

The *Tabula (not so) Rasa*: La Monte Young's Serial Works and the Beginnings of Minimalism, 1956-58

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Note: Figures and examples at end of document.

On Sunday, 15 June 2003, La Monte Young called his parents' home in Buena Park, California, from his apartment in lower Manhattan, to wish his father a happy Father's Day. Geography and age were only two of many distances separating the men: to the elder Young, an unapologetically unsophisticated, resolutely practical, devoutly Christian octogenarian, several years retired from a long career of physical labor and tangible manufacture, his son's religious and cultural rebellion had been for half a century a source of anguish, his highly unorthodox artistic career an utterly intractable mystery. Still, the conversation proceeded amiably, with updates on relatives, fond recollections of childhood events, and heartfelt well-wishes on both sides. The most striking moment in the phone call (at least for this musicology graduate student, whom the composer graciously had invited to listen in) came when, in a moment of curious nostalgia that would seem to belie his enigmatic persona as an avant-garde composer, the younger Young turned up the CD recording of the tambura drone that constantly plays on repeat in his apartment, and asked his father to join him in singing cowboy songs together over the phone. With the sustained "*sa*" of the tambura serving as an omnipresent "*do*" for their melodies, father and son marked their common musical ground: "Git Along, Little Doggies," "Red River Valley," and a hauntingly transcendent rendition of "O Bury Me Not on the Lone Prairie." This gesture of reconciliation encapsulated virtually the whole chronological span of Young's musical life, from the folk songs (including these very songs) he had learned as a child, to the ragas he had sung (above this very same tambura drone recording) in a concert given just the night before.

The relationship between the musical environments from which Young emerged and those that he creates defies easy assessment; this interplay involves much more than the simple binaries of East and West—for, although in his study of Indian music he submits more or less to longstanding tradition, his own compositions stand out for their scientific grace, their quantifiable and painstakingly executed acoustical complexity. Rather, the tension seems drawn between austere compositional immanence and an irrepressible tendency toward sonic autobiography. It seems that Young's search for musical objectivity takes him along a curving path that, at the apex of its arc, suddenly reveals itself as extreme subjectivity. On the one hand, his entire career can be seen as an ongoing effort to eliminate the arbitrary or unscrutinized, the inherited, the "constructed"; to realize within the medium of sound certain universal governing principles as fully and thoroughly as possible, and on every discernible level of musical conception and perception. In its ideal state, Young's music seeks to *be* the principles on which it is based rather than merely to reflect them. (Indeed, even the phrase "seeks to be" implies a level of intermediation that Young's aesthetic may not admit; a stark and pointed *is* may convey the ostensible unity more accurately.)

On the other hand, the *tabula rasa* he tries to establish compositionally seems to sit level with the plane of his real-life experience, giving rise to the underlying assertion of virtually all of his work: that music does not share a metaphorical or manifestational relationship with the universal governing principles that inform it, but rather extends from them along a single, contiguous ontological thread—a thread that con-

nects conception in the mind of the composer to realization in sound to perception in the ear and meaning in the mind of the listener. Young's relationship to *music*, in terms of styles and genres, varied drastically during his university studies and early career as he adopted and rejected various compositional methods and emphases; on a more fundamental level, however, Young's relationship to *sound* has remained surprisingly consistent over his lifetime, and intimately bound to his own sonic memory. By reducing music to its most elementary nature, sustained vibration, Young has sought to make it of a kind with the periodicities of the earth around him and the universe around it—but that definition of music radiates from Young's position in the universe and inevitably confronts his subjective experience as one of its inhabitants.

In Young's later career, the technically complex aspects of his works cohabit comfortably with the biographical, or even programmatic. Throughout the *Well-Tuned Piano*, for example, religious evocation, personal remembrance, and geographical reference intertwine with complex microtonal relationships and structural interconnections—as observed in section titles such as “The Shimmering Pool Reflecting the 288/147 Premonition of the Theme of the Dawn of Eternal Time Recalled in the 189/98 Lost Ancestral Lake Region.” Each part of the subtitle alludes to a particular image (the “Lost Ancestral Lake Region,” for example, includes his home town of Bern, Idaho, and its immediate environs¹), as well as to a distinct associative musical idea and rational intervallic identity; to decode the work's hundreds of such divisions and descriptions is to arrive at both a complex map of acoustical and structural relationships as well as a dense quasi-narrative web of biographical leitmotifs.

In Young's earliest works, however, the biographical element lurks much further beneath the surface; while his own life is stamped explicitly on his later projects, the compositions of the late 1950s seem to purport authorship by the unseen and unerring hands of Reason, Logic, and Symmetry. In fact, the elements of his early works that seem most radical and most characteristic—the extremely long tones, the sometimes wildly impractical (for the performer) or audaciously indiscernible (to the listener) performance instructions—result not from the iconoclastic, rebellious identity so often attributed to Young, but rather from an unusually zealous adherence to serial principles and, especially, Weberian economy and symmetry. The compositional extremes encountered in these early works reflect a recurring tendency in Young's career: once he has adopted a method or belief, he carries it to what he sees as the very limits and inevitable culmination of its inner logic; the serial works, with their Spartan, static surfaces and hyperpalindromic forms, appear to seek extreme abstract emotional detachment and structural immanence. Still, as Young's early compositions aspire increasingly to absolute austerity and objectivity in a structural sense, not only do they connect increasingly to the real world of personal experience through threads of sonic memory, but turn out, on closer inspection, to be woven from them. As this assessment of Young's serial works will show, the composer eventually adopted as the syntactical germs of his serial structures certain sonorities drawn not from the abstract ether of musical relationships, but from the world of his own aural experience.

Here the objective abuts with the subjective: in serialism (or more specifically, the idealized form of it Young perceived as an eager student), the “objective” is synonymous with the “abstract,” treating sound *as if* it were an object—which attitude carries the tacit assumption that it really *isn't*—by organizing it according to logical, impersonal relationships; over the course of his first serious compositions, Young gradually adopted the attitude that music *really is* an object, or at least a physical phenomenon that should be considered as such, and that it cannot be considered apart from sound as experienced, subjectively (biographically), in the real world. Young's last twelve-tone composition, the *Trio for Strings*, forces the aesthetic issue of

¹ The entire Bear Lake Valley, including Bern and the lake itself, was once covered by an enormous prehistoric lake (La Monte Young, telephone interview 11 August 2001).

differentiating between “pure structure” and “pure sound” and, in doing so, poses, arguably for the first time, the questions implicitly asked by early minimalist music in general: can music have an identity that exists in a realm—be it metaphysical or abstract—beyond the boundaries of physical sound? Can something be called “absolute music” if its “absolute” aspect is not inherently, exclusively, or specifically “musical”?

In exploring the connection between serialism and early minimalism, several historiographic issues arise. Historians and musicians generally consider musical minimalism as a movement that emerged, to a considerable extent, in specific and deliberate contradistinction to the sounds of serialism and the philosophies that produced it. Virtually all of the prominent minimalist composers that arose in the 1960s had been trained in and/or compelled to write using dodecaphonic procedures at one point or another in their collegiate studies but later recalled their serialist training with considerable disdain. Steve Reich, for example, describes the 12-tone jazz composition he submitted as his master's thesis at Mills College (as a student of Berio) as “the worst thing I've ever written” (Hillier 10). Later, in his seminal essay on (what would come to be called) minimalism, “Music as a Gradual Process,” Reich specifically rejected serialism as a compositional approach on the grounds that, because twelve-tone procedures cannot (in Reich's estimation) be perceived aurally, the procedures themselves do not hold a strong enough intrinsic relationship with the ultimate sound of their musical results to claim any special privilege as an approach to composition (35). Philip Glass's first completed piece, as a precocious 15-year-old freshman at the University of Chicago, was a rigorously ordered 12-tone string trio (Potter 253; Matthew-Walker 18). His enthusiasm for serialism was short-lived and soon all but forgotten; later, Glass would describe serialists such as Boulez and Babbitt as “maniacs, these creeps, who were trying to make everybody write this crazy, creepy music” (Garraat 37). At the beginning of his career, Terry Riley wrote a pair of atonal piano compositions after the manner of post-tonal, pre-serial Schoenberg; he avoided the twelve-tone method, however, because it “didn't feel good. It was too full of anxiety, too dark; it had such a narrow range” (Potter 95).

In contrast, La Monte Young's twelve-tone compositions still figure somewhat prominently within his oeuvre. In fact, his first twelve-tone composition, the *Five Pieces for String Quartet (On Remembering A Naiad)*, is one of only a handful of his works to have been recorded commercially and/or distributed widely.² Likewise, a later dodecaphonic work, the *Trio for Strings*, described by both K. Robert Schwarz and Edward Strickland as the “fountainhead” of minimalist music, still receives more than occasional performances worldwide (Schwarz 23; Strickland 124). Though recognizing the use of twelve-tone procedures in Young's early works, the discourse on the origins of minimalism, particularly discussions of the *Trio for Strings*, seems to treat the twelve-tone method simply as a secondary, holdover element. Dodecaphony, in this view, happens to appear alongside (without occluding) other compositional elements more central to minimalism's birth, such as the use of long tones, an emphasis on harmonic stasis, and heightened attention to microacoustic surface detail. This chapter will propose that many of the elements of the *Trio* associated with the birth of musical minimalism grew, to a considerable extent, directly out of Young's extreme adherence to and extrapolation of certain serialist techniques—and that one cannot extricate completely the aspects of the piece that make it minimalist from those that make it serialist.

The analysis presented here builds to some extent on Keith Potter's short overview of Young's early works and his brief examination of the *Trio for Strings*, one of only a handful of treatments of the piece. In its necessarily limited scope (as a subsection of one chapter dedicated to Young's music, in the first book-length treatment of minimalism's musical development), Potter's analysis has room only to suggest (albeit helpfully) the manner in which Young's particular application of twelve-tone

² Arditti String Quartet, *USA*, compact disc (Disques Montaigne 782010, 1993).

procedures creates static structures that would transform into the truly minimalist harmonic fields of later works; Potter does not extrapolate, to the extent that will be attempted here, Young's earliest minimalist tendencies from serial principles. Nor does his or any other previous study articulate the full extent to which one can view Young's approach to serialism as a manifestation of certain aesthetic sensibilities that remain constant throughout his career, even well after he abandons twelve-tone composition.³

The significance of Young's adoption of serialism, and the relationship between his application of serial principles and the pervasiveness of his sonic memory, becomes clear only when viewed in light of the geographical, cultural, and musical distances traversed between Young's early life and his emergence as an avant-garde composer. The cultural and personal "baggage" that Young sought to purge through serialism's ostensible logic and objectivity actually comes to inhabit those serial structures, creating a seemingly paradoxical combination of acoustical positivism and inexorable subjectivity. To an extent in the *Trio*, and more explicitly in Young's post-serial works, this objectivity/subjectivity dialectic results in a replacement of the abstract with the physical, the metaphorical with the literal, the objective with the on-tic—the replacement of serialism with "pure sound."

From Bern to Berkeley: Young's Early Life

One can hardly imagine a sharper cultural contrast than that between Young's early years and his later experiences. The cosmopolitan campuses of U.C.L.A. and Berkeley, where Young composed his first serial compositions, seem impossibly removed from the shores of Bear Lake and the Mormon hamlet of Bern, Idaho, where Young was born, the eldest son of an itinerant sheepherder, Dennis Young, and his young bride, the former Evelyn Grandy. Young's early musical experiences were necessarily limited in their breadth, bound indelibly to the humble circumstances of his upbringing. His family's circumstances fostered a particular enthusiasm for musical recreation: in addition to the children's songs and hymns he learned in church, Young's beloved Aunt Norma, something of a local celebrity herself, taught him the cowboy tunes she sang at rodeos and fairs, his cousin Ira introduced him to the harmonica, and his mother enrolled him in tap dancing lessons. Persons as economically destitute and religiously devout as the Youngs hardly could have imagined music serving any function other than as a respite from the demands of their rugged daily life or, on Sundays, as an act of religious devotion. Still, while Young's memories of his early *musical* life rarely emerge audibly or explicitly in his subsequent experiences (the Father's Day phone call being a notable and private exception), he continually traces his musical development to the everyday realities of his early sonic environment: the wind whistling across the logs of his parents' humble cabin; the drone of the machines in the shop where he worked as a youth; the hum of the electrical transformer next to his Grandfather Grandy's gas station.

Struggling to make ends meet in Idaho, Dennis Young finally hitchhiked alone to Los Angeles in 1941 to look for work; their financial situation was so dire that, as the family boarded the train to follow Dennis a month later, La Monte's step-grandfather, Leonard Wilde, removed the taps from La Monte's dancing shoes be-

³ See Smith 4-9; Potter 34-41; Strickland 119-129. Smith's discussion of the piece, though very brief, valuably articulates the manner in which Young uses durational symmetries in the *Trio* (a topic taken up later in the present study); Potter's analysis provides the groundwork for my examination, though it is not as thorough as I attempt to be here, nor does it make the specific connections to serialism that I will attempt to establish. Strickland's discussion of the *Trio* is historically and descriptively valuable, but, as part of a larger cultural history of minimalism in music as well as the visual arts, provides little information on compositional practice (indeed, his musical discussion is sometimes off the mark entirely, as when he reads the notated harmonics in the *Trio*'s opening section as open fourth dyads).

cause they were the only good shoes he owned.⁴ His nascent dancing career cut short, Young's other musical activities expanded considerably in California as he undertook his first saxophone lessons with his father, and later, his great uncle Thornton, who had grown up listening to jazz in Kansas City and had later led dance bands in Los Angeles. After moving back to the farming town of American Fork, Utah, for a period during the late 1940s, the family returned to Los Angeles and Young enrolled at John Marshall High School; he later undertook studies at Los Angeles City College.

Young's musical universe continued to expand in college. In addition to becoming a highly skilled improviser on the saxophone (alongside band- and session-mates that included such future jazz luminaries as Billy Higgins, Don Cherry, Eric Dolphy, and Ornette Coleman⁵) and a devotee of the cutting edge jazz of Charlie Parker, Lee Konitz, and John Coltrane, Young studied harmony at John Marshall with Clyde Sorensen and composition at Los Angeles City College with Leonard Stein. Transferring to U.C.L.A. in 1957 for studies in music theory and ethnomusicology (no composition major was offered at the time), Young encountered Japanese gagaku music and early Western liturgical music. Also, initially inspired by a recording of Ali Akbar Khan that he heard playing on campus, Young independently undertook what would become a lifelong study of Indian music. Within a few short years, his musical experience had extended to places and times that his cousins back in Bern hardly could have imagined.

While Young continued to absorb the various musical styles he encountered at U.C.L.A., his own creative output became intensely focused. He all but gave up jazz improvisation (for the time being), and, in taking up composition in earnest, selected from within the expanded boundaries of his musical world what he saw as the most abstract, least culturally contingent—perhaps, he might have thought, “truest”—kind of compositional practice: serialism, specifically the highly rarefied serialism of Anton Webern. Two of his teachers, Clyde Sorensen at John Marshall, and Leonard Stein at L.A. City College, had been students of Arnold Schoenberg and had encouraged Young's early enthusiasm for twelve-tone music, as had Milton Babbitt, who met Young while visiting U.C.L.A. for a guest lecture (and who, after examining some of Young's early compositions, made an effort to recruit him to the graduate composition program at Princeton [Babbitt, letter]).⁶ By the end of his undergraduate years, Young's interest in a highly streamlined, hyper-economic style of serialism subsumed virtually all other compositional interests (though his enthusiasm for certain aspects of various nonwestern musics continued—especially those musics that shared with Webernian serialism an emphasis on sustained sonorities and static surfaces).

At the same time, Young began to perceive in Webern's music certain governing principles, particularly symmetry and harmonic unity, that, if carried to what he saw as their logical conclusions, would transcend the twelve-tone method of organiz-

⁴ This recollection is culled from an unpublished document entitled “La Monte Young Chronology, 99 XII 11 Version – 01 III 04 Update,” supplied to me by the composer's wife and artistic collaborator, Marian Zazeela. The numbers in the title refer to dates: year, month (in Roman numerals), date.

⁵ Young tells the story of how, in 1953, he beat out Eric Dolphy in seating auditions for the L.A.C.C. Dance Band. Dolphy would later become a legendary saxophonist in his own right, as well as a side man to John Coltrane.

⁶ In a letter from the summer of 1958, Babbitt congratulates Young on his decision to attend Berkeley, and offers to put in a good word to his friend and Young's future professor, Seymour Shifrin. “Of course,” Babbitt continues, “I very much hope that draft boards and other considerations will eventually make it possible for you to come to Princeton, where I believe you would enjoy yourself. In the mean time, good luck with your string quartet, and with Berkeley, which I'm sure you'll find a profitable experience. Allow me to say what a great pleasure it was to see you and your music in Los Angeles... I hope you will find time to keep me informed of your activities.”

ing tones and speak to more fundamental ideas of musical experience. To Young, serialism's appeal lay in its "rationality," its supposed lack of emotional or cultural connotation; thus Young's early serial works initially demonstrate a strong conceptual connection between structure (the idea) and sound (its realization). Eventually, Young's exploration of this relationship would trace implicitly the lines along which it breaks down: where serial compositional procedure diverges in its aims and nature from acoustical reality. His earliest serial works, however, focus on a singular structural obsession: the Webernian palindrome.

Works from 1956-57

On 16 May 1987, a concert of some of Young's early works was presented as part of the La Monte Young 30-Year Retrospective concert series. The second half of the concert featured a performance by the American Festival of Microtonal Music Ensemble and the Theatre of Eternal Music Ensemble of a single work, Young's infamous *Composition 1960 #7* (consisting of a B and an F#, "to be held for a long time"); the first half of the performance, given by members of the aforementioned ensembles, along with guitarist Ned Sublette and the Kronos Quartet, proceeded as follows:

Five Small Pieces for String Quartet, on Remembering a Naiad (1956)

Canon (1957)

Variations for Alto Flute, Bassoon, Harp, and String Trio (1957)

for Guitar (1958)

Variations for Alto Flute, Bassoon, Harp, and String Trio (1957)

Canon (1957)

Five Small Pieces for String Quartet, on Remembering a Naiad (1956)

The repetition of all of the works but one lengthened an otherwise short first half, while also offering listeners a second pass at perceiving their serial structures—recalling, perhaps, the manner of Schoenberg's Society for Private Musical Performances (it is unclear whether by the time of this concert Young had yet adopted the practice, also observed by the Society, of discouraging applause, though he would do so later). More importantly, the order of the pieces replicated on a larger scale the type of structural devices that dominate Young's earliest twelve-tone compositions.

Young composed his first work using the twelve-tone method, *Five Pieces for String Quartet, on Remembering a Naiad*, in November 1956, during his studies with Leonard Stein. Although the 1985 preface to the score identifies Webern's *Six Bagatelles for String Quartet*, Op. 9, and *Five Pieces for Orchestra*, Op. 10, as direct inspirations, and the brevity and spare textures of the work in question supports this connection (see the excerpt in **example 1.1**), an examination of the work's pitch structures reveals an interest in highly integrated row transformations and an emphasis on multi-tiered structural symmetries that resonate even more strongly with Webern's later dodecaphonic works, such as the *Symphony*, Op. 21.

The *Five Pieces for String Quartet, on Remembering a Naiad* are built upon three different tone rows, each beginning with a C-A dyad but proceeding thereafter according to its own logic: as shown in **figure 1.1**, movements 1 ("A Wisp") and 5 ("A Tooth") share one row, movements 2 ("A Gnarl") and 4 ("A Twig") share another, and the third and central movement ("A Leaf") utilizes the remaining row. Just as the three rows form a symmetrical order across the five movements, the pitches within the various rows form similar symmetries. The second hexachord of P0 in movements 1 and 5 equals the first hexachord inverted and transposed down a perfect fourth, a quality emphasized through Young's use of the P0 and R0 forms exclusively in both of those movements. Young makes the palindromic structures of the pitches in nos. 2 and 4 even more explicit, using a row built of embedded tritones: within each of the row's hexachords (which themselves are inversionally related), the outer pitches are a tritone apart, as are the second and penultimate, and the third and

fourth; likewise, Young limits himself to two forms of the row related by tritone, P0 and P6.

While Young's earliest serial works contain added layers of compositional development that substantially occlude aural apprehension of symmetries within the row structures, the composer occasionally projects these symmetries onto the surface of the music. In a passage near the end of No. 2 (shown in **example 1.2**), Young "un-embeds" the tritone structure in a kind of "Russian doll" fashion, almost as if to explain the inner logic of the tone row. He presents first a tetrachord comprising the outer tritones of both hexachords of P0 (C and F#, F and B), then a tetrachord comprising the second and fifth pitches of each hexachord (A and D#, G# and D), then the remaining inner tritones (E and Bb, G and C#) iterated as individual tones and dispersed registrally in pairs. Young then "re-embeds" the previous two tetrachords in the "Russian doll" manner, completing the movement's final palindrome by reiterating the chords in different voicings and in opposite order.

Young constructs and deploys the row for No. 3 according to the same method as the row for Nos. 2 and 4, but builds its symmetries from the interval of the semitone rather than the tritone. The outer, intermediate, and inner dyads of each hexachord constitute semitone pairs, while the row they comprise appears only in its prime form and one other form, RI5—the initial pitch of which, B, shares a semitone relationship with the C that begins P0. More importantly, RI5 relates to P0 in that the first and second hexachords of the former equal the retrograde forms of the first and second hexachords of the latter. (See **figure 1.2**.) This also points up a feature the third movement shares with the first and fifth: the two hexachords in the row are related by inversion and transposition.

The works of early 1957 exhibit a similar emphasis on palindromes. *Variations for alto flute, bassoon, harp, and string trio*, composed in February of that year, takes its large-scale structural cues directly from Webern's Op. 21. As Young describes in the notes to the 30th Anniversary Retrospective concert, "Each variation is constructed of two halves which are symmetrical to each other such that the second half is the inversion of the first half, usually at the interval of the tritone" (4). Each of the two parts in *Canon*, composed three months later, unfolds into an exact melodic and rhythmic palindrome, a feature that, together with the triplet-inflected rhythmic flow, suggests emulation of Webern's *Five Canons on Latin Texts*, Op. 16 from 1924 (a characteristic excerpt of which is presented alongside the opening of Young's *Canon* in **example 1.3**.) The lower part of Young's *Canon* begins with the prime form of the row, ends with its retrograde, and in the middle passes through I11 and RI11, while the upper part, beginning two beats later and proceeding in exact contrary motion to the lower part, passes through row forms I8, P9, R9, and RI8. The vertical and horizontal axes converge at the piece's midpoint, where, in a kind of sonic square knot, each part provides a note missing from the unfolding retrograde row form of the other (see **example 1.4**). On the rhythmic plane, so precise is the palindrome that when the grace note Eb preceding F in m. 3 is mirrored in m. 6, Young chooses not to reverse the order of the notes within the grace note gesture, but instead places the Eb as a grace note *following* the full notated duration of the F (still attached by a slur); the grace notes in the upper part are treated in the same way (see **example 1.5**). This small but significant detail hints at what will become Young's paramount compositional concern: musical structure as it manifests itself in the actual sound of the work, rather than compositional procedure as it articulates abstract relationships through the ordering of pitches.

A handful of surviving keyboard compositions from the spring of 1957, completed as classroom assignments, demonstrate similar interest in palindromes, but within a non-dodecaphonic context. The Prelude in F minor (March 1957) subjects its theme to various inversional transformations, in a manner hardly foreign to eighteenth-century counterpoint (Young's 5/8 meter notwithstanding), while the Fugue in Eb minor (April 1957) presents its subject successively in its prime form, inversion,

retrograde, and retrograde inversion, as shown in **example 1.6**. The Fugue in A minor (April 1957) and Fugue in C minor (October 1957) follow similar schemes.

for Brass

for Brass, composed in June 1957, returns to a multi-sectional palindrome structure like that seen in *Five Small Pieces for String Quartet*, within a single-movement work for brass octet (a pair each of trumpets, horns, trombones, and tubas) lasting some fourteen minutes. Whereas the *Five Pieces* emulated Webern in both their organization of pitch content and row manipulation as well as their pointillistic surfaces, in *for Brass* Young applies palindromes and symmetries within the context of what would become his stylistic trademark: the extensive use of long-sustained tones. In *for Brass*, we begin to see the first clear iteration of a pattern that will recur throughout Young's career: the adoption of a particular model for emulation, the zealous implementation of that model's underlying principles, and the extrapolation of those principles to unprecedented extremes. In his thorough application of structural symmetry in *for Brass*, Young seems to be attempting to out-Webern Webern.

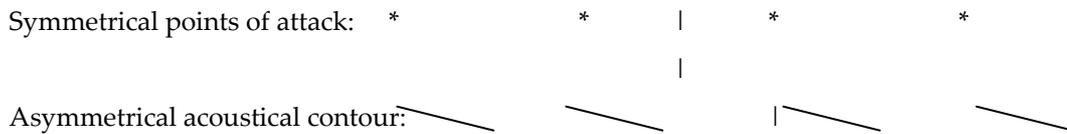
Markings in the score of *for Brass* indicate the piece's structural divisions: **A A₁ B A₂ C A₃ A₄ B A₅ Coda**. The **A** sections relate to each other through a shared initial rhythmic pattern; sections **A**, **A₁** and **A₂** proceed along the same rhythmic scheme for several bars, then end in different ways, while the rhythms of **A₃**, the first five bars of which follow those of **A**, are repeated with some alterations and extensions in **A₄** and **A₅**. As shown in **figure 1.3**, these sections also share the characteristic of repeating a single row form several times, always in prime form or inversion. The **A** sections also relate across the registral axis; the pitches in **A** unfold in the same general register as **A₃**, while the remaining **A** sections unfold along registral schemes based on inversions of the **A** and **A₃** contours.

The two identical **B** sections contain various row forms, ending with a pair of row/retrograde pitch palindromes (P0-R0, I1-RI1), while the row forms comprising the entire central **C** section constitute a perfect palindrome in and of themselves. Young organizes the row forms in **C** as embedded row/retrograde pairs, with the initial iteration of I6 answered at the end of the section by RI6, the double iteration of the second row form, P8, corresponding with the similarly reiterated penultimate row form, R8; I3 and its retrograde lay at the center of the palindrome. Furthermore, within the **C** section, symmetrical construction governs the organization of register, rhythm, and dynamics as well, the second half forming an exact mirror image of the first. The excerpts in **example 1.7**, taken from near the beginning, near the end, and the middle of section **C**, demonstrate the extent of the symmetrical construction across this passage, which serves as the axis for the broader structural symmetries on which the piece is built. Young applies symmetrical structures in this passage specifically, and in the work generally, within a stark, sustained texture that renders them all the more audible.

for Guitar

A full year separates *for Brass* from Young's subsequent composition, *for Guitar*, which he completed in June 1958. The complexity of the later work might partially explain the long gestation period—its pitch structures are less rigorous, its articulations and gestures more idiomatically involved than those of his previous compositions. (Also, the completion of the work may have been delayed by Young's having to improve his guitar skills in order to hear the piece played, since initially he was unable to find a guitarist willing to aid him in its composition and undertake its performance). In some ways the work deviates from the clear developmental trajectory that can be traced between *for Brass* and the *Trio for Strings*. For one thing, the nature of the instrument itself precludes the sustained tones found in those works. Also, because the shape of the plucked string's sound envelope always slopes steeply toward silence after the initial attack, without the possibility of subsequent sustenance or crescendo, local-level time-based symmetries cannot be applied as rigorously—that

is, points of attack can be symmetrically positioned, but the actual acoustical contours of those sounds will be parallel in their inevitable decay:



In addition to the stylistic differences attributable to the instrument in question, *for Guitar* also employs a less deterministic precompositional method than the do-decaponic procedures informing *for Brass* and the *Trio*.

Despite these apparent differences, *for Guitar* nonetheless underscores certain consistencies in Young's early development. Based on an eleven-note series rather than a twelve-tone row, the piece nonetheless emphasizes the kinds of intervals encountered throughout his earlier works—namely, pervasive seconds, sevenths, and ninths. The work likewise employs palindromic structures, most notably in the extended passage beginning at m. 10 and continuing to m. 84, shown in reduction in **example 1.10a**.⁷ In the absence of sound-sustaining breath or bow, Young utilizes the resonance of the instrument in combination with individual pitch rearticulations to create long passages of sustained harmony, such as the four-note chord beginning in m.10 (and shown in **example 1.10b**). Likewise, as Keith Potter notes in his overview of the piece, the frequent use of very low dynamics combined with the natural decay of the guitar and the frequent, long rests, creates a kind of continuum between sound and silence—a continuum that Young exploits even more extensively in the *Trio*.

Trio for Strings

Young penned the initial sketches for the *Trio for Strings* in the spring of 1958, during his last semester as an undergraduate at UCLA. He engraved a completed score over the subsequent summer, and premiered the work in a composers' seminar taught by Seymour Shifrin during his first semester of graduate work at Berkeley (Potter 41-43). The piece exhibits many of the characteristics of his earlier works, such as a Weberian alignment of important structural points with divisions in the tone-row procedures; a spare, unilinear unfolding of the pitch series; and an emphasis on the intervals of seconds, sevenths, tritones, and perfect fourths/fifths. Likewise, symmetry plays a central role in the piece's construction. In fact, in the *Trio* we begin to see more general principles of organization, such as symmetry, overtaking or undercutting the specifically ordinal demands of twelve-tone composition.

The *Trio* employs five row forms, four of which comprise inversion/retrograde-inversion pairs, as shown in **figure 1.5**. The execution of the rows lends the piece its structural divisions: P0 fills out what the composer has described as a kind of exposition section; a two part development section contains I9 and its retrograde, followed by I4 and its retrograde, with each inversion/retrograde pair connected by a single iteration of a shared "pivot" dyad; P0 then returns for a recapitulation, followed by a short coda in which the last five pitches of the prime row form are reiterated.⁸ There

⁷ Curiously, in this passage Young observes aural symmetry while using silently but deliberately asymmetrical notation. He notates the rests between both the first two and last two chords as two bars of 8/16 time. The second and penultimate rests, on the other hand, appear as as four bars of 3/16, and a bar of 4/16 followed by a bar of 8/16, respectively—both rests lasting the same number of beats. Likewise, the rest before and the one after the middle chord in the palindrome are notated, respectively, as three bars of 8/16 and four bars of 6/16.

⁸ See Potter 38. In addition to describing the structure to Potter in this fashion, Young also uses sonata-form terminology in the notes and sketches for the *Trio*.

is thus a large-scale symmetry at work, in which two inversional rows and their retrogrades form a central section bookended by iterations of P0.

The symmetry is not entirely consistent in this regard, however, as the beginning and ending sections of the piece contain no iterations of R0 to provide P0 with the kind of retrograde symmetries encountered in the central section. In fact, another kind of symmetry is at work in these outer sections, one that operates on a more localized level. As demonstrated with the four-and-a-half-minute opening chord represented in figure 1.7 (replicated here from the overview of the work by Dave Smith), Young organizes the attacks and cut-offs of the notes in each chord of P0 so that they create a durational symmetry across a central, unarticulated temporal axis (2, 5; Potter 34-41). Only a few chords in the development section of the piece exhibit this quality of durational symmetry; these mark important structural points or are meant to connect audibly with elements of the exposition or recapitulation. For example, Young articulates the shared dyads that serve as links between I9 and RI9, I4 and RI4, in this durationally symmetrical manner, in order to enhance the function of these dyads as retrogression pivot points; coming out of these symmetrical dyads, the pitches are heard in opposite order (that is, together, then the second pitch alone). A single dyad iteration thus realizes both the 11-12 positions of the inversional forms and the 1-2 positions of the respective retrograde forms. This suggests that in his study of serialism under Stein, Young had observed Webern's habit of choosing successive row forms that overlap at their ends, with the pitch(es) at the end of one coinciding with the pitch(es) at the beginning of the next; rather than utilizing such possibilities, as Webern often did, to create chains or cycles of row forms connected end-to-end, Young simply capitalized on the obvious potential for overlap between inversional forms and their retrogrades in order to reiterate his multi-symmetrical pitch and durational structures.⁹

Young uses registration and voicing to underscore the symmetries of this integrated structure, differentiating passages containing the same pitch content by varying the voicing of the pitches, and, frequently, organizing these variations according to some larger scheme. (I will use the term "voicing" here to refer to the octave position of each of the pitches in a chord, rather than the term "inversion" — as in root position, first inversion, etc. — in order to avoid confusion with the word's connotation within a twelve-tone context.)¹⁰ Potter draws attention to one such instance: the first sonority of the piece, C#⁴ and Eb⁴ sounded together with D³ from the octave below, is recast in the recapitulation with the lower two pitches raised an octave — Db⁵ - Eb⁴ - D⁴, reading top to bottom (38-9).¹¹ The third chord in the exposition, A³ - Bb³ - Ab⁴, is voiced in the same manner as the first chord in the recapitulation (minor seventh on top, semitone below), while the same chord's appearance in the recapitulation, as

⁹ Such compositional concerns feature prominently in some of the earliest technically-oriented scholarly literature dealing with twelve-tone music. Milton Babbitt observes this feature in Webern's *Variations for Piano*, Op. 27, and first movement of the *String Quartet*, Op. 22, in his seminal study on invariance; see Babbitt "Twelve-Tone Invariants." George Rochberg discusses this practice in his analysis of Webern's *First Cantata*, Op. 29; see Rochberg 114-15.

¹⁰ Curiously, in their discussions of Young's twelve-tone works, both Dean Suzuki and Wim Mertens invoke, as a connection between minimalism and serialism, Webern's habit of assigning a particular pitch permanently to a particular octave within a given movement or piece—even though in the *Trio* Young varies register in a highly deliberate and procedural fashion. A later version of the *Trio* does suggest a somewhat related tendency, however: in scoring the work for string quartet in 1982, Young altered the instrumentation and pitch distribution so that a given pitch in a given octave would always be played by the same instrument. See Mertens 20, and Suzuki 23.

¹¹ Throughout this article I have employed the system of note identification in which the notes within the octave above and including middle C are identified as C4, C#4, D4...; the notes beginning at the C above middle C are designated C5, C#5, D5...; etc.

$Bb^3-G\#^3-A^2$, is voiced after the manner of the opening chord of the piece: a whole step on top, with the intervening semitone dropped down an octave.

Young observes similar procedures throughout the piece. While the first and third chords, as Potter points out, trade voicings in the exposition and recapitulation, the voicing of the second chord is inverted: the tetrachord $B-F\#-F-E$ built upward from F^4 in the exposition is spelled downward from the same F in the recapitulation. Likewise, the closing dyad of the exposition, C^2-G^2 , reappears in the recapitulation as G^5-C^6 (and subsequently, in the coda, back in its original position). Young thus overlays the exposition/recapitulation pitch structure with a criss-cross pattern of register and voicing. The same technique appears in the two halves of the development section. The first trichord of $I9$, when it reappears as the last trichord of $RI9$, undergoes a change of register (from high to low) and an inversion of the original voicing (the A first appears above the $Ab-Bb$ dyad, then below it). Likewise, the third chord of $I9$ moves from its initial low register to a higher octave when its pitches appear in $RI9$ and undergoes a voicing alteration. (The second chord of $I9$ and the corresponding chord of $RI9$ share a unique relationship influenced by other aspects of the piece, as discussed more extensively below). Young observes the symmetries of register and voice even more strictly in the second half of the development section. The first trichord of $I4$ ($E^4-Eb^5-F^5$) reappears at the end of $RI4$ in a lower register and inverted voicing (spelled downward from E^3); the two subsequent dyads of $I4$ appear in the same respective voicings but different registers in $RI4$; the third chord of $I4$ appears in $RI4$ in the same voicing and register. The two durationally symmetrical "pivot dyads" that connect the respective I/RI row pairs also project audible relationships: the relatively high register of the B^4-E^5 dyad that joins $I9$ and $RI9$ contrasts with the low register of the $B^1-F\#^2$ dyad that pivots between $I9$ and $RI9$.

Analogous relationships of symmetry and inversion inform other parameters of the work. As described previously, the opening trichord of the piece, $C\#-Eb-D$, conforms to a durationally symmetrical structure in which the $C\#$ enters first and exits last, the Eb enters second and exits next-to-last, and the D enters last and exits first, all across a central time-point-axis of symmetry. In the third chord in the piece, a $Bb-Ab$ dyad is joined for the middle eight-bar span of its duration by a sustained A . In the recapitulation, this same durational span and structure is adopted by the first trichord, $C\#-Eb-D$, while the $Bb-Ab-A$ in the recap fills out a durational space identical to that of the opening trichord of the piece in terms of the number of bars filled and the time-points articulated by entrances and exits. However, this third chord inverts that durational space: all three pitches enter together, then two of the pitches drop successively out at the same points at which the second and third pitches of the opening trichord had entered; these same pitches then-reenter at the points where the second and third notes of the opening trichord had exited, thus carving out in the recapitulation a "negative" version of the first chord of the piece (see **figure 1.7**). The second chord of the exposition (represented in **figure 1.8**), which features a sustained $B-F\#$ dyad in the upper range of the violin, tentative F harmonic "owl hoots" (as the composer describes them) from the cello on either end of a sustained F , and a sustained E in the viola across the chord's midpoint, retains its unique durational structure in the recapitulation (save an extension of eleven bars, at the beginning and end, of the sustained B). Special compositional considerations, to be taken up later on, modify the durations of the final $G-C$ dyad of the recapitulation. The durations used in the development appear to derive from less rigorous, more intuitive compositional procedures.

The pitch and durational structures of the *Trio* articulate their symmetries clearly; other compositional parameters underscore these structural principles in a more subtle but still deliberate fashion. In fact, the surviving sketch materials include several loose notebook pages on which Young has planned out, using letter names and score markings (in the absence of musical staves) the exact parameters of pitch, duration, dynamics, timbre, and articulation for the entire work (see **example 1.11**). Virtually all of the information eventually contained in the final score (save

registration/voicing) can be located within this sketch, suggesting a carefully organized and integrated overall structural conception aligned with compositional techniques that had emerged in serial music of the preceding decade.

In some cases, the extreme rigor with which these techniques are carried out presages the enigmatically conceptual works that would soon follow in Young's oeuvre. As he originally conceived the *Trio*, the durational proportions he applied to the pitch structure operated on the level of the measure; that is, the durational symmetries were sketched out in terms of the number of measures each note or rest would be sustained. In undertaking the composition, however, it became apparent that this initial scheme would result in a much longer work than Young thought practical (even by his standards): the exposition alone would have taken an hour.¹² Young thus retained the overall durational relationships but reduced the basic unit to the quarter note, then the eighth note (thus the eventual time signature of 8/8). Despite the incredibly long durations used in the piece, Young still insisted, in an annotation on the final draft of the score submitted to his copyist in September 1958, that "the piece is all felt in [eighth notes]." This explains, presumably, Young's use throughout the work (and even in the earliest sketches of the longer version) of various minute beat divisions, such as thirty-second notes, sixteenth-note triplets, or thirty-second-note quintuplets, which are tied to the beginnings and endings of some long-sustained notes. The first note of the piece, for example, begins on the downbeat, while the subsequent two notes in the first trichord begin on thirty-second-note and sixteenth-note-quintuplet divisions of the beat, respectively. The original intent, the composer explains, was to add a subtle differentiation of character to the various attack points, a "difference of feeling [arising from] a different way of approaching the beat" (Young, May 2004). Whether or not these subtle inflections are discernible to the listener, their metrical variations disrupt the temporality of the piece, rendering the aspect of meter or beat inaudible and presenting the durations as absolute entities rather than quantized manifestations of numerical relations.

As difficult to hear as Young's miniscule rhythmic divisions may seem, another time-related aspect of the piece contributes even less perceptibly to the final aural result, further presaging in his serial works the conceptual intractability of his compositions from the early 1960s. In the context of a work made almost entirely of long-sustained tones, it would seem that the only time-related parameters under consideration would be relative points of entry, durations, and relative points of exit, all of which could be controlled through the number of notated bars and beats of each tone. The numerous *tempo* markings in the piece thus present something of an enigma: although their only appreciable results are an alteration of tone durations (which could more easily be accommodated notationally through longer note values) and a slight alteration of the attack points with respect to beat divisions (which differentiations would be difficult to discern even within a constant metrical structure), there are no fewer than twenty seven changes of tempo in the piece. Some of these even apply only to long rests, such as the change from ♩=80 to ♩=100 at the end of the first trichord of the exposition, and the subsequent change to ♩=132 when the subsequent chord begins; in one passage, near the beginning of the development section, the cello is somehow expected to execute a *rallentando* on a sustained A over the course of seven bars. Though seemingly inaudible, the arrangement of the tempo markings aligns to a considerable degree with the structure delineated by the other elements of the work (in terms of its overall quasi-sonata shape), suggesting a rigorous, perhaps even compulsive, fidelity to precompositional procedures and plans.¹³

¹² This longer version may have been prohibitively impractical then, perhaps, but not now. Cellist Charles Curtis, a champion of Young's music, performed this version of the *Trio* exposition, in a reconstruction prepared in consultation with the composer and the original sketches, at a concert given in Los Angeles on 21 February 1998.

¹³ This presages some of Young's "transgressive" tendencies of the early 1960s, demonstrating not only his concern for expanding boundaries of the possible but also exploring the physicality of the "real" even beyond the reach of the perceptible. When challenged that his

Dynamic associations in the *Trio* parallel the voicing and durational structures in a much more audible fashion; they likewise adhere to stricter procedures in the exposition and recapitulation than in the development. The preface to the score indicates that the dynamic markings in the *Trio* “refer to an absolute scale of eleven perceptible dynamic gradations (*ppppppp* to *fff*).” Only rarely does the volume venture to the extremes of this spectrum; most of the piece maintains a dynamic between *ppp* and *mp*. A deliberate method governs the deployment of the dynamics, not in the sense that specific loudness parameters map consistently onto specific pitch parameters, but rather that “little dynamic constellations,” as Young calls them, form associations with chordal entities. Each pitch of the B-F#-F-E tetrachord that comprises the second chord of the exposition retains its dynamic structure as well as its general durational structure (see **figure 1.8**) in the recapitulation, even as the voicing and register are inverted. The specific features of the chord’s durations and dynamics, such as the symmetrical reiterations of the F before and after the central sustained tone and the palindromic dynamic contour of the E (fading from *mf* at its beginning to *p* at its middle, then gradually returning to *mf*), lend a certain acoustic permanence to this chord within the context of the piece. The dynamics of the other chords in the exposition and recapitulation emphasize the interchanges observed in other parameters. In the first chord, for example, the pitches in the C#-Eb-D trichord sound at the dynamic levels *ppp-p-pp*, respectively (suggesting a connection between pitch sets and “dynamic” sets). The third chord, the Bb-Ab dyad, and the A that subsequently joins it, occur respectively at *pp* and *p*, leading to the exposition’s final G-C dyad at *pppp*. When the first and third chords of the exposition trade voicings and durational structures in the recapitulation (as described above), they exchange dynamic structures as well: the C# and Eb are played at *pp* (like the Bb-Ab dyad in the exposition), the D at *p* (like the earlier A); the subsequent Bb-Ab-A trichord in the recapitulation sounds at *pp-pppp-ppp*—the same dynamic relationship as heard in the opening trichord, but lowered one dynamic level—leading to a C-G dyad whose dynamic (*p*), like its durational structure, disrupts the established pattern (for reasons discussed below). However, when the final trichord and dyad are reiterated in the coda, the dynamic pattern resumes: the pitches of the Bb-Ab-A trichord sound at *ppp-ppppp-pppp*, respectively (again, lowered one dynamic level from its previous occurrence), while the G-C dyad with which the piece concludes sounds at a hushed *pppppp*—like the trichord that precedes it, two levels quieter than its first appearance in the exposition.

The *Trio*’s integrated structure employs yet another element as well, emphasizing, however subtly, certain relationships of pitch, duration, voicing, and dynamics through the specific organization of articulations and timbres. In the preface to the score, Young indicates that this element of the composition should remain subordinate to other factors, and emphatically warns against sacrificing higher priorities—intonation (first and foremost), a smooth bow stroke, durations, and dynamics—in order to exaggerate a *sforzando* attack, for example, or to project the timbre created by playing near the bridge; accordingly, Young precedes all timbral markings (such as *sul tasto* or *sul ponticello*) with the word “*poco*.” Likewise, though Young may have conceived a more rigid organizational procedure than the one with which he eventually applied these features, he does not now recall how such a system would have operated—and at any rate, timbres and articulations seem to have been applied more intuitively (but with considerable forethought, as evinced by their presence in the earliest sketches [telephone interview June 2003]). Nonetheless, certain timbral and articulatory aspects do project a clear and audible relationship to the work’s overall

Composition 1960 #5, which consists of letting a butterfly loose in the performance space, was not music because it made no noise, Young insisted that “unless one was going to dictate how loud or soft the sounds had to be before they could be allowed into the realms of music that the butterfly piece was music... it didn’t seem to me at all necessary that anyone or anything should have to hear sounds and that it is enough that they exist for themselves.” He added, “If you think this attitude is too extreme, do you think sounds should be able to hear people?” See Young, “Lecture 1960.”

structure. The most noticeable articulations occur in the development section, where a *sforzando* attack highlights the opening chord of each of the four subsections of the development section.¹⁴ This aligns with the intervallic quality shared by all four of these chords (0,1,2 trichords), as well as the other concomitant relationships previously discussed. Much more subtle (but no less deliberate) variations serve to distinguish the individual voices or entities within chords. In the opening trichord of the exposition, for example, the D alone is played *sul tasto*; in the recapitulation, the D is rendered *ordinario*, while the other two notes of the trichord, C# and Eb, are played *sul tasto*. Each note in the second chord has its own combination of timbral characteristics: the B-F# dyad is played *sul tasto*, and the F also, but the latter is played with a mute and as a harmonic; the E is played as a harmonic (with distinctive hairpin dynamic markings); these characteristics return in the recapitulation, but without harmonics.¹⁵ The third chord of the exposition maintains its timbral identity in the recapitulation, with the Bb and Ab *sul tasto* and the A *ordinario*, while the *sul ponticello* marking of the final G-C dyad of the exposition relates timbrally to the same effect as it is used in the final G-C dyad of the piece. Other applications of timbral effects—*con* or *senza sordino*, *sul tasto*, *sul ponticello*, and the use of harmonics—appear the result of more intuitive or variable compositional decisions, or perhaps of a procedure whose complexity escapes the purvey of this analysis and remains forgotten by the composer himself. At any rate, to whatever degree they are variously audible, the less rigorously deployed, more subsidiary aspects of the *Trio for Strings*, such as timbre, articulation, and dynamics, serve to underscore the multiple levels of symmetry articulated by the parameters of pitch, duration, and registration/voicing.

Invariance as a Precursor to Minimalism

While these temporal symmetries—temporal in that they unfold in time, around time-point axes—play a central role in the *Trio for Strings*, thereafter Young deemphasizes, and in all but a few works, completely abandons, this kind of time- or order-based palindromic structure. Symmetries continue to play a central role in Young's work after the *Trio*, but in an altogether different manner: their mirrored contours stretch above and below pitch axes, rather than before and after time-point axes. In the static sound environments of the Dream House projects, for example, complex arrays of frequencies create symmetries across a central frequency axis. The listener thus does not encounter them in the same manner as in the *Trio*: instead of hearing the symmetries as they “pass by” along a trajectory (time) perpendicular to their axes (moments in time), with the listener hearing first the “front side,” then the palindromic “back side,” of the symmetrical arrangement, the symmetries of the later static works manifest themselves when listeners literally “pass through” them or the spaces in which their constituent frequencies simultaneously and continually sound.

In reconceiving pitch symmetry as a harmonic or atemporal rather than primarily linear property, Young's later work reorients the Weberian palindrome ninety degrees, elucidating this reorientation by sustaining tones long enough to make perception of harmonic symmetry ostensibly possible. “The permutations of serial technique primarily imply the possibilities of ordinal organization,” Young explains. “Ordinal organization applies to line or melody, whereas the increasing emphasis on

¹⁴ More specifically, the *sforzando* markings occur at the beginning of I9, the third note of RI9, the beginning of I4, and the third note of RI4; this owes to the “hinge dyad” overlap of the RI forms' first two notes with the last two notes of the inversions preceding them.

¹⁵ Young intended for the harmonics to figure in to the structure of the recapitulation as well, but the original *Trio* instrumentation made this impossible: in the exposition the notes on harmonics, F and E, are played by the cello and viola, respectively; when the chord is subjected to the voicing alterations that take place in the recapitulation, the F and E are given to the violin and viola, respectively, but fall too low within the instruments' ranges to be played as harmonics. In later versions of the *Trio* for trio basso, string quartet, and string octet, the expanded instrumentation affords the resources to execute these notes as harmonics in the recapitulation—thus creating articulatory symmetry with the exposition.

concurrent frequencies or harmony in my work implied the possibility of the organization of the cardinal values both in regard to how many frequencies are concurrent and the relationship of the frequencies to each other" (program notes 1). Young's approach to perceiving pitch and durational structures in his serial works thus presages his approach to perceiving harmonic or acoustic structures in his later compositions: "the degree of [analytic] precision possible will always be proportional to the duration of the analysis" (program notes 2). The impetus behind the long tones in the *Trio*, then, is not audacity but clarity; Young seems to accept the general validity, but not the specific circumstantial feasibility, of Schoenberg's statement, that "composition with twelve tones has no other aim than comprehensibility" (Schoenberg 103).¹⁶

The length of tones in the *Trio* represents the interaction of different principles that, in Webern, existed concomitantly, but taken to Young's extremes, fall into competition: the ordinal obligations of twelve-tone procedure with the cardinal implications of the Webernian palindrome as applied on the level of individual note durations; the abstract relationships embodied by twelve-tone procedure with the specific acoustic identities of the sonic elements from which those relationships are configured. The *Trio* thus represents a turning point in what Young means when he says "analysis": from discernment of relationships as embodied by sounds to a discernment of sounds as organized into relationships.

While a general interest in symmetry runs as a thread connecting early and later works, the twelve-tone works exhibit another serialist compositional device that Young applies in such a way that it also eventually transcends its function within the contexts of serialism and, in combination with his use of long sustained tones, becomes a central feature of subsequent works—and, arguably, of early minimalism in general. Indeed, even based solely on terminological affinity, it would seem logical to look for the roots of *minimalism* in the serial concept of *invariance*.

Technically-oriented discussions of serial music had only just begun to appear in English-language periodicals when Young first undertook twelve-tone composition. Milton Babbitt's groundbreaking article, "Some Aspects of Twelve-Tone Composition," which appeared in *The Score and IMA Magazine* in 1955, sought to defend serialism from its detractors by demonstrating, among other things, the various ways in which the twelve-tone system created logical musical unity through the reiteration, on different levels and in different ways, of generative musical substructures. Much of the article specifically addresses the general precompositional issues of combinatoriality in the music of Schoenberg and derivation in the music of Webern, both of which create a row or aggregate from some operation upon one of its subsets (such as the transposition and inversion of a hexachord to produce its complement, or the derivation of the row from a generative trichord or tetrachord). Babbitt also addresses certain "techniques of local continuity and association," including a brief discussion of the "exploitation of ordered adjacencies." Using the third movement of Schoenberg's String Quartet No. 4 as his example, Babbitt points out how the emphasis of certain intervallic identities (in this case, half-step reiterations in different transpositions that "cross associate" the beginning and ending of a passage) can draw connections across musical structures (56).

Babbitt extrapolates this concept and outlines its possibilities more specifically in his subsequent article, "Twelve-Tone Invariants as Compositional Determinants," which appeared five years later in *Musical Quarterly*. Here Babbitt presents the term "operational invariants," which he defines as "properties of a set that are preserved under [an] operation, as well as those relationships between a set and the so-operationally transformed set that inhere in the operation" (249-50). For example, if a row contains multiple adjacencies of the same interval, Babbitt points out, not only will the reiteration of the interval within the row afford compositional exploitation, but likewise some transpositional operation performed on the row will result in the

¹⁶ This essay was originally delivered as a lecture at U.C.L.A. on 26 March 1941.

retention of some of the relationships between the interval and its specific pitch-class identity. A composer can structure a row so as to exploit and multiply these relationships: using the row from Schoenberg's String Quartet No. 3, which consists of the dyad adjacencies G-E, D#-A, C-F, F#-B, Bb-Db, Ab-D, Babbitt shows how a transpositional operation by six semitones (resulting in the series Db-Bb, A-D#, F#-B, C-F, E-G, D-Ab) preserves the respective pitch content of each dyad and the position of some dyads, even as the ordering of the dyads, and the order of the pitches within some of the dyads, is altered. "In this possibility of holding a pair of pitch classes (as opposed to a pitch class) fixed with regard to order and content," Babbitt further observes, "there is immanent the extension to the fixed content trichord, tetrachord, hexachord, etc., or in other words, the combinatorial set" (250-1). Drawing on examples from Webern's *Variations for Piano* and Dallapiccola's *Contrapunctus Secundus* (from the *Quaderno Musicale di Annlibera*), Babbitt ultimately describes invariance—transformative operations that result in the strategic reiteration of a collection of pitches—as a "justification" for the selection of particular row transformations (253). He sees invariance as a central principle of serial composition, from both compositional and analytical points of view.

Even so incomplete and informal a discussion of so small a number of the invariants attending the operations of the system indicates... something of the essential importance of this subject, analytically, in the "rational reconstruction" of compositions, and compositionally, in the comprehending and mastering the materials of the system (258).

Writing two years later in the *Journal of Music Theory*, George Rochberg further examined the use of invariance in the music of Webern. The terminology Rochberg uses to describe this principle resonates remarkably with Young's transformation of serialism into early minimalism. Rochberg looks at Webern's Cantata No. 1 as a case study of Webern's "intense preoccupation with what I shall call harmonic identity," and observes the manner in which certain chordal entities articulate structural aspects (particularly choral passages) of the work by remaining fixed under transformation (109). Rochberg's analysis emphasizes the manner in which Webern's serial transformations seek to take complex paths to simple destinations: "Transformation and invariance, mathematical concepts related to group theory and the properties of symmetry which, as we have seen in our analysis, may be applied directly to certain types of pitch organization as part of a verbal, analytic terminology, suggests the French proverb: 'The more things change, the more they remain the same.'" Webern's innovation, Rochberg observes, effectively was to invert the traditional concept of "variation":

...in the variation technique, what constantly changes is the surface; what remains essentially the same is the basic source to which the transformations may continuously be related—whether variations on a ground bass or passacaglia, a chaconne or theme. However, in the case we have examined, it is the surface which remains the same, i.e., invariant; while the source, out of which the unchanging surface of the music arises, undergoes transformation (121).

The ultimate goal of this surface stasis, Rochberg concludes, is perceptibility:

By reducing the activity of pitch content to a minimum within a self-enclosed system; i.e., by limiting the extent of the harmonic field, Webern has created a tonal locus... By establishing a tonal locus, they permit maximum comprehension via aural perception not analytically, but synthetically—in the same way the eye takes in a field of objects without necessarily making analytic judgments of their dimensions, relations in space, etc. (122).

Although Rochberg's article follows the completion of Young's *Trio for Strings* by nearly four years, it nonetheless serves to point up a shared fascination with the "static" aspects of Webern's compositional methods—which Young carried to an extreme that Rochberg may or may not have endorsed—and a shared recognition of the possibility of a meaningful, pre-analytical kind of "perception" of serial structures (that is, after the manner of "perceiving" a tonal chord progression on some intuitive

level, even if lacking the tools to conduct a Roman-numeral analysis). Babbitt's thoughts on invariance may bear much more directly on the compositional principles encountered in the *Trio for Strings*. Although the *Trio* predates Babbitt's 1960 article, Young likely encountered the concepts addressed therein when Babbitt delivered his 1958 lecture at U.C.L.A., and/or when he met with Young privately for a composition lesson during his West Coast visit. Likewise, Young's interaction with Babbitt, falling chronologically between the completion of *for Brass* and the first sketches of the *Trio*, coincides with an important shift in his approach to twelve-tone composition. A reexamination of Young's twelve-tone works, with an eye to his increasing interest in harmonic homogeneity and, ultimately, invariance, bears this out.

In his earliest 12-tone composition, the *Five Small Pieces*, Young constructed his pitch series in such a way that, following the models of Schoenberg and especially Webern, certain intervallic elements would repeat themselves at different transpositions or in different orientations within the row. As noted previously, the hexachords comprising the row used in the outer movements are related by inversion and transposition. Further intervallic reiterations result from the specific deployments of row forms in the work. In No. 2, "A Gnarl," for example, the embedded-tritone structure of the row unfolds in such a way as to produce successive chordal reiterations of the same set, [0,1,6,7], as shown in the reduction given in **example 1.8**. Considered in this light, one observes even more procedural consistency when the tone row order is disrupted in the "Russian doll" passage at the end of the movement: even though the "unembedded-reembedded" tritone palindrome transgresses the ordinality of the row, it projects the [0,1,6,7] sonority that informs the row.

for Brass concentrates even more obsessively on its generative intervallic content. The row can almost, but not quite, be reduced hexachordally by a transpositional operation (similar to the transpositional/inversional relationship between the hexachords in the tone rows of the first, third, and fifth of the *Five Pieces*); the interval successions in the two hexachords align exactly, save in their final pitches:

Hex 1:	G#	A	G	D	C#	C	
Hex 2:		F	F#	E	B	Bb	Eb

In fact, if the C and Eb were to trade positions, the two hexachords would relate through simple transposition by three semitones. Perhaps Young initially conceived of the row in this manner, but made the alteration in order to facilitate an even more pervasive intervallic consistency within the piece: as it appears in *for Brass*, the row comprises a dense series of reiterations of a generative set, [0,5,6,7]. As shown in **figure 1.4**, these tetrachords occur in both successive and overlapping segments of the row, with the final reiteration circling around from the last two pitches to the first two; this latter feature allows [0, 5, 6, 7] sets to straddle the seams between the row form repetitions found in the **A** sections of the piece. In fact, while tetrachords of this quality appear in linear fashion throughout the piece, the **A** sections also comprise nearly uninterrupted strings of vertical [0, 5, 6, 7] sonorities. **Example 1.9** shows how every pitch in section **A**₄ can be accounted for in terms of its constituency in one or more chordally sounded [0, 5, 6, 7] sets. Some of these comprise separate chords while others share constituent pitches, so that, for example, the pitches serving as 5 and 6 in one [0, 5, 6, 7] chord are sustained and reoriented as 6 and 7 in the next chord. (The six-note chord with which the section concludes, which one can interpret as containing two [0, 5, 6, 7] sets extending in opposite directions around the shared B and Bb, appears occasionally throughout the piece as well.)

The *Trio for Strings* employs the same set, emphasizing the [0, 5, 6, 7] sonority as well as its subsets [0, 1, 2] and [0, 7]. The prime form of the row is generally deployed compositionally as four distinct chordal units: the trichord C#-Eb-D [0, 1, 2], the tetrachord B-F#-F-E [0, 5, 6, 7], the trichord Bb-Ab-A [0, 1, 2], and the dyad G-C [0, 7]. These chordal subdivisions of the row remain intact throughout most of the piece, including in the inversional and retrograde-inversional forms of the row that comprise the development section of the work. The subdivisional chordal units re-

tain their relationships with particular sets when each inversional form is rendered in retrograde, leaving pitch groupings intact (so, for example, if seven pitches are rendered as a trichord followed by a tetrachord, the same pitches comprise the trichord and tetrachord, respectively, when those pitches are given in retrograde). The listener thus hears the same types of intervallic sonorities throughout the piece.

The *Trio* moves beyond the type of intervallic redundancy that occurs within rows and their transformations in *for Brass*; here Young employs procedures that highlight even more extensively the recurrence of specific pitch sets across row transformations. An examination of the sketch materials for the *Trio for Strings* indicates that static or repetitive harmonic surfaces, of the type that emerge within a dodecaphonic context governed by invariance-based relationships, assumed high priority in Young's compositional process, especially at the earliest stages of the work's conception. The surviving sketch materials include a page of ruled paper on which Young first appears to have devised the 12-tone matrix used in the *Trio*. The row form described herein as P0 appears across the top of the matrix. It differs from the row in the final version only in the ordering of the eighth and ninth pitches, Bb and G#, the various instances and transformations of which almost always enter simultaneously (thus obviating, for present purposes, the specificity of their ordering). Around the perimeter of the matrix extrapolated from this row, Young has placed a number of markings, including X's, I's (perhaps representing "Invariance"?), and arrows, to indicate rows considered for use in the composition. The various marks appear to identify the rows containing trichord subsets that replicate the pitches in one of the [0, 1, 2] trichord subsets of the prime row form. Thus the marked rows account for nearly every instance in the matrix in which the trichords C#-Eb-D, F#-F-E, or Bb-Ab-A appear as adjacent pitches (in any order).¹⁷ The row forms eventually used for the beginning of the development section of the *Trio*, I9 and its retrograde, are marked in this early matrix sketch with a large "X," a star, and the annotation "I = needed," while the row form used in the second part of the development section, I4 (and its retrograde), is marked with a heavy line.

A second page from the surviving sketches underscores similar concerns. In it, Young notates in successive staves the prime form and various transformations (including I9, but omitting I4), marking with brackets any contiguous sequences of pitches within each row transformation that could be configured in such a way as to project harmonies invariant with contiguous pitch groups in the prime form of the row. This sketch page also indicates Young's harmonically (rather than merely ordinally) oriented approach to the construction of the row. In each notated row transformation, Young segments the pitches in the same fashion: as a group of three successive individual pitches, a dyad (indicated by notation as a chord), another pair of successive pitches, another dyad, a single pitch, and a final dyad; this segmentation scheme is reversed for retrograde forms. Thus even before settling on the row forms to be used, Young had already decided more or less how the pitches in the row forms would be deployed; the groupings as they appear in this sketch follow closely the pattern maintained with near-consistency throughout the *Trio*: three successive pitches with an [0, 1, 2] intervallic relationship, followed by an open fifth dyad [0, 7] to which two other pitches are successively added to make the [0, 5, 6, 7] tetrachord, followed in turn by a whole step dyad [0, 2] to which the intervening semitone is added [0, 1, 2], and ending with an open fifth dyad [0, 7]. Judging from the row forms marked in these sketches and those eventually used, the selection and ordering of the row forms appears to have been governed by a desire to link together row forms containing common chords, particularly those containing common chords that could be positioned closely enough to each other for their relationship to be heard

¹⁷ There are two exceptions. I3 is marked with "x?" and a line pointing to P1, which is marked "I – good," apparently referring to their shared opening trichord E-D-Eb / D-E-Eb (which does not appear in P0). Also, an "I" marks R6, even though it contains none of the pertinent trichords, while the unmarked row directly above it in the matrix, R4, does contain the Bb-A-Ab trichord. Perhaps, then, Young intended to mark R4 instead of R6.

(even across long intervening silences and within the symmetrically constructed voicing and register schemes described previously).

Figure 1.9 presents these connections graphically. At the beginning of the development section, I9 opens with a three-pitch set, Bb-Ab-A, identical to the penultimate chord of the P0 iteration that precedes it in the exposition; I9 later repeats in its own penultimate chord the first trichord of P0, C#-Eb-D. After the initial E-B dyad that it shares with the end of I9, RI9 repeats the C#-Eb-D trichord again and eventually ends with the Bb-Ab-A trichord; this is recalled later in the second half of the development section, in the penultimate chord of I4.

This row form, as Young deploys it in the piece, also features a C-G dyad extracted from the tetrachordal complex that had previously comprised that segment of each row; this dyad, as it appears in I4 and RI4, recalls and presages the distinctive C-G dyad that marks the end of P0 in the exposition, recapitulation, and coda. In fact, Young altered the otherwise sacrosanct durational symmetries of the exposition and recapitulation to convey an audible relationship between the C-G dyad near the end of RI4 and the same dyad at the end of the recapitulation: in the former, the C sounds alone for several bars, the two notes sound together for 13 bars, then the G sounds alone for several bars; in the latter, rather than observing durational symmetries as one would expect here in the recapitulation, the G sounds alone for several bars, the two notes sound together for 13 bars, then the C sounds alone for several bars, in an almost cadential gesture. Also, just the dyad as it appears at the end of the recapitulation disrupts the rule of durational symmetry that otherwise applies throughout the outer sections of the work, the G-C dyad, as it appears in I4, disrupts the rule of durational *asymmetry* that governs all but the "pivot dyads" in the development section. When the C and G appear at the end of the coda, they sound as a simultaneous dyad.

By extracting the C-G dyad from the G-C-C#-D tetrachord of RI4 in order to establish a connection with the concluding dyad of P0, Young initiates a chain of relations that likewise binds other elements of the row forms used in the development section. The semitone dyad C#-D that remains when the C-G dyad is extracted from the G-C-C#-D tetrachord appears in transposition throughout the development section, drawing attention to itself as the most dissonant dyadically-projected interval in the piece. In fact, at no moment in the exposition, recapitulation, or coda does a semitone sound alone; all chords containing semitones introduce that interval only after and while another interval in the chord sounds. In the development, on the other hand, semitone intervals occur frequently, either alone or previous to the appearance of other notes in a chord. Young draws a connection between this interval, as it appears in I4/RI4 in the second half of development, and the corresponding row-order positions in I9/RI9 in the first half of the development. Deviating from the tetrachordal deployment of the pitches in row positions 4-7 that had been established in the exposition, the corresponding tetrachord in I9 is executed in two parts: the F, C, and F# appear, as if building to another [0, 5, 6, 7] sonority, but are interrupted by a rest; the F# then appears once again, without the C and F, but *with* the G a major seventh below. When I9 subsequently appears in retrograde form, the G-F#-F-C sequence is presented as a tetrachord, but C and F enter only after the G and F# dyad has sounded for almost 45 bars. Likewise, the trichord that concludes RI9 is broken up into an initial A-G# semitone dyad, and, following a rest, a solitary Bb—a single note suspended at the center of symmetries and subsymmetries, the musical blankness of its duration like an audibly drawn line marking the midpoint an hour-long palindrome.

Reading the *Trio*

Milton Babbitt wrote in 1960 that "the twelve-tone system, like any formal system whose abstract model is satisfactorily formulable, can be characterized completely by stating its elements, the stipulated relation or relations among these elements, and the defined operations upon the so-related elements" (*Twelve-Tone Invariants*, 246-

7). He would no doubt hasten to differentiate between the system itself and works composed with it; still, the preceding analysis is hardly unusual in seeking to uncover the “satisfactorily formulable” basis of Young’s serial works: their constituent elements, the relationships between those elements, and the operations performed on them. The Bb at the work’s center results from the collision between two structural forces: the chordal groupings of the 0-5-6-7 set and its subsets presented in the exposition/recapitulation, and the harmonic invariants that disrupt those groupings in order to connect the development (via the C-G dyad) more thoroughly to the expository material and achieve more cohesion in the development itself (through exploitation of the semitone that remains when the C-G dyad is extracted from the 0-5-6-7 tetrachord). This single Bb, surrounded on both sides by long rests—the only lone pitch in the entire piece isolated in this manner—stands as the unitary axis of symmetry between the exposition/first half of the development, and the second half of the development/recapitulation.¹⁸ Broadly speaking, in terms of pitch structure, the 0-5-6-7 set might be seen as the piece’s means, while the lone Bb might well be seen as its end. Can we say that, just as a palindrome is made of elements arranged symmetrically about an axis, a palindrome is *about* its axis? Is the *Trio for Strings*’ hour-long, palindromic consideration of its row forms, and more specifically the 0-5-6-7 set, *about* the Bb at the palindrome’s center?

In purely formalist terms, this would mean little: the notes are just geometric entities, the Bb a line in the middle of a graph. Lines and points, of course, have no width, mass, or content, only relative significance; they comprise relations, they are acted upon, they demarcate imaginary spaces. When represented in the physical world, however—as opposed to imagined in the abstract world—geometric ideas necessarily take on material qualities. We are conditioned to overlook these aspects, but can easily discern them if we think to: lines and points in the real world, after all, are made of ink on paper, they have width (at least enough to be visually perceptible on the page), color, even depth and texture, if examined closely enough.

Young’s ultimate break with serialism subsequent to the completion of the *Trio* results from the issue forced by the work’s unusually long tones; how long, after all, can a sound be sounded before its function or identity relative to a system (in this case, dodecaphony) is subsumed by its absolute quality as a physical entity? This ontological question turns the idea of the “extramusical” on end: at the point where music leaves the abstract realm of systems and reenters the world of pure sound, it cohabits that world with its listeners and their sound experiences, drawing direct connections between personal experience and compositional practice. What “content,” then, might the Bb or the 0-5-6-7 set intrinsically hold when examined as physically sounding bodies in the physical world—extracted from the functional implications and obligations that suspend them in structural symmetry? What connection might they have to Young’s overall sonic history?

Whether through eidetic acoustic memory or retrospective autobiographical imagination, Young has already enlightened us as to the significance of the 0-5-6-7 pitch set. In December 1962, two months after the public premiere of the *Trio for Strings*, Young composed the *Four Dreams of China*, a work consisting entirely of different inversions of the 0-5-6-7 set.¹⁹ Removing the complex dodecaphonic apparatus that, to apply Rochberg’s assessment of Webern, served to sustain surface stasis while varying its generative substructure, the *Four Dreams* eliminates the means

¹⁸ The D in RI4 in the last section of the development sounds alone momentarily, but then sounds together with the C#.

¹⁹ Although the *Trio* had been performed previously in Seymour Shifrin’s composition seminar at Berkeley, it received its public premiere in New York City’s Judson Hall on 12 October 1962.

while retaining the end: the idea of “invariance” sheds its specific music-theoretical sense and assumes its general connotation of overall unchangingness.²⁰

Not only does the work abandon serialism, it also abandons serialism's claims of objectivity and austerity. It resulted, Young has said, from his recollection of a moment a few years before when, while writing the *Trio*, the sonority of the 0-5-6-7 set—or, as he calls it, the “Dream Chord”—inspired “a powerful image of the sound and timelessness of China.”²¹ Closer to home, and more tightly bound with biography, the title of one instantiation of the *Four Dreams*, namely *The Second Dream of the High-Tension Line Stepdown Transformer* (1962), ties the sonority directly to another of Young's recollections: his childhood fascination with the harmonic buzz of electrical transformers.²²

The Bb carries even more pervasive biographical meaning. The note, as it appears in the *Trio*, is played in a middle range (just below middle C) by the violin, *sul tasto* and *con sordino*, at a dynamic level of *pppp*, sustained without change for the better part of a minute. Reaching the ear as a whisper and a hum, it stands as the point where serialist compositional objectivity—“justification,” “formulability”—dovetails into sonic subjectivity, the functional axis of symmetry synonymous with the biographical soundtrack. The Bb figuratively echoes the wind Young famously recalls hearing as it whistled around the cabin of his childhood, and, more literally, resonates within a quarter tone of the whirl of the machine shop where he worked as a teenager—the motors running off of the 60Hz current of the electrical grid, North America's continual drone.²³ It portends the 60Hz fundamental tone implied acoustically by the complex harmonics of the *Dream House* installations and even presages the Bb tambura drone to which Young would later sing raga—and, on at least one

²⁰ The term “invariance” was not in common circulation in 1958, and in fact Young does not ever use the word in the sense described here, despite his obvious discernment of the concept as a principle of serial composition. The relationship described here between the *Trio* and the *Four Dreams* holds: both result in similar musical surfaces, but the latter rejects as artificial and unnecessary to the acoustic goal the elaborate procedural means used in the former.

²¹ Young himself traces the *Four Dreams* specifically to that moment in the second half of the *Trio*'s development when the G-F# dyad is finally joined by the C-F dyad to create the full tetrachord (which, as the preceding analysis pointed out, had been broken up in corresponding passage of the first half of the development). Young calls this moment when the tetrachord sounds at this pitch level “The First Blossom of Spring,” which is also the name given to the C-F-F#-G chord in its reincarnation as the first of the *Four Dreams of China*. Potter provides a concise but insightful discussion of the position of the *Four Dreams* in Young's development; see Potter 61-6.

²² “There are two examples of sounds of electrical power transformers that I remember listening to during the first four and a half years of my life. One was a telephone pole on the Bern road (there's only one road in Bern, Idaho; it is gravel)... I used to stand next to this pole and listen to the sound. The other electrical sound was produced by a small power distribution station just outside of Montpelier next to a Conoco gas depot that my grandfather managed... Sometimes on warm days I would climb up on top of the huge gasoline storage tanks and sit in the hot sun, smelling the gasoline fumes, listening to the sounds, daydreaming and looking off at the mountains.” See Young, program notes from *The Melodic Version ...*, 7.

²³ 60 Hz falls almost exactly halfway between Bb (58.27 Hz) and B (61.74 Hz). Young has speculated, in a personal conversation with the author, that he may have chosen B and F# as the lone notes in *Composition 1960 #7*, as opposed to some other perfect fifth, because they would have resonated more closely with the hum of the fluorescent lights in the room where he was situated at the time of composition.

occasion, the cowboy songs of his childhood.²⁴ The Bb at the center of the *Trio* is not simply a line, but a timeline, on which Young charts his personal and musical life.²⁵

A Historiographically Speculative Postscript

In addition to suggesting a certain inextricability of form and content, compositional practice and biography, and, ultimately, acoustics and cosmology, the foregoing analysis of the *Trio for Strings* seeks to draw together two seemingly disparate compositional schools, namely minimalism and serialism. The extent and nature of Young's twelve-tone practice in this work, and the relationship between his approach to dodecaphony and his adoption of the extreme durational parameters associated with minimalism, points up a historiographical entanglement worthy of further recognition and examination. I close with a short and propaedeutic discussion in this direction.

It comes as no surprise that the stylistic juncture the *Trio* represents has not drawn more attention in the literature, for, despite the *Trio*'s innovation and presumed influence, it has circulated almost exclusively in bootleg copies and has never been recorded or published commercially.²⁶ The hour-long piece's notoriety thus has owed largely to word-of-mouth accounts of occasional performances, which accounts assuredly have conveyed, primarily, the astonishing length of the work's constituent tones, chords, and intervening silences rather than the compositional principles on which those configurations of tones and rests are based.²⁷ Furthermore, although Young composed the *Trio* in 1959 in California, the work received its public premiere in New York City in 1962, more than two years after Young had abandoned serialism as a compositional method—and by which time Young had distanced himself substantially from the academic environment of serial composition and had become one of the most infamously enigmatic figures in the Downtown New York avant-garde scene.

While Young has generally been regarded as a father-figure for the minimalist movement in music, and for experimental music in general, some writers recently have called the influence of Young's early compositions into question. While recognizing the strong case for direct stylistic influence on Terry Riley and Pauline Oliveros, both classmates of Young's at Berkeley, Keith Potter ultimately concludes that, in the short term, the *Trio* itself had little direct impact on other minimalist composers of the time, in terms of influencing their approach to compositional craft.²⁸ Glass doesn't remember ever hearing the *Trio*, Potter observes, while Steve Reich re-

²⁴ It is no accident that Young derives the fundamental tones of his *Dream House* installations from the 60Hz Bb of the electrical grid; in fact, when setting up installations in Europe, Young adjusts his frequencies so that they fall within the harmonic series of a fundamental derived from the 50 Hz European electrical grid.

²⁵ More recently, the Bb drone has taken on even more cosmic significance for Young: he likes to think of his drone as an octave harmonic of the "Bb" fundamental apparently emitted (in an almost unimaginably low transposition) by a black hole. See Whitehouse, accessed at <<http://news.bbc.co.uk/1/hi/sci/tech/3096776.stm>>.

²⁶ A curious edition of the *Trio*, printed on pocket-score-sized, newsprint-grade paper, with a translucent overlay of a photograph of the composer, was published in the 1960s by the Fluxus group; few of these scores survive, and at any rate performers wishing to play the piece today must contact the composer directly to obtain parts and permissions.

²⁷ One notable exception is the postminimalist composer David Lang, co-founder of the Bang On A Can organization and Cantaloupe Music. Lang has described his discovery of the *Trio* as a pivotal moment in his development as a composer, having procured at some point in his early career a bootleg copy of the score; in his enthusiasm for the piece, and in the absence of available recordings, he entered the piece into a music notation computer program in order to hear it played back in MIDI format (Lang).

²⁸ Oliveros was one of the composition students present at the private Berkeley premiere of the *Trio*; Riley did not attend the premiere, but later became a classmate—and, originally, something of a devotee—of Young.

calls only that he, along with his graduate student colleagues at Juilliard, were initially unimpressed when word (or possibly a bootleg recording or score) of the *Trio* first circulated there (157). In his introduction to the collected writings of Reich, Paul Hillier recognizes Young's influence and the general importance of the *Trio*, but observes that while "[t]he significance of Young's early work may have been acknowledged in print... [it] can scarcely be said, even now, to have become a part of most musicians' actual experience" (14).

A full assessment of the nature and breadth of Young's early influence lies beyond the scope of this study. I would propose, however, that Young did exercise a profound influence on the larger minimalist movement in music, but that this influence functioned within a broader context of cultural forces and trends. Linear genealogies linking one composer or one piece to another can be established to a certain extent; Reich connects to Young, for example, through the former's participation in the premiere of *In C*, the seminal work by Young's colleague *cum* disciple, Terry Riley—a connection that correlates generally with a simple (minimalist!) historiographic trajectory of stylistic accretions: Young's sustained harmonies → Riley's sustained harmonies and repetitive rhythms → Reich's sustained harmonies, repetitive rhythms, and "phase-based" counterpoint. Such clumsy connections alone hardly warrant the patriarchal status so often granted Young, however, and at any rate they are most likely incidental to a more pervasive and less easily documentable stylistic connectivity. Given the circumstances under which Young's early works circulated among other musicians, it may be true that whatever influence Young's *Trio* exerted on other composers would have depended primarily on the most obviously extreme features of his work and the conceptual terrain that those features made generally available for exploration, and less on the direct transmission of compositional particulars. Musical minimalism might be seen as emerging from a *Zeitgeist* to which Young, and the pioneering long tones of the *Trio*, contributed generally, but crucially. For example, when Andy Warhol attended the 1962 premiere of the *Trio*, and when he subsequently created his famous series of static films including *Kiss*, *Eat*, and *Sleep* (for which Young initially was commissioned to provide music), he was disseminating ideas borrowed at least partially from Young; these ideas operated on a much broader artistic level than that of music-compositional craft.²⁹

This is not to say, however, that the more radical (and more easily transmittable or describable) conceptual parameters of the *Trio* contributed to the birth of minimalism while the procedural specifics of the piece did not. Nor does considering Young's musical influence as operating in a broader, more indirect manner invalidate his connections to other composers; it just recognizes those connections as more complex and osmotic. Regardless of the direct encounters and artistic transactions that may have taken place between minimalist composers and/or their works, it remains that they all drew from a shared cultural environment to which Young was an early and prominent contributor. Young, Reich, and others described the early minimalist interest in sonic stasis more specifically as an interest in listening to a sound long enough to perceive it as an unmediated physical entity; Young's specific and early interest in this kind of "pure sound" emerged directly from his extrapolation of concrete ontological irreducibility from abstract serial objectivity. The *Trio for Strings* represents not only an overlap of styles, but a dramatic shift of aesthetic posture that made minimalism possible: a recognition of and obsession with the inherently physical nature of sound.

²⁹ A number of writers have observed Young's influence on Warhol. Uwe Husslein cites filmmaker Jonas Mekas, who accompanied Warhol to the *Trio* premiere, and who claims Warhol's static films were directly inspired by the performance (8).

Perhaps the *Trio* affords us a lesson in how perceived historiographic polarities shape our perception, reception, and categorization of musical styles. How would history have read differently, for example, if Young had composed the *Trio for Strings* in the summer of 1958, but then had gone to Princeton instead of Berkeley? What if Milton Babbitt, the teacher of the composer under such an imagined circumstance, consequently had taken Andy Warhol's place at the public premiere of the *Trio*? Would history (to the extent that Young's music has been chronicled) have placed more emphasis on the work's serial properties, and/or simply accepted the long tones as a logical extrapolation of Weberian sensibility? Would we so readily lump Young's long tones together with the repeated patterns and rhythmic drive of Reich or Glass? Would we call Young a serial composer, and the *Dream House* a serial composition? Would Young have extended his ontological repositioning of music—from the realm of the ideal to the realm of the real—into the specific sonic reality of his own experience? That is, would Young the Serialist have been as willing to identify the austere soundscapes of his compositions so closely with the soundscapes of his own biography?

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Figure 1.1: prime forms of tone rows used in each of the *Five Pieces for String Quartet (on remembering a Naiad)*.

1:	C	A	G#	C#	Eb	D	G	Bb	B	F#	E	F
2:	C	A	Bb	E	D#	F#	F	G#	G	C#	D	B
3:	C	A	D#	E	Bb	B	F	G#	D	C#	G	F#
4:	C	A	Bb	E	D#	F#	F	G#	G	C#	D	B
5:	C	A	G#	C#	Eb	D	G	Bb	B	F#	E	F

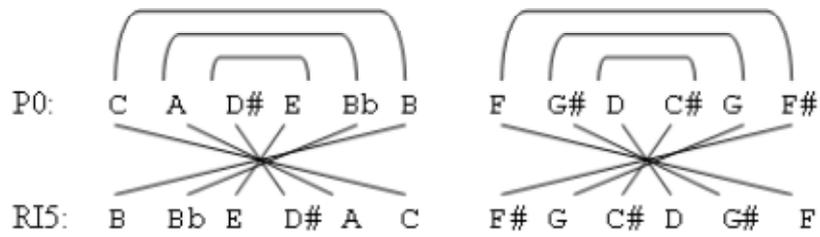
Example 1.1: No. 2, "A Gnarl," from *Five Pieces for String Quartet (on remembering a Naiad)*.

12.
~A GNARL~

No. 2, 1956

Example 1.2: concluding palindrome in *Five Pieces for String Quartet No. 2, "A Gnarl"*. The first chord comprises the outer tritones of the hexachords (positions 1, 6, 7, and 12 of the row), the second chord the tritones one step inward (positions 2, 5, 8, and 11), and the broken tritone dyads in the middle of the excerpt the inner tritones (positions 3, 4, 9, and 10). The pitch content of the last two chords mirrors that of the first two.

Figure 1,2: Embedded semitone structure of row used in *Five Pieces for String Quartet* No. 3, "A Leaf," and inversive relationship between P0 and RI5.



Example 1.3a: from Webern, *Five Canons on Latin Texts*, Op. 16 no. 2, mm. 1-3 (1924). [Reduction from Watkins, *Soundings*]

Example 1.3a shows a musical score for Webern's *Five Canons on Latin Texts*, Op. 16 no. 2, mm. 1-3. The score is a reduction from Watkins' *Soundings*. It features a vocal line and a Clarinet line. The tempo is marked $\text{♩} = 72$. The vocal line has lyrics "Dor-mi Je-su ma-ter ri-det" and dynamic markings *p*, *pp*, and *pp*. The Clarinet line has dynamic markings *pp*, *p*, and *pp*. The score includes a treble clef for the vocal line and a bass clef for the Clarinet line. The key signature has one sharp (F#). The time signature is 4/4. The vocal line has a 3-measure rest at the beginning. The Clarinet line has a 3-measure rest at the beginning. The vocal line has a 3-measure rest at the end. The Clarinet line has a 3-measure rest at the end.

Example 1.3b: Young, *Canon*, mm. 1-2 (1957)

Example 1.3b shows a handwritten musical score for La Monte Young's *Canon*, mm. 1-2 (1957). The score is in 4/4 time and features a single melodic line. The tempo is marked $\text{♩} = 72$. The score includes a treble clef and a key signature of one sharp (F#). The time signature is 4/4. The score has a 3-measure rest at the beginning. The melodic line has dynamic markings *p* and *simile*. The score includes a 3-measure rest at the end. The score is dated April 24, 1957.

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Canon
La Monte Young
April 24, 1957

Example 1.4: convergence of parts at the center of symmetrical structure in *Canon*, mm. 4-5

Example 1.5: retrograde treatment of grace note figures in *Canon*, mm. 3 and 6-7

m. 3

mm. 6-7

Example 1.6: transformations of subject in Young's Fugue in Eb minor (1957).

mm. 1-6: initial subject

Musical score for mm. 1-6: initial subject. The score is in Eb minor, 4/4 time. It consists of two staves. The upper staff has a treble clef and a key signature of three flats. The lower staff has a bass clef and a key signature of three flats. The music begins with a piano (pp) dynamic marking. A box containing the number '5' is positioned above the fifth measure of the upper staff.

mm. 33-37: inversion

Musical score for mm. 33-37: inversion. The score is in Eb minor, 4/4 time. It consists of two staves. The upper staff has a treble clef and a key signature of three flats. The lower staff has a bass clef and a key signature of three flats. The music is an inversion of the initial subject.

mm. 59-63: retrograde

Musical score for mm. 59-63: retrograde. The score is in Eb minor, 4/4 time. It consists of two staves. The upper staff has a treble clef and a key signature of three flats. The lower staff has a bass clef and a key signature of three flats. The music is a retrograde of the initial subject. A piano (pp) dynamic marking is present at the beginning of the first measure.

mm. 88-92: retrograde inversion

Musical score for mm. 88-92: retrograde inversion. The score is in Eb minor, 4/4 time. It consists of two staves. The upper staff has a treble clef and a key signature of three flats. The lower staff has a bass clef and a key signature of three flats. The music is a retrograde inversion of the initial subject. A mezzo-piano (mp) dynamic marking is present at the beginning of the first measure.

Figure 1.3: structural divisions and row form iterations in *for Brass* (1957).

A	P0, P0, P0
A₁	I7, I7, I7
B	RI7, P0, R8, I3, P0, R0, I7, RI7
A₂	P0, P0, P0, P0, P0 (9-12 only)
C	I6, P8, P8, I3, RI3, R8, R8, RI6
A₃	I1, I1, I1
A₄	P6, P6, P6
B	RI7, P0, R8, I3, P0, R0, I7, RI7
A₅	I1, I1, I1, I1 (1-10)
Coda	I1 (11-12; 1-6), RI1 (7-12), I1 (11-12; 7-12)

Example 1.7: excerpts from section C of *for Brass*, demonstrating the overall palindromic structure at the center of the piece.

a. mm. 80-85

b. mm. 102-108

c. mm. 125-130

Example 1.10: from *for Guitar*

a. reduction of palindrome in mm. 11-84



b. rearticulation and sustenance of pitches in chord beginning in mm. 11

Figure 1.5: Tone rows employed in the *Trio for Strings*

P0 → C# Eb D B F# F E Bb Ab A G C
I9 → Bb Ab A C F F# G C# Eb D E B ← **RI9**
I4 → F Eb E G C C# D Ab Bb A B F# ← **RI4**

Figure 1.6: Durational symmetry of first chord in *Trio for Strings*; clock times indicate the entrance and exit point of each

Minutes:	0	1	2	3	4	5
Violin D#	0'38"			3'45"		
Viola C#	0'0"				4'23"	
Cello D		1'31"	2'50"			
Axis of symmetry:		2'11.5"				

Figure 1.7: Durational inversion between first and third chords in the exposition and recapitulation of the *Trio for Strings*.

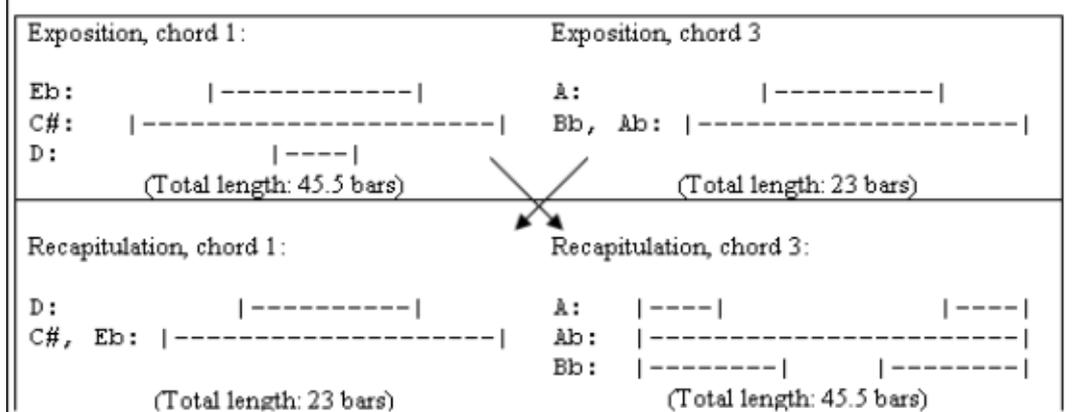
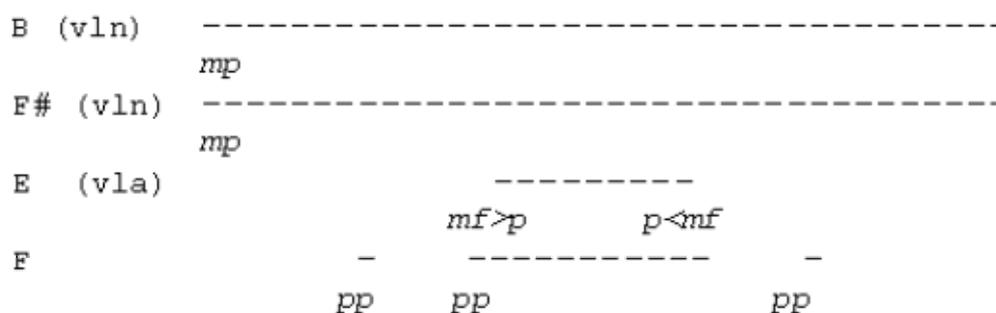


Figure 1.8: Durational structure of second chord of the exposition in the *Trio for Strings*. One “-” equals a measure or portion of a measure.



Example 1.11: page from sketches for the *Trio for Strings*, showing the overall parametric organization of the second half of the development section, the recapitulation, and the coda.

The image shows a page of handwritten musical sketches for the *Trio for Strings*. The sketches are densely packed with musical notation, including notes, rests, and dynamic markings. The page is organized into several sections, with time signatures and measures indicated. Key elements include:

- Top Section:** Starts with a tempo marking of $\text{♩} = 192$. It features a sequence of notes: F , E^b , E , E^b , G , G . There are dynamic markings like pp and mf . A section is labeled "check D P J P J" and "check M F".
- Middle Section:** Contains a large section with a tempo marking of $\text{♩} = 192$. It includes notes like A , B , $F^\#$, and B . There are dynamic markings like pp and mf . A section is labeled "A M?".
- Bottom Section:** Starts with a tempo marking of $\text{♩} = 136$. It includes notes like C , G , E , F , E , F , E . There are dynamic markings like pp and mf . A section is labeled "A and 5 sol tasto".

The sketches are highly detailed, with many annotations and corrections. The overall structure is complex, reflecting the parametric organization of the music.

Figure 1.9: Overall structure of the *Trio for Strings* as defined by deployment of pitches. Brackets indicate pivot chords that are sounded only once and shared by two overlapping rows. Circles indicate simultaneously sounded or overlapping pitches. Lines indicate invariance.

