified jazz-theory label sus4 or sus or is otherwise described as a "slash chord" (using the formula "[chord]/[bass-note]"). Apropos of the latter case, the chord in Ex. 1.1g could be labeled as D/E, because is voiced like a D major triad in the right hand subposed by E in the bass (which is reinforced by B, the fifth above E) and played by the left hand. (See Levine 1995, 45–46.) Indeed, the use of these chords in the pulsed chordal attacks in "Maiden Voyage," as well as the pickup figure discussed later, make it a particularly strong reference point for *Four Organs*.

33. That said, Santana's "Oye Como Va" makes use of repeated Dorian i^7 organ attacks (as part of a i^7–IV^7 harmonic loop; this could also be heard as a repeated, unresolving tonal ii^7–V^7) quite comparable in effect to the opening of Reich's composition. (Santana's recording is from 1970, released after the completion of *Four Organs*, although Tito Puente's original, which maintains the same harmonic gesture, is from 1963.) Thanks to Henry Spiller for this observation. And, lengthy, suspended extended tertian sonorities (with an initially descending half-step oscillation), comparable to the *Four Organs* chord and performed on a Vox electronic organ, can be heard in the first six minutes of John Cale's *Sun Blindness Music* (1965).

34. Taruskin 2005, 378. It is worth mentioning that higher prime number metrical groupings (i.e., above three) are rare in Reich's music in the 1960s through 1970s. After *It's Gonna Rain* (1965) and up to (and including) *Music for 18 Musicians* (1976), consistent higher prime number divisions can only arguably be found in *Come Out* (1966), which can be transcribed in 7/8 (but need not be). See Gopinath 2009, 128–30. This changes in the late 1970s, however; for example, *Octet* (1979) is consistently in 5/4 (or 10/8); see Pwyll ap Siôn's chapter in this volume for an extended discussion of that piece.

35. It is worth mentioning that Russell Hartenberger, one of the early performers of the piece, did not hear the opening groove this way, although he emphasized that the performers were mainly concentrating on getting the rhythms correct and staying together (personal conversation, August 2015).

36. It may be possible that the meter was partly inspired by the Grateful Dead's "The Eleven," which was released on *Live/Dead* (1969)—about which Phil Lesh, Reich's long-time friend and erstwhile musical collaborator, had corresponded with the composer. Recorded in January through March 1969, *Live/Dead* was released on November 10, 1969. Reich's first sketch for *Four Organs*, called "The Gradual Stretch," dates from October 19, 1969, and it includes the opening eleven-beat pattern. Reich may have known about the song and/or received an advance copy of the album (or recording); or, it may simply be a coincidence. Interestingly, the 11/4 parts of the song are divided as 3 + 3 + 3 + 2, suggesting a triple meter with one beat cut off on the fourth measure. This is rather different from Reich's piece, with its implicitly duple subdivisions. Much of the Grateful Dead track, however, is in 4/4; it may therefore be that Reich's metrical scheme recombines and rethinks "The Eleven." Thanks to Neil Newton for reminding me of this track.

37. Manuel 1985, 252–54. Manuel shows transformations of the habanera's contredanse rhythm and *danzón*'s *cinquillo* rhythm into the *tresillo* (250–52).

38. Cohn 2016, 4.3.

39. The *tresillo* figure, however, is much more explicitly presented in the bass part of the Meters' 1975 version of the song, on their album *Fire on the Bayou*. For a more recent example, the theme song to the television show *Treme* is also based on the *tresillo* rhythm—explicitly signaling the song's New Orleans-ness.

40. Stewart 2000, 306–7. One crucial factor that makes these rhythmic patterns comparable to those in minimalism is the fact that this music is unswung and, as Stewart argues, was part of a trend in the 1960s away from swing in US popular music. Reich's music (as well as Glass's, most of Riley's, etc., and most classical music) is not swung.

41. The continuities between various Afro-Caribbean rhythms, including the *tresillo*, are discussed by Washburn 1997; using a geometric music-theoretical apparatus, Toussaint (2013, 214–15) connects the *tresillo* to a broader swath of world rhythms (including African and African-diasporic ones).

42. Synthesizing numerous sources, Biamonte 2014, 6.4 (example 8) distinguishes between the 3 + 3 + 2 *tresillo* rhythm and the 3 + 5 Charleston rhythm (from Cecil Mack and James P. Johnson's "The Charleston" [1923], which helped to inspire the dance craze of the same name). Clearly, in the abstract, the two rhythms are very closely related, with the latter lacking the final attack of the former (although that attack can remain implicit). (Washburn 1997 also makes this connection [67–68, 71].) Because of the specific associations of the Charleston with that song and the 1920s dance craze, as well as its performative particulars, it seems preferable to call this rock 3 + 5 pattern a "simplified rock *tresillo*" rather than a "rock Charleston." (The Charleston requires a relatively fast tempo—usually well above ♩ = 200 if one were to count 3 + 5 in one measure of a normative 4/4 meter—and is very frequently if not always swung.) For several examples of simplified and unsimplified rock *tresillo* patterns in 1980s pop/rock, see Traut 2005.

43. Although it does not serve as an influence on the composition due to its release date later in 1970, the potential parallel is nonetheless worth mentioning, particularly in light of Starr and Waterman's (2003) trenchant comment on Brown's own minimalist approach to R&B/soul music: "One additional and fascinating aspect of Brown's work is the relationship it suggests to the 'minimalist' music by avant-garde 'art-music' composers, such as Philip Glass and Steve Reich, that was developing simultaneously if independently in the late 1960s in New York. This was also music based on repetitive rhythmic patterns with a de-emphasis on traditional harmonic movement. There is no issue of direct influence here, one way or the other. But it could be argued that only old cultural habits and snobbery have kept James Brown out of discussions of minimalism in scholarly forums and journals" (273). If there was an influence, however, it's more likely that Brown's early funk tracks affected Reich's music, rather than the other way around. Thanks to Robert Fink for suggesting this James Brown song as a reference.

44. A significant difference between these examples and the Reich owes to the fact that the former fit within a clear meter (4/4), leading to accent patterns in playing, whereas the maracas in *Four Organs* are probably not supposed to impose or reinforce accents in the organ parts (in performances I've seen and participated in, the maracas player has always striven not to add extra accents).

45. Paul Sacher Stiftung, SSR, Sketchbook [1], October 28, 1969, entry, p. 84. Underneath some completed sketch measures of *Four Organs* appears the incomplete melodic fragment A5/A4 A5/A4 G4 A4—A4 G4. They are all eighth notes, the last two separated from the first group by a blank gap, and all appear on the same nearly empty treble staff after a bar line (there is a three-sharp key signature, as with the preceding music). If we hear it in 4/4, it is reminiscent of "You Really Got Me," except that it is a half-step sharper (The Kinks' song is in A♭/G♯) and the last A4 should be an eighth rest (although a prominent snare attack appears there). That said, this sketch is more likely an unfinished measure, resultant pattern, or other notated musing.

46. For more on the background to the Phase Shifting Pulse Gate, see Kerry O'Brien's chapter in this volume. Thanks to Sam Pluta for pushing me to clarify that the Phase Shifting Pulse Gate does not perform augmentation—it just rearranges attacks within a consistent metrical unit.

47. Although *Slow Motion Sound* remained a concept piece until it was later incorporated into *Three Tales* (2002), Reich did create a test version of it with technical assistance (involving a vocoder program at MIT's Lincoln Laboratory) in the late 1960s. The test version, which can be heard at the Sacher Foundation, must be included among Reich's "race" pieces—for it includes the voices of a Ghanaian teacher and student in an English class (taken from the 1967 ABC television documentary *Africa*), reiterating the sentence "my shoes are new," gradually slowing down and transforming into discrete pitches, in accordance with the vocoding process. The composer describes the results of that test (and his dissatisfaction with them) in some detail in Reich 2002b, 26–29. It shows, once again, that a foundational technique for the composer (augmentation) initially emerged from his exploration of black voices.

48. Henahan 1971 includes one contemporaneous example of Reich's mention of this enthusiasm in print; also see the 1970 program note in Reich 2002b, in which the composer writes, "This process of augmentation was suggested by the enormous elongation of individual tenor notes in *Organum* as composed by Perotin and others in the twelfth and thirteenth centuries in Paris at Notre Dame Cathedral. Tenor notes that in the original chant may have been equivalent to our quarter- or half-notes can take several pages of tied whole-notes when augmented by Perotin or Leonin" (50). Thanks to Charles Atkinson for his queries on this point.

49. Tape speed-up effects were very common, but there are also a few examples here and there of slowdowns, such as the tape slowdown–induced glissando toward the end of the Hollies' "Dear Eloise" (1967); mentioned in Everett 2009, 351.

50. As heard on Reich 2009 (1970). The mechanism for each key in Farfisa Mini Compact organs involves a tiered series of contacts that touch freestanding wires arrayed vertically for each key's organ stop or harmonic. Because the contacts don't touch the stop wires at the same time, a very slow key depression can produce separate onsets for each harmonic. One might say that the attack and release events of a Farfisa Mini Compact organ have a certain "thickness," which might contribute to the perception of tape reversal or back masking in key releases (particularly in combination with swells caused by slow beating—see endnote 54 in this chapter). Thanks to Michael Gallope for sharing his knowledge of Farfisa keyboards with me. The Farfisa Combo Compact user's manual is available at www-personal.umich.edu/~damont/FarfisaComboCompactCompleteUserServiceManual.pdf (accessed July 18, 2016).

51. See Ryan and Kehew 2006, 302–4.

52. In the sketches for *Four Organs*, Reich frequently includes countups and countdowns for the augmenting measures, and at times includes counting "pyramids" (stacked countups/countdowns) with each lower tier increasing by one count and slightly displaced to incorporate new additive units (so, for example, 3 + 4 + 5 would appear above 3 + 4 + 5 + 6, wherein the event formerly corresponding to "4" would now correspond to "5," and the lower level would introduce a new event with "3"—a key release or attack). This may suggest that Reich began structuring the augmentation with a quasi-systematic process and then altered the counts if he didn't like the results. See Paul Sacher Stiftung, SSR, Sketchbook [2], passim.

53. Getman 2015.

54. Courage's theme is evocative of the Mahler's cosmic nature-space in the opening of the Symphony no. 1 (1887–88). The variability and difficulty of tuning Farfisas were emphasized to me by Walter Everett, and this has consequences for the long, sustained chords at the end of the piece, which seem to pulse and throb, sometimes quite slowly, thanks to the beating effects caused by those tuning differences (which are prominent on the original recording [Reich 2009]). The beating periodicities vary as different combinations of notes enter and exit, as well as with the listener's physical location with respect to the loudspeakers (due to the stereo recording). I was first alerted to this phenomenon by Saccomano 2015, 13–14, which notes the discrepancies between the beating periodicities and the maracas periodicity; many thanks to Mark Saccomano for sharing his insightful thesis with me.

55. See L. Kramer 1990, 6; this example would be a likely unintentional "citational allusion" (10).

56. Walter Everett noted to me the sonic similarities between Farfisa keyboards and other electronic keyboard instruments like the clavioline, Jennings Univox, and Ondes Martenot, some of which were used for music with space travel associations—including the satellite-themed instrumental hit "Telstar" (1962) by the Tornadoes. The reedy, nasal sound of these instruments is also reminiscent of the closely related theremin, frequently used in both sci-fi and horror contexts (film, TV, thematically appropriate songs) during the 1950s and 1960s and also, of course, in the Beach Boys' "Good Vibrations" (1966).

57. Countdown or counting effects linked to both space travel and nuclear detonation are found in Philip Glass's *Einstein on the Beach* (1976) and with nuclear detonation alone in Reich and Beryl Korot's video opera *Three Tales* (2002).

58. Intriguingly, images of space flight are quite familiar in the annals of musical minimalism, signaling a generational preoccupation influenced by the Cold War space race. The appearances of spaceships and rockets in Glass's *Einstein* and *Koyaanisqatsi* (1982) are quite well known, for example, and flight and outer space also figure frequently in the work of Meredith Monk, as in her "Astronaut Anthem" from *The Games* (1983). Brian Eno's album *Apollo: Atmospheres and Soundtracks* (1983) comes to mind as well. Also, John Adams (2009) describes a dream he had during the middle of a creative block; in the dream he saw an oil tanker that "rose up like a Saturn rocket and blasted out of the bay and into the sky" (130). The image served as an inspiration for the opening ("the powerful pounding E minor chords that launch the piece") of his *Harmonielehre* (1985). What makes *Four Organs* especially striking in this company is that it significantly predates these other, better-known, and explicitly space-themed examples and stories. For a variety of cultural representations of the lunar landing and Apollo era, see Crotts 2014, 71–74; Tribbe 2014.

59. See Schuldenfrei 2015, 136–37. As Etha Williams pointed out to me, one could also read the perspectival shift as *going in* to the chord/Earth/material substrate rather than departing from it, as in placing Reich's materials under a microscope. Indeed, *Powers of Ten* features not only an augmentation in order of magnitude, stretching from the image of picnickers at the Chicago lakefront to the widest expanses of the universe, but also a corresponding diminution, down to the subatomic level. Thanks to Joe Dubiel and Mary Ann Smart for comments that clarified the problem of transcendence versus immanence in the piece and the meaning of Schonberg's "acoustic phenomenon," respectively. Thanks to Gabrielle Gopinath, who first introduced me to the Eames film.

60. Paul Sacher Stiftung, SSR, Sketchbook [1], near August 14, 1969, entry, p. 74, bottom-right part of page, near spine. Richard Taruskin described it as a "shmoo" from the classic cartoon strip *Lil' Abner* (1934–77).

61. See Reich 1980a, [iii], and Reich 2002b, 45, for images of the performance setup. Thanks to Christopher Swithinbank for his comments on the keyboard as a flight console, as figured in Afrofuturist work such as the music of George Clinton

and writings of Kodwo Eshun, and the notion that the performers are arranged as if in a cockpit. Joe Dubiel also noted that the welter of cables, amplifiers, and assorted musical equipment also adds to the technological aura of the performance and might contribute to the sense of the performance space as a cockpit.

62. As discussed in O'Brien 2009.

63. This is the case when experienced by a listener who does not insist on counting pulses during the entire piece—which, I expect, would be the vast majority of listeners—in contrast to a performer, who must count assiduously throughout and thus stay attuned to the subtactile pulse stream.

64. In his 1981 essay "Crippled Symmetry," composer Morton Feldman (2000) discusses the piece's augmentation process and the rhythmically unmooring effect to consider when "the juxtaposition of asymmetric proportions (all additive) becomes the form of the composition" (135). He notes, "In Reich's *Four Organs*, the rhythmic patterns are more acoustically oriented and are based on the pitch-components of a chord that never changes. The music begins with a 3 + 8 pattern in which certain pitches from the basic chord are then varied rhythmically. Reich's first structural move is to . . . divide [the eleven-beat measure] into [different] patterns. What follows is the gradual addition of more beats to the structural frame of now longer measures . . . until Reich does away with the bar lines. As the measures grow progressively longer, the oscillation of the recurring pitches can no longer be said to have any marked rhythmic profile" (135–36). Thanks to Ryan Dohoney for reminding me of this reference.

65. Feynman 1985, 330–37. Thanks to Madhura Gopinath for this reference. We should also take note of Michael Veal's argument (personal comment, 1 December 2017; also see endnote 22) that the Native American rattle-like character of the maracas indexes initiation rites like vision quests, the latter of which are also frequently combined with the use of hallucinogens like mescaline (in peyote) and can generate out-of-body experiences. Vision quests have a complex and political history for American Indians; they seem to have expanded significantly during the late nineteenth century, in response to the crushing and brutally violent defeats in the American Indian Wars. For a brief discussion of contemporaneous Comanche practices, which might be taken as representative, see Noyes 1999, 15–18.

66. For thoughtful examples of such mapping, see Whiteley 1992. In contrast, Bromell (2000) makes a very loose and general linkage between music and drugs (i.e., their physical immediacy), arguing, "The closely related phenomenologies of music and psychedelics help explain, I think, why millions of young people in the '60s turned to these experiences as a way to work through and beyond their conditions" (73). Also, Veal's Native American reading of the maracas encourages an indigenous perspective on psychedelic experience (as mentioned previously—see endnotes 22 and 65), and perhaps evokes images of and ideas about interethnic collaborations or conflicts—particularly as viewed from a white perspective. To put it bluntly, if *Four Organs* can be read as a white fantasy of an ethnically syncretic vision quest, what does it mean that the structuring rhythm of that quest persists, allowing the piece to maintain its indigenous-ritual character but lose its blackness?

67. Demonstrating a now conventional linguistic link between the drug-induced perception and the space program, Cott (1997) says of experiencing *Four Organs*' argumentation process, "People associate this feeling with being *spaced out*" (34; emphasis mine). In addition, in a personal comment (December 1, 2017) Kerry O'Brien made a point about the language of ecstasy and the word's roots in yogic philosophy. Reich's thinking about somatic experience, as realized in *Four Organs*, may have been tied to his yoga practice and yoga-influenced thinking in the late 1960s, which is discussed in O'Brien's chapter in this volume.

68. Reich 2002b, 80.

69. See Lewis 1996. More generally, one might argue that late 1960s/early 1970s America was being escaped from, with the signifiers of blackness also signaling the counterculture (and its absorption/appropriation of black music).

70. See Tribbe 2014, 37–39. Thanks to Dalton Anthony Jones for first alerting me to Gil Scott-Heron's poem and recording.

71. Strickland 1993, 221. Although a simple mapping cannot do justice to who was present at the concert and their myriad reactions to it, the clash between detractors and musicians/supporters recalls the now mythologized 1960s–1970s division between "squares" and "hippies." (Another homologous, but not equivalent, divide is the frequently bandied-about uptown/downtown opposition in New York art music of the period.)

72. Indeed, the economic decline of the long downturn was inseparable from declines in state spending, which include the downsizing of the space program in the 1970s. See Tribbe 2014, 221–23. On the long downturn beginning in the early 1970s, see Brenner 2006.

73. For more on interpreting *Come Out*, see Gopinath 2009; Potter 2000, 176–79.

74. I owe almost all of the interpretation from the beginning of this paragraph up to this sentence to Eric Drott.

75. With this interpretation, I take inspiration from David Valentine's reading of Nikki Giovanni's poem "Quilting the Black-Eyed Pea (We're Packing for Mars)" (in Giovanni 2011, 1–4), in which he directly contrasts this text with Gil Scott-Heron's "Whitey on the Moon" (as part of Valentine 2017, 195–98). In Giovanni's Afrofuturist interpretation of space flight and exploration, "the trip to Mars can only be understood through Black Americans" (3), and future space travelers will need to learn from the horrific experiences of the Middle Passage during the heyday of the transatlantic slave trade in order to cope with the difficulties of such extreme forms of transit. An Afrofuturist reading of *Four Organs*, after Giovanni, could interpret Reich's metaphorical exploration of space as a collaborative (and possibly utopian) project fundamentally dependent on blackness and black music—or nonwhite subjectivities more generally, if the indigenous reading of the maracas is incorporated. (Although such a reading is potentially utopian, the maracas—as the obscured and incorporated black/nonwhite musical engine of a space vehicle, itself perhaps figured as a chugging train, and thus acting as proverbial "hidden figures" in this scenario—also reinscribe racialized divisions of labor in this metaphorical journey. They suggest that this reading needn't be understood as uniformly affirmative.) As such, this reading provides a useful counterpoint to the hermeneutics of

Four Organs as racial-social escape. Indeed, the escape interpretation exemplifies Valentine's (2016) broader point that texts and performances like Scott-Heron's resonate with midcentury philosophers' arguments that "the move to space is . . . radically decontextualizing and depoliticizing. From this perspective, the view from space seems to concretize the generalizing and abstracting observational capacities of [the] modern subject by obscuring the observer's interested attachments and conflating a subjective view of a containing atmosphere with an apparent rationalist objectivity" (512). Unlike these thinkers, we needn't necessarily treat space as a depoliticizing escape from Earth alone—space being, after all, a political project inseparable from the Earth and its inhabitants—and should not reflexively assume the truth of this argument. Indeed, as Valentine astutely notes, "For critics of the human view from space, it is only by framing this view as *free* of context that humanness on Earth can be meaningful" (521).

76. See, for example, Jameson 2009, 13.

77. See Tsing 2012. Thanks to David Valentine for this reference.

78. Reich claimed he thought of the maracas as an acoustic substitute for the beat-counting "common digital clock" of his Phase Shifting Pulse Gate (Reich 2002b, 45).

79. This history is complex and cannot be recounted adequately here, but it would seem that Wimsatt and Beardsley's (1946) notion of the "intentional fallacy" has been applied to considerations of musical analysis (at least as early as Treitler 1966, 80; see Haimo 1996), performance interpretation (Taruskin 1982; Tomlinson 1988), and hermeneutics (Taruskin 1997a, especially xx–xxxi), to cite a small number of interrelated examples.

80. See, especially, Gopinath 2005, 2011.

81. See Pontara 2015.

82. For the central text, see Gadamer [1975] 2004. I am influenced here in particular by one of my teachers, James Hepokoski; see Hepokoski 1991 for an important discussion of the relevance of Gadamer to Dahlhaus; and Hepokoski and Darcy 2006, 604, for a statement of Gadamer's hermeneutics as relevant to the authors' approach to the analysis and interpretation of sonata forms. Of course, for recently created music, the "Gadamerian fix" of tradition (L. Kramer 2011, 251) can hardly be said to exist in any great depth; hence my interest in constructing broader intertexts for interpretation (see Klein 2005). I should additionally add that if my method is strongly influenced by Hepokoski, the specific interpretive observations in my arguments about Reich have long been strongly influenced by the work and suggestions of Michael Veal, whose interpretive sensibility has been an inspiration to me. Moreover, my approach also resonates markedly with Jonathan Bernard's reading of Philip Glass's *Satyagraha* "chaconne," which he argues might be influenced by chord progressions in 1960s US/UK pop songs as much or more than by Baroque or flamenco music (see Bernard 1995, 281 [fn44]). Thanks to David Novak for prompting me to clarify my methodology here.

83. In Kramer's (2016) memorable words, "Even if the hermeneutic circle does not absolutely determine the terms on which an interpretation is arrived at . . . the circle nonetheless does determine that only certain kinds of understanding, certain

kinds of discourse, are possible. Meanings are acceptable only if their origin falls along the circular path, which inexorably closes in on itself, like a noose" (92).

84. Many thanks to Matthew McDonald for this observation. For helpful discussions of the influence of Stravinsky on Reich, see Cross 1998, 170–74; Potter 2000, 154–55; Reich himself describes the chord as being found in both Monk and Debussy (Cott 1997, 33). Richard Cohn (personal conversation, December 1, 2017) also reminds me that there were similar resonances in the European avant-garde—especially the dominant-ninth chord of Karlheinz Stockhausen's *Stimmung* (1968, first recording released in 1970) and the spectralist tendency that was influenced by it. Reich's chord and composition could be further understood, alongside this European trend, as contemporary versions of what Daniel Harrison calls "overtonality" (see Harrison 2016, 17, 125–26 [on overtonality in the *Octet*], and passim).

85. I take the notion of pseudomorphism from the art historian Erwin Panofsky, for whom the term denotes "The emergence of a form A, morphologically analogous to, or even identical with, a form B, yet entirely unrelated to it from a genetic point of view" (cited in Bois 2015, 127). (Panofsky uses the term differently from Adorno, who describes Stravinsky's music as a "pseudomorphism of painting"—a heteronomous, cross-medial impulse allegedly resulting in an expressionless, atemporalized, and ahistorical form of sonic spatialization. See Adorno 2006, 141–44.) And, despite countercultural sympathies for space travel in general, the Apollo program was largely viewed as a "triumph of the squares," a culminating achievement of the technocratic rationality of the postwar US state that would become undone by "the rise of a neo-romantic turn in American culture" by the 1970s (Tribbe 2014, 130–31, 21).

86. See Reich 2002b, 50.

87. I owe the observation about Baroque organs to Lauren Redhead and the Schumann example to Steve Rings. On the Schumann passage, see Rosen 1995, 10–12. Even though the Schumann work is obviously from the nineteenth century, one might consider that the sustained whole notes of this passage may invoke some version of the alla breve topic and, as such, suggest an early modern or premodern reference point at some level of mediation.

88. Strickland 1991, 35; see also 35–37, and Duckworth 1999, 314, for discussions of Reich's aesthetic preferences.

89. Specifically, the beating to death of Petrushka by the Moor, on which Sjeng Scheijen (2010) comments, "It is remarkable how few commentators over the years have mentioned the explicitly racist character of the ballet" (227).

90. See Long 2008, 124–25.

91. On the point about literary/filmic genres, see Pringle 2000. Indeed, *Star Trek*'s own depiction of Vulcans as living rather monastic lives (wearing priestly robes, having highly disciplined and austere cultural practices, etc.) is one pertinent example.

92. See Puca 1997, 537–39.

93. Here I am in part referencing the intrepid efforts of the Black Lives Matter movement and the police shootings of black individuals that it protests. For further study of this subject, see the Black Lives Matter syllabus by Frank

Leon Roberts at www.blacklivesmattersyllabus.com/frankleonrobertsr/ (accessed August 17, 2016).

94. Grimes in Reich 1987a, 10 (emphasis mine). For more recent statements of this sort from Reich, see Wroe 2009; P. Johnson 2013. In my view, this statement is somewhat misleading, in that it refers to a song that was never explicitly quoted or otherwise employed by Reich and was, instead, used by Terry Riley in a tape composition, *The Bird of Paradise* (1965)—and it is by now well known that Riley's tape compositions heavily influenced Reich's own (see Potter 2000, 118, 164–65).

95. Reich demonstrates this awareness by parodying the lengthy and overly literal names of Young's compositions, using the word "watermelon" to refer to his extended dominant chord. See Paul Sacher Stiftung, SSR, Sketchbook [1], August 12, 1969, entry, p. 71.

96. Reich's "in the air" model of influence recalls theories of zeitgeist, or the "spirit of the age." William Weber (1994) offers a critique of the latter in musical and cultural history, observing: "The cultural history written by Americans in particular has been dominated by a passion to see the arts as a set of cultural unities" (322), and proposes that this is an effect of history teaching. For a recent attempt to recover *Zeitgeistgeschichte* by critiquing methodological individualism and considering collective historical consciousness as an emergent property, see Førland 2008. A number of recent texts have reinvigorated discourse on the ineffability of music, including Abbate 2004 and Gallope 2017. For a critique of some of this discourse, see L. Kramer 2016.

97. Concerning intertextual connections to Western art music, Reich has explicitly commented on his awareness of the possible influence of Pérotin on *Four Organs*, even though it somewhat contradicts his earlier accounts of this influence: "Most of these connections occurred to me after I did what I did in a very intuitive, nonintellectualized way, which is something I try to adhere to to this day. I'd heard Pérotin before *Four Organs*, of course, but if there was an influence it was unconscious. . . . In general, you ought to revisit the literature and then throw it all out the window and write your piece. Forget about it, unless you're doing what Stravinsky did with Pergolesi. After *Four Organs*, a very radical piece, I investigated Pérotin because I asked myself, 'Wait, am I all alone here in the ocean, or am I really in someone else's swimming pool?' " (in Strickland 1991, 37). My goal in this essay is to make comparable connections between Reich's work and vernacular musics of the sort discussed previously, while at the same time recognizing the potential perils of doing so.